

# Binge Eating, Purging, or Both: Eating Disorder Psychopathology Findings from an Internet Community Survey

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## ABSTRACT

**Objective:** This study aimed to compare bulimia nervosa (BN), binge eating disorder (BED), and purging disorder (PD) on clinically significant variables and examine the utility of once versus twice-weekly diagnostic thresholds for disturbed eating behaviors.

**Method:** 234 women with BN, BED, or PD were identified through self-report measures via an online survey and categorized based on either once-weekly or twice-weekly disturbed eating behaviors.

**Results:** BN emerged as a more severe disorder than BED and PD. The three groups differed significantly in self-reported restraint and disinhibition and the BN and BED groups reported higher levels of depression than PD. For BN, those engaging in behaviors twice-

weekly versus once-weekly were more symptomatic.

**Discussion:** The BN, BED, and PD groups differed in clinically meaningful ways. Future research need to clarify the relationship between mood disturbances and eating behaviors. Reducing the twice-weekly behavior threshold for BN would capture individuals with clinically significant eating disorders, though the twice-weekly threshold may provide important information about disorder severity for both BN and BED. © 2009 by Wiley Periodicals, Inc.

**Keywords:** eating disorder not otherwise specified; purging disorder; bulimia nervosa; binge eating disorder; eating disorders

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## Introduction

Eating disorder not otherwise specified (EDNOS) is the most common eating disorder (ED) diagnosis across diverse clinical settings,<sup>1,2</sup> yet remains a poorly understood admixture of ED psychopathology.<sup>3</sup> The high prevalence of EDNOS and the process of refining diagnostic criteria for the Diagnostic and Statistical Manual of Mental Disorders (DSM) V<sup>4</sup> have stimulated recent research describing the characteristics and degree of impairment

among this catchall category to assess whether clusters of EDNOS symptoms simply reflect sub-threshold forms of anorexia nervosa (AN) or bulimia nervosa (BN) or distinct disorders.<sup>3,5,6</sup> Amid the EDNOS category, binge eating disorder (BED), a provisional research diagnostic entity in the DSM (4th ed.)<sup>7</sup> and purging disorder (PD) have emerged as potentially distinct EDs.

Since BED's inclusion in the DSM-IV-TR, research has generally established the clinical utility and validity of this diagnostic construct although additional validation studies are needed.<sup>7</sup> Purging disorder, a second example of an EDNOS, has more recently begun to garner research attention.<sup>6</sup> Although women with PD endorse more ED and general psychopathology than women without EDs,<sup>6,8–10</sup> comparisons between PD and BN have yielded mixed findings for differences in frequency of compensatory behaviors, degree of dietary restraint, shape, weight and eating concerns,<sup>6,10–13</sup> depression levels,<sup>6,9,10</sup> and impulsivity.<sup>6,8,11,13</sup> The PD and BN groups have appeared similar on age of disorder onset and duration, highest and lowest lifetime body mass index (BMI),<sup>13</sup> and cognitive restraint,<sup>6,10</sup> but individuals with BN tend to report

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higher levels of disinhibition with respect to eating and more hunger.<sup>6,10</sup> In addition, while two latent class analyses (LCA) suggest the presence of a distinct subgroup of individuals with PD,<sup>14,15</sup> two other LCAs failed to identify a distinct class of purgers only,<sup>16,17</sup> making it difficult to determine whether PD is distinct from BN. In contrast, similar analyses support BED as a distinct disorder.<sup>14–16,18</sup> These mixed findings coupled with the lack of comparisons within the EDNOS category (i.e., persons who only binge-eat versus persons who only purge) indicate the need for more EDNOS research in diverse samples. The first aim of this study was to compare BED and PD, which to our knowledge has only been directly examined in one small study.<sup>8</sup> The goal of this comparison was to investigate whether these two diagnostic constructs, both captured under the EDNOS category despite being behaviorally distinct (binge eating-only or purging-only), are distinguishable on measures of ED- and general-psychopathology. The second aim was to replicate and extend previous findings by comparing women with BED, BN, and PD on a variety of important clinical measures in a community, rather than treatment seeking sample, because of clinic-biases.<sup>19,20</sup> The third aim was to examine the importance of different binge eating and/or purging behavioral frequency stipulations for diagnostic thresholds to inform DSM-V.<sup>4</sup> Research suggesting a broadening of the criteria (i.e., once-weekly rather than twice-weekly) is strong for BED,<sup>21</sup> mixed for BN,<sup>12,22</sup> and lacking for PD.

## Method

### Participants

Participants were 234 female community volunteers drawn from a sample of 930 women who responded to online advertisements seeking volunteers for a research study about eating and dieting. These women were selected from the larger sample based on criteria (described below) used to define our three ED groups. Advertisements containing a link to an external web survey were placed on Craigslist internet classified ads in different United States cities and on Google banners. The advertisement appeared as a Google banner when users entered keywords: “weight gain; body image; binge eating; compulsive eating; obesity; obesity epidemic; obesity test; obesity studies; obesity quiz; weight questionnaire; weight quiz; weight studies; eating test; eating questionnaire.” The racial/ethnic distribution for the total sample was: 78.5% Caucasian, 9.4% Hispanic, 4.3% African American, 3.8% Asian, and 4.2% reporting “other” or missing. The mean BMI was  $34.1 \pm 10.2$  kg/m<sup>2</sup> with

~21% of the sample reporting a BMI < 25 kg/m<sup>2</sup>, which is the standard cut-off for normal weight. Participants completed self-report questionnaires through the secure online data gathering website SurveyMonkey after providing informed consent. The study was approved by the institutional review board.

### Assessments and Measures

The Eating Disorder Examination Questionnaire (EDE-Q)<sup>23</sup> is the self-report version of the Eating Disorder Examination<sup>24</sup> and assesses eating disorder features including objective and subjective binge episodes (OBEs/SBEs), purging behaviors and produces dietary restraint (R), and eating (EC), shape (SC), and weight concerns (WC) subscales. The EDE-Q has received psychometric support, including adequate test-retest reliability,<sup>25</sup> good convergence with the EDE in studies with diverse disordered-eating groups<sup>26,27</sup> and has especially good reliability for assessing purging behaviors.<sup>28,29</sup> In this study, the subscales of the EDE-Q showed good internal consistency (R  $\alpha$  = 0.82; EC  $\alpha$  = 0.76; SC  $\alpha$  = 0.83; WC  $\alpha$  = 0.70).

The Three Factor Eating Questionnaire (TFEQ)<sup>30</sup> is a widely used self-report measure of eating behavior with three factors: cognitive restraint, disinhibition of control over eating, and perceived hunger. The TFEQ has received some psychometric support,<sup>30–32</sup> though studies have found that the restraint scores are not correlated with actual caloric intake.<sup>33</sup> In this study, the subscales of the TFEQ showed adequate internal consistency (Restraint  $\alpha$  = 0.83; Disinhibition  $\alpha$  = 0.64; Hunger  $\alpha$  = 0.79).

Questionnaire for Eating and Weight Pattern-Revised (QEWP-R)<sup>34</sup> assesses a number of current and historical eating/weight variables including history of weight cycling more than 20 pounds and time spent dieting during adult life. The QEWP-R has received psychometric support for aspects of its validity.<sup>35</sup>

The Beck Depression Inventory (BDI)<sup>36</sup> is a widely used and well-established measure to assess current depression level and symptoms with excellent reliability and validity.<sup>37</sup> Higher scores reflect higher levels of depression and are an efficient marker for broad psychopathology.<sup>38</sup> In this study, the BDI showed excellent internal consistency ( $\alpha$  = 0.90).

The Rosenberg Self-Esteem Scale (RSES)<sup>39</sup> is a well-established and widely used measure of global self-esteem. Higher scores reflect higher self-esteem. The RSES showed excellent internal consistency in this study sample ( $\alpha$  = 0.90).

Self-reported demographic information, height, and current weight were also collected.

### Statistical Analyses

In light of longstanding questions regarding the somewhat arbitrary twice-weekly (and never validated)

**TABLE 1. Comparisons of BED, BN, and PD groups meeting once-weekly threshold on clinical variables**

	BN ( <i>n</i> = 58)		BED ( <i>n</i> = 152)		PD ( <i>n</i> = 24)		ANOVAs				ANCOVAs			
	Mean	SD	Mean	SD	Mean	SD	<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$
BMI (kg/m <sup>2</sup> ) <sup>b</sup>	33.13	9.82	35.37	10.43	28.01	6.94	2,227	5.74	.004	0.048	2,201	5.89	.003	0.055
QEW <sup>a</sup> weight cycling	2.93	0.97	2.71	1.03	2.13	0.95	2,229	5.43	.005	0.045	2,203	3.04	.050	0.029
QEW <sup>a</sup> time dieting <sup>a,b,d,e</sup>	4.26	0.98	3.23	1.32	3.50	1.38	2,229	14.07	.000	0.109	2,203	14.09	.000	0.122
EDE-Q scales														
Restraint <sup>a-d</sup>	3.73	1.59	2.33	1.55	3.42	1.49	2,231	19.27	.000	0.143	2,205	15.04	.000	0.128
Eating concerns <sup>a,b,d,e</sup>	4.12	1.35	3.03	1.52	2.45	1.54	2,231	15.10	.000	0.116	2,205	7.83	.001	0.071
Shape concerns <sup>a,d,e</sup>	5.32	0.67	4.70	1.22	4.35	1.32	2,231	8.81	.000	0.071	2,205	3.57	.030	0.034
Weight concerns <sup>a,d,e</sup>	4.83	0.86	4.19	1.25	3.76	1.44	2,231	8.96	.000	0.072	2,205	3.00	.052	0.028
EDE-Q total <sup>a,b,d,e</sup>	4.50	0.88	3.56	1.11	3.50	1.24	2,231	17.00	.000	0.128	2,205	8.89	.000	0.080
TFEQ scales														
Restraint <sup>a-d</sup>	11.67	4.33	8.68	4.27	13.75	4.06	2,221	20.54	.000	0.157	2,205	23.38	.000	0.186
Disinhibition <sup>a-e</sup>	13.15	2.03	12.06	2.35	9.25	3.59	2,221	21.81	.000	0.165	2,205	17.41	.000	0.145
Hunger	10.53	3.32	9.70	3.27	8.35	3.40	2,221	3.80	.024	0.033	2,205	1.64	.196	0.016
RSES <sup>a,e</sup>	22.65	6.03	25.03	6.43	27.93	6.08	2,204	5.95	.003	0.055	2,203	0.06	.939	0.001
BDI <sup>a,c-e</sup>	24.92	10.07	19.40	10.60	13.26	8.13	2,206	11.21	.000	0.098				
SBE EDE-Q <sup>a,d,e</sup>	9.29	15.02	4.05	4.74	3.21	6.04	2,228	8.44	.000	0.069				

<sup>a</sup>Significant main effect based on Bonferroni corrected alpha level of 0.003.<sup>b</sup>Significant main effect after controlling for total BDI score based on Bonferroni corrected alpha level of 0.003.<sup>c</sup>Significant difference between BED and PD at *p* < .05 level.<sup>d</sup>Significant difference between BED and BN at *p* < .05 level.<sup>e</sup>Significant difference between BN and PD at *p* < .05 level.

frequency stipulations in the DSM-IV for binge/purge behaviors,<sup>4</sup> we performed two parallel series of univariate ANOVAs to compare the three study groups (BED, PD, and BN). The first set of analyses compared the three groups, which were created based on a minimum frequency stipulation of once-weekly for the core behavioral criteria. Thus, for these broader analyses, the BED group was defined as having a minimum of once weekly or greater OBEs without any compensatory behaviors. The BN group was defined as having once weekly or greater OBEs and purging behaviors and the PD group was defined as having once weekly or greater purging behaviors without any OBEs. The groups were created based on the EDE-Q time frame of eating over the past four weeks, rather than the past three months for BN and the past 6 months for BED as suggested by the DSM. The second set of analyses compared the three groups created based on a minimum frequency stipulation of twice-weekly for the core behavioral features. A Bonferroni corrected alpha level of 0.003 was applied to all omnibus tests and significant findings were followed by post-hoc Scheffe tests to contrast groups. We then performed a series of ANCOVAs controlling for differences in depression levels among the three groups. Race/ethnicity comparisons were made via chi-squared analyses. To further explore the impact of the different behavioral frequency stipulation, independent samples *t*-tests were conducted (using a corrected alpha level of 0.003) within each diagnostic group comparing those who meet once-weekly criteria to those who meet twice-weekly criteria on the clinical variables.

## Results

In our first set of analyses, using the once-weekly minimum frequency stipulations, 152 individuals were classified as having BED, 58 as having BN, and 24 as having PD. The groups differed on race/ethnicity ( $\chi^2 = 8.56$ , *p* = .014), with the majority of each group self-identifying as Caucasian (83.6%, 70.79%, and 62.5% for BED, BN, and PD respectively). When the twice-weekly minimum frequency stipulation was applied, 70, 29, and 15 individuals were classified as having BED, BN, and PD, respectively. Differences among racial/ethnic groups mirrored the findings from the first analysis (data not shown).

The first series of univariate ANOVAs (conducted on diagnostic groups defined using the once-weekly minimum frequency threshold for binge eating and/or purging behaviors) indicated that all comparisons were significantly different except for age, BMI, history of weight cycling, and hunger (see **Table 1**). The second series of ANOVAs (conducted on diagnostic groups defined by the DSM-IV-TR twice-weekly frequency threshold for binge eating and/or purging) appear in **Table 2**. Overall, this second series of analyses including only individuals who met the twice-weekly frequency threshold, revealed the same set of significant differences as the first once-weekly analysis with the addition of a significant difference for history of weight cycling. The post-hoc group Scheffe tests are summarized below.

**TABLE 2. Comparisons of BN, BED, and PD groups meeting twice-weekly threshold on clinical variables**

	BN ( <i>n</i> = 29)		BED ( <i>n</i> = 70)		PD ( <i>n</i> = 15)		ANOVAs				ANCOVAs			
	Mean	SD	Mean	SD	Mean	SD	<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$
BMI (kg/m <sup>2</sup> )	32.96	10.28	36.17	11.40	26.75	7.17	2,109	5.02	.008	0.084	2,100	5.04	.008	0.092
QEWEP weight cycling <sup>a,c,e</sup>	3.10	0.86	2.80	1.03	1.80	0.78	2,111	9.41	.000	0.145	2,102	6.33	.003	0.110
QEWEP time dieting <sup>a,b,d</sup>	4.55	0.74	3.35	1.28	3.87	1.25	2,110	11.08	.000	0.168	2,101	9.07	.000	0.152
EDE-Q scales														
Restraint <sup>a,d</sup>	4.08	1.72	2.55	1.79	3.16	1.72	2,111	7.69	.001	0.122	2,102	5.34	.006	0.095
Eating concerns <sup>a,c</sup>	4.77	1.12	3.40	1.53	2.37	1.68	2,111	15.37	.000	0.217	2,102	8.88	.000	0.148
Shape concerns <sup>a,d,e</sup>	5.60	0.45	4.79	1.23	4.21	1.30	2,111	9.32	.000	0.144	2,102	4.04	.020	0.073
Weight concerns <sup>a,d,e</sup>	5.23	0.58	4.36	1.24	3.55	1.63	2,111	11.16	.000	0.167	2,102	4.83	.010	0.087
EDE-Q total <sup>a,b,d,e</sup>	4.92	0.79	3.77	1.17	3.32	1.36	2,111	14.05	.000	0.202	2,102	7.48	.001	0.128
TFEQ scales														
Restraint <sup>a,d</sup>	12.39	3.32	8.16	4.31	13.58	4.61	2,108	17.23	.000	0.242	2,102	15.59	.000	0.234
Disinhibition <sup>a,c,e</sup>	13.53	1.39	12.46	2.50	8.87	3.93	2,108	17.62	.000	0.246	2,102	15.90	.000	0.238
Hunger	11.10	3.25	10.05	3.36	9.16	3.39	2,108	1.86	.161	0.033	2,102	1.22	.298	0.023
RSES <sup>a,c,e</sup>	21.44	5.30	23.70	6.52	28.93	5.74	2,101	7.40	.001	0.128	2,100	1.28	.282	0.025
BDI <sup>a,c,e</sup>	26.21	9.64	21.43	11.38	12.73	9.01	2,103	7.84	.001	0.132				
SBE EDE-Q <sup>a,d,e</sup>	13.90	18.80	4.91	5.44	4.40	7.43	2,109	7.64	.001	0.123				

<sup>a</sup> Significant main effect based on Bonferroni corrected alpha level of 0.003.

<sup>b</sup> Significant main effect after controlling for total BDI score based on Bonferroni corrected alpha level of 0.003.

<sup>c</sup> Significant difference between BED and PD at *p* < .05 level.

<sup>d</sup> Significant difference between BED and BN at *p* < .05 level.

<sup>e</sup> Significant difference between BN and PD at *p* < .05 level.

### **Binge Eating Disorder versus Purging Disorder**

The BED group reported significantly less restraint than the PD group on the EDE-Q and TFEQ restraint subscales, but no other differences were observed on other EDE-Q subscales. The BED group also reported significantly greater disinhibition when compared with the PD group as well as greater depression symptoms. The second series of analyses comparing the study groups created using the more stringent twice-weekly frequency stipulations revealed that the BED and PD groups no longer differed significantly on the EDE-Q restraint subscale, but the BED group reported more eating concerns, lower self-esteem, and a greater number of weight cycling episodes. The other twice-weekly analyses were similar.

### **Purging Disorder versus Bulimia Nervosa**

The PD and BN groups did not differ significantly on the EDE-Q restraint subscale, but individuals with PD reported less severe eating, shape, and weight concerns and had lower global EDE-Q scores. Individuals with PD also reported less disinhibition on the TFEQ subscale, but no differences were observed on the restraint subscale. The PD group reported spending less time dieting and had fewer SBEs. They also reported less depression and higher self-esteem. The analyses which compared the study groups using the twice-weekly frequency stipulations replicated the initial findings. A comparison between the PD and BN groups on

frequency of purging behavior among those engaging in the behavior once weekly did not reveal a significant difference (BN: *M* = 25.6 ± 63.0, PD: *M* = 12.1 ± 10.3, *p* = .30).

### **Binge Eating Disorder versus Bulimia Nervosa**

The BED group, when compared with the BN group, reported less severe eating disorder symptoms, with lower scores on the EDE-Q subscales and total score. Individuals with BED also reported less restraint and disinhibition on the TFEQ subscales. No significant differences emerged on the RSES, but the BED group self-reported lower depression symptoms, fewer SBEs, and less time spent dieting. The groups differed in frequency of self-reported binge eating (BED: *M* = 9.4 ± 6.6, BN: *M* = 12.2 ± 9.2, *p* = .018). The second set of analyses, which applied the more stringent twice-weekly frequency threshold produced very similar results, though differences on the disinhibition subscale of the TFEQ and BDI scores were no longer present.

### **ANCOVA Analyses**

Because the presence of depressive/negative affect may account for differences in eating disorder and general psychopathology, we performed a series of ANCOVAs controlling for BDI scores for all of the study measures (except for SBEs which violated the homogeneity of regression assumption). These findings are summarized in **Tables 1 and 2**. For the once-weekly threshold groups, we observed



the same significant differences with the exception of shape and weight concerns and RSES scores which were no longer significant and BMI which became significant. ANCOVAs performed using the twice-weekly threshold revealed the same pattern of findings except for the EDE-Q restraint subscale, which no longer differed between groups.

### Frequency Analyses

Independent samples *t*-tests within each diagnostic category indicated that there were no significant differences between individuals engaging in the behaviors once-weekly versus twice-weekly for BED and PD (data not shown). For BN, individuals engaging in the behavior twice weekly were more symptomatic on the eating, shape, weight, and total EDE-Q scores ( $p < .001$ ).

## Discussion

Our findings suggest that the BN, BED, and PD groups differ significantly in important and clinically meaningful ways. As expected, BN emerged as a more severe eating disorder than either BED or PD based on most measures of eating and general psychopathology. Many of these findings are consistent with other reports,<sup>6,9,10,13,40,41</sup> though BN and PD have appeared similar on global ED measures and body image disturbance in several studies.<sup>6,10–12</sup> The lesser severity of PD in this study suggests that it may not be more similar to anorexia nervosa, though future research comparing these two disorders is needed. In general, these expected findings provide evidence for the validity of the self-reported attitudes and behaviors in our study sample.

The ED group comparisons revealed three key differences between our study groups on restraint, disinhibition, and depression. First, as expected, the BN group reported higher levels of restraint than the BED group, but comparable levels to the PD group. These findings are consistent with other comparisons,<sup>6,10,40,41</sup> though both higher<sup>13</sup> and lower restraint<sup>12</sup> have been observed among individuals with BN when compared with those with PD. Second, the PD group self-reported more restraint than the BED group, which scored higher on disinhibition, though reported less disinhibition than the BN group. These findings reflect the key behavioral characteristics of the disorders; one would expect individuals who purge-only to exert higher levels of restraint, those who binge-only to

have lower restraint and more disinhibition towards eating and those who binge and purge to have both higher levels of restraint and disinhibition. However, findings regarding restraint must be interpreted with caution, because research suggests that self-reported restrained eating may not reflect actual eating behavior, but may measure an important construct such as perceived restraint.<sup>33,42–44</sup>

The third key finding from this study is the difference in depression levels among the three groups. Both the BN and BED groups report higher levels of depression than the PD group. Prior work has found either higher depression levels among individuals with BN when compared with PD<sup>6,9</sup> or comparable levels.<sup>10</sup> One way to understand these depression differences is to identify the commonality between BN and BED that PD lacks: binge eating. It is possible that the higher levels of depression among the BN and BED groups are a reflection of greater distress due to the binge eating. It is often the binge eating behavior, rather than the purging, that distresses patients with BN partially because of its link with weight gain. Individuals with PD may be less distressed because they are not engaging in binge eating or because they are able to maintain a lower weight than individuals with BN or BED. Alternatively, there is evidence that depressive/negative affect may trigger binge eating among patients with BN and BED, which may partially account for the higher BDI scores in both groups.<sup>45</sup> Our cross-sectional data preclude us from examining whether such mood disturbances cause, mediate, or result from the clinical differences observed among our groups, but in an attempt to further explore this question, we repeated our analyses controlling for depression levels. When we controlled for BDI scores, the groups no longer differed on shape or weight concerns or self-esteem, but differences in the key psychological variables related to the behavioral disturbances remained (though the EDE-Q restraint score did not differ when the analysis was restricted to twice-weekly). This might suggest that while these cognitive features (shape and weight concerns and self-esteem) may be exacerbated by negative affect, the characteristic behavioral features appear distinct from mood.

When repeating all analyses using the twice-weekly frequency threshold, the key findings held. However, while BN remained a more severe disorder in comparison to PD, the BED group appeared more psychologically similar to BN. The BN group continued to report more restraint and spent more time dieting, but we no longer saw differences on disinhibition, self-esteem, or depression. The BED

group also appeared more impaired than the PD group. These analyses suggest that the twice-weekly frequency threshold for BN and BED may provide important information about the severity of the disorder, but this frequency distinction may be less useful for PD. Interestingly, when we looked within our groups to compare the once-weekly threshold to the twice-weekly threshold, significant differences were only present for the BN group. The BN group engaging in the behavior twice-weekly reported greater eating, shape, and weight concerns. These latter findings are consistent with a previous report by Crow et al.<sup>22</sup> but not with studies by le Grange et al.<sup>12</sup> and Grilo et al. who reported little difference between full and partial BN. Consistent with previous BED research, sub-threshold and full-threshold BED groups differed little.<sup>21,22</sup> However, when we compare the average scores for the once-weekly BN group to the BED and PD groups meeting twice-weekly criteria, BN still emerged as a more severe eating disorder, providing support that the once-weekly threshold for BN captures clinically significant diagnostic cases and the twice-weekly threshold can provide additional information about severity. However, we lack other important measures of severity such as global functioning and medical morbidity.

Several limitations should be considered when interpreting these findings including the relatively small number of participants particularly for the analyses using the twice-weekly frequency stipulations. However, we were able to detect a number of statistically significant findings and meaningful effect sizes. A second limitation was the use of the EDE-Q to classify participants. Some research has suggested that the EDE-Q overestimates the frequency of OBEs, which might have led to misclassification of individuals with BED and BN.<sup>22</sup> However, other research has found that the EDE-Q captured fewer OBEs when compared with the EDE interview among BN<sup>46</sup> and BED patients.<sup>47</sup> Therefore, we may have been less likely to include individuals without clinically significant EDs. Also, Grilo et al.<sup>27</sup> observed a significant correlation between frequencies of OBEs between the EDE and EDE-Q and the EDE-Q and prospective self-monitoring records among patients with BED. There is additional concern that the EDE-Q does not adequately assess SBEs, potentially leading to misclassification of individuals with PD. However, one study among individuals with BN found good convergence between the EDE-Q and the EDE interview when assessing SBEs.<sup>46</sup> Given that the EDE-Q is a widely used instrument, appears to have adequate validity and might be superior at detect-

ing purging behaviors,<sup>29</sup> we believe it was able to adequately capture the diagnostic groups for this study, though the groups were formed based on information from the past 28 days, rather than the DSM requirements of the past 3 or 6 months for BN and BED. A third potential limitation is that we used a convenience sample based on internet volunteers which may explain why the average BMIs for BN and PD were higher than expected with both groups meeting criteria for being overweight. These higher BMIs may also be partly explained by a general trend of rising obesity rates among individuals with EDs<sup>48</sup> and epidemiologic research indicating an increased risk of BN and EDNOS among overweight and obese groups.<sup>49</sup> Generalizability of our findings to other samples is uncertain, but these findings can be considered alongside the emerging literature primarily based on potentially biased treatment-seeking samples.<sup>19</sup> In terms of strengths, this study is the first to report a comparison of BED and PD, both categories within EDNOS, on a number of important clinical variables and contributes to the small literature comparing PD with BN. It has also replicated past research on differences between BED and BN and the frequency stipulation analyses have important implications for DSM-V.

Overall, we can draw four major conclusions from our findings. First, our results suggest that BN, BED, and PD differ significantly on measures of eating and general psychopathology, though BN appears to be a more severe eating disorder. Second, BN, BED, and PD appear to differ on restraint and disinhibition, though it remains unclear what psychological variable "restraint" truly represents. Third, we observed that BED and BN have higher levels of depression than PD emphasizing the need to clarify the role of mood disturbances in motivating, maintaining or resulting from ED symptoms. Fourth, it appears that using a once-weekly behavioral frequency threshold for BN would capture clinically significant eating disorders, while a twice-weekly threshold provides potentially useful information about severity for both the BN and BED groups.

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