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Prior Use of Extreme Weight-Control Behaviors in a Community Sample of Women with Binge Eating Disorder or Subthreshold Binge Eating Disorder: A Descriptive Study

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Abstract

Objective and Method—The prior occurrence of regular extreme weight-control behaviors was examined in a community sample of women ($n = 27$) with binge eating disorder (BED) or sub-threshold BED.

Results—Approximately two thirds of participants (65.4%) reported the prior use of either purging at least weekly or nonpurging behaviors three or more times per week, for a period of 3 months or more, whereas 38.5% of participants reported either purging at least twice weekly or nonpurging behaviors five or more times per week. Comparatively few participants (11.1%) had ever met formal diagnostic criteria for BN.

Discussion—Considerable overlap between disorders characterized by binge eating in the absence of extreme weight-control behaviors and those characterized by extreme weight-control behaviors in the absence of binge eating may be apparent when a longitudinal perspective is taken. Caution needs to be exercised in drawing conclusions concerning the extent of this overlap based on any one operational definition of the term “regular extreme weight-control behaviors”.

Keywords

binge eating disorder; bulimia nervosa; purging disorder; extreme weight-control behaviors

Introduction

With the inclusion of binge eating disorder (BED) as a provisional diagnosis in DSM-IV,¹ the relation between eating disorders characterized by binge eating and extreme weight-control behaviors and those characterized by binge eating in the absence of extreme weight-control behaviors has assumed greater importance.^{2,3} In particular, and with findings from some early studies suggesting that BED may occur later in life than bulimia nervosa (BN),⁴ the question arose as to whether BED might be a “burned-out” form of BN.^{5,2} A review of

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the literature suggests that the answer to this question is “no,” at least when formal diagnostic criteria for BN and BED are employed and when the purging subtype of BN is considered.^{2,5,6}

More recently, evidence supporting the clinical validity of eating disorders characterized by the use of extreme weight-control behaviors in the absence of binge eating has added an additional layer of complexity to the issue of overlap between bulimic-type eating disorders.⁷ In particular, the prior occurrence of extreme weight-control behaviors among individuals with BED becomes worthy of investigation in its own right, that is, irrespective of whether the use of those behaviors was accompanied by recurrent binge eating.

To date, however, evidence bearing on this issue is limited. In a study of obese women meeting DSM-IV criteria for BED,⁵ one third of participants (34%) reported any prior use of laxatives and one quarter (26%) reported any prior use of self-induced vomiting. The regular (“more than once per week”) use of these behaviors was, however, comparatively uncommon, 12% for laxative misuse and 6% for self-induced vomiting. Similarly, in a clinical sample of women with BED,⁸ any prior use of purging was reported by 38.1% of participants, whereas 15.9% of participants had engaged in regular (at least weekly) purging. In a third study, of women meeting DSM-IV criteria for BED who had sought treatment for weight control,⁹ 29% of participants reported the regular (at least weekly) use of diet pills and 39% of participants reported regular self-induced vomiting during the past 3 months. By definition, the prevalence of these behaviors fell short of the DSM-IV threshold for BN of twice per week.

In sum, evidence concerning the prior use of extreme weight-control behaviors among individuals with BED is confined to a small number of studies in which the prior occurrence of purging has been examined in treatment-seeking samples of individuals meeting formal diagnostic criteria for BED. The goal of the present study was to expand this literature by examining the prior use of extreme-weight control behaviors—both purging and nonpurging—among women with BED or sub-threshold BED recruited from a general population sample. We hypothesized, first, that the prior use of extreme weight-control behaviors would be common in this subgroup; and second, that the extent of this “overlap” would vary substantially according to the specific operational definition of “regular extreme weight-control behavior” employed.

Method

Study Design and Participants

The research was conducted as part of the *Health and Well-Being of Female ACT Residents* Study, a two-phase epidemiological study of disability, health-service utilization, and “mental health literacy” associated with community cases of bulimic-type eating disorders.^{10–15} The study was carried out in the Australian Capital Territory (ACT) region of Australia (population 314,000 in 2002), a highly urbanized region that includes the city of Canberra. All aspects of the study were approved by the ACT Human Research Ethics Committee.

Recruitment of participants has been detailed previously.^{10–15} In brief, self-report questionnaires were completed by 5,255 female residents of the ACT region aged 18–42 years, which represented a response rate of 57.1% at the first phase.^{10,11} The questionnaire included measures of eating disorder psychopathology, health-related quality of life, general psychological distress, height and weight, and sociodemographic information.^{10,11} Body mass index (BMI) (kg/m^2) was calculated from self-reported height and weight.¹⁶ The sample comprised approximately 10% of the total population of women aged 18–42 in the region and was representative of this population on a range of sociodemographic variables.¹¹

Respondents who met screening criteria for a probable eating disorder¹⁶ were approached to participate in the second phase of the study, involving a face-to-face interview. The interview included diagnostic items of the Eating Disorder Examination (EDE) (14th edition),¹⁷ along with questions addressing health service utilization, mental health literacy, and impairment in role functioning specific to eating-disordered behavior developed by the authors.^{13–15}

For the present study, the EDE was modified in order to assess both current and lifetime eating disorder behaviors and weight history.¹⁸ Eating disorder behaviors assessed included binge eating (objective bulimic episodes; subjective bulimic episodes (SBEs); self-induced vomiting; misuse of laxatives and/or diuretics; extreme dietary restriction; excessive exercise; diet pills; and dietary supplements. The use of diet pills and dietary supplements was not, however, considered in the present report on account of the uncertain status of these products as compensatory behaviors. In addition, only the current (i.e. 3 months) occurrence of SBEs was assessed because the (reliability of the) lifetime assessment of this behavior was deemed to be problematic.^{19,20,16} “Extreme dietary restriction” was assessed using the EDE “avoidance of eating” item, whereas “excessive exercise” was assessed using the EDE “driven exercise” item.

In view of the methodological difficulties inherent in the retrospective reporting of lifetime eating disorder behaviors, questions addressing participants' confidence in their ability to recall the occurrence/frequency of each behavior were also included in the modified interview. A 5-point Likert-type scale was used for this purpose, response options being “not at all confident” (1), “a little confident” (2), “moderately confident” (3), “very confident” (4), and “extremely confident” (5).

Interviews were completed with 324 individuals, which represented a response rate of 76.6% at the second phase. Individuals interviewed were more likely to be married than those not interviewed (38.2% vs. 29.8%; $\chi^2 5 9.58$, $p < .05$). There were no other differences between these subgroups. The interval between questionnaire and interview assessment ranged from 4 days to 104 days, with a median of 28.0 days. Interviewer training procedures, which were refined on the basis of our pilot research, have also been described previously.¹⁶

Fifty-seven participants (17.6% of the interviewed sample) reported binge eating at a frequency of at least once per week (on average) during the past 3 months. Of these, 30 individuals who reported one or more episodes of self-induced vomiting, misuse of laxatives or diuretics, extreme dietary restriction, or excessive exercise, per month, were excluded for the purpose of the present analysis. A conservative definition of the “absence of regular

compensatory behaviors” was deliberately chosen in order to ensure that participants more closely resembled BED than a subthreshold form of BN, thereby reducing the like-lihood of an artifactual association between the occurrence of current and lifetime weight-control behaviors.^{9,21}

Hence, participants in the present study were 27 women who reported current regular binge eating episodes in the absence of current regular extreme weight-control behaviors. As can be seen in Table 1, participants had high levels of eating disorder and comorbid psychopathology. More than half (54.2%) met the accepted criterion for obesity (BMI ≥ 30).

All participants met criteria for BED according to the operational definition suggested in the EDE manual, namely, the occurrence of at least 12 OBEs over the past 3 months in the absence of the “recurrent inappropriate compensatory behaviors” required for the diagnosis of BN.¹⁷ Two thirds of participants ($n = 18$, 66.7%) reported an average of two or more episodes of binge eating per week during the past 3 months (mean = 4.0, SD = 4.9) and therefore met the binge frequency criterion for the provisional diagnosis of BED suggested in DSM-IV.¹ The number of participants meeting DSM-IV criteria for BED could not, however, be determined because binge frequency was assessed over a 3-month period, rather than a 6-month period, and because the additional behavioral criteria suggested were not assessed. In addition, binge episode frequency was assessed rather than the number of days on which binge eating occurred. Most participants ($n = 22$, 81.5%) reported an “undue influence of weight or shape on self-evaluation” as assessed by EDE “Importance of Weight” and “Important of Shape” items.¹⁷

Assessment of Prior Extreme Weight-Control Behaviors

For each behavior assessed, participants were first asked whether they had ever engaged in that behavior. A positive response to this initial question was followed by a series of additional questions. The first of these established whether the behavior in question had ever occurred “regularly.” For self-induced vomiting and misuse of laxatives or diuretics, “regular” was defined as “on average at least weekly for a period of 3 months or more,” whereas regular extreme dietary restriction and excessive exercise were recognized if these behaviors occurred, on average three or more times per week for a period of 3 months or more.^{10,11}

For participants who reported the regular occurrence of a given behavior, further questions addressed the age at which the behavior first occurred regularly and the actual frequency of the behavior concerned at the time in question, such that additional operational definitions of “regular” could be explored. For the assessment of self-induced vomiting and misuse of laxatives or diuretics, two possible definitions were considered, namely, at least weekly for a period of 3 months or more and at least twice per week for a period of 3 months or more.^{1,17} For regular extreme dietary restriction and excessive exercise, and in the absence of any agreed-upon thresholds for these terms, definitions of three or more times per week, five or more times per week, and daily were considered.^{10,11,17} The proportion of participants who had previously met criteria for BN—according to different possible definitions—was also considered.

Results

Findings relating to participants' prior use of extreme weight-control behaviors are summarized in Table 2 (purging behaviors) and Table 3 (non-purging behaviors). Approximately two thirds of participants (65.4%) reported either one or more purging behaviors at least weekly or one or more nonpurging behaviors at a frequency of three or more times per week, for a period of 3 months or more, whereas 38.5% of participants reported either purging behaviors at least twice weekly or non-purging behaviors five or more times per week for a period of 3 months or more.

Five participants (18.5%) had met criteria for BN comparable to those outlined in the EDE, namely, the co-occurrence, during a period of 3 months or more, of: (i) at least weekly episodes of binge eating; (ii) at least weekly purging behaviors and/or nonpurging behaviors at a frequency of three times per week or more; and (iii) the undue influence of weight or shape on self-evaluation. Three (of these five) participants (11.1%) reported episodes of binge eating and (purging and/or nonpurging) compensatory behaviors at a frequency of twice per week or more and would therefore have met criteria for BN comparable to those suggested in DSM-IV

With respect to participants' confidence in their ability to accurately recall the occurrence and frequency of prior weight-control behaviors, the mean (SD) rating for a total of 31 observations was 3.90 (0.91). The modal response was very confident (38.7%), followed by extremely confident (29.0%), moderately confident (25.8%), and "a little confident" (6.5%). No participants reported that they were "not at all confident" in their recollection.

The recall interval, namely, the time between the first regular occurrence of a behavior and the time of the interview, ranged from 1.08 years to 25.08 years, with a median of 10.08 years. There was no association between recall length and recall confidence ($r = 0.12$, $p = .53$) and confidence ratings did not vary as a function of the length of either the recall interval (<10 years, 10 years; $z = -0.65$, $p = .52$) or the type of behavior recalled (purging, nonpurging; $z = -1.24$, $p = .26$).

Discussion

Summary of Main Findings

We examined the prior use of extreme weight-control behaviors among women with BED-type eating disorders. Participants were recruited directly from the community and eating disorder behaviors were assessed by trained interviewers. Although not all participants would have met formal diagnostic criteria for BED, the sample was highly symptomatic in terms of eating disorder and comorbid psychopathology. Thirty-one percent of participants reported having ever used one or more purging behaviors at a frequency of at least once per week, for a period of 3 months or more, whereas 63.0% of participants reported having ever used one or more nonpurging behaviors at a frequency of three or more times per week, for a period of 3 months or more. Almost two thirds of participants (65.4%) reported the prior use of either purging behaviors at least weekly or nonpurging behaviors three or more times per week, whereas 38.5% of participants reported the prior use of either purging behaviors at

least twice weekly or non-purging behaviors five or more times per week, for a period of 3 months or more. Comparatively few participants (11.1%), however, had ever met formal diagnostic criteria for BN.

Study Limitations and Other Methodological Considerations

At least two limitations of the present study need to be taken into account when interpreting these findings. First, a retrospective study design was employed and it is well known that the recall of psychiatric symptoms may be unreliable.¹⁸ The recall of nonpurging weight-control behaviors may be particularly unreliable, in which case the prior occurrence of the nonpurging subtype of BN may tend to be misclassified as BED.² On the other hand, denial or underreporting of nonpurging behaviors may be less likely than that of purging behaviors.²² Some support for the validity of the present findings was provided by the fact that participants were generally very confident in their ability to recall the occurrence and frequency of each of the behaviors assessed and confidence ratings did not vary as a function of either the recall period or the type of behavior (i.e. purging or nonpurging) assessed. However, this analysis should be viewed as preliminary given the small subgroup sample sizes involved. It might also be noted that the proportion of participants in the present study who had previously met formal diagnostic criteria for BN (11.1%) was virtually identical to that observed in the New England Women's Health Project (11.3%),² in which participants met full DSM-IV criteria for BED.

Second, no attempt was made to assess the lifetime occurrence of subjective bulimic episodes (SBEs) in the present study. This is significant because individuals who report extreme weight-control behaviors in the absence of recurrent binge eating often report recurrent SBEs and evidence suggests that it is the combination of extreme weight-control behaviors and SBEs that indicates distress and functional impairment.^{10,23–25} Further, the version of the EDE developed for the present study was such that the lifetime occurrence of the undue influence of weight or shape on self-evaluation was assessed only in the context of a lifetime diagnosis of BN—that is, only when the prior occurrence of recurrent binge eating was also reported. In the absence of information as to whether prior extreme weight-control behaviors were accompanied by recurrent SBEs and/or “undue influence,” the clinical significance of these behaviors is unclear. Whether it would be possible, using a retrospective study design, to assess the lifetime occurrence of either behavior with any degree of reliability is a moot point.^{16,19,20}

As would be expected in a community sample, the prior use of nonpurging weight-control behaviors, namely, extreme dietary restriction and excessive exercise, was more common than the prior use of purging behaviors.²⁶ Nevertheless, close to one third of participants reported that they had previously engaged in self-induced vomiting or laxative misuse at a frequency of at least twice per week for a period of 3 months or more. As might also be expected, the prevalence of nonpurging behaviors was more sensitive than that of purging behaviors to variation in the specific operational definition of “regular” employed, ranging from 81.5% for any occurrence to 14.8% for daily occurrence over a period of 3 months or more.

The operational definition of extreme dietary restriction and excessive exercise remains a significant challenge for the field.^{21,27} The potential inclusion in classification schemes of eating disorders characterized by extreme weight-control behaviors in the absence of binge eating compounds the problem, in that these behaviors become worthy of investigation in their own right, as opposed to being merely “compensatory.” Hence, further research is needed to determine the prevalence and correlates of different possible operational definitions of extreme dietary restriction and excessive exercise. The use of diet pills and dietary supplements also warrants further investigation. The prevalence of prior extreme weight-control behaviors among participants in the present study would almost certainly have been higher again had the use of these products been considered.

Study Implications

With these considerations in mind, two main implications of the present research may be noted. First, there may be considerable overlap between bulimic-type eating disorders characterized by binge eating in the absence of extreme weight-control behaviors and those characterized by extreme weight-control behaviors in the absence of binge eating when a longitudinal perspective is taken. In this respect, the present findings could be seen to be consistent with a transdiagnostic view of the classification of eating-disordered behavior.^{28–30} The fact that a high degree of overlap was apparent between BED and prior regular weight-control behaviors, but not between BED and prior BN, is itself of interest and raises the possibility that BED may be more likely to be a burned-out form of “purging disorder” than of BN. Further research will be needed to elucidate the natural history of all three syndromes, using instruments that permit consideration of multiple thresholds for specific diagnoses and that also provide for the assessment of distress, functional impairment, and comorbidity associated with specific behavior clusters.^{31–33}

Second, caution needs to be exercised in drawing conclusions concerning the overlap between bulimic-type eating disorders that involve regular extreme weight-control behaviors and those that do not based on any one operational definition of the term “regular.” Particularly when the limitations of current diagnostic criteria for both BN and BED are widely acknowledged,^{34,35} it does not make sense to rigidly apply these criteria as a basis for participant inclusion in research addressing the natural history of these disorders. Although the focus of the present study was on the prior occurrence of extreme weight-control behaviors among individuals with a current diagnosis of BED, a similar concern would apply to research addressing the prior occurrence of BED among individuals with a current diagnosis of BN or purging disorder and to cross-over between eating disorder diagnoses more generally.^{28,33,36}

In sum, considerable overlap between disorders characterized by binge eating in the absence of extreme weight-control behaviors and those characterized by extreme weight-control behaviors in the absence of binge eating may be apparent when a longitudinal perspective is taken. The extent of this overlap is likely to depend, in large part, on the specific operational definition of “regular extreme weight-control behaviors” employed. Further research is needed to elucidate the prevalence and correlates of prior extreme weight-control behaviors, both purging and non-purging, among individuals with BED.

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Table 1
Characteristics of present study participants (BED) (*n* = 27) when compared with a general population sample of women (*n* = 495) and a clinical sample of eating disorder patients (*n* = 118)

	General Population Sample (<i>n</i> = 495); Mean (SD) ³¹	Present Study (BED) (<i>n</i> = 27); Mean (SD)	Eating Disorder Patients (<i>n</i> = 118); Mean (SD) ³⁷
Age	33.46 (8.91)	29.37 (6.82)	22.26 (7.32)
BMI	24.85 (5.45)	31.66 (8.20)	21.27 (4.60)
Eating Disorder Examination Questionnaire subscales ^a			
Restraint	1.22 (1.42)	2.58 (1.34)	3.85 (1.64)
Eating concern	0.64 (1.00)	3.44 (1.22)	3.66 (1.54)
Weight concern	1.65 (1.42)	4.05 (0.95)	4.27 (1.52)
Shape concern	2.10 (1.58)	4.92 (0.85)	4.66 (1.36)
Global score	1.40 (1.20)	3.75 (0.70)	4.09 (1.35)
Impairment in physical health functioning (SF-12 PCS) ^b	50.73 (8.76)	45.49 (10.78)	47.15 (10.32)
Impairment in psychosocial functioning (SF-12 MCS) ^b	47.40 (10.30)	31.80 (10.98)	30.77 (10.57)
General psychological distress (K-10) ^c	43.24 (6.45)	34.62 (8.33)	30.48 (7.73)
	%	%	%
Severe impairment in role functioning (MCS 30) ^b	9.6	56.0	48.7
Probable anxiety or affective disorder (K-10 30) ^c	5.6	30.8	52.7

^aScores on each scale range from 0 to 6 with higher scores indicating higher symptom frequency or severity [11].

^bScores on the Physical Component Summary scale (PCS) and Mental Component Summary scale (MCS) range from 0 to 50 with lower scores indicating higher levels of impairment. A score of 30 or less on the MCS indicates severe impairment in psychosocial functioning [31].

^cScores range from 0 to 50 with lower scores indicating higher levels of distress. A score of 30 or less indicates a high probability of clinically significant symptoms of anxiety and/or depression [31].

Table 2
Percentage (%) frequency of prior (lifetime) purging behaviors among study participants
(*n* = 27)

	Any Occurrence (%)	1/wk (%)	2/wk (%)
Self-induced vomiting	44.4	18.5	18.5
Laxative misuse	29.6	11.5	11.5
Diuretic misuse	22.2	0.0	0.0
Any purging	59.3	30.8	30.8

Table 3
Percentage (%) frequency of prior (lifetime) nonpurging behaviors among study participants ($n = 27$)

	Any Occurrence (%)	3 times/wk (%)	5 times/wk (%)	Every day (%)
Extreme dietary restriction	63.0	37.0	18.5	7.4
Excessive exercise	59.3	48.1	22.2	14.8
Any nonpurging	81.5	63.0	33.3	14.8