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Loss-of-control eating after bariatric/sleeve gastrectomy surgery: Similar to binge-eating disorder despite differences in quantities

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ABSTRACT

Objective: To characterize loss-of-control eating following sleeve gastrectomy surgery by comparing relevant patient groups.

Method: Participants were 431 adults seeking treatment for eating/weight concerns categorized into one of four groups: 1) overweight/obesity (OW/OB), 2) binge-eating disorder (BED), 3) "Bariatric Binge-Eating Disorder" (Bar-BED) defined as meeting all criteria for *DSM-5* binge-eating disorder, except for the requirement of an unusually large amount of food, following sleeve gastrectomy surgery, and 4) "Bariatric Loss-of-Control Eating" (Bar-LOC Only), defined as experiencing at least once weekly loss-of-control eating episodes during the past month without the other associated clinical features and distress that characterize Bar-BED, following sleeve gastrectomy surgery.

Results: The Bar-BED and BED groups reported comparable levels of overall eating-disorder and depressive symptoms, and these levels were significantly higher than those levels reported by the OW/OB and Bar-LOC Only groups. Adjusting for age, body mass index, and race did not change the overall pattern of findings.

Conclusion: "Bariatric Binge-Eating Disorder" shares clinical features of *DSM-5* binge-eating disorder, regardless of the quantity of food consumed. Careful assessment of loss-of-control eating, associated behavioral features, and distress is warranted following surgery. More broadly, our findings highlight the importance of assessing loss-of-control eating across patient groups with obesity.

1. Introduction

Bariatric surgery is currently the most effective treatment for severe obesity, resulting in remarkable levels of both short- and long-term weight loss, as well as improvements in and, in some cases, the resolution of medical and psychosocial comorbidities [1–3]. Currently, laparoscopic Roux-en-Y gastric bypass and laparoscopic sleeve gastrectomy are the most commonly performed bariatric procedures in the US [4, 5]. Roux-en-Y gastric bypass usually results in > 50% excess weight loss [6], and improvements in or amelioration of medical comorbidities including diabetes, hypertension, and dyslipidemias [2, 6, 7]. Sleeve gastrectomy rates have quickly surpassed Roux-en-Y gastric bypass rates [4], in part due to relatively comparable weight outcomes and fewer acute complications than Roux-en-Y gastric bypass [8]. The outcomes of both procedures far surpass weight outcomes achieved by the laparoscopic adjustable gastric banding procedure [8], which has been largely abandoned in the US [4]. Despite impressive *average* weight losses following the two most commonly performed bariatric surgery procedures, there has been significant variability in weight loss observed up to three and seven years post-operatively [3, 9].

A sizeable proportion of those undergoing bariatric surgery do not achieve expected weight loss and even among those that do achieve weight loss, weight regain following surgery [3, 9] is a common problem. To better understand and identify individuals at risk for suboptimal post-operative weight loss outcomes, several studies have examined the prognostic significance of various pre- and early post-operative psychosocial variables including the presence of loss-of-control eating and binge-eating disorder [10–15]. While pre-operative loss-of-control eating and binge-eating disorder are common in those seeking bariatric surgery, they appear to be much less common after surgery [14]. There is an emerging literature suggesting that although pre-operative loss-of-control eating appears to have little predictive significance, post-operative loss-of-control eating is associated with less weight loss and poorer psychosocial functioning following bariatric surgery [14]. Accordingly, there is growing recognition of the need to better understand post-operative loss-of-control and binge-eating [16].

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Despite the recent inclusion of binge-eating disorder as a formal diagnosis in the *Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition* (*DSM-5*) [15] and epidemiological research indicating it is the most prevalent eating disorder [17], limited attention in the literature has investigated the role of practitioners in identifying binge-eating disorder. Based on this emerging literature, practitioners are unlikely to assess the diagnostic criteria of binge-eating disorder [18, 19] and even when attempting to do so, they may be more likely to assess weight-related concerns as opposed to the clinical features of binge-eating disorder [20]. Lack of screening and assessment of loss-of-control eating or binge eating by general practitioners or by those in medical settings might be particularly problematic for post-operative bariatric surgery patients, who desire additional follow-up care, but report significant unmet needs following bariatric surgery [21, 22]. Although practitioners acknowledge the need for psychological services for some patients following bariatric surgery [21], there is little guidance on what problems practitioners should identify, as well as appropriate assessments, screening tools, or treatment recommendations. In addition, not all bariatric surgery centers provide post-operative mental health services, in part, due to barriers related to insurance coverage. An improved understanding of the different presentations of eating-disordered behaviors following surgery might help provide guidance to general practitioners and health care providers working with patients who have a history of bariatric surgery as well as help provide data to persuade insurance companies to cover these needs.

It is not surprising that rates of binge-eating disorder are quite low following bariatric surgery [11]. A diagnosis of binge-eating disorder requires at least weekly objective binge-eating episodes, defined as eating an *unusually large* quantity of food in a discrete period while experiencing a subjective sense of loss-of-control [15]. In addition, a diagnosis requires experiencing three of five associated symptoms (e.g., eating until feeling uncomfortably full, eating alone due to embarrassment), marked levels of distress, and the absence of regular compensatory behaviors that characterize bulimia nervosa [15]. The precise definition of the requirement that a binge episode be unusually large has been a matter of debate both within and outside of the bariatric field [16, 23–25]. Eating objectively large quantities following surgery is quite difficult due to the physical restrictions imposed by bariatric surgery and there has been no accepted definition of objectively large amounts of food following bariatric surgery [16]. It is worth noting that outside of the field of bariatric surgery, researchers have found that loss-of-control eating in itself, regardless of the quantity eaten during the episode, is associated with greater eating-disorder psychopathology [24–26]. These findings of the potential importance of loss-of-control eating, regardless of the quantity eaten, from both the bariatric field and the wider eating disorder literature merit further attention.

Ivezaj and colleagues [13] investigated the frequency and associated features of a form of post-operative binge-eating disorder in those who met all criteria for binge-eating disorder *except for* the unusually large quantity of food criterion. The authors referred to this group as “Bariatric Binge-Eating Disorder,” and compared treatment-seeking individuals with and without “Bariatric Binge-Eating Disorder” who presented with at least once weekly loss-of-control eating episodes following sleeve gastrectomy surgery. By six-months post-surgery the “Bariatric Binge-Eating Disorder” group had significantly greater eating-disorder behaviors and psychopathology, as well as lower total percent weight loss, compared to the group without “Bariatric Binge-Eating Disorder” (Bar-LOC Only). Although this study supported the notion that “Bariatric Binge-Eating Disorder” was associated with greater impairment relative to subthreshold levels, it remains unclear how closely the phenomenon of “Bariatric Binge-Eating Disorder” resembles *DSM-5* binge-eating disorder, which requires that the episodes of binge-eating be unusually large. While treatment-seeking individuals with and without binge-eating disorder [27–29] have been compared, it is not known whether “Bariatric Binge-Eating Disorder” is best regarded as a form/variant of binge-eating disorder or whether those with this symptom constellation more closely resemble those with other forms of loss-of-control eating after surgery or indeed those with obesity (without binge-eating disorder) who seek weight loss treatment. A better understanding of these groups might have important clinical implications for the identification, assessment, and treatment of post-bariatric patients struggling with loss-of-control eating.

Thus, the purpose of this study was to compare four groups seeking treatment for both weight loss and eating concerns: 1) individuals with overweight/obesity who did not meet binge-eating disorder criteria, 2) individuals with overweight/obesity and binge-eating disorder, 3) post-bariatric surgery patients who met criteria for “Bariatric Binge-eating Disorder,” and 4) post-bariatric surgery patients with loss-of-control eating only who did not meet criteria for “Bariatric Binge-eating Disorder.” We hypothesized that the “Bariatric Binge-Eating Disorder” group would most closely resemble the group with a *DSM-5* diagnosis of binge-eating disorder (despite not meeting the criterion of binge-eating size), and that these two groups would report greater psychopathology than those post-bariatric surgery patients without “Bariatric Binge-Eating Disorder” (i.e., the Bar-LOC Only group) and the non-surgical group with overweight/obesity without binge-eating disorder.

2. Materials and methods

Participants were 431 treatment-seeking adults (78.7% female; $n = 321$) recruited from Yale medical centers for four separate clinical trials of treatments for eating and weight concerns. Overall, mean age was 45.68 ($SD = 11.14$) years and body mass index (BMI) was 37.19 ($SD = 6.46$) kg/m^2.

2.1. Procedures

Data were obtained from the baseline assessment of each of the four clinical treatment trials. Study assessments were completed by the same research team utilizing similar training standards and experience as well as similar recruitment methods from primary care and the institution's bariatric surgery centers. The four trials included the following primary inclusion criteria: Studies 1 and 2 included individuals with overweight or obesity, with and without binge-eating disorder, recruited from primary care (see Barnes et al. [30, 31] for detailed information about these two trials), Study 3 included individuals with comorbid obesity and binge-eating disorder recruited from primary care (see Grilo et al. [32, 33] for detailed information about the trial), and Study 4 included individuals with regular loss-of-control eating (at least once weekly during the past month) approximately six months following laparoscopic sleeve gastrectomy surgery, recruited from the institution's bariatric surgery center of excellence [13].

All four trials had minimal exclusion criteria that were designed to enhance the generalizability of the findings. Studies 1 through 4 had similar exclusion criteria (with Studies 1 and 2 having identical exclusion criteria) such as age over 65 years old, severe psychiatric disorders (e.g., psychotic disorders), severe medical problems (e.g., cardiac disease, *uncontrolled* liver, thyroid disease, hypertension, or diabetes), and pregnancy/breastfeeding. Studies 1 through 3 also excluded a recent history of bariatric surgery. Study 3 had an additional exclusion of current antidepressant use, which was a contraindication to a study medication used in that specific trial.

Individuals from all four trials were classified into one of four groups described below: OW/OB, BED, Bar-BED, or Bar-LOC Only. All participants were in the overweight or obesity BMI ranges.

2.2. Creation of study groups

2.2.1. OW/OB group

Participants classified as the “OW/OB” group consisted of individuals who did not meet binge-eating disorder criteria but who had