

## Depression, Delusions, and Suicide

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*A retrospective analysis of all the suicides at the New York State Psychiatric Institute over a 25-year period was carried out. The authors retrospectively assigned diagnoses according to Research Diagnostic Criteria and DSM-III and found that among the patients who committed suicide there were 14 with unipolar endogenous depression. Of those 14 patients, 10 were considered delusional or probably delusional. In comparison, a control group of similarly diagnosed depressed patients taken from the same institution over the same time period included far fewer delusional depressions. Thus, there was a significant association between delusions and suicide: A delusionally depressed patient was five times more likely to commit suicide than a nondelusional one.*

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The risk of suicide is a prevalent and often overriding concern in the treatment of patients with depressive illness. Numerous studies have documented that patients with affective illness have a high rate of suicide (1, 2) and that people who commit suicide have a high incidence of depressive symptoms (3-5). The clinician frequently must decide which patient with suicidal ideation is at serious risk to act and thus needs to be hospitalized.

A number of studies have tried to establish whether particular symptoms in a depressed patient are predictive of suicide. Robins and associates (6) evaluated the verbal statements of depressed patients who subsequently committed suicide to see if there was a pattern in what the patient said, how often, or to whom. They found that 40% of patients who committed suicide made repeated direct statements of their intention to their spouses. However, since there was no comparison group of depressed patients who did not commit suicide, it cannot be concluded that this type of verbal communication is predictive of suicide.

Barracough and associates (7) compared a group of depressed patients who killed themselves with a demographically similar group of depressed patients who never attempted suicide to see if there were significant differences in symptomatology. The rank order of

most frequent symptoms was similar (e.g., looking miserable, experiencing weight change, or suffering from insomnia or anxiety), but members of the suicide group always had higher symptom scores. They concluded that depressed patients who committed suicide were like the general population of depressed patients but more severely depressed in every way. In a study of a different sample of depressed patients who committed suicide, Barraclough and Pallis (8) found that insomnia, self-neglect, and impaired memory were more frequent symptoms in the suicide group than in the nonsuicide group. However, the high prevalence of these symptoms in the overall population of depressed patients limits their usefulness as predictors of suicide.

In our 10 years' experience working on an affective disorders research unit, two patients committed suicide; both were delusionally depressed. We wondered whether that was a coincidence or if delusionally depressed patients commit suicide more frequently than nondelusional depressed patients. To investigate this question we reviewed all suicides at the New York State Psychiatric Institute between 1955 and 1980.

#### METHOD

We collected the charts of every patient who committed suicide while on the census of the New York State Psychiatric Institute between 1955 and 1980. Most of the deaths were obvious suicides that took place in the hospital (e.g., a patient was found hanging from a shower bar). However, in the few instances where the patient had eloped or was out on pass, the case was considered a suicide if a note of suicidal intent was left or if the medical examiner had ruled the case a suicide.

We then retrospectively diagnosed each patient. Obviously, diagnostic criteria and styles have changed dramatically over the 25-year period under consideration. Therefore, to ensure uniformity in the diagnosis of these patients, the charts were reviewed by an experienced biometrics researcher, who was kept blind to the hypothesis and nature of the study. Each patient was diagnosed according to Research Diagnostic Criteria (RDC) (9). To protect against any bias that might develop in a study of suicide, all references to the patient's suicide were deleted from the charts, but documentation of the patient's suicidal ideation and past suicide attempts was retained.

The blind reader also classified each patient as definitely delusional, probably delusional, or nondelusional. A patient was considered to be delusional when, in the absence of consensual validation, he or she maintained a conviction that defied obvious fact, natural law, or common logic and that was not shared by members of a religious or cultural subgroup. For example, a patient would not be considered delusional if, because of a depression, he were convinced of his own worthlessness, guilt, or inability to recover. The definition of delusion used is the same as in our

previous work (10) and is similar to that elaborated in the Schedule for Affective Disorders and Schizophrenia (11). If a patient had what seemed to be a delusional belief but if we could not determine from the chart that the belief was both fixed and unamenable to reason, we considered the patient to be probably but not unequivocally delusional.

We then focused on the unipolar depressed patients. Having determined the rate of delusional individuals among unipolar depressed patients who committed suicide, we needed to establish a base rate for delusionally depressed patients among the total population of hospitalized unipolar depressed patients. Since the patients with unipolar depression who committed suicide met both RDC for endogenous major depressive disorder and *DSM-III* criteria for unipolar major depression with melancholia, we formed a control group by randomly selecting patients admitted to the institute over the same period who met the same diagnostic criteria. We rotated the year and the month, i.e., January 1955, February 1956, March 1957, etc., and then one of us (S.P.R.) read the chart of each consecutive admission to the hospital during that month and year until he reached the first case of unipolar major depressive disorder. That case was then included in the control group and the entire cycle repeated until the control group was complete. The biometric researcher then classified the control patients as delusional, probably delusional, or nondelusional. We used a chi-square test to compare the rate of delusional individuals among our patients who committed suicide with the rate among the control patients.

#### RESULTS

A total of 39 patients on the hospital census committed suicide during the study period. Twenty-two patients were found to have major affective disorder, eight to have minor depression, four to have schizophrenia and two to have personality disorders; three patients were undiagnosed.

Of the 22 patients with affective disorders, 14 met our criteria for unipolar endogenous depression; the remaining eight had other diagnoses. Of the 14 patients, six were definitely delusional, four were probably delusional, and four were nondelusional. Three of the four patients were classified as probably delusional for the following reasons: Mr. A had become increasingly suspicious, guarded, and fearful that people were spying on him. Ms. B, a teacher, became so agitated over a slight amount of facial hair that she could not stand in front of her class. Ms. C feared that Social Security Administration investigators would discover a lie she told about a previous marriage when she applied for benefits and that all the "promiscuity" of her previous life would be exposed. These three patients were not considered unequivocally delusional by the reviewer because there was not enough informa-

FIGURE 1. Relative Risk for Suicide in Delusional and Nondelusional Depressed Patients

	Delusional	Nondelusional
Depressed suicide group	10	4
Depressed control group	9	19

Proportion delusional in suicide group =  $10/14 = .71$   
 Proportion delusional in control group =  $9/28 = .32$  ( $\chi^2 = 4.34$ ,  
 $p < .05$ )

$$\text{Odds ratio} = \frac{10 \times 19}{4 \times 9} = 5.3 \text{ (relative risk)}$$

A patient with a delusional unipolar depression is five times as likely to commit suicide as a patient with a nondelusional unipolar depression.

tion in the charts to show that the beliefs were fixed and persistent.

Thus, of the unipolar patients who committed suicide, 43% were unequivocally delusional, and 71% were either unequivocally or probably delusional. Using this rate of 71%, we estimated the number of control patients necessary to establish a base rate of delusional depressions in the total population of unipolar depressed patients. Since previous studies have shown that the rate of delusions among hospitalized unipolar depressive patients is between 25% and 33%, we calculated that a control sample twice the size of the study group would create a test with reasonable statistical power, i.e., an 80% chance of finding a statistically significant association between delusions and suicide in unipolar depression if such an association existed.

We reviewed 405 charts to collect a sample of 28 patients who met our diagnostic criteria. The group consisted of 22 women and six men. Their average age was 58, which is comparable to the average age of 56 for the study group. Of the 28 patients, six were classified as delusional and three as probably delusional, for a combined rate of 32%. That is equivalent to the rate of delusional patients we previously found among hospitalized unipolar patients (10) and is similar to the rate reported by a number of other investigators (12-14).

Chi-square analysis yielded a  $2 \times 2$  table showing the number of delusional and nondelusional patients among the patients who committed suicide and among the control group (figure 1). There was a significant association between delusions and suicide ( $\chi^2 = 4.34$ ,  $p < .05$ , using Yates' correction factor). The odds ratio, or relative risk, calculated from the table indicates that the delusional depressed patient in the hospital is more than five times as likely to commit suicide as his or her nondelusional counterpart.

## DISCUSSION

The most important finding of this study is that among hospitalized unipolar depressions who committed suicide, the rate of delusions is strikingly high. Thus, we conclude that a patient with a delusional depression is significantly more likely to commit suicide than his nondelusional counterpart. A potential problem of this study is that of the depressed group who committed suicide, 50% were men, while only 25% of the control group were men. There are two possible explanations for the higher percentage of men in the suicide group: Either delusions are more common in depressed men or else men commit suicide more frequently than women. If delusions are more common in men than women, then the control group, with its comparatively low percentage of men, is biased against including delusional patients and, therefore, is not a satisfactory control group. Thus, a comparison between the delusional rates of the suicide group and of the control group would be misleading. However, our work (10) and that of a number of other investigators (12) has established that the rate of delusions in depressed women is the same as in depressed men. Therefore, it would appear that the higher percentage of men in the suicide group reflects only the well-documented observation that men have a higher rate of successful suicide than do women (15). Thus, delusionally depressed men appear to be the group at highest risk for suicide.

In our study, unlike those cited earlier, delusions emerge as one of the most powerful predictors of suicide potential in patients with endogenous depression. Since delusionally depressed individuals are generally considered to be more severely depressed than nondelusional ones, it is possible that our findings simply enthrone the obvious statement that the more severely depressed the patient, the greater the risk of suicide. However, five of the 10 delusional patients who committed suicide did so at a time when both medical staff and family members considered the patient to be substantially better. A specific example may be illustrative.

Mr. E, a 58-year-old man, was experiencing a second episode of endogenomorphic depression marked by appetite and weight loss, sleep disturbance, and severe psychomotor retardation. He also had the fixed delusion that he was penniless—a conviction that he maintained despite being shown his bank books. The belief was so strong that he asked his wife to join him in suicide because that would be better than their starving to death. After treatment with a combination of tricyclic antidepressant and antipsychotic over many weeks, Mr. E appeared markedly improved and went on an overnight pass to an important family social function. He returned in good spirits and left a day later on an overnight pass to go home. The patient had breakfast the next morning, and when his wife went out to get the morning paper, he jumped to his death from a window. Even in retrospect, Mr. E had seemed almost himself again, and certainly not suicidal. Thus, in many cases the severity of the depression in itself seems an insufficient explanation for the suicide.

A more encompassing possibility is that the increased rate of suicide in delusionally depressed patients is an intrinsic part of the delusional depressive syndrome. Our group has previously reviewed (10) an impressive spectrum of evidence, including treatment response to tricyclics, nature of previous episodes, placebo response, phenomenology, and biochemical measures, which suggests that delusional depression is more than a severe variant of nondelusional depression. The data better fit a theoretical model in which delusional depression is considered a distinct clinical syndrome.

If an increased risk of suicide is a feature of the delusional depressive syndrome, it conceivably is related to the delusional component as much as to the affective component. This possibility is supported by the intriguing finding that 16 of the 22 patients (73%) with a diagnosis of major affective disorder (unipolar, bipolar, or schizoaffective) who committed suicide were either delusional or probably delusional. Although there are no control data available on the rate of delusions for this spectrum of affective disorder, our collective clinical experience is that a 73% rate is strikingly high. Perhaps it is the coexistence of a depressive suicidal thought and a delusional process that transforms a suicidal ideation into a suicidal act.

Traskman and associates (16) reported that a group of depressed patients with low levels of spinal fluid 5-hydroxyindoleacetic acid (5-HIAA) had a significantly higher rate of violent suicides than a comparable group of depressed patients with normal 5-HIAA. Brown and associates (17, 18) reported a similar relationship between low 5-HIAA levels, aggression, and suicide attempts in patients with borderline and other personality disorders. It is an intriguing possibility that our group of delusionally depressed suicides might strongly overlap with depressed suicides with low 5-HIAA levels. However, the Traskman group did not specify the clinical phenomenology of the patients, and so an answer to this question awaits a reanalysis of their data.

The risk of suicide and the poor response to tricyclics alone (12, 13, 19), necessitating use of ECT or a combination of antipsychotics and tricyclics, are compelling reasons to hospitalize delusionally depressed patients. The fact that our study includes suicides that took place in the hospital clearly indicates that a hospital setting alone is not sufficient to protect these

patients. Once hospitalized, the patients still require special suicide precautions and must be regarded with a high degree of caution, even when they appear recovered.

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