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The Body Dysmorphic Disorder Symptom Scale: Development and preliminary validation of a self-report scale of symptom specific dysfunction

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ABSTRACT

The Body Dysmorphic Disorder Symptom Scale (BDD-SS) is a new self-report measure used to examine the severity of a wide variety of symptoms associated with body dysmorphic disorder (BDD). The BDD-SS was designed to differentiate, for each group of symptoms, the number of symptoms endorsed and their severity. This report evaluates and compares the psychometric characteristics of the BDD-SS in relation to other measures of BDD, body image, and depression in 99 adult participants diagnosed with BDD. Total scores of the BDD-SS showed good reliability and convergent validity and moderate discriminant validity. Analyses of the individual BDD-SS symptom groups confirmed the reliability of the checking, grooming, weight/shape, and cognition groups. The current findings indicate that the BDD-SS can be quickly administered and used to examine the severity of heterogeneous BDD symptoms for research and clinical purposes.

Introduction

Measures of body dysmorphic disorder (BDD) and associated symptoms typically fall into one of three categories: measures of overall severity, diagnostic and screening measures, and measures of body image beliefs and satisfaction. The current standard for assessing body dysmorphic disorder, the Yale-Brown Obsessive Compulsive Scale, Modified for BDD (BDD-YBOCS; Phillips et al., 1997), measures the severity of BDD-related obsessions, compulsions, and avoidance. The BDD-YBOCS, a modified version of the original Y-BOCS (Goodman, Price, Rasmussen, Mazure, Delgado, et al., 1989; Goodman, Price, Rasmussen, Mazure, Fleischmann, et al., 1989), has strong psychometric properties and clinical and research utility. Although its total score is practical for treatment outcome research, the BDD-YBOCS does not capture comprehensive information with regard to specific BDD symptoms (e.g., specific cognitions).

The most commonly used measure for screening and diagnosis is the Structured Clinical Interview for DSM (First, Spitzer, Gibbon, & Williams, 2002; First, Williams, Karg, & Spitzer, 2014), which includes a diagnostic module specific to body dysmorphic disorder. The Body Dysmorphic Disorder Examination (Rosen & Reiter, 1996), designed to measure dysmorphic concern in eating disorders, also provides information with regard total severity and diagnostic status yielding a total score and a suggested cutoff for BDD diagnosis. However, its use as a measure for BDD has waned in recent years perhaps due to its particular relevance to eating disorders rather than to BDD specifically. Other screening measures include the Body Dysmorphic Disorder Questionnaire (BDDQ) which consists of yes or no questions reflective of the DSM-IV diagnostic criteria for BDD (Phillips, Atala, & Pope, 1995). Recognizing the gaps in the field with regard to screening for BDD, Mancuso and colleagues sought to validate the 7-item self-report Dysmorphic Concern Questions (DCQ) as a screening measure for BDD. The DCQ yields information with regard to potential diagnostic status, but similar to the aforementioned measures, does not assess the severity or range of symptoms specific to BDD (Mancuso, Knoesen, & Castle, 2010).

The extant literature additionally includes several self-report measures concerning body image beliefs and behaviors. Specifically, the Appearance Schemas Inventory-Revised (ASI-R) assesses psychological investment in physical appearance, as well as the

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importance, meaning, and influence of appearance in one's life (Cash, 2008; Cash, Melnyk, & Hrabosky, 2004). The Multidimensional Body-Self Relations Questionnaire (MBSRQ) measures several facets of body image, including evaluation of and orientation toward appearance, fitness, and health (Brown, Cash, & Mikulka, 1990; Cash, 2000). The scale includes subscales related to weight and more general body satisfaction. The more recently developed Body Image Disturbance Questionnaire (BIDQ) measures concern and preoccupation with physical appearance, as well as associated distress, impairment, and avoidance (Cash, 2008; Cash, Phillips, Santos, & Hrabosky, 2004). Although widely used in body image research, these questionnaires are not specific to the multitude of symptoms that characterize BDD. Rather, they tend to assess more global or eating disorder-specific body image beliefs and behaviors. Body image beliefs and behaviors in individuals with BDD often differ markedly from those of individuals with eating disorders, thus suggesting the need for separate assessments (Hrabosky et al., 2009).

The heterogeneous nature of BDD has received growing attention. Most patients with BDD engage in a range of compulsive behaviors to check, hide, or improve the perceived defect (Phillips, Menard, Fay, & Weisberg, 2005). Indeed, an additional criterion (B) was added to the newly revised diagnostic criteria to capture such repetitive behaviors (e.g., mirror checking, excessive grooming, skin picking, or surgery seeking) or mental acts (e.g., comparing their appearance with that of others) in BDD (APA, 2013). Similarly, a specifier for muscle dysmorphia was added to further characterize individuals (mostly male) who are preoccupied with body build, considering themselves insufficiently big or muscular.

Despite the usefulness of current assessments for diagnostic, clinical, and research purposes, they do not fully capture the broad range of symptoms that mark BDD. Thus, we designed the Body Dysmorphic Disorder Symptom Scale (BDD-SS, Wilhelm, 2006; Wilhelm, Phillips, & Steketee, 2013; available upon request) to create a comprehensive instrument that provides a profile of the severity of a wide range of BDD symptoms and one that could be easily administered and interpreted in clinical and research settings. The BDD-SS could prove useful in elucidating the prevalence of specific symptoms and behaviors in BDD. Importantly, the BDD-SS captures several key aspects of BDD (compulsive behaviors, negative appearance-related cognitions, and avoidance) that need assessment, monitoring, and targeting in treatment. This new scale would allow clinicians to monitor progress in treatment over time by specific symptom dimension, rather than through more global severity measures. Such a measure could provide vital information as to how various BDD symptoms respond to interventions and help clinicians to adapt treatments accordingly. Thus, the current study was an initial step in evaluating a BDD self-report measure that could achieve both screening and severity scaling with good psychometrics. Specifically, we assessed the internal consistency of the BDD-SS. We also evaluated the convergent and discriminant validity of the BDD-SS with measures of BDD (BDD-YBOCS and BABS), body image (MBSRQ-AE and MBSRQ-AO), and depressive symptoms (the BDI-II).

Method

Participants and Procedures

Participants were 99 adults (age 18 or older) with a primary diagnosis of DSM-IV BDD (SCID, First et al., 2002) and a minimum score of 20 on the BDD-YBOCS, who presented for participation in research trials conducted at the Massachusetts General Hospital (MGH) OCD and Related Disorders program from 09/2004 to 01/2013. Patients had not begun any treatment in our clinic. The instruments described below were completed as part of a one-visit initial evaluation for participation in research studies. Clinician-based assessments were administered by doctoral-level clinicians. Participants completed self-report measures either with paper-and-pencil questionnaires or via an electronic data capture system. All participants provided informed consent and procedures were approved by the MGH Institutional Review Board. The sample was 58% female, predominately white ($n = 83$) with a mean age of 30.7 years ($SD = 11.2$). The most common comorbid Axis I diagnoses were social anxiety disorder ($n = 18$); major depressive disorder ($n = 16$), and specific phobia ($n = 14$).

Measures

The **Structured Clinical Interview for DSM-IV** (SCID; First et al., 2002), a reliable and valid semi-structured interview and the standard for diagnosing current and lifetime Axis I disorders, was used to diagnose BDD and comorbid disorders.

The **BDD-Symptom Scale** (BDD-SS; Wilhelm, 2006; Wilhelm et al., 2013) assesses the presence and severity of BDD symptoms. Items were generated by experts in BDD by considering the principles underlying cognitive-behavioral models of BDD (e.g., Neziroglu, Khemlani-Patel, & Veale, 2008; Veale, 2004; Wilhelm et al., 2013), which purport that BDD is developed and maintained by the reinforcement of maladaptive behaviors, including rituals (e.g., mirror checking and grooming) and avoidance, and dysfunctional cognitions (e.g., negative appraisals of body image). To establish content validity, a panel of expert clinicians (faculty members from MGH OCD and Related Disorders Program who treat and or conduct research in BDD) reviewed all items. The BDD-SS contains 54 symptoms divided into 7 conceptually similar symptom groups, with each group comprised of 2–19 specific symptoms. The symptom groups are: checking rituals, grooming rituals, shape/weight-related rituals, hair pulling/skin picking rituals, surgery/dermatology seeking rituals, avoidance, and BDD-related cognitions. Patients endorse (yes/no) symptoms they experienced in the past week. In groups where at least one symptom is endorsed, patients are asked to rate the overall (combined) severity of the symptoms within the group on a 0–10 scale (0 = *no problem*; 10 = *very severe*). Severity within a symptom group refers to the subjective severity associated with the whole group, not the average ratings across symptoms within the group. Thus, the severity score for each symptom group is always at least as high as the severity rating for a particular symptom within that group. The BDD-SS provides two summary scores: BDD-SS Severity (sum of all severity ratings; range 0–70) and BDD-SS Symptom (total number of symptoms endorsed; range 0–54).

The **Yale Brown Obsessive Compulsive Scale modified for BDD** (BDD-YBOCS; Phillips et al., 1997) is a valid and reliable, 12-item semi-structured clinician-administered measure of BDD symptom severity. The BDD-YBOCS has demonstrated good internal consistency ($\alpha = .80$; Phillips et al., 1997). Scores on the BDD YBOCS range from 0 to 48, with higher scores indicating more severe BDD symptoms. Internal consistency from the current sample is .54.

The **Brown Assessment of Beliefs Scale** (BABS; Eisen et al., 1998) is a valid and reliable 7-item clinician-administered measure of current insight/delusionality about appearance related beliefs. Scores range from 0 to 24; higher scores reflect poorer insight/greater delusionality. The BABS has been shown to have high internal consistency ($\alpha = .87$; Eisen et al., 1998). Internal consistency from the current sample is .73.

The **Multidimensional Body-Self Relations Questionnaire-Appearance Scales** is a 34-item assessment of body image (Brown et al., 1990; Cash, 2000). Some participants completed the 69-item version and scores were converted to the 34-item version. The study used two of the five MBSRQ-AS subscales: The 7-item **Appearance Evaluation (AE)** subscale assesses positive and