A Comparison Study of Body Dysmorphic Disorder and Obsessive-Compulsive Disorder

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Background: Body dysmorphic disorder, a preoccupation with an imagined or slight defect in appearance, is classified as a somatoform disorder, but has been hypothesized to be related to obsessive-compulsive disorder. A reflection of this hypothesis, body dysmorphic disorder is included in the Yale-Brown Obsessive Compulsive Scale symptom checklist, and its transfer to the anxiety disorders' section was considered for DSM-IV. However, the similarities and differences between body dysmorphic disorder and obsessive-compulsive disorder have received little investigation.

Method: We compared patients with DSM-IV body dysmorphic disorder (N = 53), obsessive-compulsive disorder (N = 53), or both disorders (N = 33) in terms of demographic features, clinical features, comorbidity, and family history. We also assessed the rate of body dysmorphic disorder among 62 of these subjects initially diagnosed with obsessive-compulsive disorder.

Results: 14.5% (9 of 62) of subjects initially diagnosed with obsessive-compulsive disorder had comorbid body dysmorphic disorder. The 2 disorders did not differ significantly in terms of sex ratio; most other demographic, course, and impairment variables; illness severity; or lifetime frequency of most associated disorders in probands or first-degree relatives. However, subjects with body dysmorphic disorder were less likely to be married and more likely to have had suicidal ideation or made a suicide attempt because of their disorder. They also had an earlier onset of major depression and higher lifetime rates of major depression, social phobia, and psychotic disorder diagnoses, as well as higher rates of substance use disorders in first-degree relatives.

Conclusion: Body dysmorphic disorder appears to be relatively common among patients with obsessive-compulsive disorder. While the 2 disorders have many similarities, they also have some differences and should be differentiated in clinical and research settings.

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Body dysmorphic disorder (BDD), a preoccupation with an imagined or slight defect in appearance (e.g., a "large" nose, "thinning" hair, or facial "scarring"), is classified as a somatoform disorder in DSM-IV, but has long been noted to have similarities with obsessive-compulsive disorder (OCD).[1] In the 1800s, Morselli[2] noted the obsessional preoccupation and compulsive behaviors that characterize BDD and their similarities to OCD. In 1903, Janet[3] referred to BDD as *obsession de la honte du corps* (obsession with shame of the body) and classified it within a group of syndromes similar to OCD. Currently, BDD is conceptualized as an "OCD-spectrum disorder,"[4–6] a member of a group of disorders with similarities to OCD.[7]

Apparent similarities between BDD and OCD include the obsessional nature of BDD preoccupations, which are generally described as distressing and anxiety-producing persistent, recurrent thoughts that are difficult to resist or control.[1,8,9] In one study, patients with BDD were found to be more "obsessoid" than controls,[10(p401)] and in another study they scored higher on the Leyton Obsessional Inventory than healthy controls.[11] In addition, BDD preoccupations are usually accompanied by repetitive and often ritualistic behaviors, such as mirror checking, that resemble OCD compulsions.[8,9] Furthermore, the content of BDD and OCD symptoms is sometimes similar, characterized by concerns about symmetry, a need for perfection, and a worry that something "isn't right," as well as similar checking behaviors, skin picking, and reassurance seeking. On the basis of these similarities, BDD is included in the Yale-Brown Obsessive Compulsive Scale (Y-BOCS) symptom checklist under the rubric "dysmorphophobia" (although it is not included in scoring).[12,13]

Furthermore, uncontrolled treatment data suggest that BDD, like OCD, may respond to serotonin reuptake in-

hibitors, perhaps preferentially,[9,14–17] and to exposure and response prevention.[18,19] Other postulated similarities include sex ratio, age at onset, often chronic course, degree of impairment, and high comorbidity of both disorders with major depression and other anxiety disorders.[4,20] In addition, BDD and OCD often appear to be comorbid with each other.[14,21,22]

However, differences between BDD and OCD have also been noted. Some authors have suggested that BDD preoccupations are more similar to overvalued ideas than obsessions,[23–25] in that they seem more natural than intrusive, are acquiesced to without much resistance, and are held with some conviction rather than regarded as senseless. In the literature, BDD is often associated with depression, suicidal thinking, and suicidal behavior.[1,11,26] The Japanese literature emphasizes the social avoidance of patients with BDD and considers BDD a form of social phobia.[27]

These and other postulated similarities and differences between BDD and OCD have received little investigation. In the DSM-IV field trial for OCD, subjects with comorbid OCD and BDD were compared to those with OCD alone,[22] but we are aware of no studies that systematically compare subjects with BDD (without comorbid OCD) and OCD (without comorbid BDD). Despite a lack of comparison data, it is our clinical impression that BDD is often misdiagnosed as OCD. If the 2 disorders are in fact different, this misclassification may adversely affect patient care and studies of OCD's phenomenology, treatment, and neurobiology. Data on the relationship between the 2 disorders are also needed to address classification questions for future editions of DSM. During the DSM-IV process, BDD's transfer to the anxiety disorders' section was considered because of its apparent similarities with OCD. However, this change was not implemented because of a lack of comparison data for the 2 disorders.[28]

This study was conducted to investigate similarities and differences between BDD and OCD. We compared subjects with BDD, OCD, or both disorders in terms of demographic characteristics, clinical features, psychiatric comorbidity, and family history. On the basis of our clinical experience and the literature, we predicted that BDD and OCD would be similar across most domains, in particular, sex ratio, age at onset, course of illness, and most comorbidity data. However, we predicted that fewer subjects with BDD would be married and that, as a result, a higher percentage would be living with their parents. We also hypothesized that more BDD subjects would have been housebound (due to social anxiety and a fear of being too ugly to leave their home), experienced suicidal ideation, and attempted suicide. We also predicted that subjects with BDD would have a higher rate of comorbid major depression, social phobia, and psychotic disorder diagnoses. In addition, we determined the frequency of BDD in the series of patients with OCD.

METHOD

Subjects

We compared 3 groups of subjects: (1) 53 subjects with current DSM-IV BDD but no current or lifetime OCD, (2) 53 subjects with current DSM-IV OCD but no current or lifetime BDD, and (3) 33 subjects with both current BDD and current OCD (the "comorbid group"). All subjects were evaluated at McLean Hospital (Belmont, Mass.). The BDD group was obtained from an ongoing descriptive study of BDD that has been described elsewhere.[9,14] Subjects were referred from a variety of sources to a BDD specialty program for evaluation or treatment of BDD. All subjects met DSM-IV criteria for BDD, which are as follows:

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 areas of functioning.
C. The preoccupation is not better accounted for by another mental disorder (e.g., dissatisfaction with body shape and size in Anorexia Nervosa).[29(p468)]

Patients with preoccupations of delusional intensity (the BDD variant of delusional disorder, somatic type) were included because available data suggest that the delusional and nondelusional forms of BDD are variants of the same disorder.[14]

Subjects with OCD were obtained from referrals to an OCD specialty program at McLean Hospital for evaluation or treatment of OCD. Sixty-seven patients completed the study interview. Four were excluded from the current study because they failed to meet DSM-IV criteria for OCD (1 had BDD instead), and 1 patient was excluded because data from his interview were considered unreliable. Nine additional subjects were excluded from the OCD group because they had comorbid BDD; these 9 subjects were included in the BDD/OCD comorbid group. Thus, 53 subjects with current OCD but no current or lifetime BDD constituted the OCD group. Forty-four (83%) were seen as outpatients, and 9 (17%) were inpatients at McLean Hospital at the time of evaluation. To control for possible confounding effects of inpatient versus outpatient status, BDD subjects were matched with the OCD subjects for patient status. The first 44 consecutive BDD subjects seen as outpatients and the first 9 consecutive BDD subjects who were inpatients at McLean at the time of evaluation who had no current or lifetime OCD were selected from the BDD study described above to constitute the BDD group.

The BDD/OCD comorbid group consisted of the 9 previously described patients referred for evaluation or treatment of OCD who were discovered during the study

evaluation to have comorbid BDD. So that the comorbid group would match the other 2 groups in terms of patient status, the first 24 consecutive BDD cases with comorbid current OCD were added to this group. This gave a total of 33 patients with comorbid BDD and OCD, 27 (82%) of whom were outpatients and 6 (18%) of whom were inpatients at the time of evaluation. Although the comorbid group included more patients referred for evaluation of BDD than OCD, we attempted to maximize the size of this group to increase the power of statistical analyses. All participants signed statements of informed consent.

The BDD series, but not the OCD series, has been previously described in published reports.[9,14] The comorbid patients obtained from the BDD series have been included in published reports on BDD, but have not been described separately, and those obtained from the OCD series have not been previously described in published reports.

Assessments

All subjects were administered the Structured Clinical Interview for DSM-III-R (SCID),[30,31] which was used to diagnose OCD. Because the DSM-III-R SCID does not include BDD, this disorder was diagnosed with a reliable semistructured SCID-like diagnostic instrument based on DSM-IV criteria for BDD.[32] The SCID was also used to obtain information on demographic characteristics, age at onset of psychiatric disorders, and associated psychopathology. Social phobia was diagnosed only if the social phobia symptoms appeared to be "primary" as opposed to secondary to BDD or OCD (i.e., they could not be due largely to appearance preoccupations or OCD obsessions).

Subjects were also administered a semistructured instrument (K.A.P., unpublished) to obtain additional demographic and course data as well as data on the phenomenology and associated features of BDD and OCD. Subjects with OCD were administered the OCD symptom checklist[12,13] to assess the lifetime number of obsessions and rituals present over the course of illness; the lifetime number of obsessions (body parts) and compulsive behaviors of BDD subjects was obtained with the previously described semistructured instrument. BDD-related compulsive behaviors assessed were mirror checking, excessive grooming, skin picking, questioning others to seek reassurance about the supposed defect or to convince others of its supposed ugliness, touching the perceived defect, comparing the defect with the same body part on others, and camouflaging behaviors (e.g., applying makeup).

Severity of OCD symptoms during the past week was assessed with the Yale-Brown Obsessive Compulsive Scale (Y-BOCS).[12,13] Severity of BDD symptoms during the past week was assessed with a version of the Y-BOCS that is slightly modified for BDD (BDD-YBOCS).[33] The BDD-YBOCS is a reliable and valid instrument that consists of the first 10 Y-BOCS items as well as 2 experimental Y-BOCS items (insight and avoidance). The 10-item versions of both scales were used in this study; these versions assess obsessions and compulsions in terms of time spent, distress, interference, resistance, and control.

Family history of selected disorders was obtained from study subjects for first-degree relatives. Diagnoses were made with the SCID by a clinician who was blind to the subject's diagnosis. Family history interviews were done by telephone (to help maintain blindness), and family history data are missing for subjects who refused to be interviewed or could not be reached for the interview (18 subjects with OCD, 19 subjects with BDD, and 18 with both disorders). Data are available for 147 first-degree relatives of BDD subjects, 178 first-degree relatives of OCD subjects, and 74 first-degree relatives of the comorbid group.

All but one of the interviewers who conducted the study assessments are psychiatrists with significant clinical and research experience, including extensive experience in conducting the SCID and other clinical research interviews, and all have expertise in OCD or OCD-spectrum disorders. The nonpsychiatrist interviewer has clinical and research experience with psychiatric patients, was trained to administer the SCID, and was supervised by one of the study psychiatrists.

Statistical Analysis

Data analysis was performed using the computer program SPSS version 4.1. The BDD-only group was compared to the OCD-only group for the variables obtained. In addition, the comorbid group was compared to the BDD group and to the OCD group in terms of demographic characteristics, age at onset of disorders of interest, comorbidity, and family history. The comorbid group was not compared to the other 2 groups in terms of other clinical characteristics because data on the clinical characteristics of OCD were not obtained for all patients with BDD. Between-group differences were tested using chi-square analysis and 2-sided Fisher exact test for categorical variables, 2-tailed t tests for normally distributed continuous variables, and Wilcoxon rank sum tests for continuous variables for which we could not assume normal distribution. The results presented are not corrected for multiple comparisons because the Bonferroni correction, which assumes all of the comparisons to be independent, tends to be overly conservative.[34] Therefore, we present our findings without correction (i.e., with significance levels of $p < .05$), although readers should be aware that some results, especially those that were not predicted or are of marginal significance, may represent chance findings. Occasional discrepancies between a group's total N and a particular variable's N are due to missing data or the fact that some variables were added later in the study.

Because the OCD group was significantly older than the BDD group (OCD: 37.5 ± 11.1 years; BDD: 32.4 ± 9.2 years; $t = 2.53$, $df = 101$, $p = .01$) and had a nearly signifi-

Table 1. Demographic Features of Subjects With BDD, OCD, or Both Disorders[a]

Variable	BDD (N = 53)	OCD (N = 53)	Comorbid (N = 33)	p Value[b] BDD vs OCD	BDD vs Comorbid	OCD vs Comorbid
Age (y)	32.4 ± 9.2	37.5 ± 11.1	33.1 ± 9.8	.01[c]	NS	NS
Sex						
Male	31 (58)	31 (58)	12 (38)	NS	NS	NS
Female	22 (42)	22 (42)	20 (62)	NS	NS	NS
Marital status						
Single	39 (74)	28 (54)	23 (72)	NS	NS	NS
Married	7 (13)	20 (39)	4 (13)	.03[d]	NS	.04[e]
Divorced	7 (13)	4 (8)	5 (16)	NS	NS	NS
Employment						
Employed[f]	30 (57)	26 (49)	11 (34)	NS	.05[g]	NS
Unemployed	23 (43)	27 (51)	21 (66)	NS	.05[g]	NS
Living situation						
Alone	11 (21)	12 (23)	9 (28)	NS	NS	NS
With parents	21 (40)	13 (25)	14 (44)	NS	NS	NS
With others	18 (34)	25 (48)	7 (23)	NS	NS	.02[h]
Education[i]	4.7 ± 1.9	4.6 ± 1.7	4.8 ± 1.6	NS	NS	NS

[a]Results are presented as mean ± SD or as N (%) of subjects. Abbreviations: BDD = body dysmorphic disorder, NS = not significant, OCD = obsessive-compulsive disorder. Not all data were available for all subjects.
[b]Statistical significance assumed at $p < .05$.
[c]$t = 2.53$, df = 101.
[d]$\chi^2 = 5.00$, df = 1.
[e]$\chi^2 = 4.33$, df = 1.
[f]Includes full-time, part-time, and student.
[g]$\chi^2 = 3.95$, df = 1.
[h]$\chi^2 = 5.3$, df = 1.
[i]As measured by the 8-point scale in the overview of the SCID-P.

cantly higher age than the comorbid group (33.1 ± 9.8 years; $t = 1.81$, df = 80, $p = .07$), we controlled for the possible effect of age in selected analyses using analysis of covariance (ANCOVA) or logistic regression. Results of analyses in which we controlled for age significantly differed from those in which we did not control for age only for the marital status variables. Therefore, all other variables are reported uncontrolled for age.

RESULTS

Nine (14.5%) of 62 subjects with OCD had comorbid BDD. BDD and OCD had many similarities as well as some differences. As we had predicted, the sex ratio of the BDD and OCD groups was similar (Table 1). In addition, the 2 groups did not differ significantly in terms of employment status or education. Contrary to our hypothesis, they were also similar in terms of living situation. However, as noted above, subjects with BDD were significantly younger than those with OCD, and, as we had predicted, less likely to be married, even when controlling for age. Similar to the BDD subjects, the comorbid subjects were less likely to be married than OCD subjects, and they were less likely to be living with others. However, they were more similar to the OCD group in terms of employment status.

With regard to clinical characteristics (Table 2), the BDD and OCD groups were similar in terms of most variables assessed. Of note, total score and individual-item scores for obsessions and compulsions on the Y-BOCS and BDD-YBOCS scales did not differ significantly between the groups. As we had predicted, age at onset of BDD and OCD was similar, and the majority of subjects in each group reported a gradual onset of symptoms, a continuous course of illness, and high rates of impairment (e.g., hospitalization). Contrary to our prediction, OCD subjects were as likely to have been housebound as BDD subjects.

However, as shown in Table 2, there were some differences between the 2 groups. Subjects with OCD engaged in more ritualistic behaviors than subjects with BDD, and they were more likely to report a stable course of illness and less likely to report a worsening course. Although the 2 groups did not differ significantly in terms of whether they had attempted suicide (contrary to our hypothesis), BDD subjects were more likely than OCD subjects to report suicidal ideation and suicide attempts due to their disorder.

While there were many similarities among the 3 groups in terms of associated psychopathology, as we had hypothesized BDD subjects were significantly more likely than OCD subjects to have lifetime mood disorder, major depression, and social phobia (Table 3). They were also more likely to receive a psychotic disorder diagnosis, which was in most cases entirely attributable to delusional BDD. The comorbid group had a significantly lower rate of major depression and social phobia than the BDD group but resembled the BDD group and differed from the OCD group in terms of psychotic disorder diagnoses.

BDD subjects also had a significantly earlier age at onset of major depression than the OCD group (Table 2). Age at onset of major depression in the comorbid group (18.9 ± 6.2 years) was similar to that of the BDD group and significantly earlier than that of the OCD group ($t = 2.29$, df = 45, $p = .03$).

The 3 groups were largely similar in terms of family history of psychiatric disorders (Table 4), although BDD subjects had a significantly higher rate of substance use disorders in first-degree relatives than OCD subjects. The relatives of the comorbid group had a higher rate of substance use disorders, any mood disorder, and major depression than subjects with OCD did.

DISCUSSION

These results suggest that BDD and OCD have more similarities than differences, and that the 2 disorders may be closely related. BDD and OCD were similar in terms

Table 2. Clinical Features of Subjects With BDD or OCD[a]

Variable	BDD (N = 53)	OCD (N = 53)	BDD vs OCD p Value[b]
Phenomenology			
No. of obsessions	3.7 ± 2.7	4.2 ± 3.0	NS
No. of rituals	2.1 ± 1.3	3.9 ± 2.6	.0002[c]
Severity			
Y-BOCS total[d]	23.7 ± 6.6	23.1 ± 7.4	NS
Obsessions/ preoccupations[d]			
Time preoccupied	2.9 ± 1.1	2.7 ± 1.1	NS
Interference	2.4 ± 1.1	2.3 ± 1.2	NS
Distress	2.6 ± 0.9	2.4 ± 1.0	NS
Resistance	2.3 ± 1.3	2.2 ± 1.1	NS
Control	2.9 ± 0.9	2.5 ± 0.9	NS
Compulsive behaviors[d]			
Time preoccupied	2.1 ± 1.1	2.0 ± 1.0	NS
Interference	1.6 ± 1.4	2.0 ± 1.3	NS
Distress	2.4 ± 1.3	2.2 ± 1.0	NS
Resistance	2.4 ± 1.3	2.1 ± 1.2	NS
Control	2.4 ± 1.1	2.4 ± 1.0	NS
Course			
Age at onset, y			
BDD or OCD	16.2 ± 7.2	18.4 ± 8.2	NS
Major depression	18.8 ± 6.5	25.3 ± 10.5	.002[e]
Social phobia	12.7 ± 8.0	11.5 ± 5.0	NS
Onset[f]			
Gradual	25 (76)	36 (71)	NS
Acute	8 (24)	15 (29)	NS
Course of illness			
Continuous[g]	49 (92)	51 (96)	NS
Episodic	4 (8)	2 (4)	NS
Improving	8 (22)	7 (13)	NS
Stable	6 (16)	27 (51)	.0008[h]
Worsening	23 (62)	19 (36)	.01[i]
Symptom pattern[j]			
Unchanged	26 (49)	24 (46)	NS
New concerns added	20 (38)	18 (35)	NS
Complex	6 (11)	10 (19)	NS
Impairment			
Housebound ≥ 1 week	16 (31)	17 (32)	NS
Hospitalized (psychiatric)	30 (58)	27 (51)	NS
Hospitalized due to BDD/OCD	17 (33)	20 (38)	NS
Suicidal ideation due to BDD/OCD	35 (70)	25 (47)	.02[k]
Suicide attempt	14 (29)	10 (19)	NS
Suicide attempt due to BDD/OCD	11(22)	4 (8)	.03[l]
Importance[m]	3.6 ± 0.63	3.3 ± 0.83	.04[n]

[a]Results are presented as mean ± SD or as N (%) of subjects.
Abbreviation: Y-BOCS = Yale-Brown Obsessive Compulsive Scale.
Not all data were available for all subjects.
[b]Statistical significance assumed at $p < .05$.
[c]$z = 3.79$.
[d]From the BDD-YBOCS (for BDD) and the Y-BOCS (for OCD).
[e]$t = 3.26$, df = 72.
[f]Acute onset = symptoms reached clinically significant intensity within 1 week of onset.
[g]Continuous (as opposed to episodic) course of illness = symptoms had not remitted for at least 1 month.
[h]$\chi^2 = 11.3$, df = 1.
[i]$\chi^2 = 6.1$, df = 1.
[j]Unchanged = body area(s)/obsessions did not change over time; new concerns added = new obsessions developed over time with persistence of previous obsessions; complex = obsessions began and remitted in a more complex pattern.
[k]$\chi^2 = 5.5$, df = 1.
[l]$\chi^2 = 4.5$, df = 1.
[m]A measure of subject's view of how problematic BDD or OCD was (1 = minor problem, 2 = moderate problem, 3 = major problem, 4 = biggest problem).
[n]$t = 2.07$, df = 103.

of sex ratio; most other demographic, phenomenology, course, and impairment variables; illness severity; most associated psychopathology; and most family history data, including family history of OCD.

Our finding that BDD and OCD subjects had similar total and individual item Y-BOCS scores contradicts suggestions that, compared to OCD obsessions, BDD preoccupations are less intrusive and acquiesced to without much resistance.[23,25] BDD subjects were as likely as OCD subjects to resist their preoccupations (with the mean scores of both groups indicating some effort to resist), and they reported a similar degree of control over them (with mean scores between "moderate control" and "little control").

However, BDD and OCD also had some differences, which suggests they are not identical disorders. Whereas some of the differences found might be attributable to the relatively large number of comparisons made, many were consistent with study hypotheses. Our finding that fewer BDD subjects were married was expected and notable. It is consistent with the higher rate of social phobia in BDD subjects and with the hypothesis that BDD more often involves social isolation and is more socially impairing than OCD. This hypothesis, however, was not adequately addressed by our study and requires further investigation. Also requiring further study is whether BDD is related to, or a variant of, social phobia.[19,27] A strong link between BDD and social phobia is supported by the frequent mention in the BDD literature of introversion and social avoidance in patients with BDD.[1] Clinical observations suggest that patients with BDD resemble those with social phobia in their tendency to feel ashamed, defective, and socially anxious, as well as in their fear of being embarrassed, ridiculed, and rejected.

The higher rate of major depression in BDD subjects and the higher rate of suicidal ideation and suicide attempts attributed to BDD than to OCD were also expected and suggest that BDD may also be more closely related to major depression than is OCD. These findings are consistent with the fairly frequent association of BDD, depression, and suicidality noted in the literature,[9,11,14,35] and they highlight the importance of carefully evaluating patients with BDD for depression and suicidality. A link between BDD and depression is also compatible with clinical observations that patients with BDD often feel defective, unworthy, humiliated, and isolated, which, in some cases, might cause depression secondary to BDD. Alternatively, BDD and depression may have a common underlying abnormality that causes (or predisposes a person to) both disorders.[20] This hypothesis is given some support by a case report in which a patient with comorbid BDD, OCD, and depression who underwent experimentally induced acute tryptophan depletion had a resultant dramatic exacerbation of BDD and depressive symptoms, but not OCD symptoms.[36] This report suggests that BDD and depres-

sion may be related, and that BDD and OCD may have a somewhat different underlying pathophysiology.

Another hypothesized difference between BDD and OCD[23–25] supported by our results is that insight is generally poorer in BDD, with significantly more BDD subjects receiving psychotic disorder diagnoses that were in nearly all cases entirely attributable to delusional BDD. It could be argued that this finding was accounted for by our inclusion of delusional BDD subjects in the study and that these subjects should have been excluded. However, neither OCD nor BDD subjects were excluded from the study if their OCD or BDD preoccupations were delusional. Indeed, available data suggest that delusional and nondelusional BDD are variants of the same disorder,[14] and, accordingly, in DSM-IV, the delusional and nondelusional variants of BDD can be double-coded. Similarly, DSM-IV notes that OCD may be delusional, in which case, as for BDD, a psychotic disorder diagnosis is given. Thus, the beliefs characteristic of both BDD and OCD appear to span a spectrum of insight and can be delusional.[37–39] Insight in these disorders should, however, be compared using a validated scale to assess delusionality in BDD and OCD. Preliminary findings based on such a scale[40] suggest that BDD beliefs are more often delusional and are more often accompanied by ideas and delusions of reference.[41]

One of the differences found—that OCD subjects engaged in more compulsive behaviors than BDD subjects—probably reflects the fact that some BDD-related compulsions (e.g., comparing, skin picking) had not yet been identified as characteristic of BDD at the time this study was begun. In addition, it is sometimes difficult to determine whether certain behaviors constitute the same or different rituals.

It is possible that BDD and OCD have some additional differences that were not detected or were minimized by our study. Although our OCD group was generally similar to that described by other investigators,[39,42] our OCD subjects had a notably higher rate of substance use disorders and higher rates of suicidal ideation and suicide attempts (L. Price, M.D., oral communication September 1996) than has generally been described for OCD, which may have minimized real differences between BDD and OCD.

Table 3. Associated Psychopathology of Subjects With BDD, OCD, or Both Disorders[a]

Lifetime DSM-III-R Diagnoses	BDD (N = 53)	OCD (N = 53)	Comorbid (N = 33)	p Value[b] BDD vs OCD	BDD vs Comorbid	OCD vs Comorbid
Mood disorders[c]	50 (94)	37 (70)	28 (85)	.001[d]	NS	NS
Major depression	45 (85)	29 (55)	21 (64)	.0007[e]	.02[f]	NS
Bipolar disorder	5 (9)	7 (13)	6 (18)	NS	NS	NS
Dysthymia	5 (9)	6 (11)	2 (6)	NS	NS	NS
Psychotic disorders	16 (30)	4 (8)	10 (30)	.003[g]	NS	.005[h]
Anxiety disorders[c,i]	30 (57)	20 (38)	12 (36)	NS	NS	NS
Panic disorder	6 (11)	10 (19)	3 (9)	NS	NS	NS
Agoraphobia	2 (4)	3 (6)	0 (0)	NS	NS	NS
Social phobia	26 (49)	10 (19)	7 (21)	.001[j]	.01[k]	NS
Simple phobia	2 (4)	6 (11)	3 (9)	NS	NS	NS
GAD	0 (0)	1 (2)	1 (3)	NS	NS	NS
Substance use disorders[c]	24 (45)	19 (36)	11 (33)	NS	NS	NS
Alcohol	21 (40)	14 (26)	7 (21)	NS	NS	NS
Other	16 (30)	10 (19)	7 (21)	NS	NS	NS
Somatoform disorders	3 (6)	2 (4)	1 (3)	NS	NS	NS
Eating disorders	4 (8)	3 (6)	5 (15)	NS	NS	NS

[a]Results are presented as N (%) of subjects. Abbreviation: GAD = generalized anxiety disorder.
[b]Statistical significance assumed at $p < .05$.
[c]The total is less than the sum of the individual disorders because some subjects had more than one disorder in a given category.
[d]$\chi^2 = 10.8$, df = 1.
[e]$\chi^2 = 11.5$, df = 1.
[f]$\chi^2 = 5.15$, df = 1.
[g]$\chi^2 = 8.87$, df = 1.
[h]$\chi^2 = 7.73$, df = 1.
[i]Excluding OCD.
[j]$\chi^2 = 10.8$, df = 1.
[k]$\chi^2 = 6.67$, df = 1.

Table 4. Rates of Psychiatric Disorders in First-Degree Relatives of Subjects With BDD, OCD, or Both Disorders[a,b]

Lifetime DSM-III-R Diagnoses	Proband Diagnosis BDD (N = 147)	OCD (N = 178)	Comorbid (N = 74)	p Value[c] BDD vs OCD	BDD vs Comorbid	OCD vs Comorbid
Mood disorders	33 (22)	27 (15)	22 (30)	NS	NS	.008[d]
Major depression	30 (20)	23 (13)	21 (28)	NS	NS	.003[e]
Bipolar disorder	3 (2)	4 (2)	1 (1)	NS	NS	NS
Psychotic disorders	0 (0)	0 (0)	0 (0)	NS	NS	NS
Anxiety disorders[f]	15 (10)	23 (13)	9 (12)	NS	NS	NS
Panic disorder	8 (5)	10 (6)	4 (5)	NS	NS	NS
OCD	10 (7)	15 (8)	5 (7)	NS	NS	NS
Substance use disorders[f]	32 (22)	21 (12)	16 (22)	.015[g]	NS	.045[h]
Alcohol	30 (20)	19 (11)	11 (15)	.015[i]	NS	NS
Other	6 (4)	7 (4)	6 (8)	NS	NS	NS
Eating disorders	5 (3)	2 (1)	1 (1)	NS	NS	NS

[a]Age 16 years and older.
[b]Results are presented as N (%) of subjects.
[c]Statistical significance assumed at $p < .05$.
[d]$\chi^2 = 7.08$, df = 1.
[e]$\chi^2 = 8.67$, df = 1.
[f]The total is less than the sum of the individual disorders because some subjects had more than one disorder in a given category.
[g]$\chi^2 = 5.86$, df = 1.
[h]$\chi^2 = 4.03$, df = 1.
[i]$\chi^2 = 5.96$, df = 1.

The group with comorbid BDD and OCD was in some ways more similar to the BDD group and in others more similar to the OCD group. Reasons for this are unclear. The comorbid group's marital status, employment status, and living situation suggest that they may experience particularly high rates of psychosocial impairment, which requires further investigation.

Our finding that 15% of OCD subjects had comorbid BDD is in the range reported by other investigators, who have found lifetime rates of BDD in OCD subjects of 8% (4 of 53 subjects),[43] 12% (51 of 442 subjects),[22] and 37% (25 of 68 subjects).[21] Conversely, the frequency of lifetime OCD in patients with BDD has been reported to be 34% (34 of 100 subjects)[14] and 78% (39 of 50 subjects).[21] Thus, BDD and OCD appear to be fairly frequently comorbid, which gives some support to the hypothesis that they are related disorders. Given the relatively high comorbidity of BDD and OCD, it is important that clinicians inquire about BDD in patients with OCD and vice versa. Patients may not reveal BDD concerns because of embarrassment and shame, and the diagnosis may be missed unless it is specifically inquired about.

Our findings of apparently elevated comorbidity of OCD and BDD and of more similarities than differences between the disorders support the conceptualization of BDD as an OCD-spectrum disorder and the hypothesis that the 2 disorders are related. Indeed, BDD seems more similar to OCD than the somatoform disorders with which it is classified (a possible exception being hypochondriasis). However, our results also suggest that BDD differs in some ways from OCD and may be more closely related to social phobia and major depression than OCD is. Indeed, BDD could be conceptualized as a more psychotic, depressed, and socially phobic relative or variant of OCD. Complicating this conclusion, however, is the likelihood that both OCD and BDD are heterogeneous conditions, making the nature of their relationship complex. For example, some forms of BDD may be more closely related to social phobia and others to OCD, whereas some forms of OCD may be more closely related to BDD and others to Tourette's disorder.

Because available data suggest that BDD and OCD are not identical disorders, it is important that BDD be differentiated from OCD in both clinical and research settings—for example, by stratifying for the presence of comorbid BDD in OCD treatment trials. A recent study found that comorbid BDD and OCD do not necessarily respond similarly to pharmacotherapy.[44] In addition, subjects with BDD but not OCD should be excluded from neurobiological and other studies of OCD.

This study has some limitations. First, while our study hypotheses were based on the BDD and OCD literature and our experience with independent OCD samples, they were also based in part on our experience with the BDD subjects described in this report. Our results therefore require confirmation in independent samples of BDD subjects. Another limitation is that the method used to obtain family history probably underdiagnosed disorders in relatives, and the missing family history data compromises our family history results. It is also possible that the blind may not have remained completely intact while obtaining family history. In addition, the data on course are retrospective and require confirmation in prospective studies. Another important limitation of the study is that we did not examine neurobiological and other variables that might elucidate the etiology and pathophysiology of these disorders. While data on phenomenology, comorbidity, and family history can shed some light on their relationship, neurobiological studies are needed and are critically important in this regard. Studies that have been done in OCD, such as neuroimaging studies (e.g., positron emission tomography [PET], magnetic resistance imaging [MRI]), neuropsychological studies, and pharmacologic challenge studies, need to be conducted in BDD, as do studies that directly compare these disorders' underlying neurobiology in order to test whether these disorders have a pathophysiologic relationship.

Further research is needed to confirm our findings and address this study's limitations. Studies using validated measures of delusionality are needed to confirm whether BDD beliefs are characterized by poorer insight. Family history should be assessed in larger samples by interviewing relatives. Future research should also assess possible differences between BDD and OCD not addressed in this study, such as greater rejection sensitivity, shame, and social impairment in BDD, as well as lower self-esteem and less anxiety relief with rituals. Controlled BDD treatment trials are needed, as are comparison studies of BDD's and OCD's underlying neurobiology. Future research will further clarify the relationship between these disorders, which is expected to increase the accuracy of their classification and improve patient care.

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