Prevalence and Clinical Features of Body Dysmorphic Disorder in Adolescent and Adult Psychiatric Inpatients

Jon E. Grant, J.D., M.D.; Suck Won Kim, M.D.; and Scott J. Crow, M.D.

Background: The rate of body dysmorphic disorder (BDD) in inpatient psychiatric settings and the nature of the presenting complaints are unknown. Because of the shame and humiliation that BDD patients suffer, we hypothesized that, unless specifically screened for at the time of admission, BDD would be underdiagnosed in psychiatric inpatients.

Method: 101 consecutive adult patients and 21 consecutive adolescent patients presenting for psychiatric inpatient admission to a university teaching hospital participated in the study. Subjects completed the Body Dysmorphic Disorder Questionnaire, a brief self-report measure that screens for BDD, and a follow-up interview was conducted using a reliable clinician-administered semistructured diagnostic instrument for DSM-IV BDD. Data concerning current diagnoses, number of hospitalizations, number of suicide attempts, and current level of functioning were also obtained.

Results: Sixteen (13.1%) of the 122 subjects were diagnosed with BDD. None of the subjects with BDD had been diagnosed with BDD by their treating physician during hospitalization. All 16 subjects reported that they would not raise the issue with their physician unless specifically asked due to feelings of shame.

Conclusion: These preliminary results suggest that BDD, an underrecognized and often severe psychiatric disorder, may be relatively common in the psychiatric inpatient setting. It is important that clinicians specifically inquire about BDD because patients will not voluntarily raise these concerns. The comorbidity of this disorder with other psychiatric illnesses may have treatment implications.

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Received Oct. 4, 2000; accepted Jan. 2, 2001. *From the Department of Psychiatry, University of Minnesota School of Medicine, Minneapolis.*

Reprint requests to: Jon E. Grant, J.D., M.D., Department of Psychiatry, University of Minnesota School of Medicine, 2450 Riverside Ave., Minneapolis, MN 55454-1495 (e-mail: grant045@umn.edu).

Body dysmorphic disorder (BDD), a distressing and impairing preoccupation with an imagined or slight defect in appearance,[1] is a relatively common yet underrecognized psychiatric disorder.[2] Despite the association of BDD with significant impairment in academic, occupational, and social functioning[3] and with a high rate of attempted suicide,[4,5] its prevalence and its associated clinical features have received little investigation. Many patients with BDD are so humiliated or ashamed of their symptoms that they keep their concerns secret from their clinicians.[6]

Studies of the prevalence of BDD in patients suffering from other psychiatric disorders suggest that BDD is common but underdiagnosed. The rate of BDD in inpatient psychiatric settings and the nature of the presenting complaints are unknown. In one study of atypical major depression in outpatients,[2] 14% of the subjects met DSM-IV criteria for BDD. Among patients suffering from anxiety disorders (panic disorder, obsessive-compulsive disorder [OCD], social phobia), the rate of comorbid BDD was 7%.[7] In the DSM-IV field trial for OCD,[8] 12% of the patients with OCD had comorbid BDD, and in an outpatient study of heterogeneous psychiatric conditions,[9] 3% suffered from BDD. BDD patients have a high rate of hospitalization,[3] and the prevalence and detection of this disorder among psychiatric inpatients may have treatment implications. Because of the shame and humiliation that BDD patients suffer, we hypothesized that, unless specifically screened for at the time of admission, BDD would be underdiagnosed in psychiatric inpatients.

This report is to our knowledge the first investigation of the rate of BDD in an inpatient psychiatric setting. In this study, we screened patients for BDD and obtained information on their presenting diagnosis, global functioning, and prior psychiatric treatment.

METHOD

Subjects

One hundred one consecutive adult patients (50 male, 51 female; mean ± SD age = 38.4 ± 10.1 years) and 21 consecutive adolescent patients (7 male, 14 female; mean ± SD age = 13.9 ± 1.3 years) presenting for psychi-

atric inpatient admission to a university teaching hospital participated in the study. All subjects provided written informed consent. The study and consent form were reviewed and approved by the institutional review board. In the case of adolescent subjects, parental consent followed by adolescent assent was obtained. Because of possible consent under duress, patients admitted involuntarily on 72-hour holds were not asked to participate in the study. Other patients excluded from the study were non–English-speaking patients and patients too psychotic or cognitively impaired to understand the consent form or the purpose of the study. Patients admitted on 72-hour holds who later signed into the hospital voluntarily were asked to complete the study screen. Similarly, severely psychotic patients who were later stabilized on treatment with medication were also asked to participate.

Assessments

Subjects completed the Body Dysmorphic Disorder Questionnaire (BDDQ),[10] a brief self-report measure that screens for BDD. Using the DSM-IV criteria for BDD, the BDDQ asks patients whether they are very concerned about the appearance of some part or parts of their body they consider unattractive. Patients who report such a concern are then asked whether the concern preoccupies them (i.e., if they think about the body part a lot and find it difficult to stop thinking about it). Patients are also asked if their preoccupation with the body part has affected their life, by causing either significant distress or significant interference with functioning, and how much time in an average day they are preoccupied with the body part. To screen positive for BDD, the subject must fulfill all of the disorder's DSM-IV criteria by reporting preoccupation with a perceived appearance flaw (no defect or a minimal defect present) and experiencing at least moderate distress or impairment in functioning as a result. Subjects with delusional BDD (the patient is completely convinced that his or her view of the perceived defect is accurate) were included in the study, since evidence suggests that delusional BDD and nondelusional BDD are the same disorder.[11] DSM-IV also allows patients with delusional BDD to receive a diagnosis of both BDD and delusional disorder (i.e., double coding is allowed). The BDDQ has been shown to have a sensitivity of 100% and specificity of 89% in an outpatient psychiatric setting.[10]

For all subjects, regardless of whether they screened positive for BDD on the BDDQ, demographic data were obtained, as well as data concerning current and prior diagnoses, number of hospitalizations, number of suicide attempts, and current level of functioning. The current level of functioning was assessed using the Global Assessment of Functioning (GAF).[1]

For patients who screened positive for BDD on the BDDQ, a follow-up interview was conducted (by the first author) using a reliable clinician-administered semistructured diagnostic instrument for DSM-IV BDD[10] (which is based on the Structured Clinical Interview for DSM-III-R [SCID][12,13]). For patients diagnosed with BDD using the BDD SCID-like module, the first author conducted a detailed interview inquiring about related BDD features (a partial listing of which included camouflaging, skin picking, seeking nonpsychiatric treatment, and age at onset) and whether the BDD symptoms were a reason for seeking treatment currently. Neither the research diagnosis nor related information concerning BDD features was provided to the treating clinicians.

Data Analysis

The percentage of subjects who were diagnosed with BDD and 95% confidence intervals were determined. Between-group differences were tested using the Pearson chi-square and 2-sided Fisher exact test for categorical variables and 2-tailed independent sample t tests for continuous variables. Tests to determine between-group differences were performed for the adult and adolescent patients separately. The level of significance for all tests was set at .05.

RESULTS

Sixteen (13.1%) of the 122 subjects who consented to the study were diagnosed with BDD (95% confidence interval = 6.9% to 19.3%). Of the 65 females who participated in the study, 15.4% (N = 10) were diagnosed with BDD, whereas 10.5% (N = 6) of the 57 males who participated in the study had BDD. Of the 16 subjects with BDD, 1 subject was diagnosed with delusional BDD, and 1 subject met criteria for the diagnosis of muscle dysmorphia, a form of BDD in which a patient is preoccupied with his or her degree of muscularity.[14] As can be seen in Table 1, the 16 subjects with BDD were similar to the patients without BDD in terms of sex ratio, race, and marital and educational status. Patients with BDD, however, were significantly younger than the patients without BDD.

The BDDQ demonstrated a sensitivity of 100% and a specificity of 92.5% in this inpatient sample (24 patients screened positive; 6 false positives were found in patients with eating disorders, 1 false positive had panic disorder, and 1 false positive had major depressive disorder).

Three (2.9%) of 104 potential adult patients and 12 (36.4%) of 33 potential adolescent patients declined to fill out the questionnaire. Reasons given for declining to participate varied. Three adults were too paranoid to sign a consent form, and 12 parents did not want their children to be a part of research. Another 16 adult and 4 adolescent subjects admitted to the inpatient service during the study period were ineligible for the study because they were admitted on 72-hour holds or unable to understand the study and provide informed consent (7 were psychotic, 5 were substance users, and 8 were both psychotic and substance

Table 1. Demographics of Patients With and Without Body Dysmorphic Disorder (BDD)[a]

Variable	Patients With BDD (N = 16)	Patients Without BDD (N = 106)	p Value[b]
Age, y, mean ± SD	29.1 ± 9.1	35.3 ± 11.2	.03
Sex			
Male	6 (37.5)	51 (48.1)	NS
Female	10 (62.5)	55 (51.9)	
Marital status			NS
Married	1 (6.2)	43 (40.6)	
Single	10 (62.5)	35 (33.0)	
Widowed	1 (6.2)	4 (3.8)	
Divorced	0 (0)	24 (22.6)	
Race			NS
White	15 (93.8)	87 (82.1)	
Black	1 (6.2)	15 (14.2)	
Asian	0 (0)	2 (1.9)	
Latino	0 (0)	2 (1.9)	
Education			NS
High school	3 (18.8)	13 (12.3)	
High school graduate	5 (31.2)	53 (50.0)	
Some college	0 (0)	12 (16.0)	
College graduate	6 (37.5)	17 (16.0)	
College +	2 (12.5)	11 (10.4)	

[a]All values shown as N (%) unless specified otherwise.
Abbreviation: NS = not significant.
[b]Chi-square test.

Table 2. Diagnostic Differences Between Groups With and Without Body Dysmorphic Disorder (BDD)[a]

	Patients With BDD (N = 16)		Patients Without BDD (N = 106)		
Diagnosis on Admission (%)	N	%	N	%	p Value[b]
Major depressive disorder	12	75.0	45	42.5	.015
Bipolar I disorder	2	12.5	17	16.0	NS
Bipolar II disorder	0	0.0	3	2.8	NS
Depressive disorder	1	6.2	11	10.4	NS
Dysthymia	0	0.0	1	0.9	NS
Adjustment disorder	0	0.0	2	1.9	NS
Alcohol dependence	4	25.0	20	18.9	NS
Alcohol abuse	5	31.2	6	5.7	NS
Cocaine abuse	1	6.2	0	0.0	NS
Cocaine dependence	3	18.8	7	6.6	NS
Opioid abuse	0	0	0	0	NS
Opioid dependence	1	6.2	2	1.9	NS
Other drug abuse	2	12.5	6	5.7	NS
Other drug dependence	1	6.2	4	3.8	NS
Schizophrenia	0	0.0	4	3.8	NS
Schizoaffective disorder	0	0.0	5	4.7	NS
Psychotic disorder NOS	0	0.0	11	10.4	NS
Obsessive-compulsive disorder	0	0.0	1	0.9	NS
Posttraumatic stress disorder	0	0.0	2	1.9	NS
Impulse-control disorder	0	0.0	6	5.7	NS
Social phobia	0	0.0	0	0.0	NS
Panic disorder	1	6.2	2	1.9	NS
Generalized anxiety disorder	0	0.0	0	0.0	NS
Anorexia	0	0.0	4	3.8	NS
Bulimia	1	6.2	4	3.8	NS
Somatization disorder	0	0.0	1	0.9	NS
Conduct disorder	0	0.0	2	1.9	NS
Oppositional defiant disorder	0	0.0	3	2.8	NS
Attention-deficit disorder	0	0.0	2	1.9	NS

[a]Abbreviation: NS = not significant.
[b]Chi-square test.

users). All subjects who completed the BDDQ participated in the follow-up interview.

None of the subjects with BDD were diagnosed with that disorder by their treating physician during hospitalization. All 16 subjects reported that they would not raise the issue with their physician unless specifically asked due to feelings of shame. This was true even for the 13 subjects who considered their BDD preoccupations to be the "major problem" (11/16; 68.8%) or the "biggest" problem (2/16; 12.5%) they had. The 16 subjects who were diagnosed with BDD received a variety of psychiatric diagnoses (Table 2). All 3 adolescent BDD patients were diagnosed with major depressive disorder and 1 had comorbid bulimia nervosa. Of the 13 adults, 12 (92.3%) carried the diagnosis of an affective disorder: major depressive disorder (9/13; 69.2%), bipolar disorder (2/13; 15.4%), and depressive disorder not otherwise specified (1/13; 7.7%). Nine (69.2%) of the 13 adult subjects had a substance use disorder: alcohol abuse/dependence (7/13; 53.8%), cocaine abuse/dependence (4/13; 30.8%), and other drug abuse/dependence (3/13; 23.1%). In comparison, 89.8% (N = 79) of the adult patients without BDD had a diagnosis of an affective disorder and 51.1% (N = 45) had a diagnosis of a substance use disorder.

Conversely, more than 20% of the inpatients who were diagnosed with major depressive disorder were also diagnosed with BDD (Table 3). In terms of substance use disorders, 26.2% (16/61) of inpatients with a substance use problem were diagnosed with BDD.

As required by DSM-IV criteria for BDD, all 16 subjects diagnosed with BDD reported at least moderate distress or impairment in functioning due to the perceived defect. Nine (56.2%) of the 16 BDD patients reported severe and disturbing distress, while 7 (43.8%) reported extreme and disabling distress. Similarly, 3 (18.8%) reported that the defect resulted in mild impairment in functioning, 8 (50%) reported moderate, definite impairment in functioning, and 5 (31.2%) reported moderate to severe interference in functioning. For 13 subjects (81.2%), the perceived defect resulted in avoidance of most social situations, whereas 3 (18.8%) reported associated problems with work as well.

The patients with BDD were clinically a more severely ill group than the subjects without BDD (Table 4). The subjects with BDD had significantly lower GAF scores, indicating overall lower functioning. Although the differences were not statistically significant, the patients with BDD reported approximately twice the rate of past suicidal behavior and received more Axis I diagnoses than the patients without BDD.

Over half of the subjects with BDD (9/16; 56.2%) had sought some sort of nonpsychiatric treatment—plastic surgery, dermatologic, or dental (Table 5). The reason for not receiving nonpsychiatric treatment was that the physician refused the treatment (N = 7) or the patient had insuffi-

Table 3. Percentage of Patients (adults and adolescents, N = 122) With Each Psychiatric Diagnosis Who Were Diagnosed With Body Dysmorphic Disorder (BDD)

Psychiatric Disorder	Group N	Patients Diagnosed With BDD N	Patients Diagnosed With BDD %
Major depressive disorder	57	12	21.1
Bipolar I disorder	19	2	10.5
Bipolar II disorder	3	0	0.0
Depressive disorder	12	1	8.3
Dysthymia	1	0	0.0
Adjustment disorder	2	0	0.0
Alcohol abuse	9	3	33.0
Alcohol dependence	24	4	16.7
Cocaine abuse	1	1	100.0
Cocaine dependence	10	3	30.0
Opioid abuse	0	0	0.0
Opioid dependence	3	1	33.3
Other drug abuse	8	2	25.0
Other drug dependence	6	2	33.3
Schizophrenia	5	0	0.0
Schizoaffective disorder	6	0	0.0
Psychotic disorder	11	0	0.0
Somatization disorder	1	0	0.0
Obsessive-compulsive disorder	1	0	0.0
Posttraumatic stress disorder	2	0	0.0
Panic disorder	3	1	33.3
Impulse-control disorder NOS	0	0	0.0
Anorexia	6	1	16.7
Bulimia	3	0	0.0
Attention-deficit disorder	2	0	0.0
Conduct disorder	2	0	0.0
Oppositional defiant disorder	3	0	0.0

Table 4. Clinical Differences Between Groups With and Without Body Dysmorphic Disorder (BDD)[a]

Clinical Characteristic	Patients With BDD (N = 16) Mean	SD	Patients Without BDD (N = 106) Mean	SD	t	p Value
GAF score	27.0	8.1	31.0	7.3	2.02	.046
No. of suicide attempts/subject	1.0	1.2	0.6	1.0	–1.67	.098
No. of current DSM-IV diagnoses/subject	2.0	1.2	1.6	0.7	–1.36	.191
No. of psychiatric hospitalizations/subject[b]	3.3	3.8	3.7	3.0	0.45	.652

[a]Abbreviation: GAF = Global Assessment of Functioning.
[b]Does not include diagnosis of BDD.

Table 5. Clinical Features of Psychiatric Inpatients Diagnosed With Body Dysmorphic Disorder (BDD)[a]

Clinical Feature	Patients With BDD (N = 16)
Diagnosed with BDD during hospitalization	0 (0)
Age at onset of BDD symptoms, y, mean (range)	11.9 (5–22)
Time spent thinking about slight or imagined defect, h/d, mean (range)	5.6 (3–12)
Would tell physician if not asked	0 (0)
Skin picking	4 (25)
Delusional	1 (6.2)
Object used to hide the defect	
Makeup	5 (31.2)
Clothing	9 (56.2)
Posture	1 (6.2)
Hands	5 (31.2)
Hat	5 (31.2)
Last time bothered by appearance, d, prior to admission	1 (6.2)
Feel BDD is	
Biggest problem	2 (12.5)
Major problem	11 (68.8)
Moderate problem	3 (18.8)
Minor problem	0 (0)
Sought nonpsychiatric treatment	
Plastic surgery	7 (43.8)
Dental	0 (0)
Dermatologic	2 (12.5)
Considered suicide because of BDD symptoms	6 (37.5)
Have experienced reduction of BDD symptoms with medication	2 (12.5)

[a]All values shown as N (%) unless specified otherwise.

cient funds for the treatment (N = 2). Although several patients were preoccupied with multiple parts of their bodies, the body parts of most frequent preoccupation were nose (9/16; 56.2%), hair (9/16; 56.2%), skin (9/16; 56.2%), lips (7/16; 43.8%), breasts/chest (5/16; 31.2%), teeth (31.2%), penis (3/16; 18.8%), and ears (2/16; 12.5%). Hair, teeth, and skin were the primary focus of the adolescent subjects.

All 16 patients diagnosed with BDD reported previous trials of serotonin reuptake inhibitor (SRI) antidepressants. There was an average of 1.8 medication trials per patient (range, 1–5). The average antidepressant trial duration was 4.2 weeks. The most frequent antidepressants tried were fluoxetine (tried by 12 patients; mean dose = 32 mg/day); sertraline (tried by 11 patients; mean dose = 104 mg/day); and citalopram (tried by 5 patients; mean dose = 43 mg/day). Two patients reported BDD symptom reduction with medication; both patients had been receiving fluoxetine at 60 mg/day. Neither patient, however, reported a remission of BDD symptoms.

DISCUSSION

In this study, 13% of psychiatric inpatients were diagnosed with BDD using DSM-IV criteria. Thus, BDD appears to be a relatively common, but underdiagnosed, comorbid psychiatric disorder. As we had anticipated, no patients were screened for or diagnosed with BDD during inpatient hospitalization. This underdiagnosis of BDD was true even though 13 patients (10.7% of all psychiatric inpatients interviewed) reported their BDD symptoms to be the "major" or the "biggest" problem they had.

The 13% prevalence rate found in our inpatient study is in keeping with previous studies examining rates of comorbid BDD in outpatient settings. In studies of patients with OCD,[15,16] the rates of comorbid BDD have ranged from 8% to 15%. Phillips et al.[2] found a prevalence of 14%

in a group of outpatients suffering from atypical depression. Studies of trichotillomania and social phobia have found similar rates of comorbid BDD.[16,17] Only 1 study found a significantly smaller prevalence of BDD: Zimmerman and Mattia[9] reported a BDD prevalence of only 3.2% in a large psychiatric outpatient survey. Although the lower prevalence of BDD in the Zimmerman and Mattia study may be due to the generally lower rates of comorbidity in outpatient samples, the study was performed approximately 2 miles from a BDD specialty clinic and may therefore underestimate the true prevalence of this disorder.

It is worth noting that the diagnosis of BDD was made in patients hospitalized primarily for major depressive disorder and substance use disorders (see Table 3). Our study found that approximately 20% of the subjects suffering from major depressive disorder also had BDD. Additionally, approximately 26% of all patients admitted with a substance use disorder were diagnosed with BDD, with higher rates in alcohol abuse and cocaine and opioid dependence. Thus, these findings suggest that clinicians should screen those suffering from affective disorders as well as those with substance use disorders for BDD. Although BDD has long been associated with comorbid OCD or social phobia,[4,5,16] our inpatient units admitted only 1 patient with OCD and none with social phobia during the study period of 3 months. Arguably, our overall prevalence rate may be lower than rates in hospitals that admit more patients with anxiety disorders. Conversely, our prevalence rate may be higher than in settings that hospitalize greater numbers of patients with psychotic disorders.

The failure to diagnose BDD may have important treatment implications. Although 2 patients with BDD reported mild symptom reduction with antidepressants, the majority of the BDD subjects reported that previous trials of antidepressants had failed to relieve their BDD symptoms. As with the treatment of OCD, SRIs for longer trial periods have been shown effective in the treatment of BDD.[18–20] Because BDD was never diagnosed in these patients, the failure of their symptoms to respond to previous medications may be due to having had their symptoms treated with a standard trial of medication for depression. Also, the patients suffering from BDD appeared to have more clinically severe illness than those patients without BDD. GAF scores were lower in the BDD subjects, and the BDD subjects reported almost twice as many suicide attempts per patient as those without BDD. Additionally, approximately one third of the BDD patients had considered suicide because of their appearance, one third reported severe dysfunction secondary to their appearance, and approximately 40% reported severe or disabling distress over their appearance. Although the BDD patients were unaware prior to this study that treatment was available for their symptoms, they reported that shame, not ignorance of available treatment, prevented them from raising their appearance concerns. Given the extreme distress and dysfunction of these patients, as well as the relatively high prevalence of this disorder, screening for BDD at inpatient units may lead to improved outcomes.

This study suffers from several limitations. First, although only 2.9% of adults did not participate in the study, more than one third of the adolescents did not participate. Thus, the results may be biased in either overestimating or underestimating the prevalence. Second, the fact that the study was conducted in a university hospital may also have led to some bias with respect to patient selection. The more severely ill psychiatric patients may arguably seek treatment at a university hospital, and this may also lead to underestimating or overestimating the prevalence. Additionally, the use of the GAF and the number of hospitalizations as measures of psychiatric severity may not be as informative in an inpatient population. Admission to an inpatient facility is reasonable only if the symptom severity and decrease in overall functioning are significant. Thus, the range of GAF scores is significantly reduced compared with what would be found in an outpatient sample. Finally, given that chronic psychotic disorders and substance use disorders often result in multiple admissions per patient, the number of hospitalizations per patient may not accurately reflect clinical differences between those with BDD and those without BDD.

In conclusion, these preliminary results suggest that BDD, an underrecognized and often severe psychiatric disorder, may be relatively common in the psychiatric inpatient setting. It is important that clinicians inquire specifically about BDD because, as this study shows, patients will not voluntarily raise these concerns. In addition, the presence of this disorder may have treatment implications; evidence suggests that BDD may respond preferentially to SRIs[18,19] and perhaps also to cognitive-behavioral therapy. Further research, particularly in the form of large prevalence studies, is needed to confirm these findings and to investigate the prevalence of BDD in other inpatient settings.

Drug names: citalopram (Celexa), fluoxetine (Prozac), sertraline (Zoloft).

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