

Relationship Between Borderline Personality Disorder and Axis I Diagnosis in Severity of Depression and Anxiety

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Background: This study tested the hypothesis that subjects with borderline personality disorder irrespective of the presence or absence of an Axis I mood or anxiety disorder would exhibit greater severity of depression and anxiety than subjects with either a personality disorder other than borderline personality disorder or no personality disorder.

Method: Two hundred eighty-three subjects from an outpatient psychiatry clinic were administered the following assessments: the Structured Clinical Interview for DSM-III-R (SCID) for Axes I and II, the Hamilton Rating Scales for Depression and Anxiety, the Beck Depression Inventory, and the Spielberger State-Trait Anxiety Inventory. Subjects were categorized into borderline personality disorder, other personality disorder, and no personality disorder categories and into present versus absent categories on Axis I diagnosis of depression and of anxiety. A 2-factor multiple analysis of variance compared personality disorder status and Axis I diagnosis on severity of depression by observer rating and self-report. The analysis was repeated for anxiety.

Results: As hypothesized, significant main effects were found for borderline personality disorder and for both depression and anxiety. Subjects with borderline personality disorder showed greater severity on both depression and anxiety rating scales than did patients with another personality disorder, who showed greater severity than did patients with no personality disorder. Axis I diagnosis was also associated with greater severity on depression or anxiety rating scales. These differences were found for both observer ratings and self-report. An interaction was also found for depression: Subjects with borderline personality disorder but without an Axis I diagnosis of depression rated themselves as more severely depressed on the Beck Depression Inventory than did subjects with another or no personality disorder who also had an Axis I diagnosis of depression.

Conclusion: Implications from the study are discussed including the need to assess for borderline personality disorder in research studies of depression and anxiety and to integrate treatments for borderline personality disorder into depression and anxiety treatment to maximize clinical outcomes.

(*J Clin Psychiatry* 1999;60:752-758)

Borderline personality disorder is characterized by unstable and intense affect. Clinical observers and theorists have especially noticed that patients with borderline personality disorder experience extreme depression and anxiety. These affective states have been seen as either an outgrowth of conflict¹⁻³ or a reflection of comorbid mood disorder.⁴

Persons with borderline personality disorder in both inpatient and outpatient settings are frequently diagnosed with mood and anxiety disorders. Rates of major depression and dysthymia have varied between 68% and 100%.⁵⁻⁷ Rates of anxiety disorders in these patients have varied more widely, from 25%^{5,6} to 41%⁸ of outpatients to 86%⁷ of inpatients.

Studies of the severity of depressive symptoms in depressed patients have found comparable scores for patients with and without borderline personality disorder on the Hamilton Rating Scale for Depression (HAM-D), although mean HAM-D scores have ranged from 18 to 26.⁹⁻¹² Sample sizes of borderline subjects have been relatively small, varying between 15 and 20. Nonetheless, these findings suggest persons with borderline personality disorder and major depressive disorder do not show greater depression severity on this rating scale than those with depression alone. However, all subjects in these studies were diagnosed with major depressive disorder and referred for treatment of depression and would, thus, be expected to have a restricted range of depression levels. This conclusion is supported by the HAM-D scores, which were all at or above the clinical cutoff score of 18 for moderate depression and well above the cutoff in 3 studies.

Two studies^{13,14} have actually shown that patients who met criteria for borderline personality disorder (but not necessarily for depression) had HAM-D scores comparable to those of patients diagnosed with depression alone (range, 15-19). These nonsignificant findings are interesting because the subjects with borderline personality disorder were not chosen for depression, yet they showed HAM-D scores comparable to those of subjects with depression diagnoses. The similar scores may also reflect a lack of differentiation in terms of expression of depressive symptoms between subjects with mood disorders and those with borderline personality disorder.^{15,16}

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The literature on anxiety and borderline personality disorder is limited. Studies comparing anxiety symptom severity in borderline personality disorder and mood disorder patients showed no differences for most anxiety scales (Hamilton Rating Scale for Anxiety [HAM-A], Minnesota Multiphasic Personality Inventory [MMPI], Brief Psychiatric Rating Scale [BPRS], Symptom Checklist-90 [SCL-90])^{11,14,17} or lower SCL-90 anxiety scores for patients with borderline personality disorder,¹⁸ although no comparison groups had primary anxiety disorder. Thus, the meager literature on the relationship between borderline personality disorder and anxiety is less clear, although it points in the same direction (i.e., comparable scores) as for depressed patients.

Depression and anxiety among patients with borderline personality disorder seem to be less amenable to treatment than among persons without comorbid Axis II disorders. Comorbid borderline personality disorder has been implicated as a major contributing factor in treatment-refractory depression^{19,20} and associated with worse outcome in studies of anxiety treatment.^{8,21-23}

The present study was designed to add to the existing literature by systematically examining levels of depression and anxiety of patients with (1) borderline personality disorder, (2) another personality disorder, or (3) no personality disorder, with or without the relevant Axis I diagnoses (depression or anxiety). The proposed study includes both clinician and self-report ratings, since Snyder and Pitts²⁴ found that patients with borderline personality disorder rated their depression and anxiety worse on MMPI, Profile of Mood States (POMS), and Zung self-report scales than clinicians rated them on the HAM-D and BPRS.

Based on clinical observation, it was hypothesized that patients with borderline personality disorder would have higher self-report and clinical ratings of depression than patients with another personality disorder, who would in turn show higher ratings than patients with no personality disorder. Further, this effect would not be explained by the presence or absence of an affective disorder. We also hypothesized that patients with borderline personality disorder would be rated as more anxious by both self-report and clinical ratings than subjects with another personality disorder, who would be rated higher than subjects with no personality disorder, and that this would not be explained by the presence or absence of anxiety disorders across the Axis II groups.

METHOD

Subjects

The sample used in this study was drawn from 391 patients evaluated consecutively from October 1986 to February 1990 at the Center for Anxiety and Depression in the Department of Psychiatry and Behavioral Sciences at the University of Washington. The Center is a specialty

clinic that often serves as a secondary referral source for expert evaluation, but it also provides primary evaluation and treatment services. The instruments utilized in the present study also served as the intake assessment of clients seen at the Center. The evaluation was used to match clients to therapists and plan treatment. Subjects signed informed consent prior to the assessment. Because all subjects did not complete all of the evaluation instruments, the sample included in this study was 278. Of these, 38 (13.7%) were diagnosed with borderline personality disorder (with or without another personality disorder), 108 (38.8%) were diagnosed with at least one personality disorder other than borderline personality disorder, and 132 (47.5%) were diagnosed with no personality disorder.

Measures

The Structured Clinical Interview for the DSM-III-R (SCID)²⁵ was used to determine Axis I diagnoses. In addition, the SCID Personality Questionnaire was given to subjects and was followed up by the SCID-II interview, which resulted in the Axis II personality disorder diagnoses.²⁶ The interviews were conducted by 2 master's-level mental health professionals who had been trained to use these assessment tools. Interrater reliability was established previously as described by Flick et al.²⁷

After completing the SCID interviews, all subjects were interviewed independently by a board-certified psychiatrist (P.P.R.-B., D.S.C., or D.L.D.) using a semistructured diagnostic interview. This interview, which is used in our clinic, is a structured version of a basic clinical intake interview and includes probe and follow-up questions for DSM-III-R criteria for all of the major Axis I diagnoses.²⁸ Consensus Axis I diagnoses were determined using the SCID results and the diagnosis from the psychiatrist's interview. Disagreements between psychiatrist and SCID diagnosis were found in only 3% of the sample, and these were resolved by group consensus (see Table 1 for summary of diagnoses in the sample.)

The 17-item HAM-D²⁹ and the 14-item Hamilton Rating Scale for Anxiety (HAM-A)³⁰ were completed by the psychiatrist at the time of the interview. All psychiatrists previously established high reliability ($\kappa = 0.9$) on the HAM-D. Subjects also completed the 21-item Beck Depression Inventory (BDI)³¹ and the 40-item Spielberger State-Trait Anxiety Inventory (STAI).³² State (STAI-S) and trait (STAI-T) scores were used as separate self-report ratings of anxiety.

Analysis

A comparison of subjects with borderline personality disorder, another personality disorder, and no personality disorder was conducted on background variables using 1-way analysis of variance (ANOVA) for continuous variables and chi-square analyses for categorical variables. Two-factor multivariate analyses of variance (MANOVAs)

Table 1. Prevalence (%) of Axis I and II Diagnoses in Full Sample and Within Personality Disorder Categories

Diagnosis	Full Sample (N = 278)	Borderline Personality Disorder (N = 38)	Other Personality Disorder (N = 108)	No Personality Disorder (N = 132)
Bipolar disorder	12.2	21.1	13.0	9.1
Major depression	47.1	52.6	50.0	43.2
Dysthymia	14.7	23.7	21.3	6.8
Panic disorder	32.4	21.1	25.0	41.7
Generalized anxiety disorder	15.1	13.2	19.4	12.1
Obsessive-compulsive disorder	6.5	0	8.3	6.8
Simple phobia	11.9	2.6	24.1	4.5
Lifetime substance use disorder	20.5	26.3	22.2	17.4
Anorexia or bulimia	2.2	5.3	0.9	2.3
Personality disorders				
Paranoid	16.1	41.0	26.9	...
Schizoid	2.2	5.1	3.7	...
Schizotypal	1.4	2.6	2.8	...
Narcissistic	5.4	18.4	7.4	...
Antisocial	2.2	7.9	2.8	...
Histrionic	8.6	28.9	12.0	...
Avoidant	27.0	42.1	54.6	...
Dependent	7.9	15.8	14.8	...
Obsessive-compulsive	19.0	33.3	37.0	...
Mean \pm SD number of Axis I diagnoses	1.5 \pm 1.0	1.3 \pm 0.9	1.6 \pm 1.0	1.7 \pm 1.0
Mean \pm SD number of Axis II diagnoses ^a	0.6 \pm 1.1	2.0 \pm 1.5	1.8 \pm 1.1	...

^aNot including borderline personality disorder. Note: Mean not independent of group membership.

were then conducted to evaluate levels of depression and anxiety. Independent variables were Axis II diagnosis (borderline personality disorder vs. other personality disorder vs. no personality disorder) and the presence of a relevant Axis I diagnosis (i.e., depression or anxiety). Dependent variables were clinician ratings (HAM-D or HAM-A) and self-report measures (BDI or STAI-S and STAI-T). MANOVA was chosen because it determines whether differences between independent variables are significant given the amount of variability in subject scores within each level of the independent variable. MANOVA also evaluates the significance of an interaction between independent variables, that is, when differences reflect particular configurations of levels of each independent variable. All analyses were conducted using the Windows 3.1 version of the Statistical Package for Social Scientists (SPSS; Chicago, Ill.).

RESULTS

Subjects were first compared on the basis of Axis II diagnosis across demographic variables. These data are shown in Table 2. Patients with borderline personality disorder were significantly younger than members of the other 2 groups ($F = 6.24$, $df = 1,281$; $p < .01$), more often women ($\chi^2 = 17.15$, $df = 2$, $p < .001$), and more often single, separated, or divorced ($\chi^2 = 33.84$, $df = 10$, $p < .01$). No differences were found in race, education, or family income. Since including significant demographic variables as covariates in later analyses did not significantly change the results, these covariate analyses are not reported.

Patients with borderline personality disorder were diagnosed with a mean \pm SD of 2.0 ± 1.5 comorbid Axis II diagnoses (range, 0–5), which was not significantly different from the number of Axis II diagnoses carried by the group with other personality disorders ($t = 0.84$, $df = 56.9$, N.S.; mean \pm SD = 1.8 ± 1.1 ; range, 0–5). Comorbidity is shown in Table 1. It was noteworthy that a relationship was found between number of comorbid Axis II diagnoses and a current Axis I depression diagnosis among the borderline personality disorder patients ($t = 2.72$, $df = 36$, $p = .01$), but not in the other personality disorder patients ($t = 0.85$, $df = 106$, N.S.); borderline personality disorder patients with an Axis I depression diagnosis had more Axis II diagnoses than did borderline personality disorder patients without an Axis I depression diagnosis.

To evaluate severity of depression, a 2-way MANOVA was conducted. Independent variables were Axis II diagnosis (borderline personality disorder vs. other personality disorder vs. no personality disorder) and the presence or absence of a current Axis I depression diagnosis (i.e., major depression or dysthymia). Both HAM-D and BDI scores were included as dependent variables. As can be seen in Table 3, significant main effects were found for both Axis II diagnosis ($F = 13.89$, $df = 4,548$; $p < .001$) and depression diagnosis ($F = 8.61$, $df = 2,274$; $p < .001$). In addition to the main effects, a significant interaction was found between Axis II and depression diagnosis ($F = 3.22$, $df = 4,548$; $p < .05$). Mean depression scores by Axis II diagnosis and depression diagnosis are shown in Table 4. (HAM-D scores above 18 and BDI scores above 19 are considered to be clinically significant.) As

Table 2. Demographic Variables

Variable	Full Sample (N = 278)	Borderline Personality Disorder (N = 38)	Other Personality Disorder (N = 108)	No Personality Disorder (N = 132)	Statistic	
					χ^2	F
Mean age, y	38.6	32.6	39.1	39.8		6.24**
Gender, % female	62.2	86.8	50.0	65.2	17.15***	
Race, %					7.05	
White	97.5	100.0	95.4	98.5		
African American	0.4	0.0	0.9	0.0		
Latino	1.1	0.0	2.8	0.0		
Asian American	1.1	0.0	0.9	1.5		
Education, %					18.31	
Less than 12 years	5.0	7.9	5.5	3.8		
High school graduate	13.7	15.8	10.2	15.9		
Some post-high school	37.8	52.6	38.9	32.6		
College degree	28.1	21.1	26.9	31.1		
Post-college	15.5	2.6	18.5	16.7		
Marital status, %					33.84**	
Single	19.4	31.6	20.4	15.2		
Married	54.0	23.7	53.7	62.9		
Separated/divorced	11.9	23.7	10.2	9.8		
Remarried	10.1	15.8	13.0	6.1		
Widowed	1.4	0.0	0.0	3.0		
Living with significant other	3.2	5.3	2.8	3.0		
Family income, %					23.22	
Under \$20,000	22.1	39.0	20.8	18.5		
\$20,000-\$34,999	33.5	30.5	32.6	34.7		
\$35,000-\$49,999	20.3	11.1	24.8	19.4		
Over \$50,000	24.1	19.4	21.8	27.4		

p < .01. *p < .001.

Table 3. Multivariate Analysis of Variance for Depression^a

Source	df	F	
		HAM-D	BDI
Axis II diagnosis	2	11.07***	26.33***
Depression diagnosis	1	17.27***	7.08**
Axis II × depression	2	3.96*	4.58*
Subjects within group error	275	(12,558.34)	(26,434.46)

^aValues in parentheses represent mean square errors. Abbreviations: BDI = Beck Depression Inventory, HAM-D = Hamilton Rating Scale for Depression. Axis II diagnosis = borderline personality disorder, other personality disorder, or no personality disorder; depression diagnosis = meets criteria for Axis I depression diagnosis.

*p < .05. **p < .01. ***p < .001.

can be seen in that table, patients with borderline personality disorder had higher clinician and self-report ratings of depression. Predictably, patients with a depression diagnosis were more depressed on both clinical and self-report ratings than those not diagnosed with depression. Patients with borderline personality disorder and without an Axis I diagnosis scored as high on the HAM-D and BDI as patients with other and no personality disorders who had an Axis I diagnosis. In an interaction effect, the borderline patients without an Axis I diagnosis also scored significantly higher on the BDI than did borderline patients with an Axis I diagnosis, as well as higher than patients with another or no personality disorder with an Axis I diagnosis of depression.

To examine our hypothesis regarding levels of anxiety, a 2-factor MANOVA was conducted. Independent vari-

Table 4. Mean Depression Scores by Axis II Diagnosis and Depression Diagnosis

Diagnosis	HAM-D			BDI		
	Mean	SD	N	Mean	SD	N
Borderline personality disorder						
With depression diagnosis	20.4	7.4	25	26.6	11.4	25
Without depression diagnosis	19.5	8.0	13	29.5	13.7	13
Other personality disorder						
With depression diagnosis	19.5	5.1	72	21.8	9.2	72
Without depression diagnosis	16.1	6.7	39	16.3	9.5	39
No personality disorder						
With depression diagnosis	18.3	7.0	67	18.8	10.7	67
Without depression diagnosis	10.4	7.9	65	10.9	7.6	65

ables were Axis II diagnosis (borderline personality disorder vs. other personality disorder vs. no personality disorder) and the presence of a current anxiety disorder (panic disorder, generalized anxiety disorder, phobia, or obsessive-compulsive disorder). Dependent variables were scores on the HAM-A, STAI-S, and STAI-T. Borderline personality disorder patients were rated as more anxious on both clinical ratings and self-report than patients with other personality disorders, who were rated as more anxious than those with no personality disorder ($F = 9.32$, $df = 6,550$; $p < .001$). The overall effect of an anxiety diagnosis was also significant ($F = 5.66$, $df = 3,275$; $p < .01$). Table 5 shows the results of the MANOVA. Clinical ratings of anxiety on the HAM-A were significantly higher for subjects with an anxiety disorder, but self-report on the STAI-S or STAI-T ratings were not. No

Table 5. Multivariate Analysis of Variance for Anxiety^a

Source	df	F		
		HAM-A	STAI -S	STAI-T
Axis II diagnosis	2	14.97***	6.00**	23.21*
Anxiety diagnosis	1	16.78***	2.81	1.56
Axis II × anxiety	2	1.69	0.23	0.40
Subjects within group error	277	(25,961.81)	(48,088.14)	(40,532.76)

^aValues in parentheses represent mean square errors. Abbreviations: HAM-A = Hamilton Rating Scale for Anxiety, STAI-S = Spielberger State Anxiety Inventory, STAI-T = Spielberger Trait Anxiety Inventory. Anxiety diagnosis = meets criteria for current anxiety disorder.
p* < .05. *p* < .01. ****p* < .001.

effect was found for the interaction between Axis II diagnosis and anxiety diagnosis. Table 6 shows the mean anxiety scores across groups. (HAM-A scores above 18 and STAI scores above 50 are considered to be clinically significant.)

To further explore the relationship among borderline personality disorder, anxiety, and depression diagnoses, the HAM-D and HAM-A were factor analyzed. HAM-D scores revealed 4 factors: depressed affect, anxiety, vegetative symptoms, and somatic complaints.^{33,34} HAM-A scores revealed 2 factors: psychic and physical anxiety.³⁵ Results of MANOVA as above with HAM-D and HAM-A factors as dependent variables (instead of full HAM-D or HAM-A scores) showed results comparable to the results with the full HAM-D and HAM-A as observer-dependent variables.

DISCUSSION

The current study investigated ratings of depression and anxiety for patients with borderline personality disorder versus other personality disorders versus no personality disorder. As hypothesized, ratings for both depression and anxiety were higher for the borderline personality disorder group as compared with the other personality disorder and no personality disorder groups. This was true based on both clinician ratings and self-report and was not explained by an Axis I depressive or anxiety diagnosis.

This finding supports most prior clinical observations of borderline patients.³⁶⁻⁴⁰ It is in contrast to the research findings by Bellodi et al.,⁹ Southwick et al.,¹⁰ and Sullivan et al.¹² that borderline patients show no greater HAM-D scores than other depressed patients, although sample size may have limited the power of those analyses. Similar to the findings of Westen et al.¹³ and Snyder and Pitts,²⁴ non-depressed borderline patients in the present study were rated as equally or more depressed than nonborderline depressed patients. Also similar to the findings of Snyder and Pitts,²⁴ these effects were greater for self-report than observer ratings. Unlike the study conducted by Snyder and Pitts,¹⁴ we found that borderline patients with and

Table 6. Mean Anxiety Scores by Axis II Diagnosis and Anxiety Diagnosis

Diagnosis	HAM-A			STAI-S			STAI-T		
	Mean	SD	N	Mean	SD	N	Mean	SD	N
Borderline personality disorder									
With anxiety diagnosis	33.4	10.4	12	57.4	12.7	12	63.1	7.9	12
Without anxiety diagnosis	25.0	10.5	26	52.6	13.3	26	58.5	13.5	26
Other personality disorder									
With anxiety diagnosis	25.2	8.8	60	52.2	12.4	60	56.4	11.5	60
Without anxiety diagnosis	22.7	9.1	50	50.7	12.2	50	56.0	11.0	50
No personality disorder									
With anxiety diagnosis	22.8	10.3	74	48.4	11.9	74	48.9	13.8	74
Without anxiety diagnosis	16.5	9.6	61	45.6	13.9	61	47.0	13.6	61

without an Axis I anxiety diagnosis showed notable levels of anxiety on the HAM-A. In fact, all borderline personality disorder subjects were above the clinical cutoff, both on self-report and clinical ratings.

One important implication of the results of this study is that clinicians and researchers working with patients with treatment-resistant anxiety and depression would be advised to assess for the presence of borderline personality disorder. Patients with borderline personality disorder in this outpatient study showed higher levels of both depression and anxiety symptoms, and these patients may be more difficult to treat. Previous research^{8,19-23,41,42} has indicated that the presence of borderline personality disorder is associated with poorer outcome in efficacy studies.

Finally, it is interesting to note that clinical ratings of depression and anxiety as well as self-report ratings distinguished borderline patients from the other groups. Often, patients with borderline personality disorder are assumed to be overstating their level of symptoms. The results of this outpatient study do not support that conclusion. Hamilton rating scores, as well as BDI and STAI self-report ratings, were elevated in borderline personality disorder patients and compared with the other groups. Thus, in the present study, there was congruence between observer and subjective ratings, differing from the results of Snyder and Pitts.²⁴ It may be that patients with borderline personality disorder experience more severe anxiety and depression owing to pervasive emotional vulnerability and dysregulation as suggested by Klein,⁴³ Akiskal et al.,¹⁶ Gunderson and Zanarini,⁴⁴ and Linehan.³⁶ Clinicians may or may not give credence to the patient's expressions of distress on the basis of factors such as a dramatic or demanding presentation. It is also interesting to note that BDI scores, but not HAM-D scores, were higher in borderline personality disorder patients without a depression

diagnosis than in the other and no personality disorder patients with a depression diagnosis. This may suggest that in the absence of a standard constellation of depression symptoms (reflected by diagnosis), objective evaluation of the patient's depression underestimates the patient's subjective experience. The relevance of this distinction is highlighted by a study by Soloff and colleagues,⁴⁵ which found that state depression predicts suicidal intent and medical lethality of suicide attempts among patients with borderline personality disorder. Thus, evaluating depressive symptoms accurately and regularly may be critical to treatment.

The present study had a number of limitations. First, the level of symptomatology and relation between Axis I and II disorders are likely to be affected by the referral pattern for the clinic. The Center for Anxiety and Depression is a specialty clinic that often receives secondary referrals of patients who have not recovered under treatment in the community. Because one half to two thirds of the patient sample is selected from the more symptomatic and treatment-resistant end of the psychopathology continuum, the current sample is likely to be somewhat more pathologic than a standard outpatient clinic sample. In addition, there was only one method of assessing Axis II disorders in this design (i.e., SCID-II interviews); therefore, the validity of our results is limited by the validity of these diagnoses. Other factors that might account for increased depression and anxiety, such as abuse history⁴⁶ or treatment presentation,⁴⁷ were not available.

Despite these limitations, however, the present study adds to the literature by examining depression and anxiety levels for borderline patients and other groups including patients both with and without the relevant Axis I disorder. Further research is needed to understand how treatment response in borderline personality disorder patients is related to both subjective and objective distress and the presence or absence of an Axis I disorder. In addition, longitudinal studies could examine the relationships documented here as they change across treatment course.

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