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## Remission in adolescents with bulimia nervosa: Empirical evaluation of current conceptual models

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### Abstract

**Objective:** The few randomized controlled trials (RCTs) investigating adolescent treatment for bulimia nervosa (BN) suggest variability in both rates of, and criteria for remission. The current study examined reactivity in remission rates, relative to various conceptualizations of remission in a single RCT dataset.

**Method:** A dataset of adolescents with BN who participated in an RCT ( $N = 110$ ) was used to evaluate remission models based upon behavioral symptoms (e.g., binge eating), psychological symptoms (Eating Disorder Examination (EDE) scores), and combinations of these criteria.

**Results:** At end-of-treatment (EOT), a remission model defined by behavioral symptom abstinence *plus* meaningful reduction in EDE global scores yielded comparable remission rates to a model defined by behavioral abstinence alone (i.e., 29% remitted). Participants with higher EOT EDE global scores were less likely to be abstinent from behavioral symptoms at 6- and 12- month follow-up ( $p < .001$ ).

**Discussion:** Reduction in psychological symptoms with behavioral abstinence did not inform remission status at EOT, over and above behavioral symptom change alone. However, psychological symptom improvement by EOT may predict positive prognosis in posttreatment assessment. Results underscore the necessity of including psychological symptom improvement, as well as consistency across research and practice, in defining remission in adolescent BN.

### Keywords

Bulimia Nervosa; Adolescents; Remission; Eating Disorders

## Introduction

### Defining remission in bulimia nervosa

Definitions of recovery from eating disorders (EDs), including bulimia nervosa (BN), are inconsistent across studies, with little consensus among clinicians and researchers who treat and study these patient populations (Bardone-Cone, Hunt & Watson, 2018). Further, while attempts have been made to standardize definitions for recovery across the transdiagnostic ED field at large (e.g., Kordy et al., 2002), to date, these suggestions have not been uniformly adopted, nor directly investigated in adolescent BN. Historically, a medical model of recovery is synonymous with a ‘cure’ or with a return to a premorbid ‘normal’ (Roberts & Wolfson, 2004). In contrast, psychiatric *remission* typically refers to the absence of signs and symptoms, but the underlying pathology may remain (Mountain & Shah, 2018). In much of ED research, recovery criteria do not appear to differ greatly from that for remission (Bardone-Cone et al., 2018), and consequently, these terms have been applied interchangeably across studies (Ackard, Richter, Egan, & Cronemeyer, 2014). Both by temporal measure, as well as in relative ‘completeness’ in symptom abatement, remission is a stepping stone to recovery. Subsequently, agreement on a conceptualization of remission that is optimally predictive of sustained recovery is critical to the consistency of both practice and research. For the purposes of this manuscript, we focus on characterization of remission as that important first step.

### Remission following treatment for adolescent BN

Turning specifically to the study of treatment efficacy in BN, in contrast with robust evidence from investigations of adults, research trials for BN in children and adolescents are considerably underrepresented (Lock & Le Grange, 2019). To date, only four randomized clinical trials (RCTs) evaluating psychotherapy interventions for adolescent BN have been published, three of which have evaluated the efficacy of family therapy or family-based treatment (FBT). The first of these psychosocial RCTs included adolescents ( $N = 85$ ; aged 13–20) meeting criteria for a diagnosis of BN or Eating Disorder Not Otherwise Specified according to the Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> edition (DSM-IV; American Psychiatric Association (APA), 2000; Schmidt et al., 2007). This trial compared family therapy (FT;  $n = 41$ ) with guided self-help cognitive-behavioral therapy (CBT;  $n = 44$ ). Patients were considered remitted at the end-of-treatment (EOT) when abstinent from binge eating *and* purging over the 28 days prior to completing 6 months of intervention, with a 6-month posttreatment follow-up. Primary outcomes indicated comparable rates of abstinence from both binge eating and purging at EOT (FT: 12.5% v. CBT: 19.4%); these rates were not significantly different. At EOT, binge eating was significantly reduced in the guided self-care group as compared with those receiving FT ( $p = .03$ ); however, this difference did not remain 6 months later, and there were no other between-group differences in behavioral or psychological ED symptoms.

In the same year, a second trial included adolescents ( $N = 80$ ; aged 12–19) meeting DSM-IV criteria for BN or partial BN (i.e., those who endorsed binge eating and purging episodes averaging once per week over 6 months) (Le Grange et al., 2007). This trial compared family-based treatment for BN (FBT-BN;  $n = 41$ ) with individual supportive psychotherapy

(SPT;  $n = 39$ ). Remission criteria were similar to the Schmidt and colleagues (2007) trial, defined as abstinence from subjective *and* objective binge-purge episodes for 4 weeks prior to assessment, measured at EOT and 6-month posttreatment. Based on this definition, remission rates were significantly higher for FBT-BN at posttreatment (FBT-BN: 39% v. SPT: 18%;  $p = .05$ ), and at 6-month follow-up (29% v. 10%, respectively;  $p = .05$ ).

A third trial included adolescents ( $N = 130$ ; aged 12–18) meeting DSM-IV criteria for BN or partial BN (as defined above), and compared FBT-BN ( $n = 51$ ), CBT adapted for adolescents (CBT-A;  $n = 58$ ), and SPT (not included in analyses) (APA, 2000; Le Grange et al., 2015). Similar to the prior two RCTs, primary outcomes were abstinence from binge-purge episodes for 4 weeks prior to EOT assessment, with follow-up at 6- and 12-months. Those receiving FBT-BN achieved higher abstinence rates than in CBT-A at EOT (39% v. 20%, respectively;  $p = .04$ ) and at 6-month follow-up (FBT-BN: 44% v. CBT-A: 25%;  $p = .03$ ). Between-group abstinence rates did not differ statistically at 12-month follow-up (FBT-BN: 49% v. CBT-A: 32%;  $p = .13$ ).

The fourth, most recent RCT included adolescents ( $N = 81$ ; aged 14–20) meeting DSM-IV criteria for BN or partial BN (as defined above) (APA, 2000; Stefani et al., 2017). This study compared psychodynamic therapy (PDT;  $n = 42$ ) with CBT ( $n = 39$ ). Remission criteria were slightly different than in the prior three trials, defined as no longer meeting DSM-IV criteria for BN or partial BN diagnosis at EOT, with 12-month follow-up. Results indicated non-significant between-group differences in remission at posttreatment (PDT: 31.0% v. CBT: 33.3%;  $p = .82$ ) and at 12-month follow-up (31% v. 38.5%, respectively;  $p = .48$ ).

On the whole, the definitions of remission in these four RCTs are similar. Specifically, the first three studies held a standard of behavioral symptom abstinence whereas the fourth study specified a definition of remission as no longer meeting diagnostic criteria (per DSM-IV). It is worth noting here that DSM criteria have changed across time, particularly in regards to the number and frequency of binge-purge episodes required to meet a diagnostic threshold. As all definitions run in parallel, it is somewhat surprising that rates of remission across all four trials at EOT spanned the range of 15–40%. Two of these trials (i.e., Le Grange et al., 2015 and Stefani et al., 2017) included 12-month follow-up, with rates of behavioral symptom abstinence at these assessments spanning a range of ~30–50%. The breadth of these ranges, while deriving from similar remission criteria, likely reflect notable clinical and methodological differences between these studies, including in the illness duration of enrolled patients, severity at baseline, and treatment duration.

Le Grange and colleagues (2007; 2015) specified a definition of remission that stipulates the absence of both subjective and objective binge eating, and self-induced vomiting which was similar to Schmidt and colleagues (2007). Given this high bar, remission rates at EOT in the FBT-BN treatment groups in both of the Le Grange et al. RCTs (39%) were impressive. Stefani and colleagues (2017) considered individuals who were remitted as no longer meeting DSM-IV criteria for BN, which includes the criterion: ‘Self-evaluation is unjustifiability influenced by body shape and weight’ (APA, 2000). Perhaps due in some part to the addition of this psychological symptom in a definition of remission, rates were slightly lower in this trial, though still comparable (roughly 30%) to the two Le Grange and

colleagues' studies (2007; 2015). Taken together, it remains less clear how important abstinence from behavioral symptoms itself at EOT may be. For example, reduction in some, but not all, BN behavior may yield comparable clinical utility in predicting the likelihood of improved prognosis in later assessment. Further, as only one of the published adolescent BN RCTs included improvements in psychological symptoms in their required criteria for remission, questions remain as to whether a meaningful reduction in cognitive features of the illness should be required for remission status. Beyond what can be gleaned from behavioral markers, it is important that we understand how a reduction in psychological factors may also impact rates of recovery, return of behavioral symptoms, and vulnerability for relapse.

### Residual symptoms in BN

Considering EDs more broadly, given that a combination of cognitive and behavioral symptoms may persist long after treatment concludes (Quadflieg & Fichter, 2019), it is critical that proposed models of remission include both behavioral *and* psychological criteria. Further, the stringency of a definition in behavioral abstinence may impact its clinical predictive utility. For instance, defining remission as abstinence from only binge eating and self-induced vomiting may reveal different remission rates as compared with abstinence from *all* forms of compensatory weight control behavior (e.g., including driven exercise). Particularly in the study of adolescent BN, for which there is a paucity of evidence to date, a determination of standard criteria that constitute a definition of remission is an important first step toward increasing consistent use of such a metric across the field, ultimately improving clinical outcomes. Given that prevalence estimates of BN are more than twice that of anorexia nervosa (Swanson et al., 2011), and evidence with medical hazards that are comparable with the more widely documented perils of anorexia nervosa (Crow et al., 2009), effective treatment of BN, with agreed-upon standards of remission in adolescents in adolescents, is essential.

The purpose of the current study is to illustrate the implications of various conceptualizations of remission in a sample of adolescents with BN. First, we explore the relative trajectory of Eating Disorder Examination (EDE; Fairburn, Cooper & O'Conner, 2008) global scores within the context of treatment and follow-up. Then, based upon precedence set in the extant adult BN literature, we evaluate models of remission based on (a) stringency in behavioral abstinence (b) relative change in psychological symptoms (EDE scores), and (c) a combination of these domains. Based upon prior work demonstrating this trend (Ciao et al., 2015), we hypothesized that there would be a reduction in EDE scores over time. We anticipated that a model reflecting the most stringent definition of remission (i.e., full behavioral symptom abstinence *plus* meaningful reduction in cognitive symptoms) would yield the lowest rate of remission, as compared with a model based upon behavioral symptom reduction alone, or partial behavioral symptom reduction plus reduction in cognitive symptoms. We also hypothesized that lower EDE scores at EOT would positively predict remission status at later follow-up.

## Methods

### Participants

Data for this secondary analysis were derived from a two-site RCT, briefly highlighted above; a description of the study sample is detailed in the main outcome report (c.f., Le Grange et al., 2015). Diagnoses and ED symptoms at baseline, EOT, 6- and 12-month follow-up were determined by EDE interview. Institutional review boards at all participating institutions approved the study protocol, and all participants provided informed consent or assent (in the case of minors) prior to participation.

### Analytic Plan

Reported BN behaviors over the past three months (subjective binge eating; objective binge eating; self-induced vomiting; laxative, diuretic or diet medication misuse; driven exercise; fasting) were tallied and divided by 12 to produce a weekly average, which was used to confirm DSM-5 diagnosis. Specific treatment groups (i.e., FBT-BN and CBT-A) were collapsed across all analyses.

We used three approaches in our analyses. First, in efforts to better understand the role of psychological symptoms in the context of BN treatment, a repeated measure analysis of variance (rANOVA) was used to examine the trajectory of EDE global scores over time. To conduct the ANOVA, a general linear model was used, with baseline, EOT, 6- and 12-month follow-up EDE global scores included as within-subject factors. We used polynomial contrasts and *post hoc* tests to evaluate specific trends in the data between time points.

In our second approach, remission models were defined according to the following three methods, with more detail when described with their respective results: (1) Abstinence from eight compensatory weight control behaviors identified in DSM-5 that contribute to BN severity specifiers (APA, 2013); (2) Model 1 *plus* EDE global scores within 1 SD of community norms (i.e., < 3.05; Alison, 1996); (3) Abstinence from objective and subjective binge eating and self-induced vomiting *plus* EDE global scores within 1 SD of community norms. Rates of remission (as defined by each of the three models) were determined using frequency counts at each time point (i.e., EOT, 6- and 12-month follow-up). Models were compared based on their relative stringency (i.e., behavioral symptom abstinence alone versus behavioral symptom abstinence *plus* cognitive symptom reduction), and frequency of participants meeting remission criteria based on their definition.

In our third approach, logistic regression analyses were used to assess the relation between EDE global scores at EOT (regressor) and remission status, as defined according to Model 1, at 6- and 12-month follow-up. SPSS v. 26 was used for all analyses.

## Results

### Descriptive Statistics

All patients met DSM-5 (APA, 2013) criteria for BN at baseline ( $N=110$ ). A majority of participants were female (94%), with mean age = 15.8 ( $SD=1.5$ ). Descriptive statistics for variables of interest across all measured time points are shown in Table 1. At baseline, 25

(22.7%) adolescents were < 95%EBW. At EOT ( $n = 86$ ), 75 patients achieved 95%EBW or higher,  $M(SD) = 115.35 (24.27)$ ; 24 patients were missing data. Patients with valid data at EOT who did not reach 95%EBW ( $n = 11$ ), had a range of 82–94%EBW,  $M(SD) = 90.55 (3.12)$ . EDE global scores at EOT were not significantly different between those who achieved 95%EBW, and those who did not ( $p = .23$ ). Two patients reported secondary amenorrhea at EOT; both were above 95%EBW at the time of assessment.

### Repeated Measures

A repeated measures ANOVA determined that mean EDE global scores differed significantly between time points  $F(3,168) = 81.09, p < .001, \eta_p^2 = .59$ . There was a significant linear trend,  $F(1, 56) = 149.42, p < .001, \eta_p^2 = .73$ , and a significant quadratic trend,  $F(1, 56) = 60.44, p < .001, \eta_p^2 = .52$ , to the data. *Post hoc* tests, using a Bonferroni correction and collapsing across treatment groups, showed a significant reduction in EDE global scores from baseline to EOT ( $3.45 \pm 1.23$  v.  $1.68 \pm 1.42$ , respectively;  $p < .001$ ). Significant reductions were also indicated from baseline to 6-month follow-up ( $3.45 \pm 1.23$  v.  $1.35 \pm 1.31, p < .001$ ), and baseline to 12-month follow-up ( $3.45 \pm 1.23$  v.  $1.28 \pm 1.19, p < .001$ ). However, significant reductions were not evidenced between EOT and 6-month follow-up ( $p = .24$ ), EOT and 12-month follow-up ( $p = .07$ ), or between 6- and 12-month follow-up ( $p = 1.00$ ).

### Model 1: Complete behavioral symptom abstinence

This approach specifies that individuals be abstinent from eight compensatory behaviors: subjective binge eating; objective binge eating; self-induced vomiting; laxative, diuretic or diet medication misuse; driven exercise; and fasting over the month previous. This is a definition of behavioral abstinence that aligns with current criteria for assessing BN severity according to categorical specifiers that were added to DSM-5 (APA, 2013). With this model, at EOT, 29.1% ( $n = 25/86$ ) were classified as remitted; despite decreased sample size with those lost to follow-up, the proportion of those remitted was elevated at 6-month follow-up, 35.3% ( $n = 24/68$ ), and at 12-month follow-up, 38.6% ( $n = 27/70$ ). Of those who were remitted at EOT per this model, seven (28%) patients were below 95%EBW.

### Model 2: Complete behavioral symptom abstinence plus normalized EDE scores

This approach holds the standard of behavioral abstinence from Model 1, with the addition of EDE global scores within 1 SD of community norms (i.e.,  $SD < 3.05$  for girls; Alison, 1995). The model combines an optimally stringent approach to behavioral abstinence with a standard for EDE global score remission previously established within the study of treatment efficacy for adults with BN (e.g., Agras et al., 2000). At EOT, 78.5% ( $n = 73/93$ ) had EDE global scores  $< 3.05$ ; these proportions were 81.4% ( $n = 57/70$ ) and 88.7% ( $n = 63/71$ ) at 6- and 12-month follow-up, respectively. This model yielded the same rates of remission as Model 1, 29.1% ( $n = 25/86$ ) at EOT, 35.3% ( $n = 24/68$ ) at 6-month follow-up and 38.6% ( $n = 27/70$ ) at 12-month follow-up.



### Model 3: Partial behavioral symptom abstinence plus normalized EDE scores

This approach holds the standard of behavioral abstinence used by Le Grange et al. (2015), which does not include laxative, diuretic or diet medication misuse; driven exercise; or fasting in its criteria. The model combines this definition of abstinence (from subjective and objective binge eating, and self-induced vomiting) with EDE global scores within 1 SD of community norms. Using these criteria, 37% ( $n = 34/92$ ) were classified as remitted at EOT. Notably, the addition of EDE global scores meant that 2 patients were no longer considered remitted at EOT as they had been in the main outcome report (c.f. Le Grange et al., 2015). With decreased sample size at later assessment, 47.1% ( $n = 33/70$ ) and 52.1% ( $n = 37/71$ ) were classified as remitted at 6- and 12-month follow-up, respectively.

### Logistic Regression: Predicting complete behavioral symptom abstinence (i.e., Model 1) using EDE scores as a regressor

Logistic regression analyses showed that EDE global scores at EOT significantly predicted abstinence status from all BN behavior (i.e., eight compensatory behavior categories) at 6-month follow-up,  $\chi^2(1) = 18.96$ ,  $p < .001$ , explaining 34.9% (Nagelkerke  $R^2$ ) in the variance in abstinence rates (Table 2). Those with higher EDE global scores at EOT were less likely to be abstinent at 6 months. This pattern persisted at 12-month follow-up,  $\chi^2(1) = 12.82$ ,  $p < .001$ , explaining 23.9% (Nagelkerke  $R^2$ ) in the variance in abstinence rates. Those with higher EDE global scores at EOT were less likely to be abstinent at 12 months. Hosmer-Lemeshow goodness of fit tests for 6-month ( $\chi^2 = 13.86$ ,  $p = .09$ ) and 12-month ( $\chi^2 = 9.66$ ,  $p = .21$ ) follow-up were each nonsignificant.

## Discussion

With the current study, we examined various conceptualizations of remission in adolescent BN. Specifically, we used several empirically-derived models to evaluate their impact on remission rates with a dataset from a recent RCT of adolescents with BN. In so doing, we propose a model of remission that fills a gap within adolescent BN literature and captures the strengths of previous conceptualizations, while acknowledging the downfalls commonly evidenced among them. In preliminary analyses, we found that treatment elicited a statistically significant reduction in EDE global scores, but only within the context of treatment itself; while there were continued reductions over time posttreatment, these decreases were non-significant. However, EDE global scores at EOT did predict abstinence from all BN behavioral symptoms at 12-month follow-up, underscoring the importance of psychological symptom improvement during treatment as a marker of outcome posttreatment. Our finding that EDE scores changed considerably during treatment is equivocal, given the often-described time lag between behavioral change and changes in ED cognitions in EDs (e.g., Clausen, 2004), including among adolescents with BN (Ciao et al., 2015). While our results differ from those of Ciao and colleagues (2015), findings from the current study may reflect the ego-dystonic nature of the illness. Specifically, the behavioral symptoms characteristic of BN (i.e., binge eating and purging) are typically experienced as aversive, and patients may have less cognitive distortion and tend to acknowledge their symptoms (both cognitive and behavioral) more readily when compared to anorexia nervosa. It is also important to consider that nuance in cognitive remission may be particularly



subject to the nature of psychological development throughout adolescence. There are challenges inherent in assessing psychological symptoms among younger patients, including challenges that are specific to using the EDE interview, which queries both behavioral and cognitive symptoms over the past 28 days. As such, evaluation and interpretation of psychological change in the current study should be considered in light of pubertal stage and cognitive development during adolescence.

It was somewhat surprising that Model 2 (i.e., Model 1, plus normalized EDE scores) did not yield lower remission rates. Where evidence of differences in remission rates did appear was when the stringency of behavioral criteria was reduced. Specifically, when behavioral criteria were not as comprehensive at EOT, but included EDE global scores (Model 3), we saw the greatest rates of remission at EOT (37%), and at follow-up. These findings may be due in part to the validity of the DSM-5 BN criteria and severity specifiers, which have not been wholly supported across a number of studies (Chapa, Boher & Forbush, 2018; Gorrell et al., 2019). Our results also suggested that an approach using stringent behavioral symptom abstinence did not differ in remission rates when the stipulation of normalized EDE global scores was added (Model 1 v. Model 2). The low frequency of some of the compensatory behaviors reported (i.e., diuretics) suggests it is possible that the current study sample was insufficiently powered to detect differences between these two models. However, the change in psychological symptom status in the context of treatment may be more important than behavioral symptom stringency at EOT. This was indicated when reductions in psychological symptoms within the context of treatment were found to significantly predict behavioral abstinence at follow-up.

Given these findings, in attempting to describe a model of remission that captures the merits of each proposed model, while avoiding their acknowledged pitfalls, we propose that full remission should be defined with the inclusion of psychological symptoms. Model 2 includes complete symptom remittance with normalized EDE scores which would be a particularly stringent standard with which to qualify remission. Both Model 2 and Model 3 (i.e., abstinence from only subjective and objective binge eating and purging, with normalized EDE scores) should be tested further for their comparative utility in predicting sustained positive treatment outcomes over longer assessment time periods.

## Limitations

This study was limited to secondary analysis of a sample from a published RCT (Le Grange et al., 2015), and did not therefore include multi-modal measures that might capture other indicators of remission and recovery, such as neurophysiological and cognitive function, or measures of quality of life. Future examination of remission in adolescents with BN should integrate these, and other similar comprehensive markers of mental and physical health. Given the predominance of female gender in our sample, for determination of SD in EDE scores, we used a metric that applies to female adolescents, and did not specifically address gender in evaluating remission models. It is critical that future work with a larger proportion of male participants examines the possibility of gender differences across all outcomes. In the current study, we did not explicitly consider variability in symptom presentation at baseline and its potential to differentially impact remission status at later time points.

Accordingly, future research might consider more idiographic conceptualizations in remission status, based on specific symptom profiles at baseline. As is the case for any treatment trial, it is impossible to know the remission status of those lost to follow-up, and as such, the attrition rates at 6-month and 12-month follow-up, while not unusual for a typical RCT, should also be noted as a limitation for the specific questions that the current study investigates.

## Conclusions

In testing several empirically-derived models to evaluate their impact on remission rates in adolescents with BN, it was made evident that including psychological symptom change at EOT did not inform remission status, over and above behavioral symptom change alone. However, including psychological symptom improvement in a definition of remission appears to predict positive prognosis over time, and is thus important for future conceptualizations of this term. We propose a model of remission whereby a minimum of abstinence from binge-purge episodes and normalization of psychological symptoms at EOT should be further tested for its predictive ability to yield the most positive prognosis in later assessment and into recovery. Employing a consistent characterization of remission status such as the one proposed will aid in improved interpretation of trial outcomes across our field, and further facilitate understanding of both short and longer-term treatment effects. Future work should more comprehensively investigate the timing of psychological change within treatment (e.g., per session) as a prognosticator of future behavioral change among adolescents with BN.

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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**Highlights:**

- Reduced psychological symptoms following adolescent bulimia nervosa (BN) treatment predict behavioral symptom abatement at 12-month follow-up
- A combination of psychological and behavioral symptom reduction yields meaningful differences in defining remission following adolescent BN treatment
- Future definitions of remission in adolescent BN should include mitigation of cognitive eating disorder symptoms

**Table 1.**

## Descriptive Statistics for Variables of Interest

Variable	(n)%	Range	M (SD)
<b>Baseline (N = 110)</b>			
<b>EDE</b>			
Global		.43–5.73	3.58 (1.30)
<i>Restraint</i>		.00–6.00	3.43 (1.57)
<i>Eating Concern</i>		.00–6.00	2.95 (1.45)
<i>Weight Concern</i>		.00–6.00	3.83 (1.56)
<i>Shape Concern</i>		.00–6.00	4.10 (1.45)
<b>Behavioral Symptoms</b>			
Driven Exercise	84/110 (76.4)		
Vomiting	89/110 (80.9)		
SBE	96/110 (87.3)		
OBE	64/110 (58.2)		
Laxatives	18/109 (16.5)		
Diuretics	2/110 (1.8)		
Diet Pills	12/110 (10.9)		
Fasting	32/110 (29.1)		
<b>EOT (n = 93)</b>			
<b>EDE</b>			
Global		.00–5.65	1.82 (1.46)
<i>Restraint</i>		.00–5.60	1.52 (1.61)
<i>Eating Concern</i>		.00–5.20	1.11 (1.30)
<i>Weight Concern</i>		.00–5.80	2.23 (1.67)
<i>Shape Concern</i>		.00–6.00	2.42 (1.85)
<b>Behavioral Abstinence</b>			
Driven Exercise	54/91 (59.3)		
Vomiting	59/92 (64.1)		
SBE	51/92 (55.4)		
OBE	69/92 (75.0)		
Laxatives	85/90 (94.4)		
Diuretics	87/89 (97.8)		
Diet Pills	88/90 (97.8)		
Fasting	85/93 (91.4)		
<b>6-month follow-up (n = 70)</b>			
<b>EDE</b>			
Global		.00–5.20	1.55 (1.39)
<i>Restraint</i>		.00–4.60	1.06 (1.36)
<i>Eating Concern</i>		.00–5.20	1.09 (1.35)
<i>Weight Concern</i>		.00–6.00	1.91 (1.59)
<i>Shape Concern</i>		.00–6.00	2.14 (1.80)

Variable	(n)%	Range	M (SD)
<b>Behavioral Abstinence</b>			
Driven Exercise	42/68 (61.8)		
Vomiting	47/70 (67.1)		
SBE	48/70 (68.6)		
OBE	51/70 (72.9)		
Laxatives	67/70 (95.7)		
Diuretics	70/70 (100)		
Diet Pills	68/70 (97.1)		
Fasting	62/70 (88.6)		
<b>12-month follow-up (n = 71)</b>			
<b>EDE</b>			
Global		.00–5.37	1.30 (1.67)
<i>Restraint</i>		.00–5.20	.99 (1.29)
<i>Eating Concern</i>		.00–6.00	.88 (1.16)
<i>Weight Concern</i>		.00–5.60	1.62 (1.34)
<i>Shape Concern</i>		.00–5.88	1.72 (1.59)
<b>Behavioral Abstinence</b>			
Driven Exercise	51/70 (72.9)		
Vomiting	49/71 (69.0)		
SBE	47/71 (66.2)		
OBE	52/71 (73.2)		
Laxatives	65/71 (91.5)		
Diuretics	71/71 (100)		
Diet Pills	68/71 (95.8)		
Fasting	66/71 (93.0)		

Note: EDE = Eating Disorders Examination, subscales are *italicized*, EOT = end-of-treatment

SBE = subjective binge episode; OBE = objective binge episode



**Table 2.**

Logistic regression testing association between EDE scores and complete symptom abstinence at 6-and 12-month follow-up

Model	<i>b</i>	<i>se</i>	<i>Wald</i>	<i>p</i>	Exp(B)	CI for Exp(B)
<b>6-month (n = 64)</b>						
	-1.06	.31	11.90	.001	.35	[.19, .63]
Model X <sup>2</sup> =	18.96	<i>p</i> < .001				
Pseudo R <sup>2</sup> =	.35					
<b>12-month (n = 66)</b>						
	-.74	.24	9.73	.002	14.21	[.30, .76]
Model X <sup>2</sup> =	12.82	<i>p</i> < .001				
Pseudo R <sup>2</sup> =	.24					

Note: EDE = Eating Disorders Examination global scores