Suicidal Ideation and Suicide Attempts in Body Dysmorphic Disorder

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Objective: Because suicidality in body dysmorphic disorder (BDD) has received little investigation, this study examined rates, correlates, predictors, and other aspects of suicidal ideation and suicide attempts in this disorder.

Method: From January 2001 to June 2003, 200 subjects with DSM-IV BDD recruited from diverse sources were assessed with standard measures.

Results: Subjects had high rates of lifetime suicidal ideation (78.0%) and suicide attempts (27.5%). Body dysmorphic disorder was the primary reason for suicidal ideation in 70.5% of those with a history of ideation and nearly half of subjects with a past attempt. Suicidal subjects often did not reveal their BDD symptoms to their clinician. In univariate analyses, both suicidal ideation and suicide attempts were associated with lifetime functional impairment due to BDD ($p < .001$), current functional impairment ($p < .001$ to $< .05$), lifetime bipolar disorder ($p < .05$), any personality disorder ($p < .05$ to .001), and comorbid borderline personality disorder ($p < .01$ to $< .001$). A history of suicidal ideation (but not suicide attempts) was additionally associated with comorbid lifetime major depression ($p = .001$). A history of suicide attempts (but not suicidal ideation) was additionally associated with delusional appearance beliefs ($p = .01$) and lifetime posttraumatic stress disorder (PTSD), an eating disorder, or a substance use disorder ($p < .001$ to $< .05$). In logistic regression analyses, suicidal ideation was significantly predicted by comorbid major depression ($p = .010$) and greater lifetime impairment due to BDD ($p = .003$); suicide attempts were significantly predicted by PTSD ($p = .011$), a substance use disorder ($p = .011$), and greater lifetime impairment due to BDD ($p = .005$).

Conclusion: Individuals with BDD have high rates of suicidal ideation and suicide attempts. Lifetime impairment due to BDD and certain comorbid disorders are associated with suicidality.

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Body dysmorphic disorder (BDD), a distressing or impairing preoccupation with an imagined or slight defect in appearance, is relatively common and associated with high levels of distress and markedly poor functioning and quality of life.[1] Case reports from psychiatry, dermatology, and surgery settings underscore the suicidal ideation, suicide attempts, and completed suicide that can occur in BDD.[1–7] However, suicidal ideation and behavior in BDD have received little systematic investigation, and no previous report has focused on this important aspect of psychopathology.

Although to our knowledge rates of suicidal ideation in BDD have not been reported, several studies have reported rates of suicidal ideation attributed primarily to BDD. In a study from the United States, Phillips et al.[8] found that 70% of 100 subjects had a history of suicidal ideation attributed primarily to BDD; Perugi et al.[9] found that this was the case for 45% of 58 outpatients in Italy. Regarding suicide attempts, a U.S. study in 188 subjects by Phillips and Diaz[10] (which was an expansion of the above-noted study of 100 subjects) found that 22% of subjects had a lifetime history of suicide attempts. This rate was very similar to a rate of 24% in 50 subjects obtained by Veale et al.[11] in England. These suicide attempt rates are an estimated 6 to 23 times higher than in the general U.S. population.[12,13] One of the previously noted studies ($N = 100$)[8] found that 17% of subjects had attempted suicide primarily because of BDD. To our knowledge, the only published study of completed suicide is Cotterill and Cunliffe's retrospective study[14] of patients in 2 dermatology practices known to have committed sui-

cide over 20 years; most of the patients who suicided had acne or BDD.

Other studies similarly suggest that suicidal ideation and suicide attempts are common in BDD. In a study by Phillips et al.[15] that compared BDD to obsessive-compulsive disorder (OCD) (N = 106), 70% of BDD subjects had lifetime suicidal ideation attributed primarily to BDD, whereas fewer OCD subjects (47%) had suicidal ideation attributed primarily to OCD (p = .02). In that study, BDD subjects were more likely than OCD subjects to have attempted suicide due to their disorder (i.e., BDD or OCD; 22% vs. 8%, p = .03). A study of general inpatients (N = 122) by Grant et al.[16] found a trend for more suicide attempts in BDD than in non-BDD patients (p = .098), and in an inpatient sample ascertained for anorexia nervosa (N = 41), Grant et al.[17] found that patients with comorbid BDD (N = 16) had a strikingly high lifetime suicide attempt rate of 63%. Furthermore, patients with comorbid BDD were 3 times more likely to have attempted suicide than anorexia subjects without comorbid BDD (63% vs. 20%, p = .009). In that study, 69% of BDD patients had considered suicide specifically because of BDD.[17]

These findings suggest that patients with BDD have high rates of suicidal ideation attributed to BDD, have high rates of suicide attempts, and may be at risk for completed suicide. However, data on this important topic are very limited. In the present study, we examined suicidal ideation and behavior in a larger sample (N = 200), which is also to our knowledge more diverse than most previous BDD samples. Study inclusion and exclusion criteria were very broad (see Method), and, unlike previous studies, many subjects were not seeking or currently receiving psychiatric treatment, which may increase the generalizability of the findings. We also assessed a number of characteristics not previously reported—for example, number of lifetime suicide attempts and characteristics of suicide attempts (e.g., lethality, medical threat) occurring in the past month. We also explored whether suicidal ideation and suicide attempts differed in subjects who were currently receiving mental health treatment versus those who were not, which has not previously been studied.

In addition, we explored predictors of suicidal ideation and suicide attempts, which have not previously been examined. We chose the following predictors a priori because they have been shown to predict suicidal ideation and/or suicide attempts in other disorders: age, gender, marital status, age at onset of the index disorder, poor social support, functional disability, and comorbidity (major depression, bipolar disorder, substance use disorder, posttraumatic stress disorder [PTSD], eating disorder, personality disorder, or borderline personality disorder).[18–22] Because an association has been found between suicide attempts and psychosis,[21] and because delusional BDD appears to be a more severe form of BDD,[8] we hypothesized that greater delusionality would predict suicidal ideation and suicide attempts. Based on clinical experience, we also hypothesized that more severe BDD would be a significant predictor. Finally, because of the importance of race/ethnicity, and because this characteristic predicts completed suicide,[23] we explored this variable as a predictor of suicidal ideation and suicide attempts.

METHOD

Subjects

Subjects were 200 individuals participating in a prospective naturalistic longitudinal study of the course of BDD. Data in this report are from the intake (baseline) evaluation only (which occurred from January 2001 through June 2003). Study inclusion criteria were lifetime DSM-IV BDD or its delusional variant (delusional disorder, somatic type), age 12 years or older, and able to be interviewed in person. The only exclusion criterion was the presence of an organic mental disorder. Subjects were referred from the following sources: mental health professionals (46.0%), advertisements (38.6%), our program Web site and brochures (10.2%), subject friends and relatives (3.4%), and nonpsychiatrist physicians (1.7%). The study was approved by the Butler Hospital Institutional Review Board; all subjects signed statements of informed consent (assent plus parental consent in the case of adolescents) after the procedure was fully explained.

Assessments

Suicidal ideation and behavior were assessed with the BDD Form (K.A.P., unpublished), a semistructured instrument used in previous BDD studies.[8,10] Information was obtained on whether subjects had ever experienced suicidal ideation or attempted suicide, and the number of suicide attempts. Subjects with such a history were asked whether, in their view, BDD was primarily responsible for these events. For suicide attempts occurring within the month before the intake interview, additional information was obtained with the Longitudinal Interval Follow-Up Evaluation (LIFE)[24]: age at the time of the attempt, degree of medical threat, intent, and whether the subject directly communicated his or her intent to others before the attempt. We added a question to determine the importance of BDD in precipitating the attempt (in the subject's view), using a 5-point scale ranging from "none" to "biggest" reason.

The following potential predictor variables were assessed: age, gender, race/ethnicity, marital status, age at BDD onset, comorbidity (major depression, bipolar disorder, PTSD, an eating disorder, a substance use disorder, a personality disorder, or borderline personality disorder), BDD severity, lifetime delusionality of BDD, poor social support, and functional disability. Age at BDD onset was obtained with the BDD Form; comorbidity was assessed

with the Structured Clinical Interview for DSM-IV—Non-Patient Version[25] and the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (personality disorders were assessed for 178 subjects).[26] Lifetime impairment (past or current) due to BDD was determined with a question from the BDD Form that assessed the greatest social interference and the greatest academic, occupational, or role interference ever experienced due to BDD on a 9-point scale ranging from none (score of 0) to extreme (score of 8) (interference in functioning is a DSM-IV criterion for the diagnosis of BDD, and thus this variable may reasonably approximate overall BDD severity). Current BDD severity was assessed with the Yale-Brown Obsessive Compulsive Scale Modified for BDD (BDD-YBOCS)[27]; scores range from 0 to 48, with higher scores indicating more severe symptoms. Lifetime delusionality of BDD-related appearance beliefs (e.g., "I look deformed") was assessed with a modified SCID-I question used in previous BDD studies.[8] Subjects were considered delusional if they were, or ever had been for at least several weeks in a row, completely (or "100%") convinced that their view of their supposed defect was accurate and undistorted. Lifetime (past or current) social support and lifetime overall functional disability were not assessed in this study; we therefore assessed the current status of these variables. Current social support was assessed with the Social Adjustment Scale–Self-Report (SAS-SR)[28] (the SAS-SR assesses current social adjustment and functioning, including conflict, support, and contact with family and friends, which overlaps with the construct of social support). The SAS-SR is a 54-item reliable, valid, and widely used self-report measure, with higher scores indicating poorer social adjustment.[28] Functional disability during the past month was assessed with 2 measures: (1) the Range of Impaired Functioning Tool (LIFE-RIFT),[29] a reliable and valid semistructured measure of functional impairment in the domains of work, school, household duties, recreation, relationships with family and friends, and satisfaction (higher scores indicate poorer functioning) and (2) the Social and Occupational Functioning Assessment Scale (SOFAS) (scores range from 0–100, with lower scores indicating poorer functioning).[30] Because the SOFAS and SAS-SR were added later in the study, data are available for only 116 and 142 subjects, respectively.

Statistical Analysis

Data were analyzed with SPSS for Windows, Version 11 (SPSS Inc., Chicago, Ill.). Means, standard deviations, and frequencies were computed. Between-group differences for the 134 subjects currently receiving mental health treatment versus the 66 not receiving treatment were examined using χ^2 analysis for categorical variables and t tests for continuous variables. To examine factors associated with lifetime suicidal ideation and suicide attempts, univariate analyses of candidate predictors were done using χ^2 analysis or Fisher exact test for dichotomous variables and t tests for continuous variables. All of the above analyses were 2-tailed with an α level of .05. Predictor variables that were associated in univariate analyses with the suicide variable at $p < .10$ (2-tailed) were simultaneously entered into 2 logistic regression models (1 for suicidal ideation and 1 for suicide attempts) (N = 178) to determine odds ratios.

Table 1. Demographic and Clinical Variables of 200 Individuals With Body Dysmorphic Disorder (BDD)

Variable	Value
Sex, female, % (N)	68.5 (137)
Age, mean ± SD, y	32.6 ± 12.1
Race/ethnicity, % (N)	
White	86.4 (171)
Nonwhite[a]	13.6 (27)
Hispanic	6.5 (13)
Marital status, % (N)	
Single (never married)	63.5 (127)
Married	24.5 (49)
Divorced or separated	11.5 (23)
Widowed	0.5 (1)
Education, % (N)[b]	
High school/GED or less	29.0 (58)
At least some college	71.0 (142)
BDD diagnostic status (current), % (N)	
Meets full DSM-IV criteria	89.0 (178)
Partial remission	7.5 (15)
Full remission	3.5 (7)
BDD severity (current BDD-YBOCS score), mean ± SD[c]	30.4 ± 6.6
BDD most problematic lifetime disorder, % (N)	78.0 (156)
Most common comorbid disorders (lifetime), % (N)	
Major depressive disorder	74.5 (149)
Substance use disorder	48.0 (96)
Social phobia	38.5 (77)
Currently receiving psychiatric treatment, % (N)	67.0 (134)
Outpatient	62.0 (124)
Inpatient/partial hospital/residential	5.0 (10)
Treatment type (current), % (N)	
Medication only[d]	26.5 (53)
Therapy only	16.5 (33)
Both medication and therapy[d]	24.0 (48)

[a]Nonwhite races: black (7.0%), American Indian (5.5%), Asian (1.0%), Alaskan Native (0.5%), and Native Hawaiian/Pacific Islander (0.5%). Some subjects endorsed more than 1 nonwhite race.
[b]The average education level was "some college."
[c]BDD-YBOCS includes only subjects who met full criteria for BDD at the time of evaluation (N = 178).
[d]Types of medication: SRI (41.0%), non-SRI antidepressant (19.0%), benzodiazepine (15.0%), antipsychotic (9.0%), mood stabilizer (8.5%), buspirone (6.0%), stimulant (3.0%), nonbenzodiazepine sedative (3.0%), nonbenzodiazepine anxiolytic (2.0%).
Abbreviations: GED = General Educational Development test, SRI = serotonin reuptake inhibitor, YBOCS = Yale-Brown Obsessive Compulsive Scale.

RESULTS

Table 1 shows demographic and clinical features of the sample. Slightly more than two thirds of the sample was female, and the mean age was 32.6 years, with a range of 14 to 64 years. Nearly two thirds of the sample had

Table 2. Lifetime History of Suicidal Ideation and Suicide Attempts in 200 Individuals With Body Dysmorphic Disorder (BDD)

Variable	Value
Suicidal ideation, % (N)	78.0 (156)
Attributed primarily to BDD (among entire sample)	55.0 (110)
Attributed primarily to BDD (among subjects with history of ideation)	70.5 (110)
Suicide attempt, % (N)	27.5 (55)
Attributed primarily to BDD (among entire sample)	12.5 (25)
Attributed primarily to BDD (among subjects with history of an attempt)	45.5 (25)
No. of attempts (among subjects with history of an attempt), mean ± SD	3.2 ± 4.1
1 attempt, % (N)	45.5 (25)
2 attempts, % (N)	21.8 (12)
3 attempts, % (N)	7.3 (4)
≥ 4 attempts, % (N)	25.4 (14)
No. of suicide attempts attributed primarily to BDD, mean ± SD	1.2 ± 3.0

never been married. Seventy-eight percent of the sample considered BDD their most problematic lifetime disorder (compared to any comorbid disorder). Sixty-seven percent were currently receiving psychiatric treatment.

As shown in Table 2, 78.0% of subjects reported a history of suicidal ideation, and more than half reported suicidal ideation attributed primarily to BDD. Fifty-five subjects (27.5% of the sample) had attempted suicide, nearly half of whom attributed at least 1 attempt primarily to BDD. BDD was reported to be the primary reason for 36.0% (N = 64) of the sample's 178 suicide attempts. Among suicide attempters, the mean ± SD number of attempts was 3.2 ± 4.1 (range, 4–25). Of the 110 subjects who had experienced suicidal ideation due to BDD or had attempted suicide due to BDD, 108 had received mental health treatment. Over their lifetime, these subjects had been treated by 7.8 ± 7.5 different mental health practitioners; subjects reported revealing their BDD symptoms to 50.2% of them.

Suicidal ideation and suicide attempts were compared in subjects who were currently receiving mental health treatment (N = 134) versus those who were not (N = 66) (see Table 1 for data on current treatment). These 2 groups did not significantly differ in terms of lifetime rates of suicidal ideation (81.3% in the treated group vs. 71.2% in the untreated group; $\chi^2 = 2.65$, df = 1, p = .104). Treated and untreated subjects also did not significantly differ in terms of lifetime rates of suicide attempts (28.4% vs. 25.8%, respectively; $\chi^2 = 0.15$, df = 1, p = .699), suicide attempts attributed to BDD (15.7% vs. 6.1%, respectively; $\chi^2 = 3.74$, df = 1, p = .053), or number of suicide attempts attributed to BDD (1.6 ± 3.5 vs. 0.3 ± 0.6; t = –1.45, df = 53, p = .152). However, currently treated subjects were significantly more likely to have experienced suicidal ideation due to BDD (62.7% vs. 39.4%; $\chi^2 = 9.69$, df = 1, p = .002) and had a greater number of suicide attempts (3.8 ± 4.7 vs. 1.9 ± 1.5; t = –2.33, df = 49.79, p = .024).

In the 1 month before the study evaluation, 3% (N = 6) of the sample had attempted suicide, with 2.0 ± 1.5 attempts per attempter during that month. Two attempters were male, and 4 were female; the mean ± SD age was 24.3 ± 11.1 years (range, 14–44). For these 6 subjects, considering all attempts, the maximum level of medical threat was minimal for 1 subject, mild for 3, and moderate for 2. The maximum level of intent was none in 1 case, definite but ambivalent in 1, serious in 1, very serious in 2, and extreme in 1 (i.e., careful planning and every expectation of death). Only 1 subject communicated suicidal intent to other people. BDD was at least a moderate reason for an attempt in 5 of 6 subjects.

Tables 3 and 4 show univariate associations with a history of suicidal ideation and suicide attempts. For example, as shown in the top half of Table 3, subjects with a history of suicidal ideation had significantly greater lifetime functional impairment due to BDD (mean ± SD score of 6.36 ± 1.59) than subjects without suicidal ideation (5.05 ± 1.74); as shown in the bottom half of Table 3, 83.9% of subjects with comorbid major depression had a history of suicidal ideation, whereas only 60.8% of subjects without comorbid major depression reported suicidal ideation. As shown in Tables 3 and 4, significant (p < .05) univariate associations for both suicidal ideation and suicide attempts consisted of lifetime functional impairment due to BDD, current functional impairment (SAS-SR, LIFE-RIFT, and SOFAS scores), and the presence of comorbid bipolar disorder, a personality disorder, or borderline personality disorder. A history of suicidal ideation (but not suicide attempts) was additionally associated with comorbid lifetime major depression. A history of lifetime suicide attempts (but not suicidal ideation) was additionally associated with a history of delusional (as opposed to nondelusional) appearance beliefs, as well as lifetime PTSD, an eating disorder, and a substance use disorder. The remaining variables in Tables 3 and 4 were not significantly associated with suicidal ideation or suicide attempts.

Due to reduced sample sizes for the SAS-SR (N = 142) and SOFAS (N = 116), these variables were not included in either regression analysis. In addition, because all subjects with comorbid bipolar disorder or borderline personality disorder reported suicidal ideation, these variables could not be used in the logistic regression predicting suicidal ideation. All other variables in Tables 3 and 4 that were significant in univariate analyses at p < .10 were entered. The resulting model (N = 178) significantly predicted suicidal ideation ($\chi^2 = 39.45$, df = 6, p < .001, –2 log likelihood = 152.15) and correctly classified 78.5% of the sample (94.1% of subjects with suicidal ideation and 26.8% of subjects without suicidal ideation). Significantly increased odds of suicidal ideation were asso-

Table 3. Demographic and Clinical Correlates of Suicidal Ideation (SI) in Individuals With Body Dysmorphic Disorder (BDD)

Variable	Mean ± SD in Subjects With SI (N = 156)[a]	Mean ± SD in Subjects Without SI (N = 44)[a]	t[b]	p Value
Age, y	33.23 ± 12.22	30.43 ± 11.41	–1.36	.18
Age at onset of BDD, y	16.10 ± 7.25	17.48 ± 6.15	1.15	.25
Lifetime functional impairment due to BDD	6.36 ± 1.59	5.05 ± 1.74	–4.74	< .001
Current BDD severity (entire sample)[c]	27.64 ± 10.20	27.14 ± 10.05	–0.29	.77
SAS-SR score	2.37 ± .55	2.02 ± .43	–3.11	.002
LIFE-RIFT score	13.85 ± 3.71	11.32 ± 3.27	–4.10	< .001
SOFAS score	48.09 ± 15.83	59.04 ± 13.39	3.21	.002
	% (N) With Listed Variable With SI[a]	% (N) Without Listed Variable With SI[a]	χ^{2b}	p Value
Female gender	77.8 (49)	78.1 (107)	0.00	.96
Member of minority race	88.9 (24)	76.0 (130)	2.23	.14
Never married	78.3 (101)	77.5 (55)	3.38	.19
Delusional BDD	77.9 (120)	78.3 (36)	0.00	.96
Major depression	83.9 (125)	60.8 (31)	11.82	.001
Bipolar disorder	100.0 (15)	76.2 (141)	…	.045
Posttraumatic stress disorder	88.9 (16)	76.9 (140)	…	.37
Eating disorder	90.0 (27)	75.9 (129)	2.96	.09
Substance use disorder	83.3 (80)	73.1 (76)	3.06	.08
Any personality disorder	88.8 (71)	67.3 (66)	11.38	.001
Borderline personality disorder	100.0 (19)	74.2 (118)	…	.008

[a]For example, as shown in the top half of the table, subjects with a history of suicidal ideation had significantly greater lifetime functional impairment due to BDD (mean score of 6.36 ± 1.59) than subjects without suicidal ideation (5.05 ± 1.74); as shown in the bottom half of the table, 83.9% of subjects with comorbid major depression had a history of suicidal ideation, whereas only 60.8% of subjects without comorbid major depression reported suicidal ideation.
[b]For t tests, df = 198 except for SAS (df = 140) and SOFAS (df = 114); for all χ^2 analyses, df = 1.
[c]BDD-YBOCS score.
Abbreviations: LIFE-RIFT = Longitudinal Interval Follow-Up Evaluation–Range of Impaired Functioning Tool, SAS-SR = Social Adjustment Scale–Self-Report, SOFAS = Social and Occupational Functioning Assessment Scale, YBOCS = Yale-Brown Obsessive Compulsive Scale.
Symbol: … = Fisher exact test was done, for which a p value, but not a χ^2 value, is reported.

ciated with greater lifetime functional impairment due to BDD and with lifetime major depression (Table 5). The resulting model (N = 178) also significantly predicted suicide attempts (χ^2 = 47.66, df = 10, p < .001, –2 log likelihood = 148.61) and correctly classified 80.2% of the sample (37.2% of subjects with suicide attempts and 94.0% of subjects without suicide attempts). Results of the logistic regression showed that significantly increased odds of suicide attempts were associated with greater lifetime functional impairment due to BDD, lifetime PTSD, and a lifetime substance use disorder (Table 5).

DISCUSSION

This study found high lifetime rates of suicidal ideation and suicide attempts, as well as a high number of attempts, in individuals with BDD. Rates of suicidal ideation and suicide attempts attributed specifically to BDD were also high. Treated subjects who had experienced suicidal ideation or attempted suicide often did not reveal their BDD symptoms to their treating clinician. Although the intended lethality was often high, intent was generally not communicated to others. While a number of variables were associated with suicidal ideation and suicide attempts in univariate analyses, regression analyses indicated that only lifetime functional impairment due to BDD and the presence of comorbid lifetime major depression were independently associated with significantly increased odds of suicidal ideation. (Of note, however, bipolar disorder [which has a lifetime rate of about 9% in BDD[31]] and borderline personality disorder [which occurs in about 5%–10% of BDD patients[11,32]] were associated with suicidality in univariate analyses but were not included in the regression analysis for suicidal ideation.) Regarding suicide attempts, only lifetime functional impairment due to BDD and the presence of comorbid lifetime PTSD or a lifetime substance use disorder were independently associated with significantly increased odds of attempting suicide. Strikingly, the odds of a past suicide attempt were more than 6 times greater for subjects with PTSD (9% of the present sample had lifetime PTSD) than for subjects without PTSD, and with each 1-point increase on the BDD impairment scale (a 9-point continuous measure), the odds of attempting suicide increased by 1.59.

The lifetime suicidal ideation rate of 78% in this study is notably high; it is higher than the lifetime rate for any other psychiatric disorder reported in an outpatient study by Asnis et al. (18%–64%)[33] and higher than rates reported for schizophrenia (40%–53%) or major depression

Table 4. Demographic and Clinical Correlates of Suicide Attempts (SA) in Individuals With Body Dysmorphic Disorder (BDD)

Variable	Mean ± SD in Subjects With SA (N = 55)[a]	Mean ± SD in Subjects Without SA (N = 145)[a]	t[b]	p Value
Age, y	31.07 ± 12.49	33.20 ± 11.91	1.11	.27
Age at onset of BDD, y	15.11 ± 6.60	16.89 ± 7.15	1.61	.11
Lifetime functional impairment due to BDD	6.76 ± 1.39	5.81 ± 1.75	–3.64	< .001
Current BDD severity (entire sample)[c]	29.55 ± 9.96	26.77 ± 10.15	–1.74	.08
SAS-SR score	2.50 ± .58	2.23 ± .52	–2.58	.011
LIFE-RIFT score	14.73 ± 3.61	12.76 ± 3.68	–3.37	.001
SOFAS score	43.04 ± 14.67	52.93 ± 15.65	2.96	.004
	% (N) With Listed Variable With SA[a]	% (N) Without Listed Variable With SA[a]	χ^{2b}	p Value
Female gender	29.2 (40)	23.8 (15)	0.63	.43
Member of minority race	40.7 (11)	25.7 (44)	2.62	.11
Never married	29.5 (38)	23.9 (17)	1.69	.43
Delusional BDD	31.8 (49)	13.0 (6)	6.26	.01
Major depression	28.9 (43)	23.5 (12)	0.54	.46
Bipolar disorder	53.3 (8)	25.4 (47)	…	.03
Posttraumatic stress disorder (PTSD)	72.2 (13)	23.1 (42)	…	< .001
Eating disorder	43.3 (13)	24.7 (42)	4.44	.04
Substance use disorder	36.5 (35)	19.2 (20)	7.43	.01
Any personality disorder	32.5 (26)	18.4 (18)	4.73	.03
Borderline personality disorder	63.2 (12)	20.1 (32)	…	< .001

[a]For example, as shown in the top half of the table, subjects with a history of suicide attempts had significantly greater lifetime functional impairment due to BDD (mean score of 6.76 ± 1.39) than subjects without a suicide attempt (5.81 ± 1.75); as shown in the bottom half of the table, 72.2%, or 13, of BDD subjects with comorbid PTSD reported a suicide attempt, whereas only 23.1%, or 42, of BDD subjects without comorbid PTSD reported a suicide attempt.
[b]For t tests, df = 198 except for SAS (df = 140) and SOFAS (df = 114); for all χ^2 analyses, df = 1.
[c]BDD-YBOCS score.
Abbreviations: LIFE-RIFT = Longitudinal Interval Follow-Up Evaluation–Range of Impaired Functioning Tool, SAS-SR = Social Adjustment Scale–Self-Report, SOFAS = Social and Occupational Functioning Assessment Scale, YBOCS = Yale-Brown Obsessive Compulsive Scale.
Symbol: … = Fisher exact test was done, for which a p value, but not a χ^2 value, is reported.

Table 5. Significant Predictors of Suicidal Ideation and Suicide Attempts in Individuals With Body Dysmorphic Disorder (BDD)

Predictor	Beta	Odds Ratio	95% CI for Odds Ratio	Wald	p Value
Suicidal ideation					
Lifetime impairment due to BDD	0.39	1.48	1.14 to 1.91	8.97	.003
Lifetime major depression	1.10	3.02	1.30 to 6.99	6.63	.010
Suicide attempts					
Lifetime impairment due to BDD	0.46	1.59	1.15 to 2.19	7.98	.005
Lifetime posttraumatic stress disorder	1.86	6.44	1.54 to 26.93	6.52	.011
Lifetime substance use disorder	1.12	3.07	1.29 to 7.29	6.42	.011

(55%–56%).[23,34] The finding that 55% of our sample had experienced suicidal ideation attributed primarily to BDD is somewhat higher than the rate previously reported by Perugi et al.[9] of 45% in 58 BDD outpatients. This rate is lower, however, than the rate previously reported by Phillips et al.[8] of 70% in 100 BDD outpatients and the rate previously reported by Grant et al.[17] of 69% in inpatients with anorexia nervosa and comorbid BDD.

Our finding that 28% of subjects had attempted suicide is slightly higher than the rates previously reported by Phillips and Diaz[10] and Veale et al.[11] of 22% and 24%, respectively, in largely outpatient samples ascertained for BDD. However, it is markedly lower than the 63% rate obtained by Grant et al.[17] in patients ascertained for anorexia who had comorbid BDD, perhaps because the latter study consisted of inpatients. These lifetime suicide attempt rates of 22% to 28% in subjects ascertained for BDD are lower than reported rates for schizophrenia (23%–55%) or bipolar disorder (31%–35%), within the range reported for depressed outpatients (7%–35%), and higher than reported for generalized anxiety disorder (15%–17%), panic disorder (8%–9%), or agoraphobia (6%).[18,19,23,33–38] Lifetime suicide attempt rates in BDD are an estimated 6 to 23 times higher than in the general U.S. population,[12,13] and the present study's suicide attempt rate during the 1 month before the intake evaluation (3%) is an estimated 30 times higher than in the U.S. population.[13,39,40]

It is notable that there were many more similarities than differences between currently treated and untreated

subjects. This finding suggests that the high rates of suicidal ideation and suicide attempts reported in this study and previous BDD studies are not limited to individuals seeking consultation or treatment in specialty BDD settings, or to treated individuals more generally. However, this conclusion is limited by the fact that most currently untreated subjects in the present study had received mental health treatment in the past. For this reason, and because our sample is a nonprobability sample, we cannot assume that our untreated subjects are representative of untreated individuals with BDD in the community.

It is unclear why lifetime suicidality rates were as high (and in fact higher for 2 variables) in currently treated subjects as in currently untreated subjects. A likely explanation is that suicidal individuals may be more likely to subsequently seek or be referred for psychiatric care. Indeed, more severely ill individuals with disorders other than BDD are more likely to receive mental health treatment.[41,42] Our clinical experience and available research findings[43] suggest that efficacious treatments for BDD (relatively high doses of serotonin reuptake inhibitors [SRIs] and cognitive-behavioral therapy[44,45]) often markedly diminish suicidal ideation and behavior. While this might suggest that currently treated subjects would be less suicidal than untreated subjects, the present study included past suicidality, which may have preceded the current treatment episode (we do not have data on when suicidality occurred in relation to receipt of current treatment). In addition, only a minority of subjects in this study received SRI doses generally considered optimal or even adequate for BDD.[46]

Significant results from this study's logistic regression analyses are largely consistent with the literature. Our finding that major depression (which has a lifetime rate of about 40% to 80% in BDD)[9,31] was associated with increased odds of suicidal ideation (although not suicide attempts) is consistent with previous research showing that major depression is the major contributor to risk for suicidal ideation.[47] Our finding that PTSD and a substance use disorder were associated with increased odds of attempting suicide is also consistent with research in other disorders.[18,48] For example, in a study of panic disorder by Warshaw et al.,[18] the presence of PTSD nearly tripled the odds of a suicide attempt. Finally, our finding that lifetime impairment due to BDD was associated with increased odds of both suicidal ideation and suicide attempts is consistent with previous studies showing that increased symptom severity and functional impairment are associated with increased suicidal ideation and suicide attempts in individuals with major depression.[47] Our hypothesis that greater delusionality would predict suicidal ideation and suicide attempts was supported in our univariate analysis of suicide attempts but not in the logistic regression, despite previous findings that delusional BDD patients are more severely ill[8] and that psychosis may be associated with suicide attempts.[21] Future studies are needed to further examine the relationship between suicidality and delusionality/insight in BDD.

Our study did not address completed suicide, and it is not known what proportion of individuals with BDD commit suicide. However, individuals with BDD have many risk factors for completed suicide.[12,49–51] These include not only high rates of suicidal ideation and suicide attempts, but also high rates of previous psychiatric hospitalization,[10] unemployment and disability,[10] being single or divorced,[10] poor social supports,[52] and high rates of major depression, eating disorders, and substance use disorders.[31,53] Additional risk factors include high levels of anxiety, depression, hostility, and impulsivity[54,55]; shame and humiliation[7]; and poor self-esteem.[56] From a clinical perspective, patients' often-delusional belief that they look deformed and repulsive can cause severe distress and self-loathing.[7] This distress is further fueled by time-consuming intrusive obsessions about the "defect," and the belief that other people share their belief and even mock and ostracize them because of how they look.[7]

This study has a number of limitations. We did not directly compare BDD subjects to community controls or to individuals with another psychiatric disorder. In addition, suicide-related data were obtained retrospectively and may be subject to recall bias, although past-month data are less subject to this limitation. Another limitation is that we obtained more detailed information on suicide attempts (e.g., intent, lethality, when the attempt occurred) only for attempts during the past month. It is also difficult to determine to what extent past suicidal ideation and suicide attempts were actually primarily due to BDD, because of possible recall bias and because "primarily" is difficult to operationalize; therefore, these results could overestimate or underestimate actual rates. While most predictor variables were lifetime variables, we lacked lifetime (current or past) measures of certain candidate predictors (lifetime social support, overall functional disability, overall BDD severity, and marital status at the time of any attempts). Nonetheless, because BDD and associated functional impairment often appear to be fairly chronic,[10] measures of current social support and functional disability may be reasonable approximations of lifetime severity. In addition, our use of lifetime functional impairment due specifically to BDD may reasonably approximate lifetime overall BDD severity, especially because functional impairment is one of BDD's diagnostic criteria. We also did not assess several possible predictors of suicidal behavior, including family history of suicide,[12] stressful life events,[35] and childhood abuse[34,35] (although PTSD was assessed). Another study limitation is that because most subjects had a history of mental health treatment, our study lacked the power to explore differences in suicidal ideation and suicide attempts between those who did and did not have a history

of treatment. Finally, our findings regarding the risk of comorbid BDD and PTSD are based on only 18 subjects with PTSD, and therefore need replication. Our study also has a number of strengths, including the size and breadth of the sample and our examination of many previously unstudied questions, including predictors of suicidal ideation and behavior from a variety of domains (e.g., demographic characteristics, comorbidity, and psychosocial functioning).

Additional studies of suicidality in BDD are greatly needed. Studies are needed in various settings, including community settings as well as surgery and dermatology settings, where individuals with BDD often seek treatment.[11,53,57] This seems especially important, given that BDD may be common in patients who commit suicide in dermatology settings.[14] Prospective studies are needed to address some of the limitations of our study and to more accurately assess rates and predictors of suicidality. Even more important, studies of completed suicide in BDD are needed, including identification of possible risk factors for suicide, such as impairment due to BDD, major depression, PTSD, and substance use disorders, which were associated with suicidal ideation and suicide attempts in the present study. Our results also highlight the critical need to develop more effective treatments for BDD and to ascertain the extent to which such treatment may decrease suicidality. In the meantime, our findings underscore the importance of carefully assessing and monitoring suicidality in patients with BDD, especially those with significant functional impairment due to BDD and with comorbid PTSD or a substance use disorder. In addition, suicidal patients need to be specifically asked about the presence of BDD symptoms, as many do not spontaneously reveal their BDD symptoms to their clinician.

Drug name: buspirone (BuSpar and others).

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