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Comorbid anxiety in bipolar disorder:

does it have an independent effect on suicidality?

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Abstract

Objective—Comorbid anxiety disorder is reported to increase suicidality in bipolar disorder. However, studies of the impact of anxiety disorders on suicidal behavior in mood disorders have shown mixed results. The presence of personality disorders, often comorbid with anxiety and bipolar disorders, may explain these inconsistencies. This study examined the impact of comorbid Cluster B personality disorder and anxiety disorder on suicidality in bipolar disorder.

Methods—A total of 116 depressed bipolar patients with and without lifetime anxiety disorder were compared. Multiple regression analysis tested the association of comorbid anxiety disorder with past suicide attempts and severity of suicidal ideation, adjusting for the effect of Cluster B personality disorder. The specific effect of panic disorder was also explored.

Results—Bipolar patients with and without anxiety disorders did not differ in the rate of past suicide attempt. Suicidal ideation was less severe in those with anxiety disorders. In multiple regression analysis, anxiety disorder was not associated with past suicide attempts or with the severity of suicidal ideation, whereas Cluster B personality disorder was associated with both. The results were comparable when comorbid panic disorder was examined.

Conclusions—Comorbid Cluster B personality disorder appears to exert a stronger influence on suicidality than comorbid anxiety disorder in persons with bipolar disorder. Assessment of suicide risk in patients with bipolar disorder should include evaluation and treatment of Cluster B psychopathology.

Keywords

anxiety disorder; bipolar disorder; personality disorder; suicidal ideation; suicide attempts

Comorbid anxiety predicts a more severe course of illness in bipolar disorder (1-4) and is associated with poorer response to lithium and anticonvulsants (5). However, studies in bipolar

disorder disagree about the relationship of comorbid anxiety to suicidal behavior: some found an association between comorbid anxiety symptoms or disorders and suicide attempts (6-13) and others did not (5,14). Several studies in mood disorders in general (15,16) have failed to find an association between anxiety symptoms or disorders with suicidality or have found a protective effect, after adjusting for other psychiatric disorders (17-22).

Studies of comorbid panic and mood disorders have found an independent contribution to suicidality (23-25); however, none of these studies examined bipolar disorder specifically. In a systematic review of suicidal behaviors in bipolar disorder, Hawton et al. (26) found comorbid anxiety disorder was associated with attempted suicide, but not suicide. Sareen et al. (27) found that lifetime anxiety disorder comorbidity with mood disorders was associated with higher risk for suicide attempts than mood disorder alone, but did not assess Axis II disorders, nor examine bipolar disorder separately.

None of these studies controlled for the potential confounding effect of other known risk factors for suicidal behavior that may involve heightened anxiety, such as Cluster B personality disorder (28-30). We have reported that in a sample of patients with unipolar major depressive episode the relationship of posttraumatic stress disorder (PTSD) and suicidal behavior may be explained by the presence of comorbid Cluster B personality disorder (31). Whether a similar pattern exists for comorbid bipolar and anxiety disorders has not been addressed. While two studies reported that comorbid Cluster B personality disorder increased the risk for suicidal behavior in bipolar disorder (8,32), they did not evaluate comorbid anxiety disorder. No published study in bipolar disorder, to our knowledge, has examined the relative importance of comorbid anxiety and Cluster B personality disorders with respect to risk for suicidal behavior. In this study, we examine suicidal behavior (past attempts and suicidal ideation) in bipolar disorder patients for correlations with anxiety disorders, and also investigate the role of Cluster B personality disorder.

Because anxiety disorders are highly comorbid with other anxiety disorders and tend to cluster together (9,33), we examined the presence of any lifetime anxiety disorder. However, given the high comorbidity between bipolar and panic disorders (2,7) and reports of more severe suicidal ideation among bipolar patients with panic disorder (23-25), we also specifically examined the effect of comorbid panic disorder. We tested the hypothesis that among bipolar patients, the presence of comorbid anxiety disorder correlates with suicidal behavior and ideation, but that this relationship is due to the effects of Cluster B personality disorders.

Patients and methods

Patients

The sample ($n = 116$) comprised persons aged 18-73 years who presented to a university teaching hospital for treatment of a major depressive episode and met DSM-III-R criteria for bipolar disorder. Of the entire sample, 67 (57.8%) participants met DSM-III-R bipolar I disorder criteria and 49 (42.2%) met criteria for bipolar disorder not otherwise specified (NOS). DSM-III-R bipolar disorder NOS includes both DSM-IV bipolar II and NOS subtypes. The frequency of bipolar disorder subtype did not differ with respect to presence of lifetime comorbid anxiety disorder [bipolar I: 37 (55.2%) versus bipolar NOS: 23 (46.9%); $\chi^2 = 0.78$, $df = 1$, $p = 0.38$] or Cluster B personality disorder [bipolar I: 31 (46.3%) versus bipolar NOS: 19 (38.8%); $\chi^2 = 0.65$, $df = 1$, $p = 0.42$]; therefore, we pooled the two subtypes in our analyses. Seventy-nine (68.1%) subjects were inpatients, and 76 (65.5%) were female. Exclusion criteria included current substance use disorder, neurological illness, and unstable medical conditions. The study was approved by the Institutional Review Board and all subjects gave written informed consent after a complete description of the study.

Measures

At study entry, all subjects received a comprehensive assessment battery. DSM-III-R disorders were diagnosed based on the Structured Clinical Interview for DSM-III-R, patient edition (SCID) for Axis I (34). Axis II disorders were diagnosed using the SCID II (DSM-III-R) (35) after acute mood symptoms had subsided. A consensus conference led by senior research clinicians (MFG, MAO, JJM, AKB) determined the final diagnosis using all available information. Anxiety disorder includes panic disorder, agoraphobia, social phobia, simple phobia, obsessive compulsive disorder, posttraumatic stress disorder and generalized anxiety disorder. Cluster B personality disorder includes antisocial personality disorder, borderline personality disorder, histrionic personality disorder and narcissistic personality disorder. Depressive symptoms were assessed with the 17-item Hamilton Depression Rating Scale (HDRS) (36) and the Beck Depression Inventory (BDI) (37). Hopelessness was assessed with the Beck Hopelessness Scale (BHS) (38). Severity of anxiety symptoms was assessed using a subtotal score of HDRS anxiety items, derived by factor analysis (16) [total score for agitation (item 9), psychic anxiety (item 10), somatic anxiety (item 11), and hypochondriasis (item 15)]. Lifetime aggression was assessed with the Brown-Goodwin Lifetime History of Aggression (BGLHA) (39), and impulsivity with the Barratt Impulsivity Scale (BIS) (40).

A suicide attempt was defined as a self-destructive act with intent to end one's life. The lifetime number of suicide attempts and the most serious degree of medical damage due to a suicide attempt were recorded using the Columbia Suicide History Form (41) and the Medical Lethality Rating Scale (42), which ranges from 0 (no medical damage) to 8 (death), where 4 is the threshold for medical hospitalization. Suicidal ideation was assessed with the Scale for Suicide Ideation (SSI) (43). Suicidal intent at the most serious suicide attempt was assessed with the Suicide Intent Scale (SIS) (42). All raters for this study had at least a master's degree and participated in reliability testing. Interrater agreement kappa scores were >0.80 for Axis I and >0.65 for Axis II diagnoses, and intraclass coefficients for psychopathology measures and suicide history were >0.70 .

Statistical analysis

Two-tailed Student's *t*-tests or one-way ANOVA were used to compare continuous variables and chi-square analyses or Fisher's exact tests were used for categorical variables. To address potential confounds between anxiety and suicidal behavior in bipolar disorder patients, we performed logistic and linear regression analyses with past suicide attempts and severity of suicidal ideation, respectively, as the dependent variables. Independent variables were comorbid anxiety disorder, other variables that differed significantly in the univariate tests (Table 1), and Cluster B personality disorder, given its known association with suicidal behavior in both bipolar and anxiety disorders. We excluded anxiety symptoms (total score of HDRS anxiety items 9, 10, 11, and 15) from the model due to their redundancy with the categorical diagnosis of anxiety disorder. We reran the analyses substituting comorbid panic disorder for any comorbid anxiety disorder.

Because any correlation between suicidal behavior and Cluster B personality disorder could be driven by the suicidality criterion of borderline personality disorder (BPD), we also ran the models substituting BPD (excluding patients who did not meet criteria when the suicidality criterion was not counted) for Cluster B personality disorder. A total of 59% of the comorbid BPD group still met criteria under these conditions. Significance was set at $p > 0.05$, two-tailed, for all statistical tests and for entry into the regression model.

Results

Table 2 gives diagnostic characteristics of the sample. Sixty-eight patients (58.6%) had a past history of suicide attempt. Sixty patients (51.7%) had a lifetime comorbid anxiety disorder. The mean number of lifetime comorbid anxiety disorders was 1.7 (SD = 0.8): 32 (27.6%) patients had one comorbid anxiety disorder, 17 (14.7%) patients had two and 11 (9.5%) patients had three. The majority (80.0%, $n = 48$) of subjects with a lifetime comorbid anxiety disorder also met criteria for a current comorbid anxiety disorder at index assessment. In our sample, 50 patients (43.1%) had a comorbid Cluster B personality disorder: 39 (78%) borderline, 10 (20%) narcissistic, 3 (6%) antisocial, and 2 (4%) histrionic. Of those who met borderline criteria, 23 (59%) still met criteria even when the suicide item was not considered.

Comparison of patients with or without comorbid lifetime anxiety disorder

Table 1 presents clinical and demographic comparisons of the two groups. Patients with comorbid lifetime anxiety disorder were more likely to be female. There were no group differences with respect to age, education, race, marital status, or family history of suicidal acts. Patients with comorbid anxiety disorder had higher aggression (BGLHA) and impulsivity (BIS) scores, and, as expected, more severe anxiety symptoms (HDRS items 9, 10, 11 and 15 total). The groups did not differ in depression severity (BDI, HDRS), hopelessness (BHS), in rates of Cluster B personality disorders, frequency of lifetime substance use disorder, or reported history of childhood sexual and physical abuse.

Table 3 gives details of suicidal behavior among bipolar patients with and without a lifetime comorbid anxiety disorder. There were no group differences in history of past suicide attempt, number of past suicide attempts, suicidal ideation, age at the first suicide attempt, or severity of suicidal intent or medical lethality of the most serious suicide attempt. When we stratified the group into lifetime comorbid anxiety disorder alone, Cluster B personality disorder alone, both or neither comorbid diagnosis, past suicide attempts were most frequent in those with co-occurrence of anxiety and Cluster B personality disorders, and least frequent in those with anxiety disorder alone [both 81.5% ($n = 22$); Cluster B alone 69.2% ($n = 18$); anxiety disorder alone 39.1% ($n = 9$); neither 44.7% ($n = 21$): $\chi^2 = 14.1$, $df = 3$, $p = 0.003$]. Similarly, mean severity of suicidal ideation was highest in those with co-occurrence of current anxiety and Cluster B personality disorders, and the lowest in those with current anxiety disorder alone (SSI score). [both 10.7 (SD = 11.1); Cluster B alone 15.0 (SD = 10.9); anxiety disorder alone 6.2 (SD = 8.4); neither 8.6 (SD = 10.2): $F = 3.19$, $df = 3, 105$, $p = 0.03$].

Comparison of bipolar patients with or without comorbid lifetime panic disorder

Patients with comorbid panic disorder were more likely to be female ($\chi^2 = 4.22$, $df = 1$, $p = 0.04$) and to have higher aggression (BGLHA) scores ($t = 2.1$, $df = 119$, $p = 0.04$), tended towards more severe anxiety symptoms (HDRS items 9, 10, 11 and 15 total; $t = 1.82$, $df = 120$, $p = 0.07$), and were more likely to have Cluster B personality disorders than those without panic disorder comorbidity (56.4% versus 36.9%, $\chi^2 = 4.13$, $df = 1$, $p = 0.04$). There were no other demographic or clinical differences between the groups, and no differences with respect to suicidal behavior or ideation (data not shown).

Multivariate analyses

Comorbid lifetime anxiety disorder and suicidal behavior and ideation—In a logistic regression with presence/absence of past suicide attempt as the dependent variable, and comorbid lifetime anxiety disorder, comorbid Cluster B personality disorder, sex, aggression (BGLHA) and impulsivity (BIS) scores as independent variables, Cluster B personality disorder was independently associated with past suicide attempt and no other variable, including lifetime anxiety disorder comorbidity, was significant (Table 4).

In linear regression with severity of suicidal ideation as the dependent variable, and comorbid current anxiety disorder, comorbid Cluster B personality disorder, sex, aggression (BGLHA) and impulsivity (BIS) scores as independent variables, current anxiety disorder was not associated with severity of suicidal ideation (Table 5). Both Cluster B personality disorder comorbidity and female sex were independently associated with severity of suicidal ideation. This regression model explained 12% of the variance in severity of suicidal ideation (adjusted $R^2 = 0.12$, $F = 3.88$, $df = 5, 103$, $p = 0.003$).

Panic disorder and suicidal behavior and ideation—In logistic regression with presence/absence of past suicide attempt as the dependent variable and comorbid lifetime panic disorder, Cluster B personality disorder, sex, aggression (BGLHA) and impulsivity (BIS) scores as independent variables, Cluster B personality disorder and not lifetime panic disorder was associated with past suicide attempt (likelihood ratio test ; $\chi^2 = 5.46$, $df = 1$, $p = 0.02$; $\chi^2 = 0.05$, $df = 1$, $p = 0.82$, respectively).

In linear regression with severity of suicidal ideation as the dependent variable and comorbid current panic disorder, Cluster B personality disorder, sex, aggression (BGLHA) and impulsivity (BIS) scores as independent variables, severity of suicidal ideation was independently associated with Cluster B personality disorder and female sex (Cluster B: $\beta = -0.21$, $t = -2.18$, $p = 0.03$; female: $\beta = 0.34$, $t = 3.61$, $p = 0.001$), but not with current panic disorder ($\beta = -0.07$, $t = -0.70$, $p = 0.48$).

Borderline personality disorder and suicidal behavior and ideation—In logistic regression with suicide attempt as the dependent variable, and comorbid lifetime anxiety disorder, borderline personality disorder (excluding the suicide criterion), sex, aggression (BGLHA), and impulsivity (BIS) scores as independent variables, borderline personality disorder but not lifetime anxiety disorder was associated with past suicide attempt (likelihood ratio test: $\chi^2 = 7.08$, $df = 1$, $p = 0.008$; $\chi^2 = 1.24$, $df = 1$, $p = 0.27$, respectively). Using the same model, neither borderline personality disorder nor current anxiety disorder was associated with suicidal ideation ($\beta = -0.11$, $t = -0.99$, $p = 0.33$; $\beta = -0.02$, $t = -0.21$, $p = 0.83$, respectively). In univariate analyses, past suicide attempt was associated with narcissistic personality disorder ($\chi^2 = 6.26$, $df = 1$, $p = 0.01$), but not with antisocial nor histrionic personality disorders (Fishers exact test: $p = 1.0$ and $p = 0.36$, respectively). Suicidal ideation was not associated with narcissistic, antisocial or histrionic personality disorders (data on request).

Discussion

In contrast with other reports (6-13) of an association between past suicide attempts and comorbid anxiety in bipolar disorder, we found no evidence that a comorbid anxiety disorder was associated with greater likelihood of a past suicide attempt or more severe suicidal ideation in bipolar disorder. Previous reports from our group have suggested a protective effect of anxiety with respect to suicidal behavior in a mixed major depressive disorder (MDD) and bipolar sample (15) and in a pure MDD sample (16). We have postulated that this could be related to the clinical observation that anxiety is associated with fear of untoward events such as physical harm or death. In the current study, however, we found no differences in suicidal ideation or behavior in the comorbid lifetime anxiety disorder group. The contrast of our finding with other reports may be due to sampling differences that could influence anxiety-related effects. For instance, our sample had a higher proportion of past suicide attempters at baseline assessment compared with the Systematic Treatment Enhancement Program for Bipolar Disorder (STEP-BD) sample, which also included persons with cyclothymia and bipolar type schizoaffective disorder (11).

Our findings suggest that, rather than comorbid anxiety disorder, comorbid Cluster B personality disorder is related to more severe suicidal ideation and to an increased likelihood of a past suicide attempt in individuals with bipolar disorder. Evidence suggests a high rate of co-occurrence of both anxiety and Cluster B personality disorders in bipolar disorder (44). Prospective studies have found that Cluster B personality disorder and traits are associated with risk for the development or recurrence of anxiety disorders (45,46). However, with the exception of the subgroup of patients with comorbid panic disorder, we did not find greater rates of Cluster B personality disorder in comorbid lifetime anxiety disorder patients. Moreover, in multivariate analysis where panic disorder rather than any lifetime anxiety disorder was the independent variable, it was still Cluster B personality disorder, and not panic disorder, that was independently associated with a past suicide attempt. Aggression and impulsivity are known risk factors for suicidal behavior (30,47) and the elevated risk for suicidal behavior in Cluster B personality disorders is likely related, in part, to the presence of these traits (48). While Cluster B personality disorder may explain the lack of any independent association of aggression or impulsivity with past suicide attempt and severity of suicidal ideation in the multivariate analyses, it is curious that, in this sample, the comorbid anxiety disorder group scored higher in lifetime impulsive-aggression but had no difference in past suicide attempts or rates of Cluster B personality disorder compared with the group without comorbid anxiety disorder. Furthermore, when we stratified our sample into comorbid anxiety disorder alone, Cluster B personality disorder alone, both or neither, past suicide attempts were most frequent and suicidal ideation most severe in those with both anxiety and Cluster B comorbidity, and least frequent/severe in those with anxiety disorder alone. This could be explained by an interaction effect whereby anxiety is risk-elevating in the presence of comorbid Cluster B personality disorder - possibly by impairment in decision-making - but protective in its absence, such as by increased harm avoidance. Further study of the interaction of comorbid Cluster B personality disorder, comorbid anxiety, and impulsivity and aggression in bipolar disorder would be instructive.

Female sex was associated with more severe suicidal ideation, although not with past suicide attempts. This is consistent with findings in bipolar mixed state samples (49), psychiatric inpatient samples (50), and epidemiologic samples (51,51). However, we found no association between Cluster B personality disorder and sex. This may in part be due to the fact that we categorized personality disorders as a cluster and did not specifically analyze borderline personality disorder, which has substantially higher prevalence among women according to epidemiological studies (53). Taken together, the association between female sex and suicidal ideation is not likely to be a sufficient explanation for the association between Cluster B personality disorder, suicidal ideation and past attempts in our sample.

The main limitations of this study are related to the retrospective design, including the possibility of recall bias and the inability to infer causality from statistical associations. The relatively small sample size may limit the extent to which our findings can be generalized. However, the frequency of lifetime anxiety disorder was 52%, comparable to rates (42-53%) reported from large multi-center studies (2,9). The rates in our sample specifically for generalized anxiety disorder and agoraphobia may be low. This may be related to the tertiary care nature of our research clinic and the fact that only a minority of individuals with agoraphobia and generalized anxiety disorder seek professional treatment (54,55). The proportion with Cluster B personality disorder comorbidity was higher in our sample (43% versus 29%) than in another rigorously assessed sample (12), possibly due to our group's focus on suicide research. Another important limitation is that SCID II interviews were performed while patients were recovering from a mood episode, mostly depressive. This may have been mitigated by conducting the rating after the patients had had an initial course of antidepressant treatment and usually some improvement. There is also overlap in clinical phenomenology between Cluster B personality, bipolar and anxiety disorders that can make it difficult to

distinguish between diagnoses (56-58). However, our consensus diagnostic process emphasizes parsimony and we avoid attributing specific symptoms to more than one diagnosis. Other uncontrolled factors such as medication effects may also have affected the diagnosis of independently comorbid anxiety and Cluster B personality disorders. However, several studies demonstrate that the diagnosis of Cluster B traits is durable and accurate throughout the course of mood disorders (59-61). The study did not include a specific instrument for anxiety symptom measurement and age of anxiety disorder onset was not assessed. We did not correct for multiple comparisons in our analyses, which may increase the possibility of Type I error.

In conclusion, we found that past suicide attempts and severity of suicidal ideation in this bipolar sample were associated with comorbid Cluster B personality disorder, but not with anxiety disorder or specifically with panic disorder. Suicide attempt prevention in patients with bipolar disorders should include the assessment and treatment of Cluster B personality disorder. This is not an easy task given the considerable overlap of symptoms between bipolar and bordering conditions, including mood instability, impulsivity and impaired judgment. Using structured diagnostic aids, such as relevant SCID modules, may have some utility in clinical care (62,63). Further studies with larger samples that include a consideration of multiple comorbidities are required to clarify the relationship of anxiety disorders to suicidality.

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Demographic and clinical characteristics of bipolar patients with and without lifetime anxiety disorder comorbidity

Table 1

	With comorbid anxiety disorder (n = 60)		Without comorbid anxiety disorder (n = 56)		Analysis	
	Total	n (%)	Total	n (%)	χ^2	p-value
Female	60	47 (78.3)	56	29 (51.8)	9.04	1 0.003
Race (white)	50	36 (72.0)	48	41 (85.4)	2.62	1 0.11
Never married	60	15 (25.0)	56	20 (35.7)	1.58	1 0.21
History of childhood sexual abuse	49	17 (34.7)	32	8 (25.0)	0.85	1 0.36
History of childhood physical abuse	49	15 (30.6)	32	8 (25.0)	0.30	1 0.58
Cluster B personality disorder	60	28 (46.7)	56	22 (39.3)	0.64	1 0.42
Lifetime substance use disorder	59	30 (50.8)	55	24 (43.6)	0.59	1 0.44
Family history of suicide in first degree relatives	58	6 (10.3)	55	3 (5.5)	0.92	1 0.34
Family history of suicide attempt in first degree relatives	58	11 (19.0)	55	5 (9.1)	2.27	1 0.13
Age (years)	Mean	SD	Mean	SD	t	df p-value
Total education (years)	39.2	9.3	37.8	12.3	0.72	114 0.47
Age of onset of depression	14.8	2.9	15.5	2.8	-1.31	111 0.19
Age of onset of mania	21.2	11.5	23.7	11.5	-1.15	108 0.25
Lifetime number of depressive episodes	28.4	10.2	25.9	11.1	0.93	61 0.36
Lifetime number of manic episodes	8.8	13.6	4.8	6.0	1.82	88 0.07
Beck Depression Inventory	3.6	9.4	3.0	6.3	0.41	97 0.69
Hamilton Depression Rating Scale	28.6	11.8	26.5	10.5	0.98	108 0.33
Total	17.0	7.0	16.9	6.8	0.08	113 0.93
Anxiety ^a	4.3	2.6	3.2	2.2	2.30	113 0.02
Beck Hopelessness Scale	11.5	6.2	11.6	5.4	-0.07	110 0.95
Aggression (BGLHA)	20.6	5.6	18.4	6.0	2.03	112 0.04
Impulsivity (BIS)	63.7	17.5	54.3	21.2	2.53	106 0.01

BGLHA = Brown-Goodwin Lifetime History of Aggression Scale; BIS = Barratt Impulsivity Scale.

^aTotal score of anxiety items 9, 10, 11, and 15 of the Hamilton Depression Rating Scale.

Table 2

Lifetime comorbid anxiety diagnosis in 116 bipolar patients

DSM-III-R anxiety disorder	n	%
Any anxiety disorder	60	51.7
Panic disorder	37	31.9
Posttraumatic stress disorder	24	20.7
Social phobia	13	11.2
Simple phobia	12	10.3
Obsessive compulsive disorder	8	6.9
Generalized anxiety disorder	2	1.7
Agoraphobia	1	0.9

Table 3
Suicidal behavior characteristics of bipolar disorder patients with and without lifetime anxiety disorder comorbidity

	With comorbid anxiety disorder (n = 60)		Without comorbid anxiety disorder (n = 56)		Analysis		
	n	%	n	%	χ^2	df	p-value
Past suicide attempt	35	58.3	33	58.9	0.04	1	0.95
	Mean	SD	Mean	SD	t	df	p-value
Suicidal Ideation (SSI)	7.7	9.9	12.4	10.8	-2.33	107	0.02
Number of suicide attempts ^a	1.8	2.4	1.3	1.5	1.34	66	0.18
Age at first suicide attempt ^a	25.2	11.8	26.9	11.9	-0.56	66	0.58
Medical Lethality Scale score of most serious attempt ^a	3.3	2.0	3.7	1.9	-0.82	66	0.41
Suicidal Intent Scale score at most serious attempt ^a	16.0	5.2	17.2	6.2	-0.79	67	0.44

SSI = Scale for Suicide Ideation.

^aMeans reflect data only for patients who attempted suicide.

Table 4
Logistic regression analysis of past suicide attempt in bipolar disorder (n = 116)

Variable	Odds ratio	95% CI	χ^2 (df = 1) ^a	p-value
Lifetime anxiety disorder	0.58	0.22-1.53	1.24	0.27
Cluster B personality disorder	3.36	1.35-8.40	7.08	0.008
Sex (female)	1.12	0.41-3.04	0.05	0.83
Brown-Goodwin Aggression Inventory score	1.10	0.99-1.21	1.42	0.23
Barratt Impulsivity Scale score	1.02	0.99-1.04	3.60	0.06

CI = confidence interval.

^aLikelihood ratio test.

Table 5

Linear regression analysis of suicidal ideation severity (SSI) in bipolar disorder (n = 116)

Variable	β	t	p-value
Current anxiety disorder	-0.06	-0.56	0.58
Cluster B personality disorder	0.22	2.31	0.02
Sex (female)	0.31	3.27	0.001
Brown-Goodwin Aggression Inventory score	-0.15	-1.45	0.15
Barratt Impulsivity Scale score	0.05	0.46	0.65

SSI = Scale for Suicide Ideation.