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Gender similarities and differences in 200 individuals with body dysmorphic disorder[★]

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Abstract

Background—Gender is a critically important moderator of psychopathology. However, gender similarities and differences in body dysmorphic disorder (BDD) have received scant investigation. In this study, we examined gender similarities and differences in the broadest sample in which this topic has been examined.

Methods—Two hundred subjects with BDD recruited from diverse sources were assessed with a variety of standard measures.

Results—There were more similarities than differences between men and women, but many gender differences were found. The men were significantly older and more likely to be single and living alone. Men were more likely to obsess about their genitals, body build, and thinning hair/balding; excessively lift weights; and have a substance use disorder. In contrast, women were more likely to obsess about their skin, stomach, weight, breasts/chest, buttocks, thighs, legs, hips, toes, and excessive body/facial hair, and they were excessively concerned with more body areas. Women also performed more repetitive and safety behaviors, and were more likely to camouflage and use certain camouflaging techniques, check mirrors, change their clothes, pick their skin, and have an eating disorder. Women also had earlier onset of subclinical BDD symptoms and more severe BDD as assessed by the Body Dysmorphic Disorder Examination. However, men had more severe BDD as assessed by the Psychiatric Status Rating Scale for Body Dysmorphic Disorder, and they had poorer Global Assessment of Functioning Scale scores, were less likely to be working because of psychopathology, and were more likely to be receiving disability, including disability for BDD.

Conclusions—The clinical features of BDD in men and women have many similarities but also some interesting and important differences. These findings have implications for the detection and treatment of BDD.

1. Introduction

Gender is a critically important moderator of psychopathology. Recent groundbreaking reports published by the Institute of Medicine, which evaluated the biology of sex and gender differences, emphasized the importance of sex/gender in illness [1,2]. These reports underscored the need for additional research to further elucidate sex/gender similarities and differences across diseases [1,2]. Understanding variations in disease expression in men and women is clinically important. In addition, gender differences in disease expression may reflect biological differences between the sexes as well as sociocultural factors such as different role

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expectations for men and women [3]. Understanding such differences may shed light on disorders' etiology and pathophysiology.

In epidemiological studies, differences in the prevalence of psychiatric disorders in men and women have been consistently found (eg, major depression is approximately twice as common in women, whereas alcohol and drug use disorders are approximately 2 to 5 times more common in men) [3]. Research on gender differences in the symptom expression of psychiatric illness is still limited, and some findings are inconsistent; however, some interesting differences have emerged [3]. For example, women are more likely than men to experience the depressed pole of bipolar illness, less likely to have only manic episodes, and more likely to have rapid cycling [4–6]. Women with schizophrenia appear more likely than men to experience affective symptoms in addition to psychotic symptoms [7,8].

Despite the growing literature on gender similarities and differences in a variety of psychiatric disorders, this important aspect of body dysmorphic disorder (BDD) has received scant empirical attention, even though BDD is relatively common and severe [9,10]. To our knowledge, only 2 previous studies have examined this topic in BDD. One study, from the United States, contained 188 subjects (93 women and 95 men) from a BDD specialty program [11]; the other study, from Italy, contained 58 subjects (24 women and 34 men) who were consecutively enrolled as outpatients and had a chief complaint of BDD symptoms [12].

Both studies found far more gender similarities than differences in terms of most demographic characteristics, age at BDD onset, repetitive and safety behaviors, comorbidity, functional impairment, and treatment received. As shown in Table 1, these 2 studies also found more gender similarities than differences in terms of body areas of concern. The 2 studies also concurred on a few gender differences: both found that men were more likely than women to be preoccupied with their genitals, and that women were more likely to have comorbid bulimia nervosa (as well as any eating disorder in the US study). However, most other gender differences were discrepant between the 2 studies. For example, as shown in italics in Table 1 (discrepant results across the 2 studies are highlighted with italics), in the US study, concerns about excessive body hair were more common in women, whereas in the Italian study, they were more common in men. In the US study, men were more likely to be single, whereas in the Italian study, men were more likely to have bipolar disorder and women were more likely to check mirrors, use camouflage, and have comorbid panic disorder. The US study found some additional gender differences that were not examined in the Italian study: men were more likely to camouflage with a hat and have a substance use disorder, whereas women were more likely to camouflage with their hand or makeup, pick their skin, and receive nonpsychiatric medical treatment or surgery for their perceived appearance flaws. The reasons for these studies' discrepant findings are unclear; they may reflect differences in sample ascertainment or perhaps cultural factors.

In the present study, we examined the BDD's clinical features in a new sample of 200 subjects (137 women and 63 men), which is broader than the samples in the previous 2 gender studies. The study inclusion and exclusion criteria (see below) were very broad. Unlike the 2 previous studies, one third of subjects were not currently seeking or receiving mental health treatment, and most treatment was obtained in nonspecialty settings. Thus, findings from the present study may be more generalizable than those from the previous studies. In this study, we assessed some previously unexamined gender similarities and differences, including scores on depression, obsessive-compulsive disorder (OCD), and social phobia scales; age at onset of subclinical BDD; prevalence of certain BDD behaviors and comorbid disorders; and scores on measures of psychosocial functioning and quality of life. We hypothesized, consistent with both of the 2 previous studies, that men and women would be similar in terms of most variables, but that a greater proportion of men would be concerned with their genitals, and a greater

proportion of women would have a comorbid eating disorder. (The study interviewers were blind to these hypotheses.) We were also interested in whether other differences found in either the previous Italian or US study would be replicated in the present study.

2. Methods

2.1. Subjects

Two hundred individuals participated in a prospective study of the course of BDD. This report includes only data from the intake (baseline) assessment and therefore contains current and retrospective data. All subjects met lifetime (past or current) criteria for BDD as defined in *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)* [13]. (a) Preoccupation with an imagined defect in appearance: if a slight physical anomaly is present, the person's concern is markedly excessive. (b) The preoccupation causes clinically significant distress or impairment in social, occupational, or other important aspects of functioning. (c) The preoccupation is not better accounted for by another mental disorder (eg, dissatisfaction with body shape and size in anorexia nervosa). Additional study inclusion criteria were 12 years or older and able to be interviewed in person. The only exclusion criterion was the presence of an organic mental disorder. Subjects were obtained from diverse sources: mental health professionals (46.0%), advertisements (38.6%), our program website and brochures (10.2%), subject friends and relatives (3.4%), and nonpsychiatrist physicians (1.7%). Of the sample, 89.0% ($n = 178$) currently (during the past month) met full *DSM-IV* criteria for BDD. The remaining 11.0% of the sample had met full criteria for BDD in the past (7.5% [$n = 15$] were currently in partial remission, and 3.5% [$n = 7$] were currently in full remission). The 7 subjects currently in full remission from BDD are included in this report because most analyses focus on lifetime variables, and all 7 subjects had met full criteria for *DSM-IV* BDD in the past (the 7 subjects had a mean duration of BDD of 12.4 ± 8.7 years). (However, subjects in full or partial remission from BDD at the time of the intake interview are excluded from analyses of current symptom severity and functioning, as detailed below). Seventy-eight percent of the subjects considered BDD their most problematic lifetime disorder, and 78% also considered BDD their most problematic current disorder (compared with any comorbid disorder). Sixty-seven percent ($n = 134$) were currently receiving mental health treatment (62.0% outpatient, 2.5% inpatient, 1.5% partial hospital, and 1.0% residential). The study was approved by the hospital's institutional review board, and all subjects signed statements of informed consent (assent plus parental consent for adolescents).

2.2. Assessments

All intake interviews were conducted in person by experienced clinical interviewers. Nearly all interviews were conducted by the same 2 interviewers who were closely supervised by the first author. The interviewers received careful and rigorous training, as in similar longitudinal studies (eg, Ref [14]). This training included discussing videotapes, conducting mock interviews with experienced interviewers, and being closely supervised during training sessions and initial interviews. All interviews were thoroughly edited both clinically and clerically by senior staff, including the first author. The *BDD Form*, a semistructured instrument (Phillips KA, unpublished) used in previous BDD studies [11,15], obtained data on demographic characteristics, BDD's clinical features (eg, body areas of concern, BDD-related behaviors, illness course, suicidality, lifetime functional impairment because of BDD), and treatment history. Body dysmorphic disorder symptom severity was assessed with 3 measures: (1) The *Yale-Brown Obsessive Compulsive Scale Modified for Body Dysmorphic Disorder (BDD-YBOCS)* [16] assessed BDD severity during the past week; this is a reliable and valid 12-item semistructured interviewer-administered measure with scores ranging from 0 to 48. Four items reflect *DSM-IV* criteria for BDD; the remaining items assess resistance against and control of appearance preoccupations, characteristics of BDD behaviors, and insight. (2) The

Body Dysmorphic Disorder Examination (BDDE) [17] assessed severity of BDD symptoms and severely negative body image during the past month in the first 98 subjects; this is a reliable and valid 34-item semistructured interviewer-administered scale with scores ranging from 0 to 168. Scale items assess preoccupation and negative evaluation of appearance, self-consciousness and embarrassment, excessive importance given to appearance in self-evaluation, avoidance of activities, and body camouflaging and checking. (3) The *Psychiatric Status Rating Scale for Body Dysmorphic Disorder* (BDD-PSR) is a 7-item interviewer-rated measure that mirrors *DSM-IV* BDD criteria and determines whether subjects meet full criteria for BDD or are in partial or full remission during the past week. Psychiatric Status Rating Scales are disorder-specific, reliable, and valid global ratings of disorder severity used in numerous longitudinal studies [18–20]. The *Brown Assessment of Beliefs Scale* (BABS) [21] assessed the delusional (insight) of appearance beliefs (eg, that the person looks disfigured) during the past week; this is a reliable and valid 7-item, semistructured, interviewer-administered measure that provides a dimensional score of delusional (ranging from 0 to 24) and also categorizes individuals as delusional or nondelusional using an empirically derived cutpoint. (A total score of 18 plus complete conviction qualifies a subject as delusional.) The 24-item *Hamilton Rating Scale for Depression* [22] assessed depressive symptoms (scores range from 0 to 72). The Yale-Brown Obsessive Compulsive Scale (Y-BOCS) [23] assessed severity of current comorbid OCD (scores range from 0 to 40), and the *Brief Social Phobia Scale* [24] assessed severity of current comorbid social phobia (scores range from 0 to 72); social anxiety symptoms secondary to BDD were excluded. On all of the scales mentioned, higher scores indicate greater severity. The *Structured Clinical Interview for DSM-IV—Non-Patient Version* (SCID-I/NP) [25] assessed comorbid disorders. The edition used in this study contains screening questions about psychotic symptoms but does not diagnose individual psychotic disorders. Except for eating disorders, NOS diagnoses were not made because of their subjective nature. Several disorders that are not included in the SCID were assessed using SCID-like modules based on *DSM-IV* criteria (tic disorder, trichotillomania, and olfactory reference syndrome, a distressing or impairing preoccupation that one emits a foul body odor). Current employment status (excluding employed subjects who were primarily students) was assessed with the *Hollingshead Occupational Index* (2-factor version, scores range from 1 to 7) [26].

Current functioning was assessed with the *Range of Impaired Functioning Tool* (LIFE-RIFT) [27], a reliable and valid semistructured measure of impairment in the domains of work, school, household duties, recreation, relationships with family and friends, and satisfaction. Higher scores reflect poorer functioning. Because the total score does not reflect inability to be employed or to be in school because of psychopathology, we report these percentages separately. The *Social Adjustment Scale—Self-Report* (SAS-SR) [28] is a 54-item reliable, valid, and widely used self-report measure of current social functioning in the domains of work, social and leisure, extended family, primary relationship, parental, and family unit. A higher total score indicates poorer social functioning. The *Global Assessment of Functioning Scale* (GAF) [13] and the *Social and Occupational Functioning Scale* (SOFAS) [13] assessed global symptomatology and functioning (GAF) and global functioning (SOFAS) during the past month. Scores range from 1 to 100, with lower scores denoting greater severity. Current mental health-related quality of life was assessed with 3 subscales of the *Medical Outcomes Study 36-Item Short-Form Health Survey* (SF-36) [29], a reliable, valid, and widely used self-report measure of mental dimensions of health status and health-related quality of life. Subscale scores range from 0 to 100, with lower scores indicating poorer quality of life. The *Quality of Life Enjoyment and Satisfaction Questionnaire* (Q-LES-Q) [30] is a reliable, valid, and widely used measure of current quality of life in 8 domains: general activities, physical health, emotional well-being, household, leisure, social, work, and school. We report scores for the “short form,” which yields a total quality of life score. Lower scores indicate poorer quality of life. The SAS-

SR, SOFAS, and Q-LES-Q were added after the study began and were therefore completed by a subset of subjects who met current criteria for BDD ($n = 126, 104, \text{ and } 123$, respectively).

Interrater reliability (intraclass correlation coefficients) for BDD-YBOCS, BABS, LIFE-RIFT, GAF, and SOFAS scores was 0.97 to 1.0. Percent agreement for the diagnosis of BDD and the most common comorbid disorders was 100% for BDD, 100% for drug abuse/dependence, 92% for alcohol abuse/dependence, and 92% for major depressive disorder.

2.3. Statistical analysis

Means, standard deviations, and frequencies were calculated. The 137 female subjects were compared with the 63 male subjects with regard to demographic features, clinical characteristics of BDD, symptom severity, suicidality, functioning and quality of life, treatment history, and comorbidity. Because the women were significantly younger than the men (31.2 ± 12.3 vs 35.7 ± 11.2 , $t_{198} = -2.45$, $P = .015$), analyses that could potentially be affected by age were performed using analysis of covariance for continuous variables or logistic regression for categorical variables, controlling for age. Other between-group differences were examined using t tests for continuous variables and χ^2 analysis or Fisher exact test for categorical variables. To provide more meaningful results for measures of current symptom severity (eg, BDD, depressive, or OCD symptoms), we included only the 176 subjects who met the full criteria for BDD in the past week and the current criteria for the relevant disorder (eg, major depression or OCD) in those analyses. Analyses of current functioning and quality of life included only subjects with current BDD. The Pearson product moment correlation coefficient was used to examine relationships between selected variables. The tests were 2 tailed; the α level was .05. Because this study is largely exploratory, we did not correct for multiple comparisons. In addition, it has been noted that the Bonferroni correction tends to be overly conservative [31], and that it can be problematic to make adjustments for multiple comparisons [32]. Nonetheless, there is a possible inflation of type I error rates, and some findings, particularly those of only modest significance, may reflect chance associations. We also report effect size estimates, which were determined for t tests with Cohen's d ($d = 0.2$ is a small effect size, 0.5 is medium, and 0.8 is large) and for χ^2 with ϕ coefficient (Cramer's V) ($V = 0.1$ is considered a small effect size, 0.3 is medium, and 0.5 is large). Effect size estimates for analysis of covariance were determined with partial η^2 (0.01 is a small effect size, 0.06 is a medium effect size, and 0.14 is a large effect size).

3. Results

Compared with the women, the men were significantly older, more likely to be single, and more likely to be living alone (Table 2). Women were currently excessively concerned with a greater number of body areas (Table 3). Regarding excessive concern with specific body areas, there were significant gender differences for 28% of body areas, with effect sizes for these differences in the small-medium range. As predicted, men were more likely than women to be excessively concerned with the appearance of their genitals. They were also more likely to obsess about their body build (90% of whom thought they were too small and/or inadequately muscular). However, women were more likely to obsess about the appearance of their skin, stomach, weight, breasts/chest, buttocks, thighs, legs, hips, and toes. Regarding hair concerns, men were significantly more likely to be obsessed with thinning/balding ($P < .001$) and unevenness ($P = .030$), whereas women were more likely to be obsessed with excessive body/facial hair ($P = .028$). As shown in Table 4, women performed significantly more repetitive and safety behaviors than men. In particular, they were more likely to camouflage the perceived defect and use certain camouflaging techniques. They were also more likely to excessively check mirrors, change their clothes, and pick their skin, whereas men were more likely to excessively lift weights.

Regarding BDD severity (Table 4), men and women had similar BDD-YBOCS scores. However, men had more severe BDD as assessed by the BDD-PSR (with a small-medium effect size), whereas women had more severe BDD on the BDDE (with a medium-large effect size). On individual BDDE items, women had significantly greater appearance dissatisfaction (both their perceived defects and overall appearance), worried more about their perceived defects in public, were more upset when thinking someone was noticing their perceived defects, reported a higher frequency of comments on their perceived defects, and more often camouflaged their body and altered their body position to hide their perceived defects. Because the BDDE measures negative body image, as well as BDD per se, we also examined BDDE scores by gender controlling for the presence of an eating disorder; with this analysis, the gender difference was no longer significant ($F_{1,81} = 3.52, P = .064$). For the entire sample, the correlation between BDD-YBOCS and BDDE scores was $r = 0.82, n = 98, P \leq .001$; between BDD-YBOCS and BDD-PSR scores was $r = 0.82, n = 200, P < .001$; and between BDDE and BDD-PSR scores was $r = 0.75, n = 98, P < .001$.

Men and women did not significantly differ in terms of the delusionality of appearance beliefs (Table 4). There were no significant differences in terms of retrospectively assessed course of illness, including age of BDD onset, except that women were more likely to report earlier onset of subclinical BDD symptoms (disliking their appearance but not meeting full BDD criteria). There were no significant between-group differences in non-BDD symptom severity, receipt of psychiatric treatment (for any reason), or receipt of non-psychiatric treatment of BDD concerns.

As shown in Table 5, a similarly high proportion of men and women had experienced lifetime suicidal ideation and had attempted suicide, and both groups had experienced high levels of functional impairment and poor quality of life. However, men had significantly poorer GAF scores, were less likely to be working because of psychopathology, and were more likely to be receiving disability, including disability for BDD, with a small-medium effect size for these comparisons. (Men also had poorer current functioning and quality of life on all other measures, although these differences did not attain statistical significance.) As predicted, men were more likely to have a substance use disorder, and women were more likely to have an eating disorder (Table 6).

4. Discussion

This study found more similarities than differences between men and women; however, many gender differences were found. Some of the findings are consistent with those of the previous US study [11], whereas others confirm those from the Italian study [12]. Consistent with the previous US study, men were more likely to be single, have a substance use disorder, and be preoccupied with thinning hair and small body build, whereas women were more likely to be preoccupied with their weight, hips, and excessive body hair (Tables 1 and 3), and to pick their skin and use their hands or makeup for camouflage. Consistent with the Italian study, the present study found that women were more likely to be preoccupied with their breasts and legs, check mirrors, and use camouflaging. All 3 studies concurred in the finding that men are more likely to be preoccupied with their genitals, and women are more likely to have a comorbid eating disorder. However, the present study did not confirm several gender similarities and differences from the previous 2 studies (pertaining to age, living situation, height, camouflaging with a hat, bipolar disorder and panic disorder comorbidity, GAF score, and nonpsychiatric medical or surgical treatment). In addition, the present study identified several gender differences that were not examined in the previous studies (that women had earlier onset of subclinical BDD and were more likely to excessively change their clothes, whereas men were more likely to lift weights and be functionally impaired and disabled).

It is interesting that some of the gender differences in the present study (many of which involved body areas and BDD behaviors) reflect gender differences in the general population. For example, our finding that men are more likely to focus on small body build and hair thinning, whereas women are more likely to focus on weight, stomach, breasts, buttocks, thighs, legs, and hips, reflects appearance concerns in the general population and those commonly displayed in advertising and the media [33–35]. Ninety-five percent of women with weight concerns in our study worried about being overweight, whereas men were as likely to worry about being underweight as being overweight. Furthermore, 90% of the men with body build concerns worried that they were too small and/or inadequately muscular. These findings are consistent with data from nonclinical populations in which women tend to express concern with being overweight, whereas men are as likely to worry about being too thin as too fat [33–37]. Numerous studies have demonstrated the pervasiveness of being thin as ideal for women which the media endorses [38]; increasingly, the media is endorsing being muscular as an ideal for men [34]. Our finding that women were more likely than men to camouflage with makeup is also consistent with culturally accepted methods of ‘‘camouflage’’ in the general population. The higher prevalence in our study of eating disorders in women and substance use disorders in men also reflects gender differences in the general population [39] (although the prevalence of these disorders in our BDD sample is notably higher than in the general population). However, some study results differed from what is found in the general population: for example, we found a similar prevalence in men and women of major depression, panic disorder, agoraphobia, specific phobia, and suicide attempts [13,40–42]. In addition, men and women were equally likely to have cosmetic surgery (or any type of medical treatment) for their perceived defects, whereas in the general population, only 13% of cosmetic surgery recipients are men [43]. Thus, individuals with BDD may be overrepresented among men who have cosmetic surgery, which appears to usually be ineffective for BDD [44,45].

Our inconsistent findings on the 3 BDD severity measures are interesting and puzzling (BDD severity was similar in men and women on the BDD-YBOCS, greater in women on the BDDE, and greater in men on the BDD-PSR). To our knowledge, no previous study has compared scores on these 3 BDD severity measures. Although the BDDE covers the past month, whereas the other 2 measures cover the past week, this seems an unlikely explanation for these disparate results, as BDD symptoms generally appear fairly stable over brief periods [9]. A more likely explanation for these differences is that although all 3 measures assess BDD severity, and their scores were highly correlated, they do cover somewhat different domains. The BDD-PSR mirrors *DSM-IV* criteria for BDD, whereas the BDDE covers a much broader range of BDD symptoms and aspects of body image. To some extent, BDDE scores may have captured body image concerns due to an eating disorder (as well as BDD); women no longer scored significantly higher than men after controlling for the presence of an eating disorder ($P = .064$). Indeed, the BDDE has been used to assess body image in patients with eating disorders and has been shown to be reliable and valid in that population [46]. Although we attempted to exclude body image concerns due to an eating disorder when assessing BDD severity, this may be easier to accomplish with the BDD-YBOCS and BDD-PSR than with the BDDE. Another possible explanation for the women’s higher BDDE scores is suggested by an examination of the specific BDDE items on which the women scored higher than men. These items included greater appearance dissatisfaction, worrying more about appearance in public, being more upset by thinking someone was noticing their appearance, and reporting more frequent comments on their appearance. The women’s higher scores on these particular items may in part reflect the greater importance of appearance for women than men in our society; a lack of attractiveness is considered more of a social liability for women than for men [47]. In addition, beauty is a central component of the female gender role stereotype, and women’s bodies are more likely to be regarded in an evaluative and objectifying way [48]. Because the BDDE has separate items for individual BDD behaviors (such as camouflaging and mirror checking), which a higher proportion of women than men performed, this may also have contributed to

women's higher scores on this scale. It is worth highlighting that men had a higher mean score on the BDD-PSR as well as a poorer mean GAF score and a higher likelihood of not working because of psychopathology, receiving disability for any reason, and receiving disability for BDD. Thus, men appear somewhat more functionally impaired than women because of BDD. This finding also suggests that the *DSM-IV* criteria for BDD (which the BDD-PSR mirrors) give relatively greater weight to functional impairment than do some BDD measures (ie, the BDDE).

The present study contained more than twice as many women as men, consistent with the findings that a higher proportion of women than men in the general population have body image concerns [48]. This finding is also consistent with a community study from Florence, Italy ($n = 673$), in which 1.4% of women, but no men, had BDD [49]. However, a community study from the United States ($n = 373$) found that BDD was present in 1.0% of women and 1.2% of men [10]. Body dysmorphic disorder's gender ratio has also varied in clinical samples. Two previous BDD studies contained more women than men (72% of 82 subjects [17] and 76% of 50 subjects [45]), whereas 3 studies contained more men than women (62% of 13 subjects [50], 62% of 50 subjects [51], and 59% of 58 subjects [12]), and the largest previous study ($n = 188$) contained a nearly equal proportion of women (49%) and men (51%) [11]. The clinical studies contained samples of convenience and may therefore have various biases. Although the present study was broader in terms of inclusion/exclusion criteria and treatment status, it, too, was a nonprobability sample, and the proportion of women and men may not reflect BDD's gender ratio in the community. These inconsistent gender ratios in both clinical and community samples highlight the need to examine BDD's prevalence in women and men in larger epidemiological studies.

Our study has a number of limitations. Our sample was recruited from the northeastern United States, and it is unclear how representative it is of individuals with BDD elsewhere in the United States or in other countries. It is also unclear how generalizable our findings are to individuals with BDD in the community. In addition, most treatment data were obtained retrospectively and were not confirmed by medical record review. Because many comparisons were done, some gender differences may have occurred by chance; however, far more differences were found ($n = 36$) than would be expected by chance ($n = 7$). In addition, many of the differences that were found confirmed those from previous studies or are consistent with findings on less pathological body image concerns in the general population. This study also had several strengths, including the use of standard, reliable, and valid measures, and assessment of some previously unstudied aspects of BDD. It also, to our knowledge, contains the most diverse BDD sample for whom gender similarities and differences have been examined.

In summary, this study suggests that BDD has many gender similarities but also some interesting and important gender differences. Being aware that BDD may present somewhat differently in men and women may facilitate this disorder's detection and treatment. For example, the different clinical features in men and women may necessitate some variation in treatment strategies when targeting specific symptoms in cognitive-behavioral therapy. Additional studies are needed to examine gender and address this study's limitations. For example, epidemiological studies are needed to investigate gender differences in BDD's prevalence and clinical features in community settings, including possible cross-cultural differences. Longitudinal studies that examine gender similarities and differences prospectively would also be valuable, and treatment studies should assess gender differences in treatment outcome. Finally, studies are needed to elucidate the various neurobiological and psychosocial factors that may contribute to gender differences in BDD's prevalence and clinical features [52].

References

1. Institute of Medicine. Washington (DC): National Academy Press; 2001. Exploring the biological contributions to human health: does sex matter?.
2. Institute of Medicine. Washington (DC): National Academy Press; 1998. Gender differences in susceptibility to environmental factors: a priority assessment.
3. American Psychiatric Association. Washington, DC: American Psychiatric Association; A sex/gender research agenda for DSM-V. [in press]
4. Angst J. The course of affective disorders. II. Typology of bipolar manic-depressive illness. *Arch Psychiatr Neurol Sci* 1978;226:265– 73.
5. Kessler R, Rubinow D, Holmes C, Abelson J, Zhao S. The epidemiology of DSM-III-R bipolar I disorder in a general population survey. *Psychol Med* 1997;27:1079– 89. [PubMed: 9300513]
6. Bauer MS, Calabrese J, Dunner DL, Post R, Whybrow PC, Gyulai L, et al. Multisite data reanalysis of the validity of rapid cycling as a course modifier for bipolar disorder in DSM-IV. *Am J Psychiatry* 1994;151:506– 15. [PubMed: 8147448]
7. Goldstein JM, Tsuang MT. Gender and schizophrenia: an introduction and synthesis of findings. *Schizophr Bull* 1990;16:179– 83. [PubMed: 2374879]
8. Seeman MV, Lang M. The role of estrogens in schizophrenia gender differences. *Schizophr Bull* 1990;16:185–94. [PubMed: 2197713]
9. Body dysmorphic disorder. In: Phillips, KA., editor. *Somatoform and factitious disorders*. Washington (DC): American Psychiatric Publishing; 2001. p. 67-94.(Oldham JM, Riba MB editors. Review of Psychiatry Series, vol. 20, No. 3.)
10. Bienvenu OJ, Samuels JF, Riddle MA, Hoehn-Saric R, Liang KY, Cullen BA, et al. The relationship of obsessive-compulsive disorder to possible spectrum disorders: results from a family study. *Biol Psychiatry* 2000;48:287–93. [PubMed: 10960159]
11. Phillips KA, Diaz S. Gender differences in body dysmorphic disorder. *J Nerv Ment Dis* 1997;185:570– 7. [PubMed: 9307619]
12. Perugi G, Akiskal HS, Giannotti D, Frare F, Di Vaio S, Cassano GB. Gender-related differences in body dysmorphic disorder (dysmorphophobia). *J Nerv Ment Dis* 1997;185:578– 82. [PubMed: 9307620]
13. American Psychiatric Association. fourth edition (DSM-IV). Washington (DC): American Psychiatric Association; 1994. Diagnostic and statistical manual of mental disorders.
14. Goisman RM, Warshaw MG, Peterson LG, Rogers MP, Cuneo P, Tomlin-Albanese JM, et al. Panic, agoraphobia, and panic with agoraphobia: data from a multi-center anxiety disorder study. *J Nerv Ment Dis* 1994;182:72–79. [PubMed: 8308535]
15. Phillips KA, McElroy SL, Keck PE Jr, Pope HG Jr, Hudson JI. Body dysmorphic disorder: 30 cases of imagined ugliness. *Am J Psychiatry* 1993;150:302– 8. [PubMed: 8422082]
16. Phillips KA, Hollander E, Rasmussen SA, Aronowitz BR, DeCaria C, Goodman WK. A severity rating scale for body dysmorphic disorder: development, reliability, and validity of a modified version of the Yale-Brown Obsessive Compulsive Scale. *Psychopharmacol Bull* 1997;33:17 – 22. [PubMed: 9133747]
17. Rosen JC, Reiter J. Development of the Body Dysmorphic Disorder Examination. *Behav Res Ther* 1996;34:755– 66. [PubMed: 8936758]
18. Coryell W, Leon A, Winokur G, Endicott J, Keller M, Akiskal H, et al. Importance of psychotic features to long-term course in major depressive disorder. *Am J Psychiatry* 1996;153:483– 9. [PubMed: 8599395]
19. Keller MB, Yonkers KA, Warshaw MG, Gollan J, Massion AO, White K, et al. Remission and relapse in subjects with panic disorder and panic with agoraphobia: a prospective short-interval naturalistic follow-up. *J Nerv Ment Dis* 1994;182:290– 6. [PubMed: 10678311]
20. Warshaw MG, Keller MB, Stout RL. Reliability and validity of the longitudinal interval follow-up evaluation for assessing outcome of anxiety disorders. *J Psychiatr Res* 1994;28:531– 45. [PubMed: 7699612]
21. Eisen JL, Phillips KA, Baer L, Beer DA, Atala KD, Rasmussen SA. The Brown Assessment of Beliefs Scale: reliability and validity. *Am J Psychiatry* 1998;155:102– 8. [PubMed: 9433346]

22. Miller IW, Bishop S, Normal WH, Maddever H. The Modified Hamilton Rating Scale for Depression: reliability and validity. *Psychiatry Res* 1985;14:131– 42. [PubMed: 3857653]
23. Goodman WK, Price LH, Rasmussen SA, Mazure C, Fleischmann RL, Hill CL, et al. The Yale-Brown Obsessive Compulsive Scale. I. Development, use, and reliability. *Arch Gen Psychiatry* 1989;46:1006– 11. [PubMed: 2684084]
24. Davidson JR, Miner CM, De Veauh-Geiss J, Tupler LA, Colket JT, Potts NL. The Brief Social Phobia Scale: a psychometric evaluation. *Psychol Med* 1997;27:161– 6. [PubMed: 9122296]
25. Spitzer RL, Williams JBW, Gibbon M, First MB. The Structured Clinical Interview for DSM-III-R (SCID). I. History, rationale, and description. *Arch Gen Psychiatry* 1992;49:624–9. [PubMed: 1637252]
26. New Haven (Conn): Yale University Department of Sociology; 1965. Two factor index of social position.
27. Leon AC, Solomon DA, Mueller TI, Turvey CL, Endicott J, Keller MB. The Range of Impaired Functioning Tool (LIFE-RIFT): a brief measure of functional impairment. *Psychol Med* 1999;29:869– 78. [PubMed: 10473314]
28. Weissman MM, Prusoff BA, Thompson DW, Harding PS, Myers JK. Social adjustment by self-report in a community sample and in psychiatric outpatients. *J Nerv Ment Dis* 1978;166:317– 26. [PubMed: 650195]
29. Boston: The Health Institute, New England Medical Center; 1993. SF-36 health survey manual and interpretation guide.
30. Endicott J, Nee J, Harrison W, Blumenthal R. Quality of Life Enjoyment and Satisfaction Questionnaire: a new measure. *Psychopharmacol Bull* 1993;29:321– 6. [PubMed: 8290681]
31. 4th ed. Belmont (Calif): Duxbury Press; 1995. Fundamentals of biostatistics.
32. Rothman KJ. No adjustments are needed for multiple comparisons. *Epidemiology* 1990;1:43– 6. [PubMed: 2081237]
33. Dolan BM, Birtchnell SA, Lacey JH. Body image distortion in non-eating disordered women and men. *J Psychosom Res* 1987;31:513– 20. [PubMed: 3668888]
34. New York: The Free Press; 2002. The Adonis complex: how to identify, treat, and prevent body obsession in men and boys.
35. Cash TF. Losing hair, losing points? The effects of male pattern baldness on social impression formation. *J Appl Soc Psychol* 1990;20:154–67.
36. Drenowski A, Yee DK. Men and body image: are males satisfied with their body weight? *Psychosom Med* 1987;49:626–34. [PubMed: 3423169]
37. Moore DC. Body image and eating behavior in adolescent boys. *Am J Dis Child* 1990;144:475– 9. [PubMed: 2321613]
38. Washington (DC): American Psychological Association; 1999. Sociocultural theory: the media and society. *Exacting beauty: theory, assessment, and treatment of body image disturbance.*
39. Olivardia R, Pope HG Jr, Mangweth B, Hudson JI. Eating disorders in college men. *Am J Psychiatry* 1995;152:1279–85. [PubMed: 7653681]
40. Bourdon KH, Boyd JH, Rae DS, Burns BJ, Thompson JW, Locke BZ. Gender differences in phobias: results of the ECA community survey. *J Anxiety Disord* 1988;2:227 – 41.
41. Cameron OG, Hill EM. Women and anxiety. *Psychiatr Clin North Am* 1989;12:175– 87. [PubMed: 2652107]
42. Weissman MM, Klerman GL. Sex differences and the epidemiology of depression. *Arch Gen Psychiatry* 1977;34:98 – 111. [PubMed: 319772]
43. The American Society for Aesthetic Plastic Surgery. Cosmetic surgery national data bank. . <http://www.surgery.org/press/statistics-2003.php>
44. Phillips KA, Grant J, Siniscalchi J, Albertini RS. Surgical and nonpsychiatric medical treatment of patients with body dysmorphic disorder. *Psychosomatics* 2001;42:504– 10. [PubMed: 11815686]
45. Veale D, Boocock A, Gournay K, Dryden W, Shah F, Willson R, et al. Body dysmorphic disorder: a survey of fifty cases. *Br J Psychiatry* 1996;169:196–201. [PubMed: 8871796]
46. Rosen JC, Reiter J, Orosan P. Assessment of body image in eating disorders with the Body Dysmorphic Disorder Examination. *Behav Res Ther* 1995;33:77–84. [PubMed: 7872941]

47. Bergner M, Remer P, Whetsell C. Transforming women's body image: a feminist counseling approach. *Women Ther* 1985;4:25–38.
48. New York: The Guilford Press; 2002. Body image issues among girls and women. *Body image: a handbook of theory, research, and clinical practice*; p. 183-91.
49. Faravelli C, Salvatori S, Galassi F, Aiazzi L, Drei C, Cabras P. Epidemiology of somatoform disorders: a community survey in Florence. *Soc Psychiatry Psychiatr Epidemiol* 1997;32:24 – 9. [PubMed: 9029984]
50. Neziroglu FA, Yaryura-Tobias JA. Body dysmorphic disorder: phenomenology and case descriptions. *Behav Psychother* 1993;21:27– 36.
51. Hollander E, Cohen LJ, Simeon D. Body dysmorphic disorder. *Psychiatr Ann* 1993;23:359– 64.
52. Rutter M, Caspi A, Moffitt TE. Using sex differences in psychopathology to study causal mechanisms: unifying issues and research strategies. *J Child Psychol Psychiatry* 2003;44:1092– 115. [PubMed: 14626453]

Table 1

Body areas of concern for women and men with BDD in 2 previously published studies [11,12]

Body area	US study (n = 188)	Italian study (n = 58)
Skin	M = F	—
Acne	—	M = F
Hair	M = F	M = F
Excessive body hair	<i>F > M</i>	<i>M > F</i>
Hair thinning	M > F	—
Nose	M = F	M = F
Stomach/abdomen	M = F	M = F
Teeth	M = F	—
Weight	<i>F > M</i>	—
Breasts/chest	<i>M = F</i>	<i>F > M</i>
Eyes	M = F	—
Buttocks	M = F	—
Eyebrows	M = F	—
Face (overall)	M = F	M = F
Legs	<i>M = F</i>	<i>F > M</i>
Body build (small)	M > F	—
Face size/shape	M = F	—
Lips	M = F	M = F
Chin	M = F	—
Arm/wrist	M = F	—
Hips	<i>F > M</i>	<i>M = F</i>
Cheeks	M = F	—
Ears	M = F	M = F
Hands	M = F	M = F
Genitals	M > F	M > F
Forehead	M = F	—
Jaw	M = F	—
Feet	M = F	M = F
Head size/shape	M = F	—
Neck	M = F	—
Height	<i>M = F</i>	<i>M > F</i>
Fingers	M = F	—
Shoulders	M = F	M = F
Face muscles	M = F	—

M indicates male; F, Female. M = F indicates that a significant gender difference was not found. The symbol “—” indicates that the study did not report on this body area. Data captured in italics indicate that the US and Italian studies had discrepant findings.

Table 2

Demographic characteristics of women and men with BDD

Variable ^a	Women (n = 137), mean ± SD or n (%)	Men (n = 63), mean ± SD or n (%)	Statistic ^a	P	Effect size (and 95% confidence interval for odds ratios)
Age	31.2 ± 12.3	35.7 ± 11.2	$t = -2.45$	.015	$d = 0.37$
Race (% white) ^b	114 (84.4)	57 (90.5)	$\chi^2 = 1.33$	.249	$V = 0.08$
Ethnicity (% Hispanic)	11 (8.3)	3 (5.3)	—	.559	$V = 0.05$
Marital status ^c			$\chi^2 = 6.81$	.009	3.01 (1.32–6.87)
Single	98 (71.5)	53 (84.1)			
Married	39 (28.5)	10 (15.9)	$\chi^2 = 0.84$	.359	0.72 (0.36–1.45)
Education					
High school/GED or less	39 (28.5)	19 (30.2)			
At least some college	98 (71.5)	44 (69.8)	$\chi^2 = 0.29$	.592	0.84 (0.46–1.57)
Employment Status					
Employed	85 (62.0)	37 (58.7)			
Unemployed	52 (38.0)	26 (41.3)	$F = 0.08$	.779	0.001
Hollingshead occupation ^d	3.9 ± 1.4	3.7 ± 1.7	$\chi^2 = 6.60$	.010	2.59 (1.25–5.35)
Living situation					
Alone	22 (16.1)	23 (36.5)			
Not alone ^e	115 (83.9)	40 (63.5)			

^a_t, F , χ^2 , or Wald χ^2 . The symbol “—” designates Fisher exact test. For all χ^2 analyses, $df = 1$; for age, $df = 198$; for Hollingshead Occupation, $df = 1,101$.

^bNon-white races (for entire sample): Black (7.0%), American Indian (5.5%), Asian (1.0%), Alaskan Native (0.5%), and Native Hawaiian/Pacific Islander (0.5%).

^c“Single” includes 60.6% never married, 10.2% divorced/separated, 0.7% widowed for females, and 69.8% never married, 14.3% divorced/separated, 0.0% widowed for males.

^dMean score reflects level of clerical/sales worker or small business owner.

^e“Not alone” reflects 56.2% with roommate/spouse, 27.0% with parents, and 0.7% supervised living for females, and 36.5% with roommate/spouse, 25.4% with parents, and 1.6% supervised living for males.

Table 3

Body areas of excessive concern for women and men with BDD

Body area ^a	Women (n = 137), mean ± SD or n (%)	Men (n = 63), mean ± SD or n (%)	Statistic ^b	P	Effect size
No. of body areas (lifetime)	6.8 ± 5.2	5.4 ± 3.8	$F = 3.23$	.074	$d = 0.02$
No. of body areas (current)	5.8 ± 5.0	4.2 ± 3.3	$F = 4.50$	.035	$d = 0.02$
Skin	1.16 (84.7)	44 (69.8)	$\chi^2 = 5.93$	.015	$V = 0.17$
Hair ^c	75 (54.7)	40 (63.5)	$\chi^2 = 1.35$	.245	$V = 0.08$
Nose	54 (39.4)	24 (38.1)	$\chi^2 = 0.03$	.859	$V = 0.01$
Stomach	52 (38.0)	12 (19.0)	$\chi^2 = 7.09$	.008	$V = 0.19$
Teeth	45 (32.8)	14 (22.2)	$\chi^2 = 2.34$	.126	$V = 0.11$
Weight ^d	46 (33.6)	12 (19.0)	$\chi^2 = 4.42$	.035	$V = 0.15$
Breasts/chest	43 (31.4)	9 (14.3)	$\chi^2 = 6.56$	.010	$V = 0.18$
Eyes	31 (22.6)	12 (19.0)	$\chi^2 = 0.33$	.567	$V = 0.04$
Buttocks	39 (28.5)	4 (6.3)	$\chi^2 = 12.51$	<.001	$V = 0.25$
Thighs	39 (28.5)	1 (1.6)	$\chi^2 = 19.49$	<.001	$V = 0.31$
Eyebrows	28 (20.4)	11 (17.5)	$\chi^2 = 0.24$	.622	$V = 0.04$
Face (overall)	24 (17.5)	14 (22.2)	$\chi^2 = 0.62$	.431	$V = 0.06$
Legs	31 (22.6)	5 (7.9)	$\chi^2 = 6.31$	.012	$V = 0.18$
Body build	13 (9.5)	23 (36.5)	$\chi^2 = 21.34$	<.001	$V = 0.33$
Face size/shape	24 (17.5)	8 (12.7)	$\chi^2 = 0.75$	.388	$V = 0.06$
Lips	21 (15.3)	8 (12.7)	$\chi^2 = 0.24$	.624	$V = 0.04$
Chin	24 (17.5)	5 (7.9)	$\chi^2 = 3.20$	.074	$V = 0.13$
Arm/wrist	22 (16.1)	5 (7.9)	$\chi^2 = 2.44$	.118	$V = 0.11$
Hips	24 (17.5)	1 (1.6)	$\chi^2 = 10.01$	.002	$V = 0.22$
Cheeks	16 (11.7)	5 (7.9)	$\chi^2 = 0.64$	.423	$V = 0.06$
Ears	12 (8.8)	9 (14.3)	$\chi^2 = 1.40$	.236	$V = 0.08$
Hands	12 (8.8)	6 (9.5)	$\chi^2 = 0.03$	.861	$V = 0.01$
Genitals	7 (5.1)	11 (17.5)	$\chi^2 = 8.04$	.005	$V = 0.20$
Waist	14 (10.2)	4 (6.3)	$\chi^2 = 0.79$	.374	$V = 0.06$
Forehead	10 (7.3)	7 (11.1)	$\chi^2 = 0.81$	.369	$V = 0.06$
Jaw	9 (6.6)	7 (11.1)	$\chi^2 = 1.21$	.271	$V = 0.08$
Calves	11 (8.0)	4 (6.3)	—	.780	$V = 0.03$
Feet	11 (8.0)	4 (6.3)	—	.780	$V = 0.03$
Head size/shape	9 (6.6)	5 (7.9)	—	.768	$V = 0.03$
Neck	9 (6.6)	4 (6.3)	—	1.000	$V = 0.004$
Height	7 (5.1)	6 (9.5)	—	.353	$V = 0.08$
Toes	11 (8.0)	0 (0.0)	—	.018	$V = 0.16$
Back	9 (6.6)	2 (3.2)	—	.508	$V = 0.07$
Mouth	8 (5.8)	3 (4.8)	—	1.000	$V = 0.02$
Fingers	5 (3.6)	2 (3.2)	—	1.000	$V = 0.01$
Knees	6 (4.4)	1 (1.6)	—	.436	$V = 0.07$
Shoulders	6 (4.4)	0 (0.0)	—	.180	$V = 0.12$
Face muscles	2 (1.5)	2 (3.2)	—	.592	$V = 0.06$
Ankles	2 (1.5)	1 (1.6)	—	1.000	$V = 0.01$

^aBody areas were rated as present only if concern was clearly excessive; results are presented for lifetime (past or current) concerns.

^b $df = 1$ for all χ^2 analyses and 1,197 for analysis of covariance; the symbol “—” designates Fisher exact test.

^cMales were significantly more likely to be preoccupied with thinning/balding (56.4% vs 17.3%, $\chi^2_1 = 18.42$, $P < .001$) and unevenness (17.9% vs 4.0%, $P = .030$), whereas females were more likely to be preoccupied with excessive body/facial hair (44.0% vs 23.1%, $\chi^2_1 = 4.83$, $P = .028$).

d No subject was excessively concerned with body weight alone.

Table 4

Clinical characteristics of women and men with BDD

Variable	Women (n = 137), mean ± SD or n (%)	Men (n = 63), mean ± SD or n (%)	Statistic ^d	P	Effect size (and 95% confidence interval for odds ratios)
BDD behaviors (lifetime)					
No. of behaviors	7.2 ± 2.0	6.3 ± 2.5	F = 6.15	.014	d = 0.03
Camouflaging ^b	133 (97.1)	51 (81.0)	$\chi^2 = 15.25$	<.001	V = 0.28
Posture	59 (72.0)	22 (64.7)	$\chi^2 = 0.60$	.439	V = 0.07
Clothes	61 (74.4)	13 (37.1)	$\chi^2 = 14.64$	<.001	V = 0.35
Makeup	64 (78.0)	8 (23.5)	$\chi^2 = 30.34$	<.001	V = 0.51
Hair	45 (54.9)	11 (32.4)	$\chi^2 = 4.88$	.027	V = 0.21
Hand	54 (65.9)	11 (32.4)	$\chi^2 = 10.95$	.001	V = 0.31
Hat	26 (31.7)	15 (44.1)	$\chi^2 = 1.62$	.203	V = 0.12
Comparing with others	131 (95.6)	59 (93.7)	—	.728	V = 0.04
Mirror checking	127 (92.7)	52 (82.5)	$\chi^2 = 4.74$	.029	V = 0.15
Grooming	99 (72.3)	38 (60.3)	$\chi^2 = 2.85$	.091	V = 0.12
Touching body areas	83 (60.6)	35 (55.6)	$\chi^2 = 0.45$	.502	V = 0.05
Reassurance seeking	82 (59.9)	34 (54.0)	$\chi^2 = 0.61$	.433	V = 0.06
Clothes changing	73 (53.3)	19 (30.2)	$\chi^2 = 9.29$	.002	V = 0.22
Skin picking	72 (52.6)	16 (25.4)	$\chi^2 = 12.92$	<.001	V = 0.25
Dieting	52 (38.0)	23 (36.5)	$\chi^2 = 0.04$	.844	V = 0.01
Tanning	39 (28.5)	11 (17.5)	$\chi^2 = 2.79$	.095	V = 0.12
Excessive exercise	29 (21.2)	14 (22.2)	$\chi^2 = 0.03$	.866	V = 0.01
Distraction techniques ^c	24 (52.2)	9 (39.1)	$\chi^2 = 1.05$	.307	V = 0.12
Weightlifting	15 (10.9)	16 (25.4)	$\chi^2 = 6.88$	.009	V = 0.19
BDD severity (current)					
BDD-YBOCS ^d	30.8 ± 6.1	29.6 ± 7.6	t = 1.07	.287	d = 0.18
BDD-PSR ^e	5.6 ± 0.7	5.9 ± 0.7	t = -2.68	.008	d = 0.44
BDDE	99.2 ± 20.8	84.7 ± 20.3	t = 2.82	.006	d = 0.67
Insight/delusional					
BABS ^f	16.4 ± 5.7	16.6 ± 5.2	t = -0.27	.790	d = 0.05
% Delusional (current)	48 (39.7)	17 (34.7)	$\chi^2 = 0.37$	.545	V = 0.05
% Delusional (lifetime)	108 (78.8)	46 (73.0)	$\chi^2 = 0.58$	.445	0.76 (0.38–1.53)
Ideas/delusions of reference	60 (43.8)	30 (47.6)	$\chi^2 = 0.26$	.614	V = 0.04
Course of illness					
Age of BDD onset	15.9 ± 7.1	17.5 ± 6.9	t = -1.47	.143	d = 0.22
Age of subclinical BDD onset	12.1 ± 5.7	14.6 ± 5.8	t = -2.78	.006	d = 0.42
Duration of illness (y)	14.7 ± 12.0	18.0 ± 12.6	F = 0.16	.692	d = 0.001
Acute onset ^g	20 (14.6)	10 (15.9)	$\chi^2 = 0.06$	.815	V = 0.02
Continuous course ^h	112 (81.8)	50 (80.6)	$\chi^2 = 0.04$	.853	V = 0.01
Non-BDD symptom severityⁱ					
HAM-D	25.0 ± 6.9	26.3 ± 8.8	t = -0.63	.534	d = 0.16
Y-BOCS	22.7 ± 6.2	24.4 ± 7.7	t = -0.81	.421	d = 0.23
Brief Social Phobia Scale	30.7 ± 12.2	29.6 ± 12.8	t = 0.29	.774	d = 0.09
Psychiatric treatment received (lifetime)^j					
Medication	99 (72.3)	61 (96.8)	$\chi^2 = 0.19$	.662	1.44 (0.28–7.34)
Psychotherapy	130 (94.9)	53 (84.1)	$\chi^2 = 2.67$	.103	1.92 (0.88–4.20)
Non-psychiatric treatment received for BDD (lifetime) ^j	123 (89.8)	54 (85.7)	$\chi^2 = 0.80$	.370	0.66 (0.26–1.64)
	90 (65.7)	38 (60.3)	$\chi^2 = 0.55$	.457	0.79 (0.42–1.47)
Non-BDD symptom severityⁱ					
Dermatologist	67 (48.9)	28 (44.4)	$\chi^2 = 0.18$	.675	0.88 (0.48–1.62)
Surgeon	27 (19.7)	12 (19.0)	$\chi^2 = 0.54$	.461	0.74 (0.33–1.65)
Dentist	14 (10.2)	5 (7.9)	$\chi^2 = 0.41$	.522	0.70 (0.24–2.07)
Other physician	13 (9.5)	6 (9.5)	$\chi^2 < 0.001$	.966	1.02 (0.36–2.87)
Paraprofessional	24 (17.5)	6 (9.5)	$\chi^2 = 2.77$	.096	0.44 (0.17–1.16)

Variable	Women (n = 137), mean ± SD or n (%)	Men (n = 63), mean ± SD or n (%)	Statistic ^a	P	Effect size (and 95% confidence interval for odds ratios)

^a *t*, *F*, χ^2 , or Wald χ^2 ; the symbol “-” designates Fisher exact test; *df* = 1 for χ^2 analyses and 193–198 for *t* tests except for BDD-YBOCS (174), BDD-PSR (174), BDDE (82), BABS (168), HAM-D (65), Y-BOCS (43), and Brief Social Phobia Scale (59); for *F* tests, *df* = 1,197.

^b Specific types of camouflaging were assessed for only the first 117 subjects.

^c Distraction techniques were assessed for only the first 69 subjects; these are methods used to decrease perceived attention from others on the body areas of concern. The most common are makeup (27.5%), clothes (24.6%), hairstyle (13.0%), and jewelry (11.6%).

^d Mean scores reflect moderate-severe BDD.

^e BDD-PSR of 1 or 2 = full remission, 3 or 4 = partial remission, and 5–7 = full DSM-IV criteria.

^f The mean BABS score reflects poor insight.

^g Acute onset = symptoms went from clinically nonsignificant to clinically significant within 1 week.

^h Retrospectively assessed; continuous = symptoms had not remitted for at least 1 month since onset.

ⁱ Scores are for subjects with current comorbid major depression, OCD, or social phobia, respectively (as well as current BDD).

^j Psychiatric treatment may have been received for any reason, whereas nonpsychiatric treatment was received specifically for BDD concerns.

Table 5

Suicidality, functioning, and quality of life for women and men with BDD

Variable	Women (n = 137), mean ± SD or n (%)	Men (n = 63), mean ± SD or n (%)	Statistic ^a	P	Effect size (with 95% confidence interval for odds ratios)
Suicidality (lifetime)					
Suicidal ideation	107 (78.1)	49 (77.8)	$\chi^2 = 0.10$	.758	0.89 (0.43–1.86)
Suicidal ideation primarily because of BDD ^b	68 (49.6)	42 (66.7)	$\chi^2 = 3.83$	.050	1.88 (1.00–3.53)
Attempted suicide	40 (29.2)	15 (23.8)	$\chi^2 = 0.37$	.543	0.81 (0.40–1.62)
Attempted suicide primarily because of BDD ^b	15 (10.9)	10 (15.9)	$\chi^2 = 1.02$	.311	1.57 (0.65–3.79)
Functional impairment (lifetime)					
Social interference because of BDD ^b	137 (100)	63 (100)	—	—	—
Job/academic interference because of BDD ^b	135 (98.5)	62 (98.4)	$\chi^2 < 0.001$	.996	1.00 (0.91–1.10)
Days missed from work or school because of BDD ^b	70.5 ± 150.3	129.1 ± 222.2	$F = 2.75$	.099	$d = 0.01$
Housebound > 1 week because of BDD ^b	37 (27.2)	17 (27.0)	$\chi^2 = 0.07$	.799	0.92 (0.46–1.81)
Functional impairment (current)					
GAF	46.6 ± 10.5	42.6 ± 11.5	$t = 2.20$	.029	$d = 0.36$
SOFAS	49.4 ± 13.2	43.9 ± 12.7	$t = 1.98$	.051	$d = 0.41$
LIFE-RIFT	13.7 ± 3.6	14.1 ± 3.2	$t = -0.67$	.502	$d = 0.11$
Not working because of psychopathology ^c	38 (30.4)	25 (49.0)	$\chi^2 = 4.45$	.035	2.08 (1.05–4.09)
Not enrolled in school because of psychopathology ^c	37 (29.6)	19 (37.3)	$\chi^2 = 1.02$	.314	1.43 (0.71–2.88)
Receiving disability	18 (13.1)	16 (25.4)	$\chi^2 = 4.60$	.032	$V = 0.15$
Receiving disability for BDD ^b	6 (4.4)	9 (14.3)	$\chi^2 = 6.10$	.013	$V = 0.18$
SAS-SR ^d	2.3 ± 0.5	2.4 ± 0.5	$t = -0.53$	.600	$d = 0.10$
Quality of life (current)					
SF-36 mental health ^e	42.1 ± 18.2	37.7 ± 20.7	$t = 1.35$	.180	$d = 0.23$
SF-36 emotional well-being ^e	26.3 ± 35.9	24.8 ± 36.4	$t = 0.24$	.811	$d = 0.06$
SF-36 social functioning ^e	45.7 ± 26.3	41.2 ± 24.9	$t = 1.00$	.318	$d = 0.13$
Q-LES-Q converted score ^f	50.3 ± 16.1	49.2 ± 17.2	$t = 0.35$	.725	$d = 0.07$

^a t , F , χ^2 , or Wald χ^2 ; the symbol “—” designates Fisher exact test; $df = 1$ for χ^2 analyses, 1,197 for days missed from work or school because BDD, 174 for GAF, 102 for SOFAS, 173 for LIFE-RIFT, 124 for SAS-SR, 158 for SF-36 mental health, 159 for other SF-36 scales, and 121 for Q-LES-Q.

^b Due primarily to BDD, in both the subject's and interviewer's judgment.

^c During the worst week of the past month.

^d On the SAS-SR, higher scores indicate poorer functioning; mean scores for females were 2.3 SD units poorer, and for males were 2.5 SD units poorer, than published community norms [28].

^e On the SF-36 subscales, lower scores indicate poorer functioning; mean scores for females were 1.7–1.8 SD units poorer, and for males were 1.7–2.0 SD units poorer, than published community norms.

^f On the Q-LES-Q, lower scores indicate poorer functioning; mean scores for females were 2.0 SD units poorer, and for males were 2.1 SD units poorer, than published community norms [30].

Table 6

Lifetime comorbid disorders in women and men with BDD

Lifetime DSM-IV diagnosis	Women (n = 137), n (%)	Men (n = 63), n (%)	Wald χ^2	P	Effect size (with 95% confidence interval for odds ratios)
Mood disorder ^a	116 (84.7)	52 (82.5)	0.39	.533	0.77 (0.34–1.75)
Major depression	104 (75.9)	45 (71.4)	0.70	.404	0.75 (0.38–1.48)
Bipolar disorder	9 (6.6)	6 (9.5)	0.39	.531	1.42 (0.48–4.24)
Dysthymia (current)	9 (6.6)	6 (9.5)	0.56	.456	1.52 (0.51–4.55)
Psychotic disorder ^b	4 (2.9)	1 (1.6)	0.40	.527	0.49 (0.05–4.52)
Anxiety disorder ^a	96 (70.1)	43 (68.3)	0.23	.633	0.85 (0.44–1.65)
Panic disorder	29 (21.2)	11 (17.5)	1.56	.212	0.60 (0.26–1.34)
Agoraphobia	3 (2.2)	0 (0.0)	<0.001	.997	<.001
Social phobia	53 (38.7)	24 (38.1)	0.05	.829	0.93 (0.50–1.74)
Specific phobia	30 (21.9)	9 (14.3)	2.30	.129	0.53 (0.23–1.21)
OCD	41 (29.9)	25 (39.7)	1.60	.206	1.50 (0.80–2.83)
PTSD	15 (10.9)	3 (4.8)	1.82	.177	0.41 (0.11–1.50)
GAD (current)	4 (2.9)	3 (4.8)	1.05	.306	2.29 (0.47–11.24)
Substance use disorder ^a	59 (43.1)	37 (58.7)	3.93	.047	1.86 (1.01–3.44)
Alcohol	50 (36.5)	35 (55.6)	5.15	.023	2.04 (1.10–3.77)
Other drug	41 (29.9)	26 (41.3)	2.71	.100	1.70 (0.90–3.20)
Eating disorder ^a	58 (42.3)	7 (11.1)	15.33	<.001	0.18 (0.08–0.42)
Anorexia nervosa	15 (10.9)	3 (4.8)	1.90	.168	0.40 (0.11–1.47)
Bulimia nervosa	12 (8.8)	1 (1.6)	2.69	.101	0.18 (0.02–1.40)
EDNOS ^c	32 (23.4)	3 (4.8)	7.85	.005	0.17 (0.05–0.59)
Somatiform disorder (current)	3 (2.2)	0 (0.0)	<0.001	.997	<.001
Somatization disorder	0 (0.0)	0 (0.0)	—	—	—
Pain disorder	0 (0.0)	0 (0.0)	—	—	—
Hypochondriasis	3 (2.2)	0 (0.0)	<0.001	.997	<.001
Other axis I disorders	—	—	—	—	—
Tic disorder	2 (1.5)	3 (4.8)	1.51	.220	3.16 (0.50–19.85)
Trichotillomania	4 (2.9)	1 (1.6)	0.40	.527	0.49 (0.05–4.52)
Olfactory reference syndrome	6 (4.4)	2 (3.2)	0.23	.634	0.67 (0.13–3.48)
Adjustment disorder	0 (0.0)	0 (0.0)	—	—	—

NOS = not otherwise specified; PTSD = post-traumatic stress disorder; GAD = generalized anxiety disorder; EDNOS = eating disorder not otherwise specified.

^aThe total is less than the sum of the individual disorders because some subjects had more than one disorder in a given category.

^bDelusional BDD is not included.

^cBinge eating disorder accounted for 31.3% of EDNOS diagnoses for women and 33.3% for men.