Identifying and Managing Suicide Risk in Bipolar Patients

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Bipolar patients have been shown to be at high risk for suicidal behavior. Therefore, identifying potentially suicidal patients is necessary in the treatment of bipolar patients. A stress-diathesis model for suicidal behavior has been proposed to assist clinicians in determining which patients are at risk. In the model, suicidal behavior is the result of the interaction between an individual's threshold for suicidal acts and the stressors that can lead to suicidal behavior. Suicide risk factors can then be categorized as either diathesis-related or stress-related. In a study applying the model of suicidal behavior to bipolar disorder, bipolar patients who attempted suicide had higher levels of suicidal ideation, lifetime aggression, and substance abuse than the comparison group of nonattempters. Attempters had twice the number of major depressive episodes. Once high-risk patients are identified, their suicide risk can be managed through treatments such as prophylactic lithium treatment and other pharmacologic approaches.
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Thought to be at higher risk for suicide are patients with bipolar disorder, 29% of whom admit to at least one suicide attempt in their lifetime.[1] However, determining which bipolar patients are at risk for attempting or completing suicide can be challenging for clinicians. In an effort to facilitate identification of high-risk patients, we[2] have proposed a stress-diathesis model of suicidal behavior. The model identifies trait-related and stress-related risk factors, the interaction of which may lead to suicidal behavior. Clinicians, then, can identify potentially suicidal bipolar patients by being aware of and understanding such risk factors. Subsequently, patients' risks can be managed through treatment.

STRESS-DIATHESIS MODEL FOR SUICIDAL BEHAVIOR

In the stress-diathesis model (Figure 1), suicidal behavior is the result of the interaction between an individual's threshold for suicidal acts and the stressors that can lead to suicidal behavior. This threshold is trait-dependent, hence the term *diathesis*, and is influenced by risk factors such as lifetime aggression and impulsivity, substance abuse, and family history of suicide. Also important in determining this threshold is brain serotonergic function.[3] A review[3] of the literature on suicide attempters and completers shows that these groups have lower serotonin function than nonattempters. Stressors appear to be state-dependent and include acute psychiatric conditions and interpersonal problems. In general, clinicians intuitively focus on the psychiatric illness as the stressor without addressing or assessing the diathesis. Therefore, the model may be effective in identifying patients at risk for suicide because it helps clinicians understand why, in a group of patients with the same psychiatric illness, some may attempt and/or commit suicide and others may not.

In order to determine the generalizability of suicide risk factors and suicidal behavior, we[2] conducted a study of suicide attempts in 374 patients with mood disorders, psychoses, and other diagnoses. Following admission to a university psychiatric hospital for evaluation and psychiatric treatment, patients were diagnosed with Axis I or Axis II psychiatric disorders by using DSM-III-R structured interviews. Psychiatric symptoms were assessed by rating scales that included the 24-item Hamilton Rating Scale for Depression (HAM-D), the Beck Hopelessness Scale, the Buss-Durkee Hostility Inventory, the Barratt Impulsivity Scale, and the Reasons for Living Inventory. A suicide attempt was defined as a self-destructive act serious enough to require medical evaluation and the intent of which was to end one's life.

In the study, we found that objective severity of acute psychopathology does not differ significantly between patients who previously attempted suicide (attempters) and

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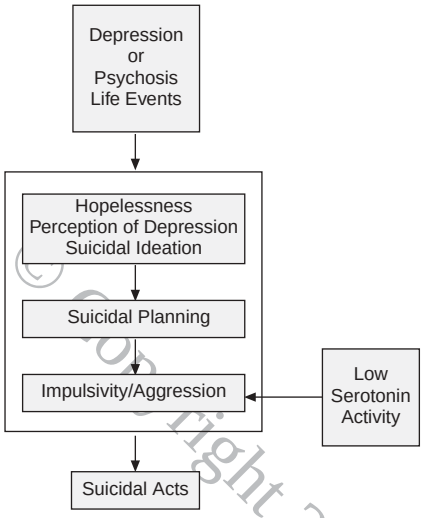
Figure 1. Stress-Diathesis Model for Suicidal Behavior[a]



[a]Adapted from Mann et al.,[2] with permission.

Table 1. Diathesis-Related Risk Factors for Bipolar Patients With and Without a History of Suicide Attempt[a]

Factors	Attempters (N = 21)	Nonattempters (N = 23)
Rating scale scores		
Scale for Suicide Ideation[b]		
Mean ± SD	17.30 ± 11.13	3.76 ± 0.34
Median, range	19.5, 0–31	0, 0–24
Beck Hopelessness Scale		
Mean ± SD	10.00 ± 5.53	7.26 ± 6.48
Median, range	9, 0–19	4, 0–19
Reasons for Living Inventory[b]		
Mean ± SD	154.36 ± 41.14	185.44 ± 43.29
Median, range	150, 67–213	190.5, 109–267
Buss-Durkee Hostility Inventory[b]		
Mean ± SD	38.88 ± 11.34	23.38 ± 10.82
Median, range	39, 19–64	27, 13–47
Barratt Impulsivity Scale		
Mean ± SD	53.47 ± 16.95	49.53 ± 16.81
Median, range	50, 26–85	46, 28–79
Personal history, N (%)		
Smoking	16 (76)	10 (50)[c]
Past alcoholism	13 (62)	11 (50)[d]
Past substance abuse (any drug)	16 (76)	12 (55)[d]
Family history of suicide	5 (24)	3 (14)[e]

[a]Data from Oquendo et al.[1]
[b]$p \leq .05$.
[c]N = 20.
[d]N = 22.
[e]N = 21.

patients who have not attempted suicide (nonattempters). However, the subjective ratings for depression, hopelessness, and suicidal ideation were all significantly greater for attempters. Patients who had previously attempted suicide also reported fewer reasons for living and scored significantly higher on rating scales for lifetime aggression and impulsivity. They also were significantly more likely than the nonattempters to have comorbid cluster B personality disorders, have past alcoholism and past substance abuse or dependence, smoke cigarettes, have a history of head injury, and have a family history of a first-degree relative who attempted or completed suicide. The relevance of these findings is 2-fold: first, they indicate that objective severity of psychiatric illness is a poor predictor of suicidality, and second, they support the usefulness of the stress-diathesis model in predicting suicidal behavior.

BIPOLAR DISORDER AND SUICIDAL BEHAVIOR

We[1] examined 44 inpatients with diagnosed DSM-III-R bipolar I disorder and bipolar disorder NOS in order to establish a clinical description of bipolar attempters and to evaluate the stress-diathesis model as applied to bipolar patients. At index hospitalization, patients had presented for evaluation and inpatient treatment of an acute episode. Depressive symptoms were assessed using the 17-item HAM-D and the Beck Depression Inventory. The presence and severity of psychosis were evaluated in the current episode by the Brief Psychiatric Rating Scale and the Scale for Assessment of Positive Symptoms. Other scales used included the Scale for Suicide Ideation, the Beck Hopelessness Scale, the Reasons for Living Inventory, the Buss-Durkee Hostility Inventory, and the Barratt Impulsivity Scale. A suicide attempt was defined as a self-destructive act with an acknowledgment of intent to die.

Like the participants in the study[2] previously mentioned, bipolar attempters and nonattempters showed no difference in severity of illness. However, bipolar attempters were more likely to present with a current depressive episode, and therefore, their severity of depression on admission at index hospitalization was higher than that of nonattempters. (Nonattempters were more likely to present with mania.) Further, despite no difference in age at onset, attempters had more than twice as many major depressive episodes and more than 5 times the number of hospitalizations as did nonattempters. Patients who had previously attempted suicide reported more suicidal ideation, higher levels of hopelessness, and fewer reasons for living. Attempters had higher lifetime levels of aggression but did not differ from nonattempters with regard to impulsivity.

SUICIDE RISK FACTORS FOR BIPOLAR PATIENTS

Following our model for suicidal behavior, we identified suicide risk factors primarily as either diathesis-related or stress-related (Tables 1 and 2).[1] Those risks that are diathesis-related affect suicidal behavior by establishing a patient's low threshold for that behavior. When a patient experiences what is classified as a stress-related risk, the stressor may trigger suicidal behavior.

Table 2. Stress-Related Risk Factors for Bipolar Patients With and Without a History of Suicide Attempt[a]

Factors	Attempters (N = 21)	Nonattempters (N = 23)
Depressive symptomatology scores		
Hamilton Rating Scale for Depression[b]		
Mean ± SD	20.15 ± 7.10	14.18 ± 6.01
Median, range	21, 6–32	14, 2–25
Beck Depression Inventory[b]		
Mean ± SD	26.72 ± 10.74	16.32 ± 10.00
Median, range	32, 4–38	16, 0–36
Scale for Assessment of Positive Symptoms[b]		
Mean ± SD	3.15 ± 3.36	6.00 ± 4.69
Median, range	2, 0–11	6, 0–15
Course of illness		
Number of prior MDE[b]		
Mean ± SD	3.63 ± 4.55	1.21 ± 1.58
Median, range	3, 0–20	1, 0–6
Number of hospitalizations[b]		
Mean ± SD	5.71 ± 5.88	0.94 ± 1.63
Median, range	3, 0–18	0, 0–6

[a]Data from Oquendo et al.[1] Abbreviation: MDE = major depressive episode.
[b]$p \leq .05$.

Diathesis-Related Risk Factors

Gender, age, and race. Generally, studies[4,5] find that bipolar patients who attempt suicide are more likely to be women, while bipolar men are more likely to complete suicide.[6] Our results showed men were more likely to attempt suicide; this may be explained by the medical severity of the attempt, which aligns these attempters more closely to completers. Our study showed no difference between attempters and nonattempters with regard to age at onset. The same was true for race in our sample, but a community sample study[5] reported Anglo bipolar patients as having higher rates of suicide attempts followed by African Americans and Hispanic Americans.

Suicidal ideation, hopelessness, and reasons for living. Suicidal ideation appears to be important for identifying patients at risk for suicide in general,[2] as well as patients with bipolar disorder specifically. Bipolar attempters continued to have higher rates of suicidal ideation than nonattempters despite having attempted suicide more than 6 months before entering our study. This finding suggests that suicidal ideation may be an enduring trait for bipolar patients who attempt suicide. Like our findings for suicidal ideation, we found that bipolar patients who had attempted suicide reported fewer reasons for living months after the actual suicide attempt. Measures of hopelessness and reasons for living have not been commonly used in studies of bipolar patients, but our results suggest that bipolar patients have a trait-like pessimism that may influence suicide risk.

Lifetime aggression and impulsivity. The study of bipolar patients yielded higher levels of aggression for attempters but showed no difference with respect to impulsivity for attempters and nonattempters. However, the level of impulsivity in both bipolar attempters and nonattempters was similar to that reported in our studies of attempters with unipolar depression.[7] Thus, since impulsivity appears to be a characteristic of bipolar disorder, classifying impulsivity as a suicide risk factor for bipolar patients may not be helpful.

Smoking, alcoholism, and substance abuse. In general, bipolar patients have been found to have high rates of alcoholism and substance abuse,[5] but our study found attempters were no more likely to smoke cigarettes or have a past history of substance abuse or alcoholism than nonattempters. However, the rate for substance abuse was higher for both groups than that of the general population. Smoking, alcoholism, and substance abuse are thought to share a common diathesis with the risk for suicide or may directly contribute to the suicide risk by causing disinhibition, depression, or other neurochemical effects on the brain.

Family history of suicide. Although the difference was not statistically significant, attempters had higher rates of family members with suicide attempts, which reflects the findings from our other study[2] and may indicate a familial trait for suicidal behavior.

Stress-Related Risk Factors

Depressive symptomatology and course of illness. Depressive symptomatology was more severe at index hospitalization for attempters versus nonattempters; further, when compared with nonattempters, attempters were twice as likely to be in a depressed or mixed state at the time of index hospitalization. Attempters also had more than twice the number of lifetime episodes of major depression when compared with nonattempters. Other studies support these findings and report that bipolar patients with depression and mania have more suicidal ideation and behavior than those bipolar patients with only manic symptoms.[8] Furthermore, most bipolar I subjects had depression or a mixed episode at the time of death.[6] Thus it appears that bipolar patients who have attempted suicide have been exposed to the stress of a major depressive episode that may have triggered suicidal behavior.

MANAGING SUICIDE RISK IN BIPOLAR PATIENTS

Crucial to managing suicide risk is the identification of the high-risk patient. In addition to being aware of the risks previously outlined, clinicians should also be aware that patients are at highest risk early in the course of an illness. A study[7] of 100 patients with major depressive disorder showed that the first 3 months after the onset of a major depressive episode and the first 5 years after the onset of the disorder are the highest-risk periods for attempted suicide. Moreover, patients commonly make attempts

early in the episode as opposed to later in the episode. After identifying the high-risk patient, clinicians should evaluate the patient's past and present suicidal behavior and implement a treatment plan for both the bipolar disorder and the suicidality.

Treatment Strategies

Evaluating current suicidal ideation. When discussing past and present suicidal behavior with patients, clinicians should carefully evaluate the extent of planning, the intent to act, and the availability and lethality of the methods considered. Patients should be asked about the methods available at home, such as guns or medications, and arrangements should be made to dispose of these items. It is imperative to make specific recommendations for suicidal patients and their families regarding what to do should suicidal impulses become too strong to resist.

Lithium. Prophylactic lithium treatment has been shown to reduce the risk of suicide in patients with bipolar disorder. A 22-study literature review by Tondo and Baldessarini[9] of lithium treatment in bipolar patients revealed that, in patients taking lithium, suicidal acts were reduced 85.7%. Tondo et al.[10] also found that bipolar patients had a 6.4-fold higher risk for suicide before taking lithium than during lithium treatment. When lithium treatment was discontinued, patients' risk increased 7.5-fold. Lithium's antisuicidal effects may be related to its serotonergic and antiaggressive properties. Unfortunately, some patients may not tolerate lithium or may have difficulty complying with lithium treatment.

Electroconvulsive therapy and pharmacotherapy. Although known as an antidepressant treatment, electroconvulsive therapy (ECT) may also have anitsuicidal properties. Prudic and Sackeim[11] found that patients' scores on the suicide item on the HAM-D decreased after receiving ECT. The role of pharmacotherapy in the prevention of suicidal behavior is 2-fold. In addition to having specific antisuicidal effects as is the case with lithium and ECT, mood stabilization, especially the aggressive treatment of depression, can reduce the risk of suicidal behavior.

CONCLUSION

Because bipolar patients have a high rate of suicide attempts, clinicians with bipolar patients must be able to recognize which patients are at high risk. The stress-diathesis model for suicidal behavior categorizes risk factors as diathesis related or stress related, which helps clinicians understand why patients with certain traits will become suicidal when exposed to certain stressors. Once key risk factors such as high suicidal ideation, lifetime aggression, and multiple major depressive episodes are identified, patients can receive treatments such as prophylactic lithium treatment, ECT, and other pharmacologic approaches for suicidal behavior in addition to bipolar disorder.

Disclosure of off-label usage: The authors have determined that, to the best of their knowledge, no investigational information about pharmaceutical agents has been presented in this article that is outside U.S. Food and Drug Administration–approved labeling.

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