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## Weight concerns in individuals with body dysmorphic disorder

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### Abstract

**Objective**—To determine the prevalence of weight concerns in individuals with BDD, and to examine similarities and differences between those with and those without weight concerns.

**Method**—We assessed 200 participants with BDD for clinically significant weight concerns and compared those with weight concerns (in addition to other body area concerns) to those without weight concerns on measures of BDD symptoms, other symptom severity, comorbidity, suicidality, functioning, and quality of life.

**Results**—58 (29.0%) participants had weight concerns. Participants with weight concerns were younger, more likely to be female, and had more body areas of concern; a higher frequency of certain BDD behaviors, suicide attempts, and comorbidity; greater body image disturbance and depression; and poorer social functioning. The two groups were similar on other measures.

**Discussion**—Weight concerns in BDD deserve further study, as they appear relatively common and are associated with greater symptom severity and psychopathology in several domains.

### Keywords

Body dysmorphic disorder; Body image; Weight; Eating disorders

## 1. Introduction

Body dysmorphic disorder (BDD), a distressing or impairing preoccupation with an imagined or slight defect in appearance (American Psychiatric Association, 2000), appears to usually focus on the face or head (Phillips, McElroy, Keck, Pope, & Hudson, 1993; Veale et al., 1996). Indeed, early reports on BDD's clinical features did not include any individuals with clinically significant weight concerns (Phillips et al., 1993; Veale et al., 1996). However, more recent reports have included such individuals (Rosen, Reiter, & Orosan, 1995; Veale, Kinderman, Riley, & Lambrou, 2003). Patients with weight concerns have been hypothesized to be a less impaired group of BDD sufferers (Veale, Kinderman, Riley, & Lambrou, 2003), although few studies have directly compared them to BDD patients with non-weight concerns. In one study (Veale et al., 2003), individuals with BDD who were mainly preoccupied with their weight ( $n = 35$ ) had similar levels of depression and social anxiety as did BDD participants without weight preoccupations ( $n = 72$ ). BDD participants with weight concerns were also more depressed and socially anxious than nonclinical controls ( $n = 42$ ). In a study of adolescent psychiatric inpatients (Dyl, Kittler, Phillips, & Hunt, in press), those who met criteria for BDD but were primarily concerned with their weight did not differ from those with non-weight-related BDD; both groups had more severe depression, anxiety, and suicidal ideation than

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psychiatric inpatients without BDD. Despite these two studies, the clinical characteristics of those with clinically significant weight-related preoccupations, as compared to those with non-weight-related BDD, remain largely unexplored. This is a critical area of research, given uncertainty regarding the correct diagnosis (e.g., EDNOS vs. BDD) and treatment of individuals who endorse significant weight-related preoccupations but do not meet criteria for anorexia or bulimia nervosa (Grant and Phillips, 2004).

Using an existing database, this study determined the prevalence of clinically significant weight concerns in 200 individuals with BDD, and compared those with weight concerns (all of whom also had concerns with other body areas) to those without such concerns on measures of BDD and other symptoms, body image disturbance, comorbidity, suicidality, quality of life, and functioning. To our knowledge, no previous study has compared these groups on these variables. Given previous research (Dyl et al., in press; Phillips and Diaz, 1997; Veale et al., 2003), we expected more women than men to endorse weight concerns. Although we did not expect differences between groups in terms of impairment and psychopathology, these comparisons were nonetheless made, given the lack of prior research in this area as well as previous speculation as to whether those with weight-related concerns may represent a less impaired subgroup of BDD sufferers (e.g., Veale et al., 2003).

## 2. Method

### 2.1. Participants

Participants were 200 individuals meeting DSM-IV criteria for current (89%) or past (11%) BDD. Participants were obtained from diverse sources: mental health professionals (46.0%), advertisements (38.6%), our program website and brochures (10.2%), participant friends and relatives (3.4%), and nonpsychiatrist physicians (1.7%). Sixty-seven percent of the sample was currently receiving mental health treatment. Participants were required to be age 12 or older (the sample's actual age range was 14–64; mean age = 32.6, S.D. = 12.1) and able to participate in an in-person interview. The only exclusion criterion was an organic mental disorder that would interfere with the collection of valid interview data. Participants were assigned to the “weight concerns” group if they endorsed a current or past weight concern on the BDD Form (see below). To be considered a BDD symptom, weight concerns were required to be clinically significant (i.e., preoccupying and causing distress or interfering with functioning), and judged to not be better accounted for by a comorbid eating disorder or apparent obesity. The Butler Hospital Institutional Review Board approved the study, and all participants signed statements of informed consent (assent was obtained from adolescents and consent from their parent/guardian).

### 2.2. Measures

BDD symptoms and suicidality were assessed with the BDD Form (Phillips, KA, unpublished), which has been used in previous BDD studies (e.g., Dyl et al., in press; Phillips et al., 1993; this measure is available from the last author upon request). This 43-item measure is administered in an interview format and was used to obtain information about the body areas with which the participant was concerned, BDD-related behaviors in which they engaged, the presence or absence of BDD-related and non-BDD-related suicidal ideation and suicide attempts), and other clinical features. The *BDD Form* was used to assign participants to the “weight concerns” or “no weight concerns” groups. To accomplish this, the participant was read a comprehensive list of body areas of concern (including weight) and was asked whether they currently experienced, or had ever experienced, significant concerns about this area. The interviewer then determined whether such concerns appeared clinically significant (i.e., causing preoccupation and associated distress or impairment in functioning). Participants were then asked to identify the body area that was currently of *greatest* concern. Participants were

included in the “weight concerns” category if they endorsed weight as a current or past area of concern, even if this was not their current primary area of concern. Thus, the “weight concerns” variable was dichotomized as “yes” (current or past clinically significant concern with weight) or “no” (no history of such concerns). Although reliability data for the *BDD Form* are not available, nearly all interviews were conducted by the same two highly trained and experienced clinical interviewers. Interviewers received rigorous training that included discussion of videotaped interviews, conducting mock interviews, and close observation and supervision during training sessions and initial interviews. In addition, the third author closely supervised the interviewers throughout the study and clinically edited all interviews. Interviewers were also carefully trained to distinguish between clinically significant and more “normative” body image concerns by asking follow-up questions about the degree of distress and impairment associated with the concern.

The *Body Dysmorphic Disorder Examination (BDDE)* (Rosen & Reiter, 1996), a 34-item, interviewer-administered scale (range: 0–168), assessed BDD symptoms and body image disturbance. The BDDE was administered to the first 98 participants only. The *Yale–Brown Obsessive Compulsive Scale Modified for Body Dysmorphic Disorder (BDD–YBOCS)* (Phillips et al., 1997) a 12-item, rater-administered interview measure, assessed current BDD severity (scores range from 0 to 48). The *Brown Assessment of Beliefs Scale (BABS)* (Eisen et al., 1998), a 7-item rater-administered interview measure, assessed delusional beliefs (scores range from 0 to 24). On the above BDD measures, raters attempted to exclude eating disorder-related symptoms for participants with a comorbid eating disorder; concerns related to actual obesity/significant overweight were also excluded. The 17-item *Hamilton Rating Scale for Depression (HAM-D)* (Hamilton, 1960) assessed current depressive symptoms (scores range from 0 to 50), and the 11-item *Brief Social Phobia Scale (BSPS)* (Davidson et al., 1997) assessed severity of social phobia symptoms (scores range from 0 to 72). The 14-item Short Form of the self-report *Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q)* (Endicott, Nee, Harrison, & Blumenthal, 1993) evaluated current quality of life (we report converted scores). The 54-item *Social Adjustment Scale Self-Report (SAS-SR)* (Weissman, Prusoff, Thompson, Hardings, & Myers, 1978) assessed current social functioning. The Q-LES-Q and SAS-SR were added later in the study ( $n = 139$  and  $n = 142$ , respectively). Higher scores represent greater impairment/severity on all measures except for the Q-LES-Q. Comorbidity was assessed with the *Structured Clinical Interview for DSM-IV—Non-Patient Version (SCID-I/NP)* (Spitzer, Williams, Gibbon, & First, 1992).

### 2.3. Data analysis

The prevalence (and 95% confidence interval) of weight concerns was determined. Between-group comparisons for demographic variables were made using independent t-tests for continuous variables and Pearson's chi-square for categorical variables. The weight concerns group was significantly younger ( $29.6 \pm 10.3$  years vs.  $33.8 \pm 12.6$  years,  $p = .015$ ) and had a significantly higher proportion of females (80.9% vs. 66.4%,  $p = .035$ ) than the group without weight concerns. Additional between-group comparisons were therefore performed using analysis of covariance for continuous variables and binary logistic regression for categorical variables in order to control for observed between-group differences in gender and age. Alpha was set at  $p < .05$ , two-tailed for all analyses. Because of the exploratory nature of these analyses, we did not adjust  $p$  values for multiple comparisons. Some findings, especially those close to a threshold of  $p < .05$ , could therefore represent chance associations. Effect size estimates for  $t$ -tests were determined with Cohen's  $d$  ( $d = .2$  is a small effect size,  $.5$  is a medium effect size, and  $.8$  is a large effect size); for Chi-square with the  $\phi$  coefficient ( $\phi = .1$  is a small effect size,  $.3$  is a medium effect size, and  $.5$  is a large effect size); and for analysis of covariance with partial  $\eta^2$  ( $\eta^2 = .01$  is a small effect size,  $.06$  is a medium effect size, and  $.14$  is large effect

size). Odds ratios, along with 95% confidence intervals, were computed for binary logistic regression analyses.

### 3. Results

Of the 200 participants, 58 (29.0%; 95% CI=22.7%–35.3%) endorsed a history of significant weight concerns. Only seven participants (3.5% of the total sample; 95% CI=1.0%–6.2%) reported that weight was their primary area of concern, however, and none identified weight as their sole concern. For the entire sample of 200 participants, weight ranked as the sixth most frequent area of concern, following skin ( $n = 160$ ; 80.0%), hair ( $n = 115$ ; 57.5%), nose ( $n = 78$ , 39.0%), stomach ( $n = 64$ ; 32.0%), and teeth ( $n = 59$ ; 29.5%) (Table 1).

Participants with weight concerns were significantly younger and more likely to be female. They also more frequently endorsed the stomach as an area of concern, and they were concerned with more body parts (both weight-/size- and non-weight/size-related). Those with weight concerns were also more likely to diet, excessively change their clothes, and excessively exercise in an attempt to improve their appearance. They also had more severe BDD symptoms on the BDDE but not on the BDD–YBOCS.

Those with weight concerns did not differ from those without such concerns with regard to a lifetime (e.g., current or past) eating disorder diagnosis. However, those with weight concerns did have a higher lifetime prevalence of mood disorders, personality disorders, and substance use disorders, more severe depressive symptoms on the HAM-D, greater functional impairment on the SAS-R, and a higher prevalence of lifetime suicide attempts.

### 4. Discussion

Weight concerns were fairly prevalent (29.0%) in this sample, although few participants (3.5%) endorsed weight as their primary area of concern. A prevalence of 29.0% is far higher than in several early BDD studies (Phillips et al., 1993; Veale et al., 1996) which reported no cases with weight concerns, and higher than in another previous study (14.4% of 188 BDD participants; Phillips & Diaz, 1997). It is lower, however, than in a more recent study of adolescent psychiatric inpatients (Dyl et al., in press). This difference may be partially due to differences in methodology or perhaps a growing appreciation that the BDD phenotype may include weight concerns. As the latter study included only adolescents, it is also possible that weight concerns are more prevalent in this age group.

As expected, and consistent with previous findings in both clinical settings and the general population (Dolan, Birtchnell, & Lacey, 1987; Dyl et al., in press; Phillips & Diaz, 1997; Veale et al., 2003), we found that weight concerns were more prevalent among women than among men with BDD. However, weight concerns in individuals with BDD are, by definition, more problematic than the “normative discontent” with weight that most women in our culture experience (Dolan et al., 1987). Indeed, we found that BDD participants with weight concerns (in addition to other appearance concerns) were more severely ill and impaired than those without weight concerns in terms of body image disturbance on the BDDE, depressive symptoms, comorbidity, suicide attempts, and social functioning; they had a notably high lifetime rate of suicide attempts (39.7%) and notably poor social functioning. These data are inconsistent with the notion that weight-concerned individuals represent a less ill subpopulation of individuals with BDD (e.g., Veale et al., 2003; however, the current study did not address the possibility that those with only, or primarily, weight concerns may be less ill). Instead, our findings suggest that BDD patients with weight concerns may represent a more severely ill and “body-concerned” group overall, with weight and body size being only one of many areas of preoccupation and dissatisfaction. A similar finding has also been reported among eating disorder patients, with those who endorse both weight- and non-weight-related body

dissatisfaction displaying higher levels of overall body dissatisfaction and drive for thinness than individuals who endorse weight-related concerns alone (Gupta and Johnson, 2000).

It is interesting that those with weight concerns had higher BDD severity scores on the BDDE but not the BDD–YBOCS. In comparison to the BDD–YBOCS, the BDDE assesses many concerns and behaviors that may also be related to more general body dissatisfaction and/or an eating disorder, and indeed it has been used to assess body image in individuals with an eating disorder (Rosen et al., 1995). Although we attempted to exclude eating disorder-related body image concerns when assessing BDD severity, this may be more difficult to accomplish with the BDDE than with the BDD–YBOCS. However, the weight concerns group in this study did not have a higher current or lifetime rate of anorexia or bulimia than the non-weight-concerned group; they did have a higher rate of any eating disorder (including EDNOS), although the difference was not statistically significant. The diagnostic boundary between BDD and eating disorders – in particular, eating disorder NOS – is not well defined for individuals with weight concerns (Grant and Phillips, 2004). This clinically important diagnostic interface has received little investigation and merits further study (Grant and Phillips, 2004; Phillips, 1996, rev. 2005).

This study has several limitations. It lacked BDD participants concerned only with weight, precluding conclusions about similarities and differences between these individuals and those with other body area concerns. As those in the “weight concerns” group endorsed concerns with both weight and other bodily areas, it is also possible that this group represents a more severely ill group of patients who exhibit both a wider range of bodily preoccupations and a higher level of symptom severity. Thus, the greater symptom severity observed in the weight concerns group may not be attributable to the presence of weight concerns per se. It should also be noted that multiple between-group comparisons were made in this study, and it is possible that some significant differences can be attributable to Type I error. Type II error must also be considered, as the group with weight concerns was relatively small. Further research is needed in larger samples and should further examine the association of weight concerns with age, gender, and the other variables found in this study. In addition, our sample, while broader than previous BDD samples, was a sample of convenience rather than a representative community sample. Our results may therefore not be generalizable to the community. Furthermore, because this study did not focus on assessment of weight, body fat, and/or obesity, the study did not include measurements of body mass index. Given the critical importance of body weight in influencing weight-related concerns, future studies exploring weight concerns among individuals with BDD, as well as the interface of BDD and eating disorders, should assess body mass index. Finally, although every effort was made to distinguish weight concerns that were attributable to an eating disorder and/or obesity from those that were primarily attributable to BDD, the distinction between weight concerns attributable to BDD and those attributable to an eating disorder (particularly EDNOS) remains unclear. Indeed, further research clarifying the interface between weight-related BDD and EDNOS is crucial in order to guide the correct diagnosis and treatment of individuals with impairing weight concerns.

The current study takes an important step in this direction by exploring the clinical characteristics of those with clinically significant weight-related concerns, as well as how these individuals differ from those with non-weight-related BDD. Additional research is needed to address the limitations of this study and to further investigate the understudied and clinically important interface among clinically significant weight concerns, BDD, and eating disorders.

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**Table 1**  
Demographic and clinical characteristics of weight-concerned vs. non-weight-concerned BDD participants

Variable	BDD with weight concerns (n=58)	BDD without weight concerns (n=142)	Test statistic	P	Effect size <sup>d</sup>
<b>Demographics</b>					
Age	29.6±10.3	33.8±12.6	F=2.28	.015	0.37
Female	46 (80.9)	91 (66.4)	$\chi^2=4.24$	.035	0.15
White <sup>b</sup>	49 (84.5)	122 (71.3)	$\chi^2=0.25$	.620	0.04
Single <sup>c</sup>	46 (73.9)	105 (67.6)	$\chi^2=0.42$	.423	0.06
Completed at least some college	39 (67.2)	103 (72.5)	$\chi^2=0.56$	.454	0.05
<b>Most frequent areas of concern</b>					
Skin	45 (77.5)	115 (81.0)	$\chi^2=1.90$	.169	0.57 (95% CI=0.26-1.27)
Hair	36 (62.1)	79 (55.6)	$\chi^2=1.44$	.231	1.48 (95% CI=0.78-2.83)
Nose	28 (48.3)	50 (35.2)	$\chi^2=3.14$	.076	1.78 (95% CI=0.94-3.35)
Stomach	32 (55.2)	32 (22.5)	$\chi^2=16.30$	.001	3.97 (95% CI=2.03-7.74)
Teeth	22 (37.9)	37 (26.1)	$\chi^2=2.17$	.141	1.65 (95% CI=0.85-3.21)
<b>BDD symptoms (lifetime)</b>					
Number of body areas of concern	9.5±5.7	5.1±3.7	F=39.76	.001	0.17
Number of weight/size-related areas <sup>d</sup>	2.4±2.1	0.9±1.4	F=6.78	.001	0.12
Number of non-weight/size related areas	5.5±4.4	3.6±2.8	F=30.34	.001	0.13
Compares self to others	58 (100)	132 (93.0)	$\chi^2=0.39$	.533	—
Mirror checking	50 (86.2)	129 (90.8)	$\chi^2=2.44$	.118	0.45 (95% CI=0.17-1.23)
Reassurance seeking	37 (63.8)	79 (55.6)	$\chi^2=0.96$	.328	1.38 (95% CI=0.73-2.62)
Dieting	40 (69.0)	35 (24.6)	$\chi^2=29.54$	<.001	6.83 (95% CI=3.42-13.66)
Changing clothes	37 (63.4)	55 (38.7)	$\chi^2=6.29$	.012	2.32 (95% CI=1.20-4.47)
Excessive exercise	19 (32.8)	24 (16.9)	$\chi^2=5.81$	.016	2.43 (95% CI=1.18-5.00)
<b>Symptom severity<sup>e</sup></b>					
BDD-YBOCS score	29.4±9.5	26.8±10.3	F=1.46	.229	0.007
BDDE score (n=98)	98.0±29.1	80.1±29.6	F=6.91	.010	0.068
Currently delusional on BABS	22 (37.9)	46 (34.1)	$\chi^2=0.23$	.635	1.17 (95% CI=0.61-2.26)
HAM-D score	12.1±7.9	8.1±6.0	F=15.86	.001	0.076
BSPS score	16.6±13.7	16.6±13.6	F=0.04	.845	0.000
<b>Lifetime psychiatric disorders</b>					
Eating disorder (includes EDNOS)	25 (43.1)	40 (28.2)	$\chi^2=1.43$	.223	1.58 (95% CI=0.75-3.33)
Anorexia or bulimia nervosa	19 (33.3)	11 (8.9)	$\chi^2=0.35$	.554	1.29 (95% CI=0.56-2.98)
Anxiety disorder	42 (72.4)	97 (68.3)	$\chi^2=0.50$	.479	1.28 (95% CI=0.64-2.56)
Mood disorder	54 (93.1)	114 (80.3)	$\chi^2=5.17$	.023	3.64 (95% CI=1.20-11.08)
Personality disorder	31 (53.4)	49 (34.5)	$\chi^2=8.07$	.005	2.57 (95% CI=1.34-4.92)
Substance use disorder	36 (62.1)	60 (42.3)	$\chi^2=8.58$	.003	2.67 (95% CI=1.38-5.15)
Stimulant use disorder	3 (5.2)	8 (5.6)	$\chi^2=0.05$	.825	1.17 (95% CI=0.28-4.85)
<b>Suicidality, functioning, and quality of life<sup>f</sup></b>					
History of suicidal ideation	47 (81.0)	109 (76.8)	$\chi^2=0.71$	.399	1.40 (95% CI=0.64-3.06)
Suicidal ideation due to BDD	30 (51.7)	80 (56.3)	$\chi^2=0.00$	.957	0.98 (95% CI=0.52-1.85)
History of suicide attempt	23 (39.7)	32 (22.5)	$\chi^2=4.93$	.026	2.14 (95% CI=1.09-4.18)
Suicide attempt due to BDD	10 (17.2)	15 (10.6)	$\chi^2=2.05$	.152	1.92 (95% CI=0.79-4.70)
Q-LES-Q	48.9±15.8	53.9±18.5	F=2.34	.129	0.017
SAS-SR	2.5±.56	2.2±.52	F=8.99	.003	0.061

<sup>a</sup>Effect size estimates represent Cohen's *d* for *t*-tests,  $\phi$  for Chi-square, partial  $\eta^2$  for analysis of covariance, and odds ratio with corresponding 95% confidence interval for binary logistic regression.

<sup>b</sup>Racial background information available for only 198 participants.

<sup>c</sup>Not currently married. Includes divorced/widowed.

<sup>d</sup>Body areas for which, in researchers' experience, common worries relate to area being "too big" or "too fat." Included: size of ankles, arms, buttocks, calves, hips, legs, stomach, thighs, and waist.

<sup>e</sup>Results are presented for the entire sample, not just participants currently meeting full DSM-IV criteria for BDD (or for social phobia in the case of BSFS scores or major depression in the case of HAM-D scores).

<sup>f</sup>For the entire sample, the mean Q-LES-Q score was 2.1 S.D. units lower than community norms (Endicott J, personal communication), and for the SAS-SR it was 2.4 S.D. units lower than community norms (13).