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Evaluation of the DSM-5 severity indicator for binge eating disorder in a clinical sample

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ABSTRACT

Objective: This study tested the new *DSM-5* severity criterion for binge eating disorder (BED) based on frequency of binge-eating in a clinical sample. This study also tested overvaluation of shape/weight as an alternative severity specifier.

Method: Participants were 834 treatment-seeking adults diagnosed with *DSM-5* BED using semi-structured diagnostic and eating-disorder interviews. Participants sub-grouped based on *DSM-5* severity levels and on overvaluation of shape/weight were compared on demographic and clinical variables.

Results: Based on *DSM-5* severity definitions, 331 (39.7%) participants were categorized as mild, 395 (47.5%) as moderate, 83 (10.0%) as severe, and 25 (3.0%) as extreme. Analyses comparing three (mild, moderate, and severe/extreme) severity groups revealed no significant differences in demographic variables or body mass index (BMI). Analyses revealed significantly higher eating-disorder psychopathology in the severe/extreme than moderate and mild groups and higher depression in moderate and severe/extreme groups than the mild group; effect sizes were small. Participants characterized with overvaluation (N = 449; 54%) versus without overvaluation (N = 384; 46%) did not differ significantly in age, sex, BMI, or binge-eating frequency, but had significantly greater eating-disorder psychopathology and depression. The robustly greater eating-disorder psychopathology and depression levels (medium-to-large effect sizes) in the overvaluation group was observed without attenuation of effect sizes after adjusting for ethnicity/race and binge-eating severity/frequency.

Conclusions: Our findings provide support for overvaluation of shape/weight as a severity specifier for BED as it provides stronger information about the severity of homogeneous groupings of patients than the *DSM-5* rating based on binge-eating.

1. Introduction

Binge-eating disorder (BED), included in Appendix B of the *Diagnostic and Statistical Manual of Mental Disorders 4th edition* (*DSM-IV*; APA, 1994) as a research criteria set for further study, is a new formal diagnosis in the *Diagnostic and Statistical Manual of Mental Disorders, 5th edition* (*DSM-5*; APA, 2013). BED is defined by recurrent episodes of binge eating (eating unusually large amounts of food while experiencing a feeling of loss of control) and the absence of extreme weight compensatory behaviors (e.g., self-induced vomiting, laxative/diuretic abuse) that define bulimia nervosa (BN). Additional criteria require that the binge eating occurs an average of once-weekly during the past three months, be characterized by at least three of five behavioral indicators signaling loss of control over eating, and be associated with marked distress. Empirical research has supported the diagnostic validity and clinical utility of BED (Wilfley, Bishop, Wilson, & Agras, 2007; Wonderlich, Gordon, Mitchell, Crosby, & Engle, 2009) and its distinctiveness from obesity and other forms of disordered eating (Grilo et al., 2009; Grilo, Masheb, & White, 2010).

Questions about possible revisions or additions to improve the BED criteria set stimulated research leading up to *DSM-5* (Masheb & Grilo, 2000; Wilfley et al., 2007). Research supported a once-weekly frequency of binge-eating as a good signal or threshold for a clinically relevant problem (Wilson & Sysko, 2009) and the *DSM-5* revised the required frequency accordingly to once weekly for both BED and BN with the same duration requirement of three

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months. Research challenged the "unusually large amount" requirement for defining "binge eating" (Mond, Hay, Rodgers, & Owen, 2010) but this requirement was not changed in the *DSM-5*. Additional research included one study reporting acceptable diagnostic efficiency for the five behavioral indicators reflecting impaired control over eating (White & Grilo, 2011), one study supporting the required "marked distress" criterion (Grilo & White, 2011), and one study reporting enhanced test-retest reliability for the *DSM-5* BED criteria relative to the *DSM-IV* research criteria (Sysko et al., 2012).

DSM-5 added a new "severity specifier" for BED based on the frequency of binge eating. Four severity groups based on binge-eating frequency were defined as follows: mild (1–3 episodes per week), moderate (4–7 episodes per week), severe (8–13 episodes per week), and extreme (14 or more episodes per week). While research generally supported the new diagnostic criterion of once-weekly binge-eating frequency (Wilson & Sysko, 2009), the addition of the severity specifier for BED in the DSM-5 was made in the absence of published empirical research. A recent study with a non-clinical sample of community volunteers categorized with BED yielded limited support for the new *DSM-5* severity indicator (Grilo, Ivezaj, & White, 2015). Specifically, almost no persons with BED were categorized with severe or with extreme severity; those categorized with moderate severity had greater eating-disorder psychopathology but not depression levels than those categorized with mild severity, although the magnitude of differences represented small effect sizes (Grilo et al., 2015). Further research is clearly needed, particularly with treatment-seeking patients with BED, to extend the preliminary findings reported by Grilo et al. (2015) based on self-report assessments of a non-clinical sample.

Although clinical and research perspectives suggested the need to add a cognitive body-image component to the BED diagnostic construct (Masheb & Grilo, 2000), the *DSM-5* did not make any relevant changes (Grilo, 2013). Clinically, disturbed body image is widely considered to be a core aspect of eating disorders (Grilo, 2013) and despite the fact that the other eating-disorder diagnoses include a body image criterion (e.g., "undue influence of body weight or shape on self-evaluation is required for the diagnosis of BN), body-image disturbance was not included in either the *DSM-IV* or *DSM-5* for BED (see Grilo, 2013). There are various ways that a construct of body-image disturbance could be part of a BED diagnosis, including serving as a diagnostic criterion, subtype specifier, or severity specifier (see Regier, Kuhl, & Kupfer, 2013).

Studies with relevant comparison groups have suggested that overvaluation of shape/weight should not serve as a required criterion for BED as this would exclude substantial numbers of patients with clinically significant problems (Grilo et al., 2009, 2008; Grilo, Masheb, & White, 2010). Diagnostic subtypes (i.e., delineated as "specify whether" in diagnostic criteria sets) define mutually exclusive and jointly exhaustive groupings within a diagnosis whereas diagnostic specifiers (i.e., delineated as "specify if" in diagnostic criteria sets), which are neither mutually exclusive nor jointly exhaustive, are intended to define more homogeneous groupings within the diagnosis who share features; specifiers thus convey clinical information relevant to management and/or prognosis (APA, 2013; Regier et al., 2013). Consistent empirical support has been reported for overvaluation of shape/weight to serve as a diagnostic severity specifier for BED. The presence of overvaluation of shape/weight in persons with BED is associated with significantly elevated eating disorder pathology and psychological distress (Goldschmidt et al., 2010; Grilo et al., 2009, 2008; Grilo, Masheb, & White, 2010; Grilo, White, & Masheb, 2012; Hrabosky, Masheb, White, & Grilo, 2007) and prospectively predicts treatment outcomes (Grilo, Masheb, & Crosby, 2012; Grilo, White, Gueorguieva, Wilson, & Masheb, 2013).

Thus, except for a preliminary study with a non-clinical sample of persons categorized with BED (Grilo et al., 2015), studies have yet to examine the new *DSM-5* severity specifier in patients with BED. The present study tested the *DSM-5* severity specifier for BED and an alternative severity specifier (overvaluation of shape/weight) in a large treatment-seeking clinical study group of adults with BED.

2. Methods

2.1. Participants

Participants were 834 adults with *DSM-5*-based BED; 211 (25.3%) were men and 623 (74.7%) were women. The racial/ethnic distribution for the study sample was: 72.3% (n = 603) White, 16.7% (n = 139) African American, 7.0% (n = 58) Hispanic-American, 1.2% (n = 10) Asian-American, and 2.9% reported "other." Educationally, 20.1% (n = 168) had a high school degree or less, 34.9% (n = 291) attended some college, and 45.1% (n = 376) had a college degree; .1% (n = 8) did not report education level. The research was Yale IRB-approved and all participants provided written informed consent.

Participants were respondents to print advertisements soliciting individuals with concerns about binge eating for treatment studies at a medical school in an urban setting. Eligibility required age between 18 and 70 years, overweight (body mass index (BMI; weight (kg) divided height (m^2))) between 25 and 55, in addition to BED. Exclusionary criteria included: concurrent treatment for eating/weight problems, medical conditions (e.g., diabetes or thyroid problems) that influence eating/weight, severe current neurological or psychiatric conditions requiring alternative treatments (psychosis, bipolar disorder), and pregnancy. These exclusion criteria were in place for medical safety reasons (in addition to typical treatment study method reasons) and were determined during assessments described below.

2.2. Procedures and assessments

Assessments were performed in-person at our facility by trained doctoral-level research clinicians who were supervised and monitored to maintain reliability over time. BED diagnoses were determined based on the *Structured Clinical Interview for DSM-IV Axis I Disorders* (SCID-I/P; First, Spitzer, Gibbon, & Williams, 1996), which was given to assess for all axis I psychiatric conditions, and confirmed with the Eating Disorder Examination interview (see below). Diagnostic algorithms were used to create the *DSM-5* BED diagnosis and severity study groups. Medical and safety status were based on physical exam and laboratory testing. Height and weight (on a high-capacity digital scale) were measured during the assessment evaluation and were used to calculate BMI.

Eating Disorder Examination Interview (EDE; Fairburn & Cooper, 1993), a semi-structured, investigator-based interview, was administered to assess eating disorder psychopathology and to confirm the BED diagnosis. The EDE focuses on the previous 28 days except for diagnostic items, which are rated for *DSM*-based duration stipulations. The EDE assesses the frequency of *objective bulimic episodes* (*OBE*; i.e., binge-eating defined as unusually large quantities of food with a subjective sense of loss of control). The EDE also has four subscales reflecting eating disorder psychopathology (dietary restraint, eating concerns, weight concerns, and shape concerns) which are averaged to produce a total global score reflecting overall severity. The EDE is well established (Grilo, Masheb, & Wilson, 2001) and has demonstrated good inter-rater and test-retest reliability in BED (Grilo, Masheb, Lozano-Blanco, &