Characteristics of Suicide Attempts of Patients With Major Depressive Episode and Borderline Personality Disorder: A Comparative Study

Paul H. Soloff, M.D., Kevin G. Lynch, Ph.D., Thomas M. Kelly, Ph.D., Kevin M. Malone, M.D., and J. John Mann, M.D.

Objective: Suicidal behavior is highly prevalent in borderline personality disorder and major depressive episode, although the characteristics of suicide attempts in the two disorders are believed to differ. Comorbidity of borderline personality disorder and major depressive episode may obscure characteristics of suicide attempts that are uniquely related to the psychopathology of each disorder. We compared suicidal behavior in patients with borderline personality disorder, major depressive episode, and borderline personality disorder plus major depressive episode to determine whether characteristics of suicide attempts differed between groups and if aspects of core psychopathology predicted specific attempt characteristics. **Method:** Eighty-one inpatients with borderline personality disorder, including 49 patients with borderline personality disorder plus major depressive episode, were compared to 77 inpatients with major depressive episode alone on measures of depressed mood, hopelessness, impulsive aggression, and suicidal behavior, including lifetime number of attempts, degree of lethal intent, objective planning, medical damage, and degree of violence of suicide methods. **Results:** No significant differences were found in the characteristics of suicide attempts between patients with borderline personality disorder and those with major depressive episode. However, patients with both disorders had the greatest number of suicide attempts and the highest level of objective planning. An increase in either impulsive aggression or hopelessness or a diagnosis of borderline personality disorder predicted a greater number of attempts. Hopelessness predicted lethal intent in all three groups and predicted objective planning in the group with both disorders. Medical damage resulting from the most serious lifetime suicide attempt was predicted by number of attempts. **Conclusions:** Comorbidity of borderline personality disorder with major depressive episode increases the number and seriousness of suicide attempts. Hopelessness and impulsive aggression independently increase the risk of suicidal behavior in patients with borderline personality disorder and in patients with major depressive episode.

(Am J Psychiatry 2000; 157:601–608)

Recurrent suicidal behavior is a defining characteristic of borderline personality disorder. Among consecutive admissions to a psychiatric hospital, histories of suicide attempts among patients with borderline personality disorder have been reported in as many as 73% of patients, and these patients have an average of 3.4 (SD=2.9) lifetime attempts (1). Similar prevalence rates have been reported among consecutive intakes in an outpatient setting (2). Estimates of the lifetime risk of death by suicide among patients with borderline personality disorder range from 3%–9.5% and approach those for patients with major depression (3). Comorbidity with major depression is highly prevalent in borderline personality disorder (4); however, the effect of this comorbidity on suicidal behavior is unclear. Comorbidity with major depressive episode has been associated with an increased mortality rate in some (3, 5), but not all (6–8), studies of suicidal behavior in borderline personality disorder. Co-

Received Feb. 4, 1999; revisions received July 21, 1999 and Sept. 16, 1999; accepted Oct. 9, 1999. From the Western Psychiatric Institute and Clinic and the University of Pittsburgh. Address reprint requests to Dr. Soloff, Western Psychiatric Institute and Clinic, 3811 O'Hara St., Pittsburgh, PA 15213; soloffph@msx.upmc.edu (e-mail).

Supported by NIMH grants MH-48463 (Dr. Soloff) and MHCRC MH-46745 (Dr. Mann).

Donna Abbondanza, R.N., performed the research ratings.

morbidity with major depressive episode has also been associated with an increase in the seriousness and frequency of suicide attempts among inpatients with borderline personality disorder (9–12). Other studies have found that comorbidity with major depressive episode is not predictive of a history of suicide attempts among inpatients with borderline personality disorder (1) and have found no relationship between comorbid major depressive episode and measures of suicidal intent, lethality, or risk (13). The particular contributions of each disorder to suicidal behavior remain unclear.

Our knowledge of suicidal behavior in borderline personality disorder is surprisingly indirect, derived largely from retrospective studies. Some of these studies have compared patients who have and have not made suicide attempts, those who have made a single versus repeated attempts, and those who have attempted versus completed suicide. Others have assessed personality characteristics as dependent variables (see Hirschfeld and Davidson [14] for a review of such studies). In these studies, borderline personality traits have most often been associated with recurrent attempts and chronicity of suicidal behavior. Suicidal behavior in patients with personality disorder has often been associated with anger and has often been a result of impulsive behavior in the context of a disruption of significant interpersonal relationships, with little objective planning and less lethal intent than in the attempts of depressed patients (14, 15). A common clinical assumption is that the attempts of patients with borderline personality disorder are communicative gestures and do not represent a strong intention to die. In contrast, suicidal behaviors in patients with major depression are generally reported to be associated with high degrees of subjective intent and objective planning and more lethal methods and to result in increased medical damage (14). We are aware of no published studies that directly compare characteristics of suicide attempts in inpatients with criteria-defined borderline personality disorder and major depressive episode or compare attempts in depressed and nondepressed inpatients with borderline personality disorder. In the study reported here, we compared characteristics of suicide attempts in patients with borderline personality disorder, major depressive episode, and comorbid borderline personality disorder plus major depressive episode. Our aim was to determine if specific aspects of core psychopathology (i.e., depressed mood or hopelessness in major depressive episode and impulsive aggression in borderline personality disorder) predicted the lifetime number of attempts or predicted characteristics of attempts such as lethal intent, objective planning, degree of medical damage, and violence of the suicide method.

METHOD

Diagnostic and Suicide Variables

This study was approved by the institutional review board of the University of Pittsburgh. Patients were recruited from among consecutive admissions to the adult inpatient services of the Western Psychiatric Institute and Clinic, a university hospital serving a large urban catchment area. After subjects were given a complete description of the study, written informed consent was obtained. The Structured Clinical Interview for DSM-III-R (SCID) (16) was used to determine axis I diagnoses, and the International Personality Disorder Examination (17) was used to determine axis II diagnoses. Patients with psychotic disorders, organic mood disorders, or bipolar disorder were excluded. Patients with borderline personality disorder, with or without major depressive episode comorbidity, met full the DSM-III-R criteria for borderline personality disorder on the basis of the International Personality Disorder Examination. Inclusion criteria for the patients with major depressive episode consisted of a current diagnosis made on the basis of the SCID interview and no comorbid cluster B personality disorder diagnoses assessed by using the International Personality Disorder Examination. Cluster B includes borderline personality disorder, histrionic personality disorder, narcissistic personality disorder, and antisocial personality disorder. Some depressed patients had cluster A or cluster C personality disorder comorbidity. Diagnoses of substance use disorders were obtained by using the SCID but were not used as exclusion criteria. Data on suicidal behavior were obtained from a semistructured interview that provided information on age at first attempt and lifetime number of attempts, as well as a description of each attempt. A subjective lethal intent factor and an objective planning factor were derived by factor analysis from the Suicide Intent Scale of Beck et al. (18) using the method of Mieczkowski et al. (19). The lethal intent factor consists of six items dealing with subjective intent to make a lethal suicide attempt (e.g., expectations regarding fatality). The objective planning factor consists of eight items dealing with objective aspects of planning the attempt (e.g., preparation, premeditation). An effort was made to separate suicidal behavior (i.e., subjective intent to die) from self-mutilation (i.e., self-injurious acts without lethal intent). The Medical Lethality Scale of Beck et al. (20) was scored for the most recent and most lethal lifetime attempts, quantifying the degree of medical damage. Attempts were classified according to violence of the method. Overdose was considered nonviolent; shooting, immolation, drowning, cutting, jumping, and hanging were considered violent.

Depression and Impulsive Aggression

Patients were characterized by symptom severity in depression, impulsive aggression, and global function. Depressive symptoms were assessed by using the 24-item Hamilton Depression Rating Scale (21), the Beck Depression Inventory (22), and the Beck Hopelessness Scale (23). Impulsive aggression was assessed by state and trait measures, including the Buss-Durkee Hostility Inventory, total score (24), the Barratt Impulsiveness Scale (25) the Minnesota Multiphasic Personality Inventory psychopathic deviate subscale (26), and the Brown-Goodwin Lifetime History of Aggression (27). The Global Assessment Scale (GAS) (28) was used to assess general symptom severity and overall functioning.

Statistical analyses were done by using t tests (two-tailed) and analysis of covariance for continuous variables. The Bonferroni correction was used for post hoc contrasts. Chi-square and logistic regression analyses were used for categorical data. Log transformation was used when distributions were highly skewed (e.g., for lifetime number of attempts). Stepwise regression techniques were used to relate clinical ratings to characteristics of suicide attempts. Significance was assessed by improvement in model fit. For each response, the interaction terms of the diagnosis factor with each covariate were tested for significance. If none were significant, stepwise selection was performed on the main effects. If an interaction was significant, separate selections were performed within each of the three diagnoses. For each response, we reported the adjusted R^2 for the model with its main effects and interactions, together with the F sta-

TABLE 1. Demographic and Clinical Characteristics of Patients With Borderline Personality Disorder, Major Depressive Episode, or Both Disorders in a Study of Suicidal Behavior

Characteristic	Borderline Personality Disorder (N=32)		Borderline Personality Disorder Plus Major Depressive Episode (N=49)		Major Depressive Episode (N=77)		Analysis[a]		
	N	%	*N*	%	*N*	%	χ^2	*df*	*p*
Sex							3.7	2	n.s.
Male	13	40.6	12	24.5	31	40.3			
Female	19	59.4	37	75.5	46	59.7			
Race							1.1	2	n.s.
Caucasian	25	78.1	38	77.6	65	84.4			
Non-Caucasian	7	21.9	11	22.4	12	15.6			
Socioeconomic status (Hollingshead Index of Social Position)							4.3	2	n.s.
High (I, II)	8	25.0	17	34.7	35	45.5			
Low (III, IV, V)	24	75.0	32	65.3	42	54.5			
Marital status							19.6	2	<0.001
Never married	19	59.4	35	71.4	25	32.5			
Ever married	13	40.6	14	28.6	52	67.5			
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*F*	*df*	*p*
Age (years)[b]	26.0	7.3	29.7	7.9	41.5	16.8	21.3	2, 155	<0.001
Global Assessment Scale score[c]	49.0	12.1	42.3	12.1	39.4	9.8	7.3	2, 128	0.001
24-Item Hamilton Depression Rating Scale score[d]	19.0	7.9	27.8	7.0	31.1	8.5	24.2	2, 140	<0.001
Beck Depression Inventory score[e]	24.2	11.9	31.8	12.3	27.1	11.9	3.4	2, 109	<0.05
Brown-Goodwin Lifetime History of Aggression—total score[f]	25.0	7.3	22.1	6.6	17.1	5.8	20.1	2, 153	<0.001
Buss-Durkee Hostility Inventory—total score[f]	44.8	12.5	39.5	12.2	31.4	11.2	10.5	2, 97	<0.001
Barratt Impulsiveness Scale—total score[f]	61.3	18.0	60.0	17.7	43.4	13.0	14.5	2, 101	<0.001
MMPI psychopathic deviate subscale score[f]	26.2	6.0	27.5	4.7	21.9	6.5	10.4	2, 109	<0.001
Beck Hopelessness Scale score[e]	8.6	6.2	13.0	5.8	10.2	6.3	4.5	2, 116	<0.05

[a] Post hoc analyses used pairwise t tests with Bonferroni correction ($p<0.05$); df for each variable equal to the denominator df for the corresponding F test.
[b] Mean for patients with major depressive episode significantly greater than means for both other groups.
[c] Mean for patients with borderline personality disorder significantly greater than means for both other groups.
[d] Means for patients with major depressive episode and for patients with both disorders significantly greater than mean for patients with borderline personality disorder.
[e] Mean for patients with both disorders significantly greater than mean for patients with borderline personality disorder.
[f] Means for patients with borderline personality disorder and for patients with both disorders significantly greater than mean for patients with major depressive episode.

tistic. Where significant relationships were found, we reported the same summaries for the final model. These studies were conducted prospectively over several years, and assessment measures were introduced at different times, resulting in some variation in the sizes of the study groups for analysis of specific variables.

RESULTS

Patient Characteristics

The study group consisted of 158 patients, 81 patients with borderline personality disorder and 77 with major depressive episode (table 1). They ranged in age from 18 to 83 years. Although the depressed group was defined to exclude patients with any cluster B disorder, the group with borderline personality disorder, by design, included many patients with comorbid major depressive episode. Among the 81 patients with borderline personality disorder, 49 patients had comorbid major depressive episode and 32 did not. Additional frequent axis I diagnoses among patients with borderline personality disorder included adjustment disorder (11 patients, 34.4%) and dysthymic disorder (five patients, 15.6%). The group with major depressive episode only consisted of 31 men and 46 women, and the group with borderline personality disorder consisted of 25 men and 56 women. There were no significant differences between groups in gender, race, or socioeconomic status as measured by using the Hollingshead Index of Social Position (classes I and II, high social position, versus classes III–V, low social position). The depressed patients were significantly older than the patients with borderline personality disorder, and those with both disorders and had a higher proportion who had "ever married," which was a function of age.

The depressed patients and the patients with comorbid disorders had significantly greater observer-rated depression (Hamilton depression scale) and lower (more impaired) scores on the GAS compared to patients with borderline personality disorder (table 1).

TABLE 2. Characteristics of Suicide Attempts Among Patients With Borderline Personality Disorder, Major Depressive Episode, or Both Disorders

Characteristic of Suicide Attempts	Borderline Personality Disorder (N=25)		Borderline Personality Disorder Plus Major Depressive Episode (N=43)		Major Depressive Episode (N=27)		Analysis		
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*F*	*df*	*p*
Number of lifetime attempts, covaried for age	2.5	1.8	3.4	2.4	2.3	1.6	2.9	2, 91	<0.10
Age at first attempt (years)	19.0	6.9	20.8	8.7	32.0	14.0	12.7	2, 92	<0.001
Scores on measures derived from Suicide Intent Scale[a]									
Lethal intent									
Most recent attempt	7.9	3.8	8.8	2.9	8.0	3.3	0.8	2, 84	n.s.
Lifetime	7.8	4.0	9.5	2.5	8.0	4.1	2.3	2, 83	n.s.
Objective planning									
Most recent attempt	5.4	3.5	7.6	3.3	7.3	3.5	2.8	2, 84	<0.10
Lifetime	5.0	3.4	8.0	2.9	6.4	3.9	5.9	2, 84	<0.01
Maximum score on Medical Lethality Scale									
Most recent attempt	2.6	2.3	3.1	1.9	2.3	2.4	1.2	2, 91	n.s.
Lifetime	3.5	1.9	3.9	1.6	2.8	2.3	2.8	2, 92	<0.10
	N	%	*N*	%	*N*	%	χ^2	*df*	*p*
Method[b]									
Most recent attempt[c]							4.4	2	n.s.
Nonviolent	13	52.0	33	76.7	16	66.7			
Violent	12	48.0	10	23.3	8	33.3			
Most serious lifetime attempt							1.6	2	n.s.
Nonviolent	19	76.0	37	86.0	18	75.0			
Violent	6	24.0	6	14.0	6	25.0			

[a] N=21 for patients with borderline personality disorder, N=43 for patients with both disorders, and N=23 for patients with major depressive episode.
[b] Nonviolent methods included overdose; violent methods included shooting, immolation, drowning, cutting, jumping, and hanging; N=24 for patients with major depressive episode.
[c] Significant difference between patients with borderline personality disorder and patients with both disorders (χ^2=4.4, df=1, p<0.05).

The group with both disorders had the highest self-rated depression scores on the Beck Depression Inventory and Beck Hopelessness Scale; their scores were significantly higher than patients with borderline personality disorder but were not significantly different from those of depressed patients.

Patients with borderline personality disorder and patients with both disorders had higher scores on all measures of impulsive aggression compared to the depressed patients. For each measure of impulsive aggression, the mean difference in scores between the group with borderline personality disorder and the group with comorbid disorders, on the one hand, the depressed group, on the other, was significant (according to a post hoc pairwise t test with Bonferroni correction, p<0.05). However, the mean difference between the scores for the group with borderline personality disorder and the group with comorbid disorders was not significant.

Suicidal Behaviors

Group differences. Suicide attempts were more prevalent among the total sample of borderline patients compared to the depressed patients (table 2). Among the 81 patients with borderline personality disorder, 68 patients had a lifetime history of suicide attempts and only 13 patients—seven patients with borderline personality disorder only and six patients with comorbid major depressive episode—had never attempted suicide. In the depressed group, 27 patients had a lifetime history of suicide attempts and 50 patients had never attempted suicide (χ^2=40.1, df=2, p<0.001). Patients with comorbid disorders had a mean of 3.0 lifetime attempts (SD=2.5), significantly more than patients with borderline personality disorder only (mean=1.9, SD=1.9), who, in turn, had more attempts than the depressed patients (mean=0.8, SD=1.5), with age as a covariate (F=17.1, df=2, 154, p<0.001). The differences were less robust when the analysis was restricted to patients who had attempted suicide (F=2.9, df=2, 91, p=0.06) (table 2). Two depressed patients reported five and eight attempts, respectively. When these two outliers were omitted, the differences between groups who had attempted suicide was more robust (F=16.7, df=2, 89, p=0.02). Patients with borderline personality disorder or comorbid disorders attempted suicide for the first time earlier in life than the depressed patients; no significant difference in age at first suicide attempt was found between patients with borderline personality disorder and patients with comorbid disorders. There were no significant differences between groups on the lethal intent factor derived from the Suicide Intent Scale for the most recent or most serious lifetime attempt. Patients with comorbid disorders had the highest score on the objective planning factor derived from the Suicide Intent Scale (for the most serious lifetime attempt). Their score was significantly higher than that

of patients with borderline personality disorder, although it was not significantly different from the score for the depressed patients. Differences between the three groups for medical damage assessed by using the Beck Lethality Scale (for the most serious lifetime attempt) fell short of statistical significance ($F=2.83$, $df=2, 92$, $p=0.06$). However, the suicide attempts of the pooled group of patients with borderline personality disorder had a greater lifetime level of lethality than those of the depressed patients ($t=2.2$, $df=93$, $p=0.03$). There was no significant difference between the three groups in the proportion of patients using violent or nonviolent methods. However, in the most recent attempt, more patients with borderline personality disorder used violent methods compared to patients with comorbid disorders ($\chi^2=4.4$, $df=1$, $p<0.05$).

Relationship of clinical and attempt characteristics. Do the core clinical characteristics of depressed patients and patients with borderline personality disorder who attempt suicide predict the characteristics of their suicidal behaviors, such as number of attempts, level of subjective intent or objective planning, degree of medical damage, and choice of method? To explore this question, we used a multiple regression analysis that included dependent variables with little intercorrelation between measures. Depression was assessed by using the Hamilton depression scale and the Beck Hopelessness Scale, and impulsive aggression was assessed by using the Brown-Goodwin Lifetime History of Aggression. Diagnosis (borderline personality disorder only, borderline personality disorder plus major depressive episode, and major depressive episode only) and age were included as independent variables, and lifetime number of suicide attempts (log transformed) was the dependent variable. Stepwise selection was used to choose a best regression model that included the independent variables of the initial model. The initial model with all variables, including all main effects and the interaction of diagnosis with each of the other covariates, explained 29% of the variance (adjusted R^2, $F=5.5$, $df=11, 107$, $p<0.001$). None of the interaction terms were significant at the $p\leq0.05$ level. A positive relationship was found between lifetime number of attempts, history of aggression, and hopelessness. This model predicted 60% more suicide attempts for the patients with borderline personality disorder and for those with comorbid disorders compared to the depressed patients, with no difference between the two groups with borderline personality disorder. Age and Hamilton depression scale score did not contribute significantly to the model. The final predictor model included diagnosis, history of aggression, and hopelessness and explained 30% of the variance (adjusted R^2) in lifetime number of suicide attempts ($F=13.7$, $df=4, 114$, $p<0.001$). Using this predictor model, an increase in 1 point on the Brown-Goodwin Lifetime History of Aggression led to a 3% increase in predicted lifetime number of suicide attempts (95% confidence interval [CI]=1%–4%). A 1-point increase on the Beck Hopelessness Scale led to a 2% increase in predicted lifetime number of suicide attempts (95% CI=0%–4%).

The data analyses were repeated by using data from the patients who had attempted suicide. We developed a model that included all of the candidate independent variables—diagnosis, history of aggression, hopelessness, and the interactions of each main effect with diagnosis. The dependent variables were characteristics of suicide attempts, including degree of lethal intent and objective planning, medical damage, and violence of the method, for both the most recent and the most serious lifetime suicide attempts. As lifetime number of suicide attempts (log transformed) was not significantly correlated with age in any group, both were included as independent variables in these analyses.

Lethal intent for the most serious lifetime attempt was predicted by hopelessness, as a single variable and best model, across all groups (adjusted $R^2=10.0$, $F=8.4$, $df=1, 67$, $p<0.01$). Diagnosis, age, lifetime number of attempts, and history of aggression were not related to lethal intent. Findings were not significant for the most recent attempt.

In the regression analysis that examined clinical predictors of objective planning, a significant interaction was found between diagnosis and hopelessness, prompting separate regression analyses for each diagnostic group. Among patients with comorbid disorders, increases in the level of objective planning (for the most serious lifetime attempt) were predicted by increases in hopelessness, with increasing age as a secondary factor. A full model with all variables explained 36% of the variance (adjusted $R^2=35.8$, $F=5.33$, $df=4, 27$, $p=0.003$), and hopelessness and age together explained 27% of the variance (adjusted $R^2=26.7$, $F=6.7$, $df=2, 29$, $p<0.01$). There were no significant predictors of objective planning in the groups with borderline personality disorder or the depressed group. History of aggression and lifetime number of suicide attempts were not related to the degree of objective planning in any diagnostic group. Findings for the most recent attempt were very similar. In the group with comorbid disorders, hopelessness and age predicted objective planning (adjusted $R^2=26.1$, $F=6.7$, $df=2, 30$, $p<0.0004$).

The full model was not significant in predicting the degree of medical damage (for the most serious lifetime attempt). The degree of medical damage was predicted by the lifetime number of suicide attempts, as a best model, across all diagnostic groups (adjusted $R^2=9.0$, $F=7.9$, $df=1, 70$, $p<0.01$). Age, aggression history, and hopelessness did not predict the degree of medical damage. No predictors were found for the most recent attempt.

There were no relationships between predictor variables and choice of violent or nonviolent methods for either the most recent or the most serious lifetime attempts.

DISCUSSION

Suicidal Behavior and Comorbidity

In this study, inpatients with borderline personality disorder and those with major depressive episode were clearly differentiated by symptoms characteristic of their disorders, i.e., high degrees of lifetime impulsive aggression in borderline personality disorder and of depressed mood in major depressive episode. Patients with borderline personality disorder did not differ from patients with major depressive episode in self-reported depression (assessed by using Beck Depression Inventory), but they had significantly lower scores for observed depression (assessed by using the Hamilton depression scale). A high degree of subjective distress, disproportionate to objective findings, is commonly observed in patients with borderline personality disorder and may reflect the "marked reactivity of mood" that is a DSM-IV diagnostic criterion for this disorder. Severity of depressed mood among inpatients with borderline personality disorder has been reported to be a predictor of suicidal history, seriousness of past suicidal intent, and medical lethality of suicide attempts (1).

The patients with comorbid borderline personality disorder and major depressive episode demonstrated the combined pathologies of both disorders; they reported the greatest severity of self-rated depression (as assessed by using the Beck Depression Inventory) and hopelessness. Comorbidity of major depressive episode and axis II personality disorders (including borderline personality disorder) is associated with increased scores on measures of hopelessness and subjective depression (Beck Depression Inventory) compared to scores for patients with major depressive episode only (12). Comorbidity with major depressive episode may increase the subjective symptom distress of patients with borderline personality disorder and thus increase the risk of suicide.

Our data do not support the common clinical view that the suicidal behaviors of patients with borderline personality disorder differ markedly from those of patients with major depressive episode. In this study, the patients with borderline personality disorder differed from the depressed patients in having an earlier onset of suicidal behavior, consistent with the natural history of the disorder, and a higher lifetime number of attempts. However, the two groups did not differ in specific characteristics of their attempts, such as the level of subjective intent to die, degree of objective planning, violence of the method, or degree of medical damage. Thus, the suicidal behaviors of inpatients with borderline personality disorder can be considered neither more nor less "serious" than the attempts of inpatients with major depressive episode.

Comorbidity of borderline personality disorder and major depressive episode was associated with an increased number of suicide attempts. Previous studies have also noted increased seriousness of attempts in patients with these comorbid disorders, but the studies did not address the specific characteristics of attempts that might contribute to the increased lethality (9–12). In our study, comorbidity was associated with increased objective planning. In previous studies of inpatients with mixed affective diagnoses who attempted suicide, objective planning was correlated with lethal intent, suicidal ideation, and medical damage for the index attempt, and was a predictor of severity of medical damage (19). Patients who have completed suicide have higher scores on measures of objective planning than patients who have attempted suicide (18). Although objective planning seems inconsistent with the impulsivity of patients with borderline personality disorder, the two characteristics are not mutually exclusive. For example, one may act on sudden impulse to complete a long planned suicide. The chronicity of suicidal ideation in patients with borderline personality disorder is consistent with this view (29–31).

A history of prior attempts is among the strongest predictors of future attempts and suicide completion among patients with major depressive episode who attempt suicide (32), and of current attempts (1), seriousness of intent, and degree of medical lethality among patients with borderline personality disorder who attempt suicide (13). Comorbidity of these disorders is associated with both increased symptom severity and specific attempt characteristics that may place the depressed patient with borderline personality disorder at greater risk for future suicidal behavior and completion, compared to nondepressed patients with borderline personality disorder or depressed patients without borderline personality disorder.

Predictors of Suicidal Behaviors

The lifetime number of suicide attempts was independently predicted by both impulsivity (assessed by using the Brown-Goodwin Lifetime History of Aggression) and hopelessness (representing depressed mood in our model) across all three diagnostic groups. This finding suggests that to the extent that either impulsivity or hopelessness is present in patients with borderline personality disorder or major depressive episode, they may contribute to suicidal behavior.

Personality traits such as impulsivity may constitute a temperamental vulnerability to suicide independent of the axis I diagnostic context. Impulsivity increases the probability of suicidal behavior in the presence of acute stressors such as episodes of affective illness, interpersonal crises, or substance abuse. Among patients with borderline personality disorder, impulsivity, assessed as a diagnostic criterion, is associated with the number of suicide attempts independent of comorbid depression or substance use disorder (33). As in our prior report, impulsivity was not predictive of specific attempt characteristics such as subjective intent, objective planning, medical lethality, or violence of method (1). Hopelessness, as defined by Beck et al., has been predictive of suicide completion in studies of depressed inpatients and outpatients (34–36). Although defined

as a state variable (i.e., during an index episode), hopelessness may recur with each episode as a characteristic of a patient's depressive presentation and may thus represent a link between depression and suicidal intent. Prior reports have established strong relationships between hopelessness, lethal intent, and degree of medical damage (34–36), and between lethal intent and completed suicide (37–39). In our regression model, hopelessness predicted the lifetime number of suicide attempts and the degree of lethal intent in all three diagnostic groups, and the degree of objective planning in patients with comorbid disorders. Hopelessness has not previously been a focus of attention in studies of borderline personality disorder despite the chronicity of the disorder and its association with attempted and completed suicide. Hopelessness may contribute to the seriousness of suicidal behavior in borderline personality disorder, especially in patients with comorbid depression, by increasing the number of attempts, the level of subjective intent, and the degree of objective planning.

A diagnosis of borderline personality disorder, with or without major depressive episode, predicted the number of suicide attempts but not the specific attempt characteristics. Similarly, a diagnosis of major depressive episode did not predict attempt characteristics. Clinical assumptions about the seriousness of suicidal behavior based solely on diagnostic consideration are not supported by our findings. Instead, clinicians should be aware that synergies among specific clinical characteristics and characteristics of suicide attempts, such as hopelessness and impulsivity, lethal intent, or objective planning, may significantly increase the seriousness of suicidal behavior in patients with borderline personality disorder.

Is there a progression in lethality with repeated attempts for patients with borderline personality disorder, as has been shown for patients with major depressive episode (40)? Given the chronicity of suicidal ideation in borderline personality disorder (29–31), a progressive process marked by increased hopelessness and seriousness of intent would, in time, make repeated suicide attempts by patients with borderline personality disorder resemble in lethality those by depressed patients. The question of whether such a progression exists awaits further longitudinal study.

These findings must be interpreted in the context of an inpatient setting in which the severity of illness may limit generalization to experience with outpatients or with patients seen in emergency departments. Patients with borderline personality disorder who have made less serious suicide attempts may, in fact, be denied admission to hospitals because their suicidal behaviors do not reflect high degrees of lethal intent or objective planning or do not result in medical damage.

The patients in this study were assessed during the course of an acute psychiatric hospitalization, raising the issue of subjective distortion in patients' recall of remote suicidal behaviors. Many prior studies have relied on clinical assessments or patient records to assess suicidal behaviors and the characteristics of suicide attempts. However, use of semistructured interviews that specifically assess suicidal behavior have been demonstrated to be more comprehensive and accurate than routine clinical assessment or documentation of suicidal behavior in medical records (41). The predictive value of scales that measure suicide intent strongly supports their routine use by clinicians in assessing suicidal patients.

REFERENCES

1. Soloff PH, Lis JA, Kelly T, Cornelius J, Ulrich R: Risk factors for suicidal behavior in borderline personality disorder. Am J Psychiatry 1994; 151:1316–1323
2. Zisook S, Goff A, Sledge P, Schuchter SR: Reported suicidal behavior and current suicidal ideation in a psychiatric outpatient clinic. Ann Clin Psychiatry 1994; 6:27–31
3. Stone MH: The course of borderline personality disorder, in American Psychiatric Press Review of Psychiatry, vol 8. Edited by Tasman A, Hales RE, Frances AJ. Washington, DC, American Psychiatric Press, 1989, pp 103–122
4. Fyer MR, Frances AJ, Sullivan T, Hurt SW, Clarkin J: Co-morbidity of borderline personality disorder. Arch Gen Psychiatry 1988; 54:348–352
5. McGlashan TH: The Chestnut Lodge Follow-up Study, III: long-term outcome of borderline personalities. Arch Gen Psychiatry 1986; 43:2–30
6. Paris J, Nowlis D, Brown R: Predictors of suicide in borderline personality disorder. Can J Psychiatry 1989; 34:8–9
7. Kullgren G: Factors associated with completed suicide in borderline personality disorder. J Nerv Ment Dis 1988; 176:40–44
8. Kjelsberg E, Eikeseth PH, Dahl AA: Suicide in borderline patients—predictive factors. Acta Psychiatr Scand 1991; 84: 283–287
9. Fyer MR, Frances AJ, Sullivan T, Hurt SW, Clarkin J: Suicide attempts in patients with borderline personality disorder. Am J Psychiatry 1988; 145:737–739
10. Friedman RC, Aronoff MS, Clarkin JF, Corn R, Hurt SW: History of suicidal behavior in depressed borderline inpatients. Am J Psychiatry 1983; 140:1023–1026
11. Crumly FE: Adolescent suicide attempts. JAMA 1979; 241: 2404–2407
12. Corbitt EM, Malone KM, Haas GL, Mann JJ: Suicidal behavior in patients with major depression and comorbid personality disorders. J Affect Disord 1996; 39:61–72
13. Shearer SL, Peters CP, Quaytman MS, Wadman BE: Intent and lethality of suicide attempts among female borderline inpatients. Am J Psychiatry 1988; 145:1424–1427
14. Hirschfeld RMA, Davidson L: Risk factors for suicide, in American Psychiatric Press Review of Psychiatry, vol 7. Edited by Frances AJ, Hales RE. Washington, DC, American Psychiatric Press, 1988, pp 307–333
15. Lester D, Beck AT, Steer RA: Attempted suicide in those with personality disorders: a comparison of depressed and unsocialized suicide attempters. Eur Arch Psychiatry Neurosci 1989; 239:109–112
16. Spitzer RL, Williams JBW, Gibbon M, First MB: Instruction Manual for the Structured Clinical Interview for DSM-III-R (SCID). New York, New York State Psychiatric Institute, Biometrics Research, 1988
17. Loranger AW, Susman VL, Oldham JM, Russakoff LM: The Personality Disorder Examination: a preliminary report. J Personality Disorders 1987; 1:1–13
18. Beck AT, Schuyler D, Herman I: Development of suicidal intent scales, in The Prediction of Suicide. Edited by Beck AT, Resnick HLP, Lettiem D. Bowie, Md, Charles Press, 1974, pp 45–56
19. Mieczkowski TA, Sweeney JA, Haas GL, Junker BW, Brown RP, Mann JJ: Factor composition of the Suicide Intent Scale. Suicide Life Threat Behav 1993; 23:37–45

20. Beck AT, Beck R, Kovacs M: Classification of suicidal behaviors, I: quantifying intent and medical lethality. Am J Psychiatry 1975; 132:285–287
21. Hamilton M: A rating scale for depression. J Neurol Neurosurg Psychiatry 1960; 23:56–62
22. Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J: An inventory for measuring depression. Arch Gen Psychiatry 1961; 4:561–571
23. Beck AT, Steer RA: Manual for the Beck Hopelessness Scale. San Antonio, Tex, Psychological Corp, 1988
24. Buss AH, Durkee A: An inventory for assessing different kinds of hostility. J Consult Psychol 1957; 21:343–349
25. Barratt EL: Factor analysis of some psychometric measures of impulsiveness and anxiety. Psychol Rep 1965; 16:547–554
26. Hathoway SR, Mehl PE: The Atlas for the Clinical Use of the MMPI. Minneapolis, University of Minnesota Press, 1951
27. Brown GL, Goodwin FK: Cerebrospinal fluid correlates of suicide attempts and aggression. Ann NY Acad Sci 1986; 487: 175–188
28. Endicott J, Spitzer RL, Fleiss JL, Cohen J: The Global Assessment Scale: a procedure for measuring overall severity of psychiatric disturbance. Arch Gen Psychiatry 1976; 33:766–771
29. Mehlum L, Friis S, Vaglum P, Karterus S: The longitudinal pattern of suicidal behavior in borderline personality disorder: a prospective follow-up study. Acta Psychiatr Scand 1994; 90: 124–130
30. Sabo AN, Gunderson JG, Najavits LM, Chauncey D, Kisiel C: Changes in self-destructiveness of borderline patients in psychotherapy. a prospective follow-up. J Nerv Ment Dis 1995; 183:370–376
31. Runeson BS, Beskow J, Waern M: The suicidal process in suicides among young people. Acta Psychiatr Scand 1996; 93:35–42
32. Fawcett J, Scheftner WA, Fogg L, Clark DC, Young MA, Hedeker D, Gibbons R: Time-related predictors of suicide in major affective disorder. Am J Psychiatry 1990; 147:1189–1194
33. Brodsky BS, Malone KM, Ellis SP, Dulit RA, Mann JJ: Characteristics of borderline personality disorder associated with suicidal behavior. Am J Psychiatry 1997; 154:1715–1719
34. Beck AT, Steer RA, Kovacs M, Garrison B: Hopelessness and eventual suicide: a 10-year prospective study of patients hospitalized with suicidal ideation. Am J Psychiatry 1985; 142: 559–563
35. Beck AT, Brown G, Steer RA: Prediction of eventual suicide in psychiatric inpatients by clinical ratings of hopelessness. J Consult Clin Psychol 1989; 57:309–310
36. Beck AT, Brown G, Berchick RJ, Stewart BL, Steer RA: Relationship between hopelessness and ultimate suicide: a replication with psychiatric outpatients. Am J Psychiatry 1990; 147:190–195
37. Goldney RD: Attempted suicide in young women: correlates of lethality. Br J Psychiatry 1981; 139:382–390
38. Hamdi E, Amin Y, Mattar T: Clinical correlates of intent in attempted suicide. Acta Psychiatr Scand 1991; 83:406–411
39. Michel K: Suicide risk factors: a comparison of suicide attempters with suicide completers. Br J Psychiatry 1987; 150: 78–82
40. Malone KM, Haas GL, Sweeney JA, Mann JJ: Major depression and the risk of attempted suicide. J Affect Disord 1995; 34:173–185
41. Malone KM, Szanto K, Corbitt EM, Mann JJ: Clinical assessment versus research methods in the assessment of suicidal behavior. Am J Psychiatry 1995; 152:1601–1607