Published in final edited form as:
Depress Anxiety. 2007 ; 24(6): 399–409.

OBSESSIVE–COMPULSIVE DISORDER VERSUS BODY DYSMORPHIC DISORDER: A COMPARISON STUDY OF TWO POSSIBLY RELATED DISORDERS

Katharine A. Phillips, M.D.[1,2,*], **Anthony Pinto, Ph.D.**[1,2], **William Menard, B.A.**[1], **Jane L. Eisen, M.D.**[2], **Maria Mancebo, Ph.D.**[1,2], and **Steven A. Rasmussen, M.D.**[1,2]
1 *Butler Hospital, Providence, Rhode Island*

2 *Department of Psychiatry and Human Behavior, Brown Medical School, Providence, Rhode Island*

Abstract

The relationship between obsessive–compulsive disorder (OCD) and body dysmorphic disorder (BDD) is unclear. BDD has been proposed to be an OCD-spectrum disorder or even a type of OCD. However, few studies have directly compared these disorders' clinical features. We compared characteristics of subjects with OCD (n = 210), BDD (n = 45), and comorbid BDD/OCD (n = 40). OCD and BDD did not significantly differ in terms of demographic features, age of OCD or BDD onset, illness duration, and many other variables. However, subjects with BDD had significantly poorer insight than those with OCD and were more likely to be delusional. Subjects with BDD were also significantly more likely than those with OCD to have lifetime suicidal ideation, as well as lifetime major depressive disorder and a lifetime substance use disorder. The comorbid BDD/OCD group evidenced greater morbidity than subjects with OCD or BDD in a number of domains, but differences between the comorbid BDD/OCD group and the BDD group were no longer significant after controlling for BDD severity. However, differences between the comorbid BDD/OCD group and the OCD group remained significant after controlling for OCD severity. In summary, OCD and BDD did not significantly differ on many variables but did have some clinically important differences. These findings have implications for clinicians and for the classification of these disorders.

Keywords

dysmorphophobia; phenomenology; OCD-spectrum disorders; somatoform disorders; insight; comorbidity

INTRODUCTION

The relationship between obsessive–compulsive disorder (OCD) and body dysmorphic disorder (BDD) is unclear. BDD, a distressing or impairing preoccupation with an imagined or slight defect in appearance, is classified in DSM-IV as a somatoform disorder, whereas OCD is classified as an anxiety disorder [American Psychiatric Association, 1994]. However, BDD has been proposed to be a member of the OCD-spectrum—a group of disorders that may be related to OCD—or a variant of OCD [e.g., Hollander, 1993; Jaisoorya et al., 2003; Simeon et

*Correspondence to: Katharine Phillips, M.D., Butler Hospital, 345 Blackstone Blvd., Providence, RI 02906. E-mail: katharine_phillips@brown.edu.

Contract grant sponsor: National Institute of Mental Health; Contract grant number: R01 MH60241 (to Dr. Phillips) and R01 MH060218 (to Dr. Rasmussen).

al., 1995]. More than a century ago, Morselli [1891] noted that patients with BDD have prominent obsessions and compulsive behaviors, similar to patients with OCD. In 1903, Janet classified BDD within a group of syndromes similar to OCD, referring to BDD as "obsession with shame of the body." More recently, Solyom et al. [1985] suggested that BDD may be a type of "obsessive psychosis"—an atypical and more malignant form of OCD. During the DSM-IV development process, consideration was given to classifying BDD in the same section of DSM-IV as OCD; however, this change was not made because of a lack of research examining their similarities and differences [Phillips and Hollander, 1996]. Such research is needed, because it has implications for these disorders' classification and for clinical practice.

Few studies have directly compared BDD to OCD, and to our knowledge only two studies have compared a broad range of demographic and clinical features. One from the United States compared 53 patients with BDD to 53 patients with OCD [Phillips et al., 1998], and the other, from Italy, compared 34 patients with BDD to 79 patients with OCD [Frare et al., 2004]. Both found similarities and differences between the disorders, with some discrepant findings between the two studies. The U.S. study found that BDD and OCD were similar in terms of most demographic features, illness severity, certain aspects of impairment, most aspects of illness course (retrospectively assessed), comorbidity, and family history. Both the U.S. and Italian studies found, however, that patients with BDD were younger and less likely to be married (even when controlling for age). The Italian study (but not the U.S study) found that BDD had a significantly earlier age of onset than OCD. Patients with BDD in the U.S. study had higher rates of lifetime major depression and social phobia; those in the Italian study had higher rates of substance-related disorders and a lower rate of generalized anxiety disorder (GAD). Several findings suggested that patients with BDD may have greater morbidity than patients with OCD in terms of employment and marital status, educational attainment, living situation, and suicidality [Frare et al., 2004; Phillips et al., 1998].

A consistent finding in the literature is that appearance beliefs that underlie BDD preoccupations (e.g., "I look deformed") are characterized by poorer insight than the beliefs underlying OCD obsessions (e.g., "If I touch this doorknob I'll get ill"; Eisen et al., 2004; McKay et al., 1997; Phillips et al., 1998]. In the largest study to examine this topic, 39% of 85 subjects with BDD were currently delusional, compared to only 2% of 64 subjects with OCD [Eisen et al., 2004]. Data are more mixed regarding severity of depressive and anxiety symptoms. One study [Saxena et al., 2002] found that these symptoms were more severe in BDD than in OCD, whereas another study did not [McKay et al., 1997] both studies, however, were limited by relatively small sample sizes.

Studies that have compared comorbid BDD/OCD to BDD or OCD found many similarities but also some differences, which suggest that the comorbid group may have greater morbidity. For example, both Frare et al. [2004; $n = 24$] and Phillips et al. [1998; $n = 33$] found that their comorbid BDD/OCD group was more functionally impaired in terms of several demographic characteristics. Simeon and colleagues [1995] found that subjects with comorbid BDD/OCD had more anxious, impulsive, and schizotypal features, as well as poorer insight, than those with only OCD.

Taken together, these data suggest that BDD and OCD have many similarities but also some differences. They suggest that BDD may be associated with greater morbidity than OCD in several domains. They also suggest that patients with comorbid BDD/OCD may have greater morbidity than those with only BDD or OCD. However, studies on this topic are very limited, and some findings are discrepant. In our study, we compared 210 subjects with OCD, 45 subjects with BDD, and 40 subjects with comorbid BDD/OCD. Although it is unclear what types of similarities would best support the theory that BDD and OCD are related, one would expect similarities across a variety of domains [Hollander, 1993; Hollander et al., 2005]. In

this study, we examined a number of relevant domains: demographic features, phenomenology, course of illness (retrospectively assessed), functional impairment, and comorbidity. To our knowledge, this is the largest study to compare OCD and BDD. We also examined some clinically important characteristics that were not investigated in previous comparison studies (e.g., Axis II disorders). Based on previous findings, we hypothesized that subjects with BDD would have poorer insight than those with OCD. We also predicted that those with BDD would be younger and less likely to be married. Based on some previous findings and our clinical experience, we additionally hypothesized that subjects with BDD would be more likely than subjects with OCD to experience suicidality, and that they would be more likely to have lifetime major depression, social phobia, a substance use disorder, and avoidant personality disorder, whereas subjects with OCD would be more likely to have a tic disorder and obsessive–compulsive personality disorder.

METHODS

SUBJECTS

Subjects were participants in two very similar longitudinal studies, one examining the course of OCD (n = 355) and the other examining the course of BDD (n = 200). This report includes data only from these studies' intake (baseline) assessment. The two studies were done at the same site, over a similar time period, and used nearly identical methodology and measures (see below). The OCD study had the following inclusion criteria: age 6 or older, a primary diagnosis of DSM-IV OCD (defined as the disorder that participants considered their biggest problem overall across their lifetime), and having sought treatment for OCD. The OCD study did not exclude subjects with delusional OCD. The BDD study inclusion criteria were as follows: lifetime (i.e., past or current) DSM-IV BDD or its delusional variant, age 12 or older, and availability for an in-person interview. Both studies required that subjects be willing to participate in annual interviews. The only exclusion criterion for either study was the presence of a mental disorder (e.g., mental retardation) that would interfere with the collection of valid interview data.

As can be seen, some inclusion criteria differed between the two studies, with the BDD study obtaining a more broadly inclusive sample and the OCD study having an earlier age of entry. Therefore, to minimize the possibility of bias due to differences in sample ascertainment, we selected the following subset of both samples for this report: (1) subjects in the OCD study with a primary diagnosis of OCD (all of the subjects with OCD), and subjects in the BDD study with a primary diagnosis of BDD (84% of the 200 subjects with BDD; "primary" diagnosis was defined as in the OCD study); (2) those who were receiving mental health treatment at the time of the intake interview (95% of all 355 subjects with OCD and 67% of all 200 subjects with BDD); (3) only adults from each study (children and adolescents were excluded; 83% of all 355 subjects with OCD and 82% of all 200 subjects with BDD); and (4) subjects meeting full criteria for either OCD or BDD) at the time of the intake interview (80% of the 355 subjects with OCD and 89% of all 200 subjects with BDD). The last criterion was used to match the samples and because some analyses in this report examine current symptom severity.

Participants in the OCD study were recruited from the Rhode Island/southeastern Massachusetts area and were obtained from psychiatric treatment settings, including consecutive admissions to an out-patient OCD specialty clinic, inpatient units of a private psychiatric hospital, community mental health centers, two general outpatient psychiatric clinics, and the private practices of three experts in cognitive-behavioral therapy for OCD. Participants in the BDD study were obtained from the same geographic area. All BDD study participants included in this report were currently receiving mental health treatment and were obtained from diverse clinical settings, primarily settings that do not specialize in BDD. Of the BDD group, 67.1% were referred to the BDD study by treating clinicians and 32.9% were

obtained from advertisements. The proportion of subjects obtained from an inpatient setting did not significantly differ between the two studies (4.9% for the OCD study and 7.1% for the BDD study).

Finally, for this report, subjects from the BDD study who had current or past OCD were excluded from the BDD group, and subjects from the OCD study who had current or past BDD were excluded from the OCD group. Excluded subjects who had *both* current BDD *and* current OCD (and who met the other inclusion criteria noted earlier) are included in this report's "BDD/OCD comorbid group" (n = 40). Twenty-five subjects in the comorbid group were obtained from the BDD study (all of whom had primary BDD), and 15 were obtained from the OCD study (all of whom had primary OCD). The preceding selection process yielded 210 OCD-only subjects, 45 BDD-only subjects, and 40 subjects with both BDD and OCD (the comorbid BDD/OCD group) for inclusion in this report. The study was performed in compliance with the Code of Ethics of the World Medical Association (Declaration of Helsinki), and the study was approved by the Butler Hospital Institutional Review Board. All subjects signed statements of informed consent after the nature of the procedures was explained. The clinical features of the full BDD sample of 200 subjects and the OCD adult sample of 293 subjects have been previously described [Phillips et al., 2005b; Pinto et al., 2006].

PROCEDURES AND ASSESSMENTS

All data in this report were obtained in person by experienced clinical interviewers who were closely supervised by senior study staff. Both studies used the same interviewer training and monitoring procedures. Interviewers for both studies received careful and rigorous training, much of which was provided by the same personnel, and is the same as that for similar studies conducted at Brown University [e.g., Goisman et al., 1994]. Interviewer 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.

We obtained the variables used in this report using the same measures. The Structured Clinical Interview for DSM-IV [SCID-I; First et al., 1996, 2002] and the Structured Clinical Interview for DSM-IV Axis II Personality Disorders [SCID-II; First et al., 1997] were used to diagnose BDD, OCD, and comorbid disorders (not otherwise specified [NOS] diagnoses are not included in this report). Tic disorder and trichotillo-mania, which are not included in the SCID, were assessed using SCID-like modules based on DSM-IV criteria. When making diagnoses, care was taken to follow DSM-IV criteria and not overdiagnose disorders that were due to BDD or OCD. For example, social anxiety secondary to BDD was not diagnosed as social phobia. A semistructured instrument [Phillips, unpublished data] used in previous BDD studies [e.g., Phillips et al., 1998] was used in both the BDD and OCD studies to obtain data on these disorders' clinical characteristics (body areas of concern and compulsive behaviors for BDD, age of onset and duration of illness, lifetime functional impairment, and suicidality).

The 10-item, semistructured Yale–Brown Obsessive Compulsive Scale (Y-BOCS) assessed current OCD severity, with scores ranging from 0 to 40 [Goodman et al., 1989]. Subjects were asked to endorse the specific types of OCD obsessions and compulsions experienced over their lifetime on the Y-BOCS Symptom Checklist. The Yale–Brown Obsessive Compulsive Scale Modified for BDD (BDD-YBOCS) assessed current BDD severity in subjects obtained from the BDD study [Phillips et al., 1997]. The BDD-YBOCS was derived from the Y-BOCS, and the measures are therefore very similar. The first five items on both scales assess obsessions/preoccupations, and items six through 10 assess compulsive behaviors. The BDD-YBOCS has two additional items (insight and avoidance). Scores on the 12-item BDD-YBOCS range from 0 to 48. Insight/delusionality was assessed with the Brown Assessment of Beliefs Scale (BABS), a 7-item, semistructured scale that assesses insight/delusionality in various disorders

[Eisen et al., 1998]. The BABS provides a dimensional score ranging from 0 to 24 and also categorizes individuals as delusional or nondelusional by using an empirically derived cutpoint. In BDD, a typical belief might be "I look deformed," and in OCD, it might be "If I touch this ashtray I'll get cancer." The 25-item Modified Hamilton Rating Scale for Depression (Modified HAM-D) assessed depressive symptoms [scores range from 0 to 72; Miller et al., 1985]. The above symptom measures generate reliable and valid scores; higher scores indicate greater severity. The Global Assessment of Functioning scale [GAF; First et al., 2002] assessed severity of global symptomatology and impairment in functioning; scores range from 1 to 100, with lower scores reflecting greater morbidity.

STATISTICAL ANALYSIS

Statistical analyses were performed using SPSS 11.0 for Windows. Means, standard deviations, frequencies, and percentages were calculated. The 210 subjects with OCD, 45 subjects with BDD, and 40 subjects with comorbid BDD/OCD were compared with regard to demographics, clinical characteristics, and comorbidity. Between-group differences were tested using χ^2 analyses for categorical variables and analysis of variance (ANOVA) for continuous variables, with post hoc analyses using Tukey's "Honestly Significant Difference" (HSD) test when significant differences were obtained among the three groups. Except for analyses of BDD and OCD severity, the comorbid BDD/OCD group was excluded from disorder-specific analyses (e.g., days missed from work or school due to OCD or BDD), because this would have required a large number of comparisons with an already relatively small group of comorbid subjects. Effect sizes are presented for three-way analyses and also for analyses of BDD versus OCD, because the latter comparisons are of particular interest [Cohen, 1988]. Effect sizes are reported as Φ for χ^2 analyses and η for ANOVA (0.10 = *small*, 0.30 = *medium*, 0.50 = *large* for both effect size measures). The comorbid BDD/OCD group had significantly more severe BDD symptoms than the BDD group on the BDD-YBOCS ($P = .004$). Therefore, to further examine significant differences between the two groups, we performed secondary analyses, using analysis of covariance (ANCOVA) for continuous variables or logistic regression for categorical variables and controlling for BDD-YBOCS score. The comor-bid BDD/OCD group had more severe OCD symptoms than the OCD group on the OCD-YBOCS at a trend level ($P = .048$), so a similar statistical approach was used for analyses of the comorbid BDD/OCD group vs the OCD group.

All tests were two tailed. We decided a priori not to apply a full Bonferroni correction, because this approach tends to be overly conservative [Rosner, 1995]. However, to diminish the possibility of type I error, we used a partial α correction with $P<.01$ to determine statistical significance. We considered values from $P = .01$ to $P<.05$ to constitute a trend.

RESULTS

Contrary to our hypothesis, the OCD, BDD, and comorbid BDD/OCD groups did not significantly differ at the intake interview in terms of age or marital status (see Table 1). Nor did they differ on any other demographic variables. There was a trend for a higher proportion of subjects in the comorbid group to be unemployed compared to the OCD and BDD groups.

As shown in Table 2, OCD and BDD subjects had similar severity of OCD and BDD symptoms, respectively, as measured by the OCD-YBOCS and the BDD-YBOCS. Scores for both groups reflected moderate to severe symptoms. On the BDD-YBOCS, the comorbid group had significantly more severe BDD symptoms than the BDD-only group ($P = .004$). On the OCD-YBOCS, the comorbid group had more severe OCD symptoms than the OCD-only group at a trend level ($P = .048$).

The most common obsessions in the OCD group focused on contamination, pathological doubt, and a need for symmetry or exactness. In the comorbid BDD/OCD group, the most common OCD obsessions focused on contamination, symmetry/exactness, and hoarding. The most common OCD compulsions were the same in both of these groups (cleaning/washing, checking, and repeating rituals). The most common areas of bodily preoccupation were similar in the BDD group and the comorbid BDD/OCD group, focusing on the skin, hair, and nose. These two groups were also similar in terms of the most common BDD "compulsions" (comparing appearance with other people, camouflaging the perceived defects, and mirror checking).

Consistent with our hypothesis, subjects with BDD had significantly poorer insight on the BABS, with a large effect size (Table 2). The mean BABS score for subjects with BDD reflected poor insight and for subjects with OCD it reflected good insight. Similarly, a significantly higher proportion of subjects with BDD had delusional beliefs. The OCD and BDD groups reported similar ages of onset for both subclinical and threshold symptoms, and a similar duration of illness. Depressive symptoms were significantly more severe for subjects with comorbid BDD/OCD than for those with OCD or BDD. However, the difference between the comorbid group and the BDD group was no longer significant when controlling for BDD severity ($F = 2.5$, $df = 1, 66$; $P = .115$, $\eta = .19$). The difference between the comorbid group and the OCD group remained significant when controlling for OCD severity ($F = 33.02$, $df = 1, 242$, $P < .001$, $\eta = .33$).

Consistent with our hypothesis, a significantly higher proportion of subjects with BDD than subjects with OCD had experienced suicidal ideation (see Table 3). A higher proportion of BDD subjects than OCD subjects had experienced suicidal ideation due to the subjects' disorder (BDD or OCD) at a trend level. In addition, a higher proportion of the comorbid group had experienced suicidal ideation compared to the subjects with OCD. This finding remained significant when controlling for OCD severity (Wald $\chi^2 = 10.19$, $df = 1$, $P = .001$, odds ratio (OR) = 4.43, 95% confidence interval (CI) = 1.78–11.06). Regarding suicide attempts, BDD and OCD did not significantly differ, contrary to our hypothesis. A higher proportion of the comorbid group (40%) had attempted suicide compared to both the OCD and BDD groups. The difference between the comorbid group and the BDD group was significant at only a trend level when controlling for BDD severity (Wald $\chi^2 = 5.06$, $df = 1$, $P = .025$, OR = 4.05, 95% CI = 1.20–13.68). The difference between the comorbid group and the OCD group remained significant when controlling for OCD severity (Wald $\chi^2 = 9.08$, $df = 1$, $P = .003$, OR = 3.17, 95% CI = 1.50–6.72).

Nearly all participants with OCD and BDD reported interference in social, work, academic, or role functioning due to their symptoms. The BDD group, on average, missed more than 2.5 times as many days of work or school due to BDD, although the two groups did not significantly differ in terms of school dropout due to their illness. The three groups also did not significantly differ in terms of the proportion receiving disability. All three groups had mean GAF scores in the "serious" symptoms/impairment range. GAF scores for the comorbid group were significantly worse than for the OCD group, which remained significant after controlling for OCD severity ($F = 12.24$, $df = 1, 247$; $P = .001$, $\eta = .18$). GAF scores for the comorbid BDD/OCD and BDD groups differed at a trend level ($P = .031$).

As hypothesized, a significantly higher proportion of subjects with BDD than with OCD had lifetime major depressive disorder, as well as dysthymia and any mood disorder (Table 4). The comorbid group was more likely than subjects with OCD to have any mood disorder. Contrary to our hypothesis, subjects with BDD were not significantly more likely than those with OCD to have social phobia; however, there was a trend for a higher rate of social phobia in the comorbid group compared to the OCD group. As hypothesized, a higher proportion of subjects

with BDD than OCD had a substance use disorder (both alcohol and other drugs). This was also the case for the comorbid group compared to the OCD group. A higher proportion of subjects with BDD than those with OCD had paranoid personality disorder. Contrary to our hypothesis, subjects with BDD were not significantly more likely than subjects with OCD to have avoidant personality disorder, although the comorbid group was. Regarding our hypothesis that subjects with OCD would be more likely than subjects with BDD to have obsessive–compulsive personality disorder, this was found at a trend level for both the OCD and comorbid groups. Subjects with OCD were not significantly more likely to have a tic disorder. When controlling for OCD severity, all significant comorbidity differences between the OCD and comorbid groups remained significant, except for results for a lifetime mood disorder (although a lifetime mood disorder was still more frequent in the comorbid group at a trend level [$P = .016$]).

DISCUSSION

This study found more similarities than differences between OCD and BDD. The two disorders were similar in terms of demographic characteristics, age of onset and illness duration, most functioning measures, and most comorbidity. However, subjects with BDD evidenced greater morbidity than subjects with OCD in having poorer insight, greater comorbidity with certain disorders, days missed from work or school due to their illness, and a higher rate of suicidal ideation. Suicidality findings have varied somewhat across studies. We found a significantly higher rate of lifetime (current or past) suicidal ideation in subjects with BDD than in those with OCD, but the previously noted Italian study did not find this for current suicidality [that study, however, did not examine lifetime suicidality; Frare et al., 2004]. Another previous study found that a significantly higher proportion of subjects with BDD than those with OCD had experienced suicidality due to BDD or OCD [Phillips et al., 1998], which our study found at a trend level. The only previous comparison study to examine suicide attempts found that 29% of subjects with BDD had attempted suicide versus 19% of subjects with OCD, a nonsignificant difference [Phillips et al., 1998]. However, that study did find that subjects with BDD were significantly more likely to have attempted suicide due to their disorder [22% for BDD vs. 8% for OCD; Phillips et al., 1998].

Our finding that subjects with BDD had poorer insight than those with OCD, and that a higher proportion of them were delusional, is consistent with clinical observations, which have noted that BDD preoccupations tend to be held with greater conviction than do OCD obsessions [DeLeon et al., 1989; McKenna, 1984; Vitiello and DeLeon, 1990]. In one previous study, more subjects with BDD than those with OCD received a psychotic disorder diagnosis, which in nearly all cases was entirely attributable to delusional BDD [Phillips et al., 1998]. Two subsequent studies used standard measures of delusionality, and both found that patients with BDD have poorer insight than those with OCD [Eisen et al., 2004; McKay et al., 1997].

Our finding that subjects with BDD were more likely to have lifetime major depressive disorder and any mood disorder is consistent with a previous study [Phillips et al., 1998]. However, in our study, severity of depressive symptoms on the HAM-D did not significantly differ in the two groups. This latter finding is similar to that of McKay et al. [1997; although power was limited for that study], but differs from Saxena et al.'s [2001] finding that subjects with BDD had higher HAM-D scores than subjects with OCD. Our finding that substance use disorders were significantly more common in subjects with BDD than in those with OCD concurs with the Frare et al. study [2004] but not the previous Phillips et al. study [1998]. The latter study, however, found that a higher proportion of first-degree relatives of subjects with BDD than those with OCD had a substance use disorder [Phillips et al., 1998].

The question of whether BDD is more likely than OCD to be associated with social phobia and avoidant personality disorder is interesting, because BDD has been proposed to involve more social anxiety than OCD [Phillips et al., 1998], and BDD is conceptualized in Eastern cultures as a form of social phobia [*taijin kyofusho*; Kleinknecht et al., 1997]. Individuals with BDD tend to worry about being scrutinized by others and to feel socially anxious, ashamed, and fearful of embarrassment, rejection, and ridicule [Wilhelm et al., 1997]. They have been shown to have elevated levels of social anxiety similar in severity to patients with generalized social phobia [Veale et al., 1996]. One study found that subjects with BDD were more likely than both subjects with OCD and healthy controls to choose threatening interpretations for ambiguous social scenarios [Buhlmann et al., 2002]. If social anxiety is indeed a core feature of BDD, individuals with BDD might also be expected to have high rates of avoidant personality disorder and perhaps comorbid social phobia. Indeed, several studies found that avoidant personality disorder is the most common Axis II disorder in BDD [Phillips and McElroy, 2000; Veale et al., 1996], and a previous study found that a higher proportion of subjects with BDD than those with OCD had comorbid social phobia [Phillips et al., 1998]. Our study, however, found that a high proportion of both groups had comorbid social phobia, with no significant between-group difference. This high prevalence of social phobia in subjects with BDD is similar to that found in previous BDD studies [Gunstad and Phillips, 2003], and the rate found in OCD subjects is somewhat higher than in previous OCD studies [e.g., LaSalle et al., 2004]. In future studies it would be valuable to compare severity of social anxiety. A higher proportion of subjects with OCD than those with BDD had obsessive–compulsive personality disorder or a tic disorder. These differences were not statistically significant, contrary to our hypothesis, although there was a trend for a difference for obsessive–compulsive personality disorder.

The comorbid BDD/OCD group evidenced greater morbidity than the other two groups in a number of domains. However, differences between the comorbid group and the BDD group were no longer significant after we controlled for BDD severity, suggesting that greater BDD severity accounted for differences in depressive symptoms and suicide attempts. Indeed, in a previous report from the full BDD sample, suicide attempts were significantly predicted by greater BDD severity [as well as comorbid PTSD and a substance use disorder; Phillips et al., 2005a]. In previous studies [Frare et al., 2004; Phillips et al., 1998], subjects with comorbid BDD/OCD had greater morbidity in terms of suicidality, employment and marital status, educational attainment, and living situation; however, those studies did not assess severity of BDD or OCD symptoms in the comorbid group or examine whether greater symptom severity might have accounted for the comorbid groups' greater morbidity. It is unclear why the comorbid group had more severe BDD in our study; future studies are needed to confirm this finding.

Our findings have several implications for classification. On the one hand, BDD and OCD did not significantly differ across numerous domains, and effect sizes for most comparisons were small or small-to-medium. This finding, combined with notable similarities in the disorders' core features of obsessional preoccupation and compulsive behaviors, supports the hypothesis that BDD and OCD are related conditions. In future editions of DSM, it may be advisable to classify BDD in the anxiety disorders section alongside OCD, or in a section of "OCD-spectrum disorders," if such a section is added. Supporting such a change, a controlled family study found that BDD occurred significantly more frequently in first-degree relatives of OCD probands than of control probands, suggesting that BDD can be considered part of a familial OCD spectrum [Bienvenu et al., 2000]. However, our study and others have found some differences between BDD and OCD, suggesting that they are not identical disorders. Further complicating the classification question is that it is unclear what characteristics should qualify disorders for membership in the proposed OCD spectrum [Phillips et al., 2003]. For example, in how many domains and in exactly what ways must disorders be similar to one another to be

classified together? A variety of domains, including those examined in this report, have been noted to be important [Hollander, 1993; Hollander et al., 2005]; however, some characteristics may be more important than others. For example, some authors have argued that the functional relationship between anxiety-evoking thoughts (obsessions) and strategies to reduce anxiety (compulsions) may be particularly important in determining the relatedness of putative spectrum disorders [Abramowitz and Deacon, 2005]. From this perspective, some disorders (e.g., impulse control disorders) often considered part of the OCD-spectrum appear quite different from OCD [Abramowitz and Deacon, 2005]. Additional research is needed that compares OCD to BDD and other disorders across a variety of domains. In our view, etiology and patho-physiology are arguably the most valid basis for determining disorders' relatedness [Hyman, 2003; Phillips et al., 2003]. A neuropsychological study in BDD found evidence for memory impairment implicating frontal–striatal pathology, similar to findings from the same laboratory for subjects with OCD [Deckersbach et al., 2000]. However, in a small morphometric magnetic resonance imaging (MRI) study, subjects with BDD evidenced abnormalities that differed somewhat from those found in the same laboratory for subjects with OCD [Rauch et al., 2003]. (Neither study, however, directly compared individuals with BDD and OCD.) However, causal and maintenance factors in BDD and OCD are undoubtedly complex, and investigation of a variety of potentially relevant factors is needed (e.g., genetics, neurocircuitry, neurochemistry, environmental factors, and cognitive-behavioral variables). In addition, constructs such as spectrum and subtype, which are imprecisely defined and operationalized, need to be better defined. Studies are also needed that compare BDD to other somatoform disorders (with which BDD is classified), because no such studies have been done.

This study has a number of limitations. Our sample was one of convenience from the Rhode Island/southeastern Massachusetts area rather than a probability sample, and may therefore have unknown biases. This geographic area is considered "metropolitan" (http://www.ers.usda.gov), and it is unclear how generalizable our results are to individuals in more urban or more rural areas. Because our sample consisted of treated subjects, our results may be more applicable to treated than to untreated individuals. To minimize the possibility of bias due to differences in sample ascertainment in the BDD and OCD studies, we matched the BDD and OCD samples on a number of variables (including a requirement that all subjects currently be receiving mental health treatment). However, recruitment sources differed somewhat in the two studies, and it is possible that this contributed unknown bias. Another limitation is that we did not establish interrater reliability for the two studies, although all interviewers underwent the same thorough interviewer training process and were largely trained by the same personnel. Also, a somewhat higher proportion (25/40) of the comorbid group had primary BDD. Thus, findings for the comorbid group may be more reflective of the presence of BDD than OCD. It would be interesting for future studies to compare a comorbid group ascertained for BDD to a comorbid group ascertained for OCD. Another limitation is that the sample sizes for the BDD and comorbid groups were relatively small, which raises the possibility of type II error. For example, subjects with BDD and OCD did not significantly differ in terms of the proportion with obsessive–compulsive personality disorder (although a trend was found), even though this personality disorder was nearly three times more common in patients with OCD. However, effect sizes for most comparisons were small or small-to-medium. Nonetheless, larger comparison studies are needed. In addition, base rates should be kept in mind when interpreting nonsignificant results. Some nonsignificant results may reflect low base rates of the variable. For example, GAD and tic disorders have low base rates in this sample and significant differences were not found, even though GAD and tic disorders were three times more frequent in subjects with OCD than in those with BDD. Our study also has some strengths. To our knowledge, it is the largest study to examine a broad range of clinical features in BDD versus OCD. In addition, we used standard measures with strong psychometric properties, and we examined some clinically important domains that have not previously been compared across these disorders.

Additional studies are needed to address this study's limitations. All BDD versus OCD comparison studies have been done in clinical samples; studies in non-clinical samples may be more generalizable to individuals with these disorders in the community. Comparison studies are also needed in different geographic areas, in individuals of different socioeconomic groups, and in various racial/ethnic groups and cultures. In the meantime, clinicians need to be aware that BDD and OCD appear to have many similarities, but that patients with BDD, or both BDD and OCD, may evidence greater morbidity in several clinically important domains. Thus, it seems important to identify and diagnose both disorders when present, and to target both disorders in treatment.

Acknowledgements

Our thanks to Christina Fay, B.A., Dawn Hamel, B.A., Meredith Mello, B.A., Scott St. Germain, M.A., and Jessica Rasmussen, B.A., for collecting study data.

References

Abramowitz, JS.; Deacon, BJ. Obsessive–compulsive disorders: Essential phenomenology and overlap with other anxiety disorders. In: Abramowitz, JS.; Houts, AC., editors. Concepts and controversies in obsessive–compulsive disorder. New York: Springer; 2005. p. 119-136.

American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Washington, DC: Author; 1994.

Bienvenu OJ, Samuels JF, Riddle MA, Hoehn-Saric R, Liang KY, Cullen BA, Grados MA, Nestadt G. The relationship of obsessive–compulsive disorder to possible spectrum disorders: Results from a family study. Biol Psychiatry 2000;48:287–293. [PubMed: 10960159]

Buhlmann U, Wilhelm S, McNally RJ, Tuschen-Caffier B, Baer L, Jenike MA. Interpretive biases for ambiguous information in body dysmorphic disorder. CNS Spectr 2002;7:435–436. [PubMed: 15107765]441–443

Cohen, J. Statistical power analysis for the behavioral sciences. 2nd ed. Hillsdale, NJ: Erlbaum; 1988.

Deckersbach T, Savage CR, Phillips KA, Wilhelm S, Buhlman U, Rauch SL, Baer L, Jenike MA. Characteristics of memory dysfunction in body dysmorphic disorder. J Int Neuropsychol Soc 2000;6:673–681. [PubMed: 11011514]

DeLeon J, Bott A, Simpson GM. Dysmorphophobia: Body dysmorphic disorder or delusional disorder, somatic subtype? Compr Psychiatry 1989;30:457–472. [PubMed: 2684497]

Eisen JL, Phillips KA, Baer L, Beer DA, Atala KD, Rasmussen SD. The Brown Assessment of Beliefs Scale: Reliability and validity. Am J Psychiatry 1998;155:102–108. [PubMed: 9433346]

Eisen JL, Phillips KA, Coles ME, Rasmussen SA. Insight in obsessive compulsive disorder and body dysmorphic disorder. Compr Psychiatry 2004;45:10–15. [PubMed: 14671731]

First, MB.; Gibbon, M.; Spitzer, RL.; Williams, JBW.; Benjamin, LS. Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II). Washington, DC: American Psychiatric Press; 1997.

First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JBW. Structured Clinical Interview for DSM-IV Axis I Disorders: Non-Patient Edition (SCID-I N/P). New York: New York State Psychiatric Institute; 1996.

First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JBW. Structured Clinical Interview for DSM-IV-TR Axis I Disorders, Research Version (SCID-I). New York: Biometrics Research, New York State Psychiatric Institute; 2002.

Frare F, Perugi G, Ruffolo G, Toni C. Obsessive–compulsive disorder and body dysmorphic disorder: A comparison of clinical features. Eur Psychiatry 2004;19:292–298. [PubMed: 15276662]

Goisman RM, Warshaw MG, Peterson LG, Rogers MP, Cuneo P, Hunt MF, Tomlin-Albanese JM, Kazim A, Gollan JK, Epstein-Kaye T, Reich JH, Keller MB. Panic, agoraphobia, and panic disorder with agoraphobia. J Nerv Ment Dis 1994;182:72–79. [PubMed: 8308535]

Goodman WK, Price LH, Rasmussen SA, Mazure C, Fleischmann RL, Hill CL, Heninger GR, Charney DS. The Yale–Brown Obsessive Compulsive Scale. I: Development, use, and reliability. Arch Gen Psychiatry 1989;46:1006–1011. [PubMed: 2684084]

Gunstad J, Phillips KA. Axis I comorbidity in body dysmorphic disorder. Compr Psychiatry 2003;44:270–276. [PubMed: 12923704]

Hollander, E., editor. Introduction. In: Obsessive-compulsive related disorders. Washington, DC: American Psychiatric Press; 1993. p. 1-16.

Hollander, E.; Friedberg, JP.; Wasserman, S.; Yeh, CC.; Iyengar, R. The case for the OCD spectrum. In: Abramowitz, JS.; Houts, AC., editors. Concepts and controversies in obsessive–compulsive disorder. New York: Springer; 2005. p. 95-118.

Hyman, S. Foreword. In: Phillips, KA.; First, MB.; Pincus, H., editors. Advancing DSM: Dilemmas in psychiatric diagnosis. Washington, DC: American Psychiatric Publishing; 2003. p. xi-xxi.

Jaisoorya TS, Reddy YC, Srinath S. The relationship of obsessive–compulsive disorder to putative spectrum disorders: Results from an Indian study. Compr Psychiatry 2003;44:317–323. [PubMed: 12923710]

Janet, P. Les Obsessions et la Psychasthenie [Obsessions and Psychasthenia]. Paris: Felix Alcan; 1903.

Kleinknecht RA, Dinnel DL, Kleinknecht EE, Hiruma N, Harada N. Cultural factors in social anxiety: A comparison of social phobia symptoms and *Taijin Kyofusho*. J Anxiety Disord 1997;11:157–177. [PubMed: 9168340]

LaSalle VH, Cromer KR, Nelson KN, Kazuba D, Justement L, Murphy DL. Diagnostic interview assessed neuropsychiatric disorder comorbidity in 334 individuals with obsessive–compulsive disorder. Depress Anxiety 2004;19:163–173. [PubMed: 15129418]

McKay D, Neziroglu F, Yaryura-Tobias JA. Comparison of clinical characteristics in obsessive–compulsive disorder and body dysmorphic disorder. J Anxiety Disord 1997;11:447–454. [PubMed: 9276787]

McKenna PJ. Disorders with overvalued ideas. Br J Psychiatry 1984;145:579–585. [PubMed: 6391600]

Miller IW, Bishop S, Normal WH, Maddever H. The Modified Hamilton Rating Scale for Depression: Reliability and validity. Psychiatry Res 1985;14:131–142. [PubMed: 3857653]

Morselli E. Sulla dismorfofobia e sulla tafefobia. Bolletinno della R Accademia di Genova 1891;6:110–119.

Phillips KA, Coles M, Menard W, Yen S, Fay C, Weisberg RB. Suicidal ideation and suicide attempts in body dysmorphic disorder. J Clin Psychiatry 2005a;66:717–725. [PubMed: 15960564]

Phillips KA, Gunderson CG, Mallya G, McElroy SL, Carter W. A comparison study of body dysmorphic disorder and obsessive compulsive disorder. J Clin Psychiatry 1998;59:568–575. [PubMed: 9862601]

Phillips, KA.; Hollander, E. Body dysmorphic disorder. In: Widiger, TA.; Frances, AJ.; Pincus, HA.; Ross, R.; First, MB.; Davis, WW., editors. DSM-IV sourcebook. 2. Washington, DC: American Psychiatric Association; 1996. p. 949-960.

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]

Phillips KA, McElroy SL. Personality disorders and traits in patients with body dysmorphic disorder. Compr Psychiatry 2000;41:229–236. [PubMed: 10929788]

Phillips KA, Menard W, Fay C, Weisberg R. Demographic characteristics, phenomenology, comorbidity, and family history in 200 individuals with body dysmorphic disorder. Psychosomatics 2005b; 46:317–332. [PubMed: 16000674]

Phillips, KA.; Price, LH.; Greenberg, BD.; Rasmussen, SA. Should DSM's diagnostic groupings be changed?. In: Phillips, KA.; First, MB.; Pincus, H., editors. Advancing DSM: Dilemmas in psychiatric diagnosis. Washington, DC: American Psychiatric Publishing; 2003. p. 57-84.

Pinto A, Mancebo MC, Eisen JL, Pagano ME, Rasmussen SA. The Brown Longitudinal Obsessive Compulsive Study: clinical features and symptoms of the sample at intake. J Clin Psychiatry 2006;67:703–711. [PubMed: 16841619]

Rauch SL, Phillips KA, Segal E, Makris N, Shin LM, Whalen PJ, Jenike MA, Caviness VS Jr, Kennedy DN. A preliminary morphometric magnetic resonance imaging study of regional brain volumes in body dysmorphic disorder. Psychiatry Res Neuro-imaging 2003;20:13–19.

Rosner, B. Fundamentals of biostatistics. 4th ed. Belmont, CA: Duxbury Press; 1995.

Saxena S, Winograd A, Dunkin JJ, Maidment K, Rosen R, Vapnik T, Tarlow G, Bystritsky A. A retrospective review of clinical characteristics and treatment response in body dysmorphic disorder versus obsessive–compulsive disorder. J Clin Psychiatry 2001;62:67–72. [PubMed: 11235937]

Simeon D, Hollander E, Stein DJ, Cohen L, Aronowitz B. Body dysmorphic disorder in the DSM-IV field trial for obsessive–compulsive disorder. Am J Psychiatry 1995;152:1207–1209. [PubMed: 7625473]

Solyom L, DiNicola VF, Phil M, Sookman D, Luchins D. Is there an obsessive psychosis?: Aetiological and prognostic factors of an atypical form of obsessive–compulsive neurosis. Can J Psychiatry 1985;30:372–380. [PubMed: 4027863]

Veale D, Boocock A, Gournay K, Dryden W, Shah F, Willson R, Walburn J. Body dysmorphic disorder: A survey of fifty cases. Br J Psychiatry 1996;169:196–201. [PubMed: 8871796]

Vitiello B, deLeon J. Dysmorphobia misdiagnosed as obsessive–compulsive disorder. Psychosomatics 1990;31:220–222. [PubMed: 2330405]

Wilhelm S, Otto MW, Zucker BG, Pollack MH. Prevalence of body dysmorphic disorder in patients with anxiety disorders. J Anxiety Disord 1997;11:499–502. [PubMed: 9407269]

TABLE 1

Demographics of OCD versus BDD versus comorbid BDD/OCD

Variable[a]	OCD (*n* = 210)	BDD (*n* = 45)	Comorbid BDD/ OCD (*n* = 40)	Test statistic	*df*	*P*	ES[b]: OCD vs. BDD vs. comorbid	ES[b]: BDD vs. OCD
Gender (% female)	123 (58.6)	30 (66.7)	18 (45.0)	$\chi^2 = 4.19$	2	.123	.12	.06
Age	39.8 ± 12.6	36.5 ± 12.7	36.5 ± 11.7	$F = 2.04$	2, 292	.132	.12	.10
Race (% white)	200 (95.2)	40 (90.9)	39 (97.5)	$\chi^2 = 2.06$	2	.358	.08	.08
Ethnicity (% Hispanic)	6 (2.9)	3 (7.0)	1 (2.6)	$\chi^2 = 1.91$	2	.385	.08	.08
Marital status				$\chi^2 = 9.58$	6	.143	.18	.09
Single (never married)	84 (40.0)	23 (51.1)	25 (62.5)					
Married	86 (41.0)	16 (35.6)	10 (25.0)					
Divorced/separated	38 (18.1)	6 (13.3)	4 (10.0)					
Widowed	2 (1.0)	0 (0.0)	1 (2.5)					
Education				$\chi^2 = 1.44$	2	.486	.07	.07
High school/GED or less	54 (25.7)	18 (17.8)	11 (27.5)					
At least some college	156 (74.3)	37 (82.2)	29 (72.5)					
Employed	102 (48.6)	28 (62.2)	13 (32.5)	$\chi^2 = 7.49$	2	.024	.16	.10
Living situation				$\chi^2 = 9.80$	6	.279	.18	.13
Alone	40 (19.1)	10 (22.2)	13 (32.5)					
Roommate/spouse	129 (61.4)	23 (51.1)	16 (40.0)					
Parent	37 (17.6)	12 (26.7)	10 (25.0)					
Supervised living	4 (1.9)	0 (0.0)	1 (2.5)					

[a] Results by group are presented as *n* (% of subjects) for χ^2 analyses and mean ± standard deviation for ANOVA.

[b] Effect sizes (ES) are presented as Φ for χ^2 analyses and η for ANOVA (.10, *small*, .30, *medium*, and .50, *large* for both ES measures).

TABLE 2

Clinical characteristics of OCD versus BDD versus comorbid BDD/OCD

Variable[a]	OCD (*n* = 210)	BDD (*n* = 45)	Comorbid BDD/OCD (*n* = 40)	Test statistic	*df*	*P*	ES[d]: OCD vs. BDD vs. comorbid	ES[d]: BDD vs. OCD
OCD/BDD severity								
Total OCD-YBOCS vs. BDD-YBOCS score (first 10 items only)	23.0 ± 5.8	23.8 ± 6.3	—	$F = 0.73$	1, 253	.395	—	.05
BDD-YBOCS score (all 12 items; BDD symptoms only)	—	29.0 ± 7.4	34.2 ± 6.4	$F = 8.71$	1, 68	.004	—	—
OCD-YBOCS score (OCD symptoms only)	23.0 ± 5.8	—	25.1 ± 6.6	$F = 4.00$	1, 250	.048	—	—
Insight/delusionality								
BABS[b]	6.8 ± 4.9	15.0 ± 6.3	—	$F = 89.18$	1, 240	< .001	—	.52
% delusional (current) using BABS	4 (2.0)	12 (27.3)	—	$\chi^2 = 37.18$	1	< .001	—	.39
Course								
Age at onset of OCD vs. BDD	18.3 ± 9.9	17.8 ± 7.6	—	$F = 0.09$	1, 252	.762	—	.02
Age at onset of subclinical OCD vs. subclinical BDD[b]	11.9 ± 8.2	13.1 ± 5.2	—	$F = 0.86$	1, 238	.355	—	.06
Duration of OCD vs. BDD (years)	21.5 ± 13.4	18.7 ± 13.7	—	$F = 1.60$	1, 252	.207	—	.08
Depression (Modified HAM-D)[b]	11.5 ± 9.0	14.8 ± 9.5	21.5 ± 11.9	$F = 18.62$	2, 275	< .001[c]	.34	.14

[a] Results by group are presented as *n* (% of subjects) for χ^2 analyses and mean ± standard deviation for ANOVA.

[b] Missing data in the OCD group (*n* = 198 for BABS, *n* = 195 for subclinical age of onset, *n* = 195 for HAM-D).

[c] Comorbid BDD/OCD>OCD, BDD.

[d] Effect sizes (ES) are presented as Φ for χ^2 analyses and η for ANOVA (.10, *small*, .30, *medium*, and .50, *large* for both ES measures).

TABLE 3

Suicidality and functional impairment in OCD versus BDD versus comorbid BDD/OCD

Variable[a]	OCD (*n* = 210)	BDD (*n* = 45)	Comorbid BDD/OCD (*n* = 40)	Test statistic	*df*	*P*	ES[e]: OCD vs. BDD vs. comorbid	ES[e]: BDD vs. OCD
Suicidality (lifetime)								
Suicidal ideation	115 (54.8)	35 (77.8)	34 (85.0)	$\chi^2 = 18.46$	2	< .001[b]	.25	.18
Suicidal ideation due to OCD or BDD	93 (44.3)	28 (62.2)	—	$\chi^2 = 4.78$	1	.029	—	.14
Attempted suicide	33 (15.9)	6 (13.3)	16 (40.0)	$\chi^2 = 13.85$	2	.001[c]	.22	.03
Functional impairment (lifetime)								
Social interference due to OCD vs. BDD	200 (97.6)	45 (100.0)	—	$\chi^2 = 1.12$	1	.290	—	.07
Job/academic interference due to OCD vs. BDD	204 (99.5)	45 (100.0)	—	$\chi^2 = 0.22$	1	.639	—	.03
Days missed from work or school due to OCD vs. BDD	37.2 ± 85.5	95.3 ± 168.4	—	$F = 11.38$	1, 252	.001	—	.21
Dropped out of school due to OCD vs. BDD	26 (12.4)	4 (8.9)	—	$\chi^2 = 0.44$	1	.509	—	.04
Housebound >1 week due to OCD vs. BDD	59 (28.1)	15 (33.3)	—	$\chi^2 = 0.49$	1	.482	—	.04
Functional impairment (current)								
Receiving disability	46 (21.9)	9 (20.0)	11 (27.5)	$\chi^2 = 0.78$	2	.678	.05	.02
Receiving disability due to OCD vs. BDD	33 (15.7)	8 (17.8)	—	$\chi^2 = 0.12$	1	.732	—	.02
GAF	48.5 ± 9.6	47.2 ± 10.0	41.8 ± 10.2	$F = 8.11$	2, 292	< .001[d]	.23	.05

[a] Results by group are presented as *n* (% of subjects) for χ^2 analyses and mean ± standard deviation for ANOVA.

[b] BDD, comorbid BDD/OCD>OCD.

[c] Comorbid BDD/OCD>OCD, BDD.

[d] Comorbid BDD/OCD<OCD.

[e] Effect sizes (ES) are presented as Φ for χ^2 analyses and η for ANOVA (.10, *small*, .30, *medium*, and .50, *large* for both ES measures).

TABLE 4

Lifetime comorbid disorders in OCD versus BDD versus comorbid BDD/OCD

Lifetime DSM-IV diagnosis[a]	OCD (*n* = 210)	BDD (*n* = 45)	Comorbid BDD/OCD (*n* = 40)	χ^2	*P*	ES[k]: OCD vs. BDD vs. comorbid	ES[k]: BDD vs. OCD
Mood disorders[b]	145 (69.1)	41 (91.1)	36 (90.0)	15.09	.001[g]	.23	.19
Major depression	137 (65.2)	39 (86.7)	32 (80.0)	10.19	.006[h]	.19	.18
Bipolar disorder (I or II)	8 (3.8)	2 (4.4)	4 (10.0)	2.86	.239	.10	.01
Dysthymia (current)	0 (0.0)	5 (11.1)	2 (5.0)	21.13	< .001[h]	.27	.31
Psychotic disorder (current)[c]	4 (1.9)	0 (0.0)	0 (0.0)	1.64	.440	.08	.06
Anxiety disorders[b,d]	111 (52.9)	26 (57.8)	28 (70.0)	4.08	.130	.12	.04
Panic disorder	41 (19.5)	11 (24.4)	13 (32.5)	3.47	.176	.11	.05
Agoraphobia	3 (1.4)	1 (2.2)	2 (5.0)	2.16	.340	.09	.02
Social phobia	57 (27.1)	14 (31.1)	20 (50.0)	8.23	.016	.17	.03
Specific phobia	36 (17.1)	9 (20.0)	11 (27.5)	2.38	.304	.09	.03
Posttraumatic stress disorder	14 (6.7)	2 (4.4)	6 (15.0)	4.08	.130	.12	.04
GAD (current)	15 (7.1)	1 (2.2)	1 (2.5)	2.56	.278	.09	.08
Substance use disorders[b]	51 (24.3)	21 (46.7)	25 (62.5)	26.81	< .001[i]	.30	.19
Alcohol	47 (22.4)	19 (42.4)	22 (55.0)	20.98	< .001[i]	.27	.17
Other drugs	27 (13.0)	13 (28.9)	17 (42.5)	21.68	< .001[i]	.27	.17
Eating disorders[b]	14 (6.7)	6 (13.3)	7 (17.5)	5.86	.053	.14	.10
Anorexia nervosa	7 (3.3)	4 (8.9)	5 (12.5)	6.75	.034	.15	.10
Bulimia nervosa	7 (3.3)	2 (4.4)	3 (7.5)	1.51	.469	.07	.02
Somatoform disorders (current)[e]	2 (1.0)	1 (2.2)	0 (0.0)	1.07	.586	.06	.05
Somatization disorder	0 (0.0)	0 (0.0)	0 (0.0)	—	—	—	—
Pain disorder	0 (0.0)	0 (0.0)	0 (0.0)	—	—	—	—
Hypochondriasis	2 (1.0)	1 (2.2)	0 (0.0)	1.07	.586	.06	.05
Other Axis I disorders							
Tic disorder[f]	15 (7.1)	1 (2.2)	2 (5.0)	1.66	.435	.08	.08
Trichotillomania	4 (1.9)	1 (2.3)	1 (2.5)	0.07	.966	.02	.01
Personality disorders[b]	86 (41.5)	15 (33.3)	24 (60.0)	6.61	.037	.15	.06
Paranoid	2 (1.0)	4 (8.9)	2 (5.0)	9.60	.008[h]	.18	.20
Schizotypal	2 (1.0)	0 (0.0)	1 (2.5)	1.33	.515	.07	.04
Schizoid	2 (1.0)	0 (0.0)	1 (2.5)	1.33	.515	.07	.04
Borderline	17 (8.2)	1 (2.2)	4 (10.0)	2.31	.315	.09	.09
Antisocial	3 (1.4)	1 (2.2)	3 (7.5)	5.25	.072	.13	.02
Narcissistic	0 (0.0)	0 (0.0)	1 (2.5)	6.32	.042	.15	—
Histrionic	1 (0.5)	1 (2.2)	0 (0.0)	1.96	.375	.08	.08
Avoidant	34 (16.4)	8 (17.8)	16 (40.0)	11.85	.003[j]	.20	.01
Obsessive–compulsive	54 (26.1)	4 (8.9)	14 (35.0)	8.55	.014	.17	.16
Dependent	3 (1.4)	2 (4.4)	1 (2.5)	1.69	.429	.08	.08
Depressive	8 (3.9)	0 (0.0)	5 (12.5)	8.36	.015	.17	.08

[a] Results are presented as *n* (% of patients); *df* = 2 for all analyses.

[b] Category total is less than the sum of the individual disorders, because some subjects had more than one disorder in a given category.

[c] Delusional BDD and OCD (using BABS) are not included in this rate.

[d] Not including OCD.

[e] Not including BDD.

[f] Tic disorder = Tourette's disorder (DSM-IV) or chronic motor or vocal tic disorder (DSM-IV).

[g] BDD, comorbid BDD/OCD>OCD.

[h] BDD>OCD.

[i] BDD, comorbid BDD/OCD>OCD.

[j] Comorbid BDD/OCD>OCD.

[k] Effect sizes (ES) are presented as Φ for all analyses (.10, *small*, .30, *medium*, and .50, *large*).