Published in final edited form as:

J Abnorm Psychol. 2008 May ; 117(2): 414–419. doi:10.1037/0021-843X.117.2.414.

Overvaluation of Shape and Weight in Binge Eating Disorder and Overweight Controls: Refinement of a Diagnostic Construct

Carlos M. Grilo,

Department of Psychiatry, Yale University School of Medicine

Joshua I. Hrabosky,

Department of Psychiatry, Yale University School of Medicine

Marney A. White,

Department of Psychiatry, Yale University School of Medicine

Kelly C. Allison,

Department of Psychiatry, University of Pennsylvania School of Medicine

Albert J. Stunkard, and

Department of Psychiatry, University of Pennsylvania School of Medicine

Robin M. Masheb

Department of Psychiatry, Yale University School of Medicine;

Abstract

Debate continues regarding the nosological status of binge eating disorder (BED) as a diagnosis as opposed to simply reflecting a useful marker for psychopathology. Contention also exists regarding the specific criteria for the BED diagnosis, including whether, like anorexia nervosa and bulimia nervosa, it should be characterized by overvaluation of shape/weight. The authors compared features of eating disorders, psychological distress, and weight among overweight BED participants who overvalue their shape/weight ($n = 92$), BED participants with subclinical levels of overvaluation ($n = 73$), and participants in an overweight comparison group without BED ($n = 45$). BED participants categorized with clinical overvaluation reported greater eating-related psychopathology and depression levels than those with subclinical overvaluation. Both BED groups reported greater overall eating pathology and depression levels than the overweight comparison group. Group differences existed despite similar levels of overweight across the 3 groups, as well as when controlling for group differences in depression levels. These findings provide further support for the research diagnostic construct and make a case for the importance of shape/weight overvaluation as a diagnostic specifier.

Keywords

overvaluation; binge eating disorder; obesity; body image; diagnosis

Binge eating disorder (BED), a research category in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994), is characterized by recurrent binge eating without extreme compensatory weight-control behaviors. The BED research diagnosis is more common than the two formal eating disorder

diagnoses, bulimia nervosa (BN) and anorexia nervosa (AN; Hudson, Hiripi, Pope, & Kessler, 2007), although debate continues regarding its nosological status (Devlin, Goldfein, & Dobrow, 2003; Stunkard & Allison, 2003). Stunkard and Allison (2003), in their critical review, concluded that BED is a useful marker for psychopathology as opposed to a disorder. Recent studies, however, have provided further support for the BED research diagnosis. BED is a stable construct (i.e., as chronic as BN and AN; Pope et al., 2006) that is associated with heightened psychiatric comorbidity, psychosocial impairment, and medical problems (Hudson et al., 2007) and is a distinct familial phenotype in obese persons (Hudson et al., 2006).

As we move toward the development of the *DSM-V* (Brown & Barlow, 2005), a pressing question regarding the BED research diagnosis is whether revisions or additions to its criteria would improve the construct (Masheb & Grilo, 2000, 2003). Included in the *DSM-IV* criteria for AN and BN, but not for BED, is the presence of overvaluation of shape and weight, or the “undue influence of body weight or shape on self-evaluation” (American Psychiatric Association, 1994, p. 545). Although patients with BED appear to have similar levels of overvaluation of shape and weight as those with BN and AN (Wilfley, Schwartz, Spurrell, & Fairburn, 2000), little empirical attention has been given to the potential utility of such a body-image related cognitive criterion or specifier for this research diagnostic construct.

Two recent studies have specifically examined the significance of shape/weight overvaluation in BED. Hrabosky, Masheb, White, and Grilo (2007) assessed 399 patients with BED using the investigator-based Eating Disorder Examination (EDE; Fairburn & Cooper, 1993) and found that overvaluation significantly predicted degree of eating-related psychopathology and psychological disturbance. Furthermore, patients categorized as experiencing clinical overvaluation (i.e., shape/weight is high on the list of things that influence self-evaluation based on EDE clinical cutoff score of 4 or greater reflecting at least moderate importance) reported significantly greater eating-related and general psychological disturbances than those experiencing subclinical overvaluation (i.e., EDE score of 3 or less reflecting lesser importance). Based on these results, Hrabosky and colleagues (2007) recommended the inclusion of a diagnostic specifier of shape/weight overvaluation to distinguish BED patients who suffer from greater psychopathology. Mond, Hay, Rodgers, and Owen (2007), in a community-based sample assessed using the self-report version of the EDE (i.e., EDE-Q; Fairburn & Beglin, 1994), also found that individuals with BED and overvaluation experienced significantly higher levels of eating disorder psychopathology and functional impairment than individuals with BED without overvaluation. BED cases without overvaluation resembled obese non-binge eaters in most respects. Mond and colleagues (2007) concluded that their findings support the inclusion of “undue influence of weight or shape on self-evaluation” as a diagnostic criterion for BED and that in the absence of this cognitive feature BED cases may not be clinically meaningful as they resemble overweight non-binge eaters in associated psychopathology (despite the presence of the defining binge eating behavior).

Collectively, the Hrabosky et al. (2007) and Mond et al. (2007) studies converge in suggesting the importance of assessing over-valuation of shape/weight in persons who binge eat. Mond and colleagues, who included a comparison group of overweight non-binge eaters, suggested that overvaluation be a diagnostic requirement, whereas Hrabosky and colleagues, who did not include an overweight comparison, suggested that it serve as a specifier for the BED research diagnostic construct. Interpretation of Mond and colleagues’ findings, however, must be viewed cautiously given their reliance on the self-report EDE-Q to determine the BED research diagnosis and to assess the degree of overvaluation. Studies have consistently found that respondents’ scale scores tapping cognitive features are

significantly higher when assessed using the self-report EDE-Q than the investigator-based EDE interview (Grilo, Masheb, & Wilson, 2001a, 2001b). Also, unlike the EDE, the EDE-Q does not assess all features of BED or generate a diagnosis. The present study aims to definitively address the significance of clinical overvaluation of shape/weight for the research diagnosis of BED (i.e., diagnostic criterion versus specifier). We extend our initial report (Hrabosky et al., 2007) using diagnostic interviews and the EDE interview by comparing BED patients who overvalue their shape/weight, BED patients with subclinical levels of overvaluation, and a comparison group of concurrently recruited overweight non-BED patients.

Method

Participants

Participants were 210 adult respondents (160 women and 50 men) to media advertisements (2000–2002) seeking participants for research and treatment studies at the departments of psychiatry at Yale University and University of Pennsylvania. These advertisements ran separately and specifically targeted people with binge eating (Yale University) or general weight problems without disordered eating such as binge eating (University of Pennsylvania). Study inclusion criteria required either meeting full research criteria for BED or absence of regular binge eating. Exclusion criteria included pregnancy, current treatment for eating or weight problems, specific medical (diabetes, thyroid disease) or severe comorbid psychological (bipolar, psychosis, current drug dependence) conditions, and psychotropic medication use in the past 3 months.

Of the 210 participants, 165 met *DSM-IV* research criteria for BED and were overweight (BMI [kg/m^2] ≥ 25), and 45 were overweight and did not binge eat. The 165 BED participants were a consecutive subset of the 399 BED participants from the Hrabosky et al. (2007) study performed at Yale University selected solely on the basis of having been recruited concurrently with the 45 overweight comparison participants at the University of Pennsylvania. No attempt was made to recruit participants for the overweight comparison group matched to the BED group on demographic or clinical variables such as weight.

Participants ranged in age from 20 to 62 years ($M = 44.0$, $SD = 9.6$) and in Body Mass Index (BMI) from 25.1 to 56.5 ($M = 36.5$, $SD = 6.9$). Most participants ($n = 167$, 79.5%) were White, whereas 25 (12%) were Black, 7 (3%) were Hispanic, 1 (0.5%) was Asian American, and 10 (5%) were of unspecified ethnicities. Eighty-four percent ($n = 176$) had at least some college education. The study had institutional review board approval and all participants provided written informed consent.

Assessment and Measures

Assessments were administered by experienced research clinicians who were specifically trained and monitored. BED research diagnoses were determined using the Structured Clinical Interview for *DSM-IV* Axis I Disorders (SCID-I/P; First, Spitzer, Gibbon, & Williams, 1996) and confirmed by findings from the EDE (Fairburn & Cooper, 1993). The EDE, a semistructured investigator-based interview, was administered to all participants to assess the specific features of eating disorders (including overvaluation of shape/weight).

Eating Disorder Examination (EDE)—The EDE, used to assess eating disorders and their features, focuses on the previous 28 days except for diagnostic items that are rated for duration stipulations of the *DSM-IV*. The EDE assesses the frequency of different forms of overeating, including objective binge eating (i.e., OBE; binge eating defined as unusually

large quantities of food with a subjective sense of loss of control). The EDE's definition of OBE corresponds to the *DSM-IV* criteria for binge eating in the BED research criteria.

The EDE also comprises four subscales: Restraint, Eating Concern, Shape Concern, and Weight Concern.¹ The Restraint sub-scale reflects attempts to restrict food intake to influence weight or shape; the Eating Concern subscale reflects the degree of concern about eating; and the Weight Concern and Shape Concern sub-scales measure the degree of concern about weight and shape, respectively. The items assessing eating disorder features for the four scales are rated on a 7-point forced-choice format (0 to 6), with higher scores reflecting greater severity or frequency.

The EDE is considered the best established and most rigorous method for assessing the cognitive features of eating disorders and has received support for its utility in assessing BED (Grilo et al., 2001a, 2001b). Psychometric studies of the EDE have demonstrated its validity (Grilo et al., 2001a) and good interrater and test–retest reliability in diverse groups including BED (Grilo, Lozano, & Elder, 2005; Grilo, Masheb, Lozano-Blanco, & Barry, 2004), although recent studies have found that the restraint scale is not correlated with actual caloric intake (Sysko, Walsh, Schebendach, & Wilson, 2005). In the present study, interrater ($N = 36$ ratings of taped interviews) and test–retest ($N = 19$ interviews repeated a week later by different raters who were blind to the initial interview) reliabilities of the EDE were excellent. Spearman rho correlations for OBEs were .98 for interrater and .74 for 1-week test–retest reliability. Spearman correlations for interrater reliability for EDE scales were 0.96 (restraint), 0.94 (eating concern), 0.79 (weight concern), and 0.94 (shape concern). Spearman rho correlations for test–retest reliability for EDE scales were 0.85 (Restraint), 0.54 (Eating Concern), 0.54 (Weight Concern), and 0.58 (Shape Concern).

Self-evaluation unduly influenced by shape and weight was measured using two specific items from the EDE: “Over the past four weeks, has your *shape* influenced how you feel about (judge, think, evaluate) yourself as a person?” and “Over the past 4 weeks has your *weight* influenced how you feel about (judge, think, evaluate) yourself as a person?” Given the complexity of these concepts, a second probe is used as a starting point for ensuring that participants understand these items: “If you imagine the things which influence how you feel about (judge, think, evaluate) yourself—such as your performance at work, being a parent, your marriage, how you get along with other people—and put these things in order of importance, where does your shape (or weight) fit in?” The two overvaluation items are rated on a 7-point forced-choice scale anchored ranging from 0 (*no importance*) to 6 (*supreme importance: nothing is more important in the subject's scheme for self-evaluation*).² A composite shape/weight overvaluation value was created on the basis of mean scores of these two items. Prior research used these items to define overvaluation (Goldfein, Walsh, & Midlarsky, 2000). In this study, interrater reliability (Spearman ρ) correlations, determined using $N = 36$ cases, were .97 and .95 for shape and weight overvaluation, respectively.

Beck Depression Inventory (BDI)—The BDI (Beck & Steer, 1987) is a widely used 21-item measure of depressive symptoms, and more generally of negative affect, and therefore is a useful marker for broad psychosocial distress (Watson & Clark, 1984). Studies with clinical samples have reported good internal consistency ($\alpha = .81$ to $.86$), test–retest reliability ($r = .48$ – $.86$), and convergent validity with clinician ratings of depression ($r = .$

¹The EDE Shape Concern and Weight Concern scale scores were calculated without their respective overvaluation items included in the interview's standard scoring methods.

²Using the interview's standard methods, we asked the respective shape and weight overvaluation questions separately in reference to each of the past three months. In the current study, shape overvaluation and weight overvaluation consisted of the mean importance for the past month on the respective EDE items.

60–.72; Beck, Steer, & Garbin, 1988). The BDI showed excellent internal consistency in this study ($\alpha = .87$).

Three-Factor Eating Questionnaire (TFEQ)—The TFEQ (Stunkard & Messick, 1985) consists of 51 items that assess three factors: disinhibition, hunger, and cognitive restraint (which may be further divided into flexible control and rigid control). The TFEQ has received some psychometric support including good internal consistency (Stunkard & Messick, 1985) and predictive validity (Foster et al., 1998), although recent studies have found that TFEQ restraint scores are not correlated with actual caloric intake (Stice, Fisher, & Lowe, 2004; Sysko, Walsh, & Wilson, 2007).

Results

Participants with BED were categorized on the basis of shape/ weight overvaluation using prior research conventions (Fairburn & Cooper, 1993; Goldfein et al., 2000; Hrabosky et al., 2007). Following Fairburn and Cooper's (1993) suggested clinical cutoff score of 4 (i.e., moderate importance), participants with BED were categorized as experiencing either clinical or subclinical overvaluation. The BED clinical overvaluation group included individuals who reported that their shape and/or weight was high on the list of things that influenced their self-evaluation (i.e., score = 4 on either overvaluation item).³ The BED subclinical overvaluation group included individuals who reported no influence or, at most, mild influence of shape and weight on their self-evaluation (i.e., score < 4 on both overvaluation items).

Of the participants with BED, 56% ($n = 92$) were categorized as having clinical overvaluation and 44% ($n = 73$) as having subclinical overvaluation.⁴ Chi-square tests of independence were performed comparing the two BED groups (BED clinical overvaluation, BED subclinical overvaluation) and the overweight comparison group ($n = 45$) on demographic variables. The three groups did not differ in distribution of gender across groups, $\chi^2(2, N = 210) = 5.59, ns$. The chi-square analysis of race (White versus non-White) revealed significant differences among the clinical groups, $\chi^2(2, N = 210) = 11.16, p < .01$. Specifically, whereas the majority of participants within all groups were White, greater percentages of BED participants were White (85% of the clinical and 88% of the subclinical overvaluation groups) in comparison to the overweight controls (64% were White). A general linear model (GLM) analysis of variance (ANOVA) revealed a significant difference among the three groups on age, $F(2, 207) = 7.42, p < .01, \eta^2 = .07$; participants within the BED clinical overvaluation ($M = 45.0$ years, $SD = 8.6$) and subclinical overvaluation ($M = 45.6$ years, $SD = 9.2$) groups were significantly older than those within the overweight comparison group ($M = 39.2$ years, $SD = 10.9$).

Table 1 summarizes descriptive statistics and findings from GLM ANOVAs comparing the BED clinical overvaluation, BED subclinical overvaluation, and overweight comparison groups on BMI and the study measures. Table 1 also shows partial η^2 , an effect size

³Following Fairburn and Cooper's (1993) guidelines for BN, a participant's score above the cutoff of 4 on either overvaluation item placed the participant in the clinical group regardless of his or her score on the other overvaluation item. The distribution of scores on the EDE overvaluation variable was not a normal one; a bimodal distribution was observed, with scores of 2 and 4 as modal although scores of 3 and 6 were common. This nonnormal distribution fits our clinical impressions and is consistent with the EDE scoring guidelines and our approach to dichotomizing this continuous variable. In this study, kappa coefficient for the categorization of clinical overvaluation (based on $N = 36$ cases rated blindly) was 0.89 ($p < .0001$).

⁴Participants with BED were significantly more likely to report clinical overvaluation ($n = 92$ of 165; 56%) than the overweight comparison group ($n = 10$ of 45; 22%), $\chi^2(1, N = 210) = 15.92, p < .001$. Of the BED sample, 75 (46%) reported clinical levels (i.e., scores = 4) of both shape and weight overvaluation, 8 (5%) reported clinical levels of shape overvaluation only, and 9 (5.5%) reported clinical levels of weight overvaluation only. Five (3%) participants reported that neither their shape nor weight were of any (i.e., value of 0) importance to them.

measure. Cutoff conventions for this effect size measure are as follows: small (.01–.09), medium (.10–.24), and large (>.25). The groups did not differ in their BMI nor were there any significant within group correlations between BMI and overvaluation: .01 (for overall group), –.01 (for BED clinical overvaluation group), –.07 (for BED subclinical overvaluation group), and –.04 (for overweight control group). On the EDE, both BED groups reported greater frequency of binge eating and dietary restraint than the overweight comparison group, but they did not differ from each other. However, the BED clinical overvaluation group reported greater shape, weight, and eating concerns than the subclinical overvaluation and overweight comparison groups, whereas the BED subclinical overvaluation group reported greater problems in these areas than the comparison group (see Footnote 1). The BED clinical overvaluation group had significantly higher BDI scores than the subclinical overvaluation and overweight comparison groups, whereas the subclinical overvaluation group had significantly higher BDI scores than the comparison group. On the TFEQ, both BED groups reported similar levels of disinhibition and hunger, and both reported greater disturbances in these areas than the comparison group. Cognitive restraint did not differ among the three groups nor did flexible control. Both BED groups reported significantly higher rigid control scores than the overweight comparison group, but they did not differ from each other.

Because the BED groups had a significantly greater proportion of White participants than the overweight comparison group, we repeated the ANOVAs limited to White participants only ($n = 167$). In 11 of 13 analyses, limiting group comparisons to Whites only did not alter any of the findings. Table 1 shows the partial η^2 values for Whites only; these effect sizes are similar to those for the overall study group. A series of analyses of covariance (ANCOVAs; $n = 210$), controlling for ethnicity (White, non-White), revealed a similar patterning of findings (effect sizes summarized in Table 1) suggesting that controlling for White versus non-White status did not significantly alter the findings.

Because the three groups differed significantly in BDI scores and, given findings that higher levels of depressive/negative affect may signal a more disturbed subgroup of BED patients (Grilo, Masheb, & Wilson, 2001c; Stice et al., 2001), we performed a series of ANCOVAs, controlling for BDI scores for all of the study measures (effect sizes summarized in Table 1). In 11 of 12 analyses, controlling for BDI did not alter any of the findings regarding group differences (i.e., nine of the significant findings remained significant and two of the three nonsignificant findings remained nonsignificant). One change was that, when controlling for BDI, significant differences among the three groups were observed on the TFEQ Cognitive Restraint scale, $F(2, 205) = 5.23$, $p < .01$, $\eta^2 = .05$. Specific post hoc comparisons revealed that the BED clinical overvaluation group experienced greater cognitive restraint than both the BED subclinical overvaluation and overweight comparison groups, whereas the latter two groups did not differ from each other. Table 1 shows the partial η^2 values for ANCOVAs covarying for BDI.⁵

⁵As is evident in Table 1, the partial η^2 values for the ANCOVAs controlling for BDI scores are not substantially reduced for most variables relative to the partial η^2 values for the ANOVAs suggesting that overvaluation contributes important information about BED above and beyond participants' depression levels. We explored this further by performing a series of stepwise regression analyses predicting the dependent variables to ascertain the joint and independent contributions of BDI and overvaluation. BDI predicted more variance than overvaluation in TFEQ Disinhibition and Hunger scales. In contrast, overvaluation predicted more variance in all of the EDE scales, TFEQ Restraint scale, and binge eating frequency. Thus, regression analyses were consistent with the ANCOVAs in showing a general pattern that overvaluation accounted for a greater amount of variance than BDI levels on most of the dependent variables in Table 1.

Discussion

This study compared features of eating disorders, psychological distress, and BMI among overweight BED participants who over-value their shape/weight, overweight BED participants with subclinical levels of overvaluation, and an overweight non-BED comparison group. The results provide support for the distinctiveness of overweight persons with BED versus overweight persons who do not binge eat, and for shape/weight overvaluation as an important distinguishing clinical feature both within the BED research diagnosis and in comparison to overweight non-binge eaters. Thus, our findings provide support for the BED research diagnostic construct and indicate the importance of overvaluation of shape/ weight as a diagnostic specifier.

In this study, 56% of the BED group was categorized as suffering from clinical levels of shape/weight overvaluation, whereas 44% reported subclinical levels. The clinical overvaluation group reported greater shape, weight, and eating concerns and depressive symptomatology, whereas the two groups did not differ in BMI, binge eating frequency, or in other areas of eating behavior. The overweight comparison group allowed us to address the question of whether overvaluation should be a diagnostic criterion or a specifier for the BED research construct. Although the BED clinical overvaluation patients reported greater eating concerns and depressive symptomatology than their subclinical counterparts, both BED groups reported greater overall eating pathology and negative affect than the overweight comparison group. Further, despite experiencing “subclinical” levels of shape/weight over-valuation, participants in the BED subclinical overvaluation group reported greater levels of eating-, shape-, and weight-concerns on the EDE as well as greater eating pathology (binge eating, disinhibition, hunger, and unhealthy forms of restraint reflected in the EDE Restraint scale and the Rigid Control subscale of the TFEQ) than the overweight comparison group. Such group distinctions existed despite comparable degrees of overweight across all three groups, as well as when controlling for group differences in degree of depressive/negative affect. These findings are consistent with the position that overvaluation accounts for unique and meaningful variation in eating disorder psychopathology. However, whereas shape/weight overvaluation appears to be a marker for more severe psychopathology, even those BED participants with subclinical overvaluation have greater eating-related and general psychological disturbances than overweight controls.

Our findings provide support for the addition of overvaluation of shape/weight as a specifier for the BED diagnosis. Such a specifier has diagnostic and clinical relevance, as it will aid in classifying patients with BED who share a clinically relevant characteristic and guide clinicians in planning the amount of clinical emphasis (e.g., cognitive restructuring methods; see Wilson, Grilo, & Vitousek, 2007) to place on shape/weight overvaluation. Whereas Mond and colleagues (2007) concluded that including a criterion for shape/weight overvaluation is warranted, the current study’s results suggest that adding such a criterion (rather than a specifier) would result in the exclusion of a sizeable proportion of individuals suffering from substantial distress and impairment. Although the debate regarding the BED nosology continues (Devlin et al., 2003), there is consensus that binge eating is a useful marker for clinically significant distress and dysfunction (Stunkard & Allison, 2003). In terms of upcoming revisions of the *DSM*, our findings potentially have implications beyond those of a specifier for the current categorical model in the *DSM-IV*. Brown and Barlow (2005), for example, recently introduced the concept of adding dimensional severity ratings to the existing categorical and criterion sets. The degree of overvaluation might work well within such an approach and convey important information about disorder severity and about a clinically significant cognitive feature associated with BED.

Strengths of the current study include use of a clinically meaningful overweight comparison group and rigorous investigator-based interviews to establish diagnostic cases and to assess complex eating disorder psychopathology. It is important that, although the BED and overweight comparison groups were recruited using separate advertisements at two medical schools, they did not differ on BMI; in addition, there were no significant associations between BMI and overvaluation levels within any of the study groups. Several potential limitations are noteworthy. Participants were respondents to advertisements for studies being conducted at two medical schools, and our findings may not generalize to other settings or to individuals unwilling to participate in research. Our overweight comparison group may not generalize to some obesity clinics or to studies that fail to assess for BED or include subthreshold BED cases. Research with diverse obese groups has documented that irregular binge eating, although associated with heightened associated distress, is not as clinically meaningful or prognostically significant as is regular binge eating (Striegel-Moore et al., 2000; White, Masheb, Rothschild, Burke-Martindale, & Grilo, 2006). Since our overweight comparison group comprised participants who do not binge eat, the mean BDI score was lower than reported in some weight control studies that perhaps did not exclude sub-threshold cases. Although this group may appear healthier than those in some weight control studies, because our goal was to compare overweight binge eaters and nonbinge eaters, this overweight comparison group is quite relevant. Nonetheless, we note that the group differences existed even after controlling for group differences in BDI levels. Our findings also may not generalize to persons who suffer from comorbid medical problems, such as diabetes, who might have different priorities regarding health and appearance.

Although overvaluation was determined by reliably administered EDE interviews conducted by skilled and trained research clinicians, future research should consider more comprehensive and multimodal assessments of this construct and its impact on psychosocial functioning. Although our assessment battery captured broad and clinically meaningful constructs, our findings regarding dietary restraint should be viewed cautiously in light of recent research showing that these and other restraint scales are weakly correlated with actual caloric intake (Stice et al., 2004; Sysko et al., 2005, 2007). Lastly, our study was cross-sectional and prospective studies are needed to establish the prognostic significance of overvaluation.

In sum, our findings provide support for the distinctiveness of overweight persons with BED versus overweight persons who do not binge eat, and for shape/weight overvaluation as an important distinguishing clinical feature both within the BED research diagnosis and in comparison to overweight nonbinge eaters. These findings make a case for the importance of overvaluation of shape/weight as a specifier for this diagnostic construct.

Acknowledgments

This research was supported by National Institutes of Health Grants DK056735, DK49587, DK071646, and DK070052.

References

- American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4. Washington, DC: Author; 1994.
- Beck, AT.; Steer, R. Manual for the revised Beck Depression Inventory. San Antonio, TX: Psychological Corporation; 1987.
- Beck AT, Steer R, Garbin M. Psychometric properties of the Beck Depression Inventory: 25 years of evaluation. *Clinical Psychology Review*. 1988; 8:77–100.

- Brown TA, Barlow DH. Dimensional versus categorical classification of mental disorders in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* and beyond: Comment on the special section. *Journal of Abnormal Psychology*. 2005; 114:551–556. [PubMed: 16351377]
- Devlin MJ, Goldfein JA, Dobrow I. What is this thing called BED? Current status of binge eating disorder nosology. *International Journal of Eating Disorders*. 2003; 34:S2–S18. [PubMed: 12900982]
- Fairburn CG, Beglin SJ. Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders*. 1994; 16:363–370. [PubMed: 7866415]
- Fairburn, CG.; Cooper, Z. The Eating Disorder Examination. In: Fairburn, CG.; Wilson, GT., editors. *Binge eating: Nature, assessment, and treatment*. 12. New York: Guilford Press; 1993. p. 317–360.
- First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JBW. *Structured Clinical Interview for DSM-IV Axis I Disorders—Patient Version (SCID-I/P)*. New York: New York Psychiatric Institute, Biometrics Research Department; 1996.
- Foster GD, Wadden TA, Swain RM, Stunkard AJ, Platte P, Vogt RA. The Eating Inventory in obese women: Clinical correlates and relationship to weight loss. *International Journal of Obesity and Related Metabolic Disorders*. 1998; 22:778–785. [PubMed: 9725638]
- Goldfein JA, Walsh BT, Midlarsky E. Influence of shape and weight on self-evaluation in bulimia nervosa. *International Journal of Eating Disorders*. 2000; 27:435–445. [PubMed: 10744850]
- Grilo CM, Lozano C, Elder KA. Inter-rater and test-retest reliability of the Spanish-language version of the Eating Disorder Examination interview. *Journal of Psychiatric Practice*. 2005; 11:231–240. [PubMed: 16041233]
- Grilo CM, Masheb RM, Lozano-Blanco C, Barry DT. Reliability of the Eating Disorder Examination in patients with binge eating disorder. *International Journal of Eating Disorders*. 2004; 35:80–85. [PubMed: 14705160]
- Grilo CM, Masheb RM, Wilson GT. A comparison of different methods for assessing the features of eating disorders in patients with binge eating disorder. *Journal of Consulting and Clinical Psychology*. 2001a; 69:317–322. [PubMed: 11393608]
- Grilo CM, Masheb RM, Wilson GT. Different methods for assessing the features of eating disorders in patients with binge eating disorder: A replication. *Obesity Research*. 2001b; 9:418–422. [PubMed: 11445665]
- Grilo CM, Masheb RM, Wilson GT. Subtyping binge eating disorder. *Journal of Consulting and Clinical Psychology*. 2001c; 69:1066–1072. [PubMed: 11777111]
- Hrabosky JI, Masheb RM, White MA, Grilo CM. Overvaluation of shape and weight in binge eating disorder. *Journal of Consulting and Clinical Psychology*. 2007; 75:175–180. [PubMed: 17295577]
- Hudson JI, Hiripi E, Pope HG, Kessler RC. The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biological Psychiatry*. 2007; 61:348–358. [PubMed: 16815322]
- Hudson JI, Lalonde JK, Berry JM, Pindyck LJ, Bulik CM, Crow SJ, et al. Binge eating disorder as a distinct familial phenotype in obese individuals. *Archives of General Psychiatry*. 2006; 63:313–319. [PubMed: 16520437]
- Masheb RM, Grilo CM. Binge eating disorder: A need for additional diagnostic criteria. *Comprehensive Psychiatry*. 2000; 41:159–162. [PubMed: 10834622]
- Masheb RM, Grilo CM. The nature of body image disturbance in patients with binge eating disorder. *International Journal of Eating Disorders*. 2003; 33:333–341. [PubMed: 12655630]
- Mond JM, Hay PJ, Rodgers B, Owen C. Recurrent binge eating with and without the “undue influence of weight or shape on self-evaluation”: Implications for the diagnosis of binge eating disorder. *Behaviour Research and Therapy*. 2007; 45:929–938. [PubMed: 17010307]
- Pope HG, Lalonde JK, Pindyck LJ, Walsh T, Bulik CM, Crow SJ, et al. Binge eating disorder: A stable syndrome. *American Journal of Psychiatry*. 2006; 163:2181–2183. [PubMed: 17151172]
- Stice E, Agras WS, Telch CF, Halmi KA, Mitchell JE, Wilson GT. Subtyping binge eating-disordered women along dieting and negative affect dimensions. *International journal of Eating Disorders*. 2001; 30:11–27. [PubMed: 11439405]

- Stice E, Fisher M, Lowe MR. Are dietary restraint scales valid measures of acute dietary restriction? Unobtrusive observational data suggest not. *Psychological Assessment*. 2004; 16:51–59. [PubMed: 15023092]
- Striegel-Moore RH, Dohm FA, Solomon EE, Fairburn CG, Pike KM, Wilfley DE. Subthreshold binge eating disorder. *International Journal of Eating Disorders*. 2000; 27:270–278. [PubMed: 10694712]
- Stunkard AJ, Allison KC. Binge eating disorder: Disorder or marker. *International Journal of Eating Disorders*. 2003; 34:S107–S116. [PubMed: 12900991]
- Stunkard AJ, Messick S. The Three-Factor Eating Questionnaire to measure dietary restraint, disinhibition and hunger. *Journal of Psychosomatic Research*. 1985; 29:71–83. [PubMed: 3981480]
- Sysko R, Walsh BT, Schebendach J, Wilson GT. Eating behavior among women with anorexia nervosa. *American Journal of Clinical Nutrition*. 2005; 82:296–301. [PubMed: 16087971]
- Sysko R, Walsh BT, Wilson GT. Expectancies, dietary restraint, and test meal intake among undergraduate women. *Appetite*. 2007; 49:30–37. [PubMed: 17188400]
- Watson D, Clark LA. Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin*. 1984; 96:465–490. [PubMed: 6393179]
- White MA, Masheb RM, Rothschild BS, Burke-Martindale CH, Grilo CM. The prognostic significance of regular binge eating in extremely obese gastric bypass patients: 12-month postoperative outcomes. *Journal of Clinical Psychiatry*. 2006; 67:1928–1935. [PubMed: 17194271]
- Wilfley DE, Schwartz MB, Spurrell EB, Fairburn CG. Using the Eating Disorder Examination to identify the specific psychopathology of binge eating disorder. *International Journal of Eating Disorders*. 2000; 27:259–269. [PubMed: 10694711]
- Wilson GT, Grilo CM, Vitousek K. Psychological treatments for eating disorders. *American Psychologist*. 2007; 62:199–216. [PubMed: 17469898]

Table 1

Comparison of Binge Eating Disorder (BED) Clinical Overvaluation (n = 92), BED Subclinical Overvaluation (n = 73), and Overweight Comparison (n = 45) Groups on Study Measures

Measure	BED clinical overvaluation		BED subclinical overvaluation		Overweight comparison			Partial η^2 (Whites) ^b	Partial η^2 (BDI CV) ^c	
	M	SD	M	SD	M	SD	F ^a			
Body Mass Index	36.93	6.92	35.76	7.37	36.91	6.20	0.67	.01	.00	.02
Eating Disorder Examination										
Shape Concern ^d	4.34 ^a	.92	3.37 ^b	1.11	1.10 ^c	1.02	155.83 [*]	.60	.52	.41
Weight Concern ^d	3.62 ^a	.96	2.88 ^b	.97	1.26 ^c	.95	91.15 [*]	.47	.42	.29
Restraint	2.16 ^a	1.30	1.72 ^a	1.33	1.14 ^b	1.21	9.59 [*]	.09	.08	.07
Eating Concern	2.38 ^a	1.37	1.52 ^b	1.13	.23 ^c	.40	54.07 [*]	.34	.27	.15
Shape/weight overvaluation ^e	4.68 ^a	.99	1.92 ^b	.89	1.20 ^c	1.65	190.61 [*]	.65	.68	.52
Weekly binge eating ^f	4.71 ^a	3.28	4.13 ^a	2.64	.02 ^b	.08	49.50 [*]	.32	.25	.22
Beck Depression Inventory	20.12 ^a	9.33	14.11 ^b	7.32	4.76 ^c	5.40	56.87 [*]	.36	.31	—
Three-Factor Eating Questionnaire										
Disinhibition	13.87 ^a	1.97	13.42 ^a	2.31	7.29 ^b	3.81	109.19 [*]	.51	.45	.38
Hunger	10.07 ^a	2.98	9.62 ^a	3.21	4.53 ^b	3.26	50.28 [*]	.33	.28	.18
Cognitive Restraint	8.85	3.84	7.59	3.61	7.86	3.57	2.58	.02	.02	.05
Flexible Control	2.64	1.52	2.25	1.48	2.07	1.54	2.58	.02	.03	.04
Rigid Control	3.16 ^a	1.61	2.67 ^a	1.56	1.86 ^b	1.34	10.66 [*]	.09	.04	.10

Note. Means in the same row that do not share subscripts differ significantly at $p < .05$ or less using the Tukey honestly significant difference or Dunnett's C post hoc comparisons. BDI CV = Beck Depression Inventory as covariate.

^a d /ranged from (2, 205) to (2, 207).

^b Effect sizes from analyses of variance when limited to (n = 167) White participants only; d /ranged from (2, 163) to (2, 164).

^c Effect sizes from analyses of covariance, controlling for Beck Depression Inventory scores; d /ranged from (2, 204) to (2, 206).

^d The Eating Disorder Examination Shape Concern and Weight Concern scale scores were calculated without their respective overvaluation items included in the interview's standard scoring methods. If the overvaluation items were included, the means and standard deviations of these scales would be as follows: 4.37 $\pm$ 0.90 (Shape Concern) and 3.83 $\pm$ 0.87 (Weight Concern) for the BED clinical overvaluation group, 3.12 $\pm$ 0.99 (Shape Concern) and 2.68 $\pm$ 0.82 (Weight Concern) for the BED subclinical overvaluation group, and 1.31 $\pm$ 1.14 (Shape Concern) and 1.27 $\pm$ 0.97 (Weight Concern) for the overweight comparison group.

^e Composite shape/weight overvaluation values were compared and reported here because separate comparisons on shape overvaluation and weight overvaluation resulted in comparable results.

^f Weekly binge eating is defined by the average weekly frequency of objective bulimic episodes during the previous month.

* $p < .001$.