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Subjective and Objective Binge Eating in Relation to Eating Disorder Symptomatology, Depressive Symptoms, and Self-Esteem Among Treatment-Seeking Adolescents with Bulimia Nervosa

Ellen E. Fitzsimmons-Craft, MA[1,2], **Anna C. Ciao, PhD**[1], **Erin C. Accurso, PhD**[1], **Emily M. Pisetsky, PhD**[3], **Carol B. Peterson, PhD**[3], **Catherine E. Byrne, BA**[1], and **Daniel Le Grange, PhD**[1]

[1]Department of Psychiatry and Behavioral Neuroscience, The University of Chicago

[2]Department of Psychology, University of North Carolina at Chapel Hill

[3]Department of Psychiatry, University of Minnesota

Abstract

This study investigated the importance of the distinction between objective (OBE) and subjective binge eating (SBE) among 80 treatment-seeking adolescents with bulimia nervosa (BN). We explored relationships among OBEs, SBEs, eating disorder (ED) symptomatology, depression, and self-esteem using two approaches. Group comparisons showed that OBE and SBE groups did not differ on ED symptoms or self-esteem; however, the SBE group had significantly greater depression. Examining continuous variables, OBEs (not SBEs) accounted for significant unique variance in global ED pathology, vomiting, and self-esteem. SBEs (not OBEs) accounted for significant unique variance in restraint and depression. Both OBEs and SBEs accounted for significant unique variance in eating concern; neither accounted for unique variance in weight/shape concern, laxative use, diuretic use, or driven exercise. Loss of control, rather than amount of food, may be most important in defining binge eating. Additionally, OBEs may indicate broader ED pathology while SBEs may indicate restrictive/depressive symptomatology.

Keywords

subjective binge eating; objective binge eating; adolescents; bulimia nervosa

Binge eating is a common feature of disordered eating and is a core criterion for the diagnoses of bulimia nervosa (BN) and binge eating disorder (BED). In the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association, 2013), binge eating is defined as both: 1) eating an unambiguously large amount of food in a discrete period of time and 2) experiencing a sense of loss of control (LOC) over eating during the episode. Yet, this definition has been debated. In particular, researchers have

Correspondence concerning this article should be addressed to Daniel Le Grange, Department of Psychiatry and Behavioral Neuroscience, The University of Chicago, 5842 S. Maryland Ave., MC 3077, Chicago, IL 60637. legrange@uchicago.edu.

questioned the diagnostic and clinical significance of episode size as a binge criterion (e.g., Latner & Clyne, 2008; Niego, Pratt, & Agras, 1997; Vannucci et al., 2013; Wolfe, Wood Baker, Smith, & Kelly-Weeder, 2009).

As diagnoses of BN and BED currently require an objectively large quantity of food during binge episodes, a thorough assessment of food intake during such episodes is needed to reliably make these diagnoses. The Eating Disorder Examination (EDE; Fairburn & Cooper, 1993), a standardized investigator-based interview that has been regarded as the gold standard in the assessment of eating disorder pathology (e.g., Wilson, 1993), distinguishes between different types of LOC eating episodes. Respondents are asked to report the number of episodes in the past 28 days in which they experienced LOC over eating and consumed an objectively large amount of food (i.e., objective bulimic (binge eating) episodes (OBEs)). They are also asked to report the frequency of episodes in which they experienced LOC over eating but did not consume an objectively large amount of food (i.e., subjective bulimic (binge eating) episodes (SBEs)). As aforementioned, according to the DSM-5 (and previous iterations of the DSM), only OBEs are taken into account when diagnosing BN and BED.

Although OBEs are required for BN and BED diagnoses, researchers have postulated that the experience of LOC may be what is most important in terms of defining a binge. First, LOC, rather than the amount of food, appears to be what is most highly associated with eating-related and general psychopathology. Research has found that engagement in SBEs versus OBEs is not associated with demographic characteristics (Pratt, Niego, & Agras, 1998), eating disorder psychopathology (Keel, Mayer, & Harnden-Fischer, 2001; Mond, Latner, Hay, Owen, & Rodgers, 2010; Pratt et al., 1998), general psychopathology (Keel et al., 2001; Mond et al., 2010), psychological functioning (Pratt et al., 1998), or health service utilization (Mond et al., 2010) among women with BN or BN-like disorders. Further, OBE and SBE frequencies have been found to be similarly correlated with various facets of eating disorder and general psychopathology, and both have been found to account for unique variance in eating disorder symptoms (Latner, Hildebrandt, Rosewall, Chisholm, & Hayashi, 2007). Keel and colleagues (2001) found differences in other areas of eating pathology (i.e., binge frequency, purge frequency) and impulsivity, such that individuals with full DSM BN exhibited more pathology than those who would have met criteria for DSM BN except that their binge episodes were SBEs. In summary, however, most research supports the argument that eating disorder and general psychopathology are more strongly associated with LOC than the size of the binge.

Second, research has indicated that the experience of LOC may take longer to treat than the behavior of eating large amounts of food. One study of cognitive-behavioral therapy (CBT) for women with BED showed that by week four of treatment, OBE frequency decreased by 56% while SBE frequency decreased by only 22% (Niego et al., 1997). Indeed, self-monitoring food intake, a central component of CBT for BN and BED, is associated with significant decreases in OBEs but significant increases in SBEs (Hildebrandt & Latner, 2006). The authors described this differential response as ‘binge drift’, such that increased scrutiny of food amounts and types reduces the likelihood of consuming an unusually large amount of food but fails to address maladaptive cognitions and negative affect associated

with LOC. This results in simultaneous reductions in OBEs and increases in SBEs (Hildebrandt & Latner, 2006).

Finally, research suggests that patients and lay individuals do not use episode size to define binge eating. When women with BED were interviewed and asked to define binge eating in their own words, LOC over eating was the only characteristic identified by a majority (82%) of participants (Telch, Pratt, & Niego, 1998). Less than half (43%) of participants defined binge eating in terms of eating a large amount of food (Telch et al., 1998). Likewise, Beglin and Fairburn (1992) found that women in a community sample tended to place more emphasis on LOC and less on the quantity eaten when defining binge eating. Reslan and Saules (2011) found that when defining a binge, college students with BED identified loss of control, but not quantity of food, significantly more often than individuals without BED. Furthermore, approximately one-third of binge episodes in women with BN are not high calorie (28% < 500 calories: Rossiter & Agras, 1990; 33% < 600 calories: Rosen, Leitenberg, Fisher, & Khazam, 1986). Additionally, Rosen et al. (1986) found that 65% of the binge eating episodes reported by women with BN consisted of an amount of food equivalent to that of their non-binge episodes.

While a number of studies have explored the OBE-SBE distinction in adults, research in adolescents is limited. The few available studies parallel findings in adults, finding no differences in eating disorder pathology, depressive symptoms, or self-worth between adolescents in the community who engaged only in OBEs versus SBEs (Goossens, Soenens, & Braet, 2009). Additionally, LOC over eating in children and adolescents, rather than the amount of food eaten, is most closely associated with eating disorder symptoms (e.g., Goossens, Braet, & Decaluwé, 2007; Marcus & Kalarchian, 2003). However, more research is needed to better understand the relation between LOC, binge size, and pathology among adolescents.

Studies examining the importance of distinguishing OBEs from SBEs (including much of the work cited above) have typically used one of two approaches: 1) exploring group differences between those who only engage in OBEs versus those who only engage in SBEs (e.g., Goossens et al., 2009; Keel et al., 2001; Mond et al., 2010), or 2) examining the possible unique influences of OBEs and SBEs by exploring them as continuous variables (e.g., Latner et al., 2007; Latner, Vallance, & Buckett, 2008). Brownstone and colleagues (2013) used both of these approaches to examine the relevance of distinguishing OBEs from SBEs among adult females with threshold/subthreshold BN. They found that individuals who engaged in regular OBEs only versus regular SBEs only did not significantly differ on eating disorder symptomatology or negative affect (i.e., depressive symptoms and anxiety) but did significantly differ on two personality dimensions (i.e., cognitive distortion and attentional impulsivity). Using the continuous analytic strategy, the authors found that SBEs, but not OBEs, accounted for significant unique variance in weight concern, shape concern, diuretic use frequency, depressive symptoms, anxiety, social avoidance, insecure attachment, and cognitive distortion. Frequencies of both OBEs and SBEs accounted for significant unique variance in both eating concern and vomiting frequency, and OBEs did not account for significant unique variance in any variables when SBEs did not. Based on

results of the continuous approach, the authors concluded that SBEs should be considered "markers of broader and more diffuse psychopathology" (Brownstone et al., 2013, p. 73).

The current study examined the meaningfulness of the OBE-SBE distinction among treatment-seeking adolescents with BN or subthreshold BN, a group that has thus far been understudied in this area. Similar to Brownstone et al. (2013), we examined the relations between OBEs and SBEs and the dependent variables of interest, eating disorder symptomatology, depressive symptoms, and self-esteem, using two analytic approaches. Of note, we were interested in depressive symptoms and self-esteem in particular (as opposed to other indices of psychological functioning, such as anxiety and anger) as outcomes, given that these constructs have been found to be especially associated with binge eating and loss of control eating in youth (e.g., Stice, Presnell, & Spangler, 2002; Tanofsky-Kraff et al., 2011). First, we examined group differences between individuals who regularly engaged in only OBEs and individuals who regularly engaged in only SBEs on the dependent variables. Based on past research, we hypothesized that there would be no differences between groups reporting only regular OBEs and only regular SBEs on eating disorder pathology, depressive symptoms, or self-esteem. Second, we examined whether frequencies of OBEs and SBEs accounted for significant unique variance in the dependent variables. No specific hypotheses were made for the continuous analyses, given that past research findings have been inconsistent with regard to whether OBEs, SBEs, or both account for significant unique variance in various outcomes. As such, these analyses were considered more exploratory in nature.

Method

Participants and Procedure

Participants were 80 adolescents recruited for a randomized controlled trial for BN through advertising to clinicians, eating disorder treatment centers, and organizations including schools from 2001–2005 (Le Grange, Crosby, Rathouz, & Leventhal, 2007). They met criteria for DSM-IV threshold (n = 37) or subthreshold BN (n = 43). Subthreshold BN was defined as meeting all DSM-IV criteria for BN with the exception of the frequency of OBEs and purging behaviors, which was reduced to an average of 1x/week for the past six months. Of note, there were several differences between participants with threshold and subthreshold BN on the study variables, such that global eating disorder pathology, eating concern, OBE frequency, and vomiting frequency were significantly greater among those with threshold BN (ps < .035). There were no other significant differences between those with threshold and subthreshold BN. Exclusion criteria included: the presence of a serious psychiatric or medical condition requiring hospitalization; body mass index (BMI) ≤ 17.5 kg/m^2; insufficient proficiency in English; current drug or alcohol dependence; current treatment for an eating disorder; current use of medication known to affect eating or weight; and any physical conditions (e.g., diabetes mellitus, pregnancy) or treatments known to influence eating or weight. Participants were primarily female (78 of 80) and ranged in age from 12 to 19 years, with a mean age of 16.05 years (SD = 1.60). Most participants (63.7%) identified themselves as Caucasian, 20.0% as Hispanic, 11.3% as African American, and 5.0% as other races/ethnicities. Mean BMI was 22.07 kg/m^2 (SD = 2.96), and mean duration of illness was

21.24 months (*SD* = 22.26). Participants completed diagnostic interviews and questionnaires prior to the start of treatment. The University of Chicago Institutional Review Board reviewed and approved this study, and participation involved informed consent.

Measures

Eating disorder symptoms—The Eating Disorder Examination (EDE; Fairburn & Cooper, 1993) is a standardized investigator-based interview that assesses eating disorder symptoms. Previous studies have supported its psychometric validity and reliability (Fairburn & Cooper, 1993; Rizvi, Peterson, Crow, & Agras, 2000; Rosen, Vara, Wendt, & Leitenberg, 1990). The EDE assesses psychological symptoms of eating disorders, yielding four subscales: Restraint, Eating Concern, Weight Concern, and Shape Concern, as well as a total score, which indicates level of global eating disorder psychopathology (EDE Global). Scores range from 0 to 6, with higher scores indicating greater severity of eating disorder pathology. The EDE also includes questions regarding the frequency of binge eating episodes (OBEs: experience LOC and consume an objectively large amount of food and SBEs: experience LOC but do not consume an objectively large amount of food) and compensatory behaviors (vomiting, laxative use, diuretic use, driven exercise) over the past 28 days. In the current study, alpha for EDE Global was .86. Alphas for the subscales ranged from .60–.83, which is in line with past research (Berg, Peterson, Frazier, & Crow, 2012).

Depressive symptoms—The Beck Depression Inventory (BDI; Beck, 1987; Beck, Steer, & Brown, 1996) was used to assess depressive symptoms. This measure consists of 21 items that are rated on a 0 to 3 scale. Items are summed to create a total score, with higher scores indicating greater depressive symptoms. The BDI has demonstrated good construct validity and excellent internal consistency in various samples (alpha = .92 for outpatients) (e.g., Beck et al., 1996). The following guidelines have been suggested to interpret scores on the BDI: minimal depressive symptoms (0–9), mild depressive symptoms (10–16), moderate depressive symptoms (17–29), and severe depressive symptoms (30+) (Beck, 1987). In the current study, alpha was .93.

Self-esteem—The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965, 1979) was used to assess self-esteem. This measure consists of 10 items that are rated on a 0 (*strongly agree*) to 3 (*strongly disagree*) scale. Items are summed to create a total score, with higher scores indicating lower self-esteem. The RSES has demonstrated good construct validity and excellent internal consistency in various samples (alphas > .76) (e.g., Rosenberg, 1965). In the current study, alpha was .90.

Analytic Strategy

We used two analytic approaches for exploring the OBE-SBE distinction. First, we examined group differences. For this approach, we grouped participants into one of four groups: regular OBEs but not regular SBEs (OBE group), regular SBEs but not regular OBEs (SBE group), regular OBEs and SBEs (OBE/SBE group), and neither regular OBEs nor SBEs (neither group). “Regular” was defined as engaging in the behavior at least 1x/ week for the past four weeks, resulting in at least four episodes of the behavior reported on the EDE in the past 28 days. This grouping approach is the same as that used in Brownstone

et al. (2013) and Mond et al. (2010). Due to our primary research question and power concerns, we statistically compared only the OBE and SBE groups. That is, we did not statistically compare the OBE/SBE group or the neither group to the other groups. However, descriptive data for all groups are presented. We compared the OBE group and the SBE group using multivariate analyses of variance (MANOVA) for each grouping of dependent variables: eating pathology (i.e., EDE subscales), compensatory behaviors (i.e., vomiting, laxative use, diuretic use, and driven exercise frequencies), and psychological variables (i.e., BDI and RSES scores). A power analysis conducted using G*Power 3 indicated that the sizes of the OBE and SBE groups were sufficient for conducting a MANOVA with four outcome variables and power of .80 (Faul, Erdfelder, Lang, & Buchner, 2007). Significant multivariate findings were followed up with univariate analyses of variance (ANOVA) for each specific dependent variable. EDE Global scores were investigated separately using ANOVA. Both significance and effect sizes (partial η^2) were used to interpret these results. To correct for the use of multiple group comparisons, $p < .01$ was used as the significance threshold given that the Bonferroni correction has been criticized for being too conservative (e.g., Perneger, 1998). Furthermore, researchers have suggested that effect sizes may be more important to consider than *p*-values (Cohen, 1990; Thomas, Salazar, & Landers, 1991). Given this, we also considered tests with $p < .05$ and at least a medium effect size significant. Cohen (1988) provides the following guidelines for partial η^2: small effect = .01, medium effect = .06, and large effect = .14.

Second, we explored whether OBE and SBE frequencies accounted for unique variance in the dependent variables. Specifically, multiple linear regressions were used, and for each dependent variable, the continuous variables of OBEs and SBEs (i.e., frequencies over the past 28 days) were entered as a set. In this way, we were able to determine unique variance accounted for by each type of binge eating episode. The full sample ($N = 80$) was used for these analyses.

Of note, controlling for BMI and age resulted in the same pattern of findings, with one exception that is described in the Results. As such, results without covariates included are presented for the sake of parsimony.

Results

Descriptive Statistics

Categorizing participants by regular engagement (i.e., at least weekly) in OBEs and SBEs resulted in the following four groups: 27 (33.8%) meeting criteria for the OBE group, 10 (12.5%) meeting criteria for the SBE group, 26 (32.5%) meeting criteria for the OBE/SBE group, and 17 (21.3%) meeting criteria for neither group. Of note, individuals in the SBE and neither groups did not engage in any OBEs for the past month (or engaged in them but not at the required frequency of once per week on average for the past 28 days). However, these participants qualified for the study because they engaged, on average, in sufficient OBEs over the preceding three months (for full BN diagnoses) or six months (for subthreshold BN diagnoses). There were no significant differences between the OBE group and the SBE group on age, race/ethnicity, BMI, or duration of illness (*p*s > .153). For the OBE group, participants reported engaging in an average of 32.63 OBEs ($SD = 30.47$) and

0.52 SBEs (*SD* = 1.12) over the past 28 days on the EDE. For the SBE group, participants reported engaging in an average of 18.50 SBEs (*SD* = 12.60), and no participant reported engaging in any OBEs over the past 28 days on the EDE. Of interest is the fact that the correlation between EDE OBE and SBE frequencies over the past 28 days was .01 ($p = .946$), indicating that the OBE and SBE groups were distinct.

Group Comparisons

Few differences were observed between OBE and SBE groups (see Table 1). Regarding eating disorder symptomatology, the two groups did not differ on EDE Global scores, the EDE subscale scores as a set, or the frequencies of compensatory behaviors as a set. Regarding the psychological variables, results of a MANOVA indicated that, as a set, self-esteem and depressive symptoms significantly differed across the two groups. Follow-up ANOVAs revealed that depressive symptoms but not self-esteem differed across groups, such that the SBE group had significantly greater depressive symptoms than the OBE group. This difference was clinically significant, with the mean level of depressive symptoms for the SBE group in the severe range (Beck, 1987).

Regression Analyses

Results of the analyses investigating the variance accounted for in facets of eating disorder symptomatology, depressive symptoms, and self-esteem by OBE and SBE frequencies are presented in Table 2. As a set, OBE and SBE frequencies accounted for significant variance in EDE Global scores. OBEs, but not SBEs, accounted for significant unique variance in EDE Global scores. As a set, OBE and SBE frequencies also accounted for significant variance in eating concern and vomiting episode frequency. Both OBEs and SBEs accounted for significant unique variance in eating concern but only OBEs accounted for significant unique variance in vomiting episode frequency. There was a trend toward OBE and SBE frequencies as a set accounting for variance in restraint, with only SBEs accounting for a significant amount of unique variance in the construct. OBE and SBE frequencies did not account for significant variance in weight concern, shape concern, laxative use, diuretic use, or amount of driven exercise.

In terms of the psychological variables, as a set, OBE frequency and SBE frequency accounted for significant variance in self-esteem at the trend level. In follow-up analyses, OBEs (but not SBEs) accounted for significant unique variance in self-esteem, with greater OBEs being predictive of lower self-esteem. As a set, OBE and SBE frequencies did not account for significant variance in depressive symptoms. In spite of overall non-significance when OBEs and SBEs were considered jointly, frequency of SBEs individually accounted for a significant amount of unique variance in depressive symptoms. Of note, when controlling for BMI, this finding (that SBEs accounted for unique variance in depressive symptoms) only approached the level significance ($p = .072$).

Discussion

This study examined the OBE-SBE distinction among treatment-seeking adolescents with threshold or subthreshold BN. We were interested in further investigating whether LOC

should be considered the primary criterion in defining binge eating. The current study adds to this literature and is especially important given that most of the past work in this area has used adult samples. Results indicated that individuals who regularly engaged in only OBEs and those who regularly engaged in only SBEs were similar in terms of eating disorder symptomatology (EDE Global and subscale scores), frequency of compensatory behaviors, and self-esteem. These groups only differed on depressive symptoms, with greater depressive symptoms in the SBE group. With the exception of a group difference in depression, these results are in line with previous adult research, which has generally found few differences between OBE only and SBE only groups (Brownstone et al., 2013; Mond et al., 2010).

There are several potential explanations for this finding. As previously discussed, SBEs appear to be more resistant to change than OBEs (e.g., Hildebrandt & Latner, 2006; Niego et al., 1997). It is possible that the adolescents in the SBE group may have experienced more regular OBEs in the past and that their binges “drifted” from OBEs to SBEs. For these adolescents, the persistence of LOC feelings (despite now not eating objectively large amounts of food) may be associated with a sense of hopelessness and sadness (i.e., greater depressive symptoms). Alternatively, it is possible that these adolescents always engaged in primarily SBEs. As postulated by Brownstone and colleagues (2013), SBEs may be markers of more generalized, chronic distress than OBEs. Finally, it could be that heightened depressive symptoms influence adolescents’ perception of LOC in some way.

In terms of the continuous analyses, results indicated that OBE (and not SBE) frequency accounted for significant unique variance in global eating disorder pathology, vomiting frequency, and self-esteem. In contrast, SBE (and not OBE) frequency accounted for significant unique variance in dietary restraint and depressive symptoms. Both OBE and SBE frequencies accounted for significant unique variance in eating concern, and neither accounted for unique variance in weight concern, shape concern, or laxative use, diuretic use, or driven exercise frequency. Findings from past research examining OBEs and SBEs continuously in adult samples have been inconsistent. One study showed that SBEs more oftentimes accounted for significant unique variance in eating disorder symptomatology, negative affect, and personality dimensions than OBEs (Brownstone et al., 2013), while another study indicated that OBEs more often accounted for significant unique variance in eating disorder symptomatology and negative affect than SBEs (Latner et al., 2007). In this sample, our results suggest that OBEs may be a sign of broader eating disorder pathology, at least among adolescents, while SBEs may be more indicative of restrictive and depressive symptomatology. Of note, it is not surprising that SBEs were uniquely associated with dietary restraint given their relation to anorexia nervosa (Fairburn, 1997). Likewise, the finding that both types of binge eating episodes were associated with eating concern is not unexpected given that the engagement in such eating episodes may be associated with increased distress about eating in general (Latner et al., 2007). Surprisingly, OBEs and SBEs did not account for significant variance in weight concern or shape concern in this sample, in spite of previous research finding relations between binge eating, appearance overvaluation, and body dissatisfaction (e.g., Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006; Stice et al., 2002).

There are several strengths of the current study. The use of an adolescent clinical sample is a strength given that much of the past research on distinguishing OBEs and SBEs has used adult samples. Additionally, the inclusion of subthreshold cases increased the generalizability of the current findings. The assessment of OBEs and SBEs using the gold standard interview for eating disorder psychopathology, the EDE, is an additional strength of this study. Some past research on OBEs and SBEs has used the self-report version of this measure, the Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 1994) (e.g., Brownstone et al., 2013; Mond et al., 2010), which is problematic given that the use of this instrument involves participants determining themselves whether a binge involved an objectively large amount of food (Berg et al., 2012). Research has indicated that inter-rater reliability coefficients for frequencies of OBEs and SBEs assessed via the EDE are very high (Pearson product moment correlations and Spearman's rhos > .90; Berg et al., 2012). However, agreement between EDE and EDE-Q ratings of the presence of OBEs and SBEs is only fair to poor (kappas < 48; Mond, Hay, Rodgers, Owen, & Beumont, 2004). Another strength of this study is its use of two analytic approaches. This allowed for a comparison of individuals who regularly engage in only OBEs versus only SBEs, as well as an examination of both types of binge eating episodes more continuously.

One limitation of the current study is sample size, especially in the context of the group comparison approach. Additional limitations include the treatment-seeking nature of the sample, the cross-sectional nature of the data, that all participants were required to have had OBEs, and that, even with the EDE, the assessment of binge eating (including the size of the binge and LOC) relies on participants' self-report and retrospective recollection of their eating habits. Furthermore, the EDE assesses LOC in a dichotomous fashion (i.e., either present or absent during an eating episode). Future research may benefit from examining LOC as a dimensional variable or more continuously among samples with BN (Latner, Mond, Kelly, Hay, & Haynes, 2014). For example, research could explore whether OBE and SBE groups differ in terms of degree of LOC experienced during binge episodes. A final limitation of the current study is generalizability. Future work may wish to examine the current research questions in predominantly male or more racially/ethnically diverse samples.

These findings prompt various avenues for future research. First, future research is needed to test whether adolescents with bulimic-type disorders who regularly engage in only OBEs, compared to those who regularly engage in only SBEs, do better in one type of treatment over another (e.g., cognitive-behavioral therapy or family-based treatment). Likewise, the proportion of OBEs compared to SBEs could be examined as a possible moderator of treatment type. Second, future research may benefit from studying OBEs and SBEs using a momentary approach, in order to examine whether the relation between SBEs and depressive symptoms holds true on a momentary level. For example, is momentary negative affect (or certain facets of momentary negative affect) more closely tied to engagement in SBEs rather than OBEs? Third, examining the current research question in community adolescent samples will be important to assess the generalizability of these findings. In general, results of the current study highlight the importance of future research continuing to assess SBEs and working toward an understanding of their similarities and differences to OBEs. However, this future research goal is limited by the fact that the newest version of the

EDE-Q (6.0; Fairburn, 2008) no longer asks participants about SBEs. As such, self-report assessment tools for validly assessing both OBEs and SBEs are sorely needed and are an important direction for future work.

These results also have significant implications for clinical work. For example, results suggest that it may be important to target SBEs as vigorously as OBEs in treatment. However, as aforementioned, self-monitoring appears to target binge size rather than LOC. As such, perhaps the efficacy of this strategy for targeting SBEs can be enhanced in some way (e.g., adding LOC ratings for all meals, snacks, and binges).

In conclusion, this study contributes to the growing literature exploring the meaningfulness of distinguishing OBEs from SBEs and the relative importance of LOC in defining binge eating. Furthermore, the current study extended this research by exploring these questions among a sample of adolescents, a group that has thus far been understudied in this area.

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Table 1

Comparison of Regular OBEs Only and Regular SBEs Only Groups on Eating Disorder Symptomatology and Psychological Variables

	Regular OBEs Only (*n* = 27)	Regular SBEs Only (*n* = 10)	Regular OBEs and SBEs (*n* = 26)	Neither Regular OBEs nor SBEs (*n* = 17)	Significance
Eating Disorder Symptomatology					
EDE Global	3.60 (1.10)	3.94 (1.06)	4.01 (1.01)	3.07 (.96)	F (1, 35) = .72, p = .403 partial η^2 = .02
EDE Subscales					**F (4, 32) = 1.10, Wilks' Lambda = .88, p = .374 partial η^2 = .12**
Restraint	3.24 (1.72)	4.24 (1.31)	4.19 (.87)	3.42 (1.62)	
Eating Concern	2.94 (1.20)	2.72 (.99)	3.61 (1.25)	1.92 (1.20)	
Weight Concern	4.04 (1.37)	4.32 (1.83)	3.98 (1.33)	3.33 (1.07)	
Shape Concern	4.17 (1.25)	4.49 (1.51)	4.25 (1.25)	3.61 (1.24)	
Compensatory Behaviors					**F (4, 32) = 1.79, Wilks' Lambda = .82, p = .155 partial η^2 = .18**
Vomiting	38.15 (33.58)	34.40 (33.28)	36.31 (32.99)	23.00 (27.40)	
Laxative Use	.85 (2.70)	.00 (.00)	3.15 (11.17)	4.94 (20.37)	
Diuretic Use	1.33 (4.22)	.00 (.00)	.23 (1.18)	6.59 (27.16)	
Driven Exercise	8.63 (9.75)	21.90 (21.55)	12.92 (15.58)	8.76 (10.77)	
Psychological Variables					
Psychological Variables					**F (2, 34) = 5.16, Wilks' Lambda = .77, p = .011 partial η^2 = .23**
Self-esteem (RSES)	28.78 (5.56)	28.50 (7.00)	27.06 (5.98)	25.24 (5.90)	F (1, 35) = .02, p = .901 partial η^2 = .00
Depressive Symptoms (BDI)	23.07 (10.19)	33.20 (13.19)	25.96 (12.57)	22.76 (11.63)	F (1, 35) = 6.14, p = .018 partial η^2 = .15

Note. OBE = objective bulimic (binge eating) episode. SBE = subjective bulimic (binge eating) episode. EDE = Eating Disorder Examination. RSES = Rosenberg Self-Esteem Scale. BDI = Beck Depression Inventory. For all measures except for the RSES, higher scores reflect higher levels of the construct. For the RSES, higher scores reflect lower self-esteem. Data for those who reported regular OBEs and SBEs and neither regular OBEs nor SBEs are presented for descriptive purposes only; group comparison analyses did not include these groups. Results from multivariate tests are indicated in bold.

Table 2

Multiple Linear Regression Analyses Investigating the Unique Variance Accounted for in Facets of Eating Disorder Symptomatology and Psychological Variables by OBE Frequency and SBE Frequency

	β	*t*	*p*
Eating Disorder Symptomatology			
EDE Global, F (2, 77) = 4.19, R^2 = .10, p = .019			
OBE	.25*	2.26	.027
SBE	.19	1.79	.077
Restraint, F (2, 77) = 2.90, R^2 = .07, p = .061			
OBE	.14	1.30	.198
SBE	.22*	2.02	.047
Eating Concern, F (2, 77) = 11.85, R^2 = .24, p < .001			
OBE	.37***	3.69	< .001
SBE	.32**	3.14	.002
Weight Concern, F (2, 77) = .33, R^2 = .01, p = .719			
OBE	.09	.81	.419
SBE	.00	.03	.980
Shape Concern, F (2, 77) = 1.53, R^2 = .04, p = .224			
OBE	.18	1.62	.110
SBE	.07	.66	.514
Vomiting, F (2, 77) = 17.83, R^2 = .32, p < .001			
OBE	.54***	5.69	< .001
SBE	.17	1.78	.079
Laxative Use, F (2, 77) = .09, R^2 = .00, p = .918			
OBE	−.04	−.35	.724
SBE	−.02	−.21	.832
Diuretic Use, F (2, 77) = .43, R^2 = .01, p = .649			
OBE	−.06	−.52	.603
SBE	−.09	−.77	.445
Driven Exercise, F (2, 77) = 1.27, R^2 = .03, p = .286			
OBE	−.15	−1.32	.192
SBE	.10	.91	.366
Psychological Variables			
Self-esteem (RSES), F (2, 77) = 2.68, R^2 = .07, p = .075			
OBE	.24*	2.20	.030
SBE	.08	.69	.491
Depressive Symptoms (BDI), F (2, 77) = 2.10, R^2 = .05, p = .130			
OBE	.03	.26	.795
SBE	.23*	2.03	.046

Note. OBE = objective bulimic (binge eating) episode. SBE = subjective bulimic (binge eating) episode. EDE = Eating Disorder Examination. RSES = Rosenberg Self-Esteem Scale. BDI = Beck Depression Inventory.

* $p < .05$.

** $p < .01$.

*** $p < .001$.