

## Relationship Between Hopelessness and Ultimate Suicide: A Replication With Psychiatric Outpatients

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*A prospective study of 1,958 outpatients found that hopelessness, as measured by the Beck Hopelessness Scale, was significantly related to eventual suicide. A scale cutoff score of 9 or above identified 16 (94.2%) of the 17 patients who eventually committed suicide, thus replicating a previous study with hospitalized patients. The high-risk group identified by this cutoff score was 11 times more likely to commit suicide than the rest of the outpatients. The Beck Hopelessness Scale thus may be used as a sensitive indicator of suicide potential.*

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Suicide is the ninth leading cause of death in the United States, occurring with a ratio of approximately 11 deaths per 100,000 population (1). Over the last few decades, researchers have been pursuing the challenge of identifying persons at high risk for suicide by studying epidemiological, behavioral, and psychological variables.

Negative expectation or hopelessness is among the psychological variables that have shown promise in the prediction of suicide. Beck (2) studied 50 depressed suicidal patients who had undergone long-term psychotherapy and perceived the common theme of hopelessness underlying their suicidal wishes. He noted that "The suicidal preoccupations . . . seem related to the patient's conceptualization of his situation as untenable or hopeless" (pp. 327-328). This sense of hopelessness led the suicidal patients to believe that suicide was the only feasible strategy for dealing with their seemingly insoluble problems.

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According to Beck (3), the critical role that hopelessness plays in suicide is illustrated in the sequence of events that leads a depressed individual to commit suicide. The patient systematically misconstrues his or her experience in a negative way and anticipates dire outcomes for his or her problems. Ultimately, the patient is drawn to the idea of suicide as a way out of his or her "insoluble problems."

The central role of hopelessness in the development of suicidal ideation has been supported by empirical research (4-7). Wetzel et al. (8) reviewed studies addressing the relationships among depression, hopelessness, and suicidal ideation and concluded that the preponderant evidence supported the linkage of hopelessness and suicide intent. In a 10-year prospective follow-up study of 165 patients hospitalized with suicidal ideation, Beck et al. (9) reported that hopelessness was predictive of actual suicide. Of the 11 patients who eventually committed suicide, 10 (90.9%) had Beck Hopelessness Scale (10) scores of 9 or greater. Only one patient (9.1%) who eventually committed suicide had a score lower than 9. The mean Beck hopelessness score was significantly higher in the patients who committed suicide ( $\text{mean} \pm \text{SD} = 13.27 \pm 4.43$ ) than in the patients who did not ( $\text{mean} \pm \text{SD} = 8.94 \pm 6.05$ ) ( $t = 2.33$ ,  $df = 163$ ,  $p < 0.05$ ). Furthermore, length of follow-up was not related to detecting more eventual suicides.

The present study is an extension of the investigation of Beck et al. (9) to an outpatient population. Specifically, we sought to ascertain whether level of hopelessness measured during an index evaluation at an outpatient clinic would predict eventual suicide in psychiatric outpatients, as it did in a hospitalized sample.

### METHOD

#### *Sample*

The sample consisted of the 1,958 consecutive outpatients evaluated at the Center for Cognitive Therapy between September 1978 and February 1985 who completed both the Beck Hopelessness Scale and the Beck Depression Inventory (11). Patients were either

self-referred or referred by other professionals. There were 1,135 (58.0%) women and 823 (42.0%) men. The mean±SD age of the sample was 36.12±12.39 years (range=15–84 years). According to *DSM-II* and *DSM-III* criteria, approximately 40% had affective disorders, 15% had anxiety disorders, 25% had a combination of depression and anxiety disorders, and the remaining 20% had miscellaneous other disorders (e.g., substance abuse, marital problem, adjustment disorder, schizophrenia).

### Procedure

Following telephone contact with intake personnel at the center, each patient was scheduled for a complete clinical evaluation, which usually took place within 1 week. In addition to a 2-hour interview with a trained clinician, each patient spent 1 hour completing a battery of self-report tests, including the Beck depression and hopelessness scales.

All patients were diagnosed by the interviewing clinician according to either *DSM-II* or *DSM-III*. Each diagnosis was thoroughly reviewed by a senior staff member within the following week to confirm that all relevant criteria were met and that possible exclusionary criteria were considered. The final diagnosis reflected a consensus between the interviewing and consulting clinicians.

Individuals who were considered as possibly suitable for treatment at the center were scheduled for an intake interview with a clinician. Those excluded from intake evaluation and referred elsewhere consisted of individuals who presented clear evidence of an organic disorder, the manic phase of a bipolar disorder with no medication, or a condition requiring immediate hospitalization (e.g., severe suicide risk or psychosis).

The Beck Hopelessness Scale (10) is a 20-item true-false self-report instrument that assesses the degree to which a person holds negative expectations about the future. Nine of the items are keyed false and 11 true. The items are summed to obtain a total hopelessness score (range=0–20). In a sample of 294 hospitalized patients who had made suicide attempts, the Kuder-Richardson reliability (KR21) coefficient for the Beck Hopelessness Scale was 0.93, and all of the item-total correlations, ranging from 0.39 to 0.76, were significant. Moderately high correlations ranging from 0.56 to 0.68 between the Beck Hopelessness Scale and the Beck Depression Inventory have been reported in a number of studies with samples of hospitalized patients who attempted suicide (7) and depressed patients (12).

The Beck Depression Inventory (11) consists of 21 items, each consisting of four statements that reflect gradations in the intensity of a particular depressive symptom. The respondent chooses the statement that best corresponds to the way that he or she has felt for the past week. The individual statements are scored from 0 to 3 and summed to obtain a total depression score (range=0–63). The psychometric properties of

the inventory have been reviewed by Beck and Steer (11).

### Follow-up

The study was initially limited in scope to patients residing in Philadelphia who terminated treatment at the center in 1982. To ascertain whether any patients in this cohort had committed suicide, death certificates on file at the office of the Philadelphia medical examiner were scanned for matches with the names of patients in the study cohort. When a match was found, information regarding cause of death was recorded verbatim from the certificate. Because there are difficulties with respect to the representativeness of locally obtained medical examiner data (13), the following procedure was also implemented.

To follow up patients residing outside the jurisdiction of the Philadelphia medical examiner and to examine several years at once, we used the National Death Index, a service of the National Center for Health Statistics. This index is a central computerized index of death record information that is compiled from data periodically submitted by individual state vital statistics offices. Identifying information provided by the user is checked against corresponding information in the National Death Index database, which currently covers deaths occurring from 1979 to 1985, and the user is notified whether one of the records supplied matches a database record.

We performed searches covering the years 1979 to 1985. When a likely match was found, arrangements were made with the state vital statistics offices to obtain copies of death certificates. Determinations regarding cause of death were made on the basis of information contained in the death certificates. The records of the National Death Index disclosed the same deaths, causes, and modes of death as those on file in the Philadelphia medical examiner's office.

## RESULTS

### Follow-up

Patients were followed up from date of evaluation until December 31, 1985. The mean±SD length of follow-up was 43.00±20.71 months (range=8.20–89.57 months). Of the 1,958 patients who were evaluated (but not necessarily treated) at the clinic, 31 (1.6%) died during the follow-up period. Of these 31 patients, 17 (54.8%) committed suicide and 12 (38.7%) died from natural causes; in two cases (6.5%) the official completing the death certificate could not classify the cause of death as natural, accidental, suicide, or homicide. Cases in this last category were dropped from all further analyses.

At intake, the patients who eventually committed suicide ranged in age from 18 to 59 years (mean±SD=

40.35±11.61). Nine (52.9%) of these patients were men and eight (47.1%) were women. Thirteen received diagnoses of recurrent major depression (or chronic depressive neurosis), three diagnoses of bipolar disorder, and one a diagnosis of adjustment disorder with depressed mood.

Ten (58.8%) of the 17 patients who committed suicide received cognitive therapy, whereas seven (41.2%) were just evaluated for cognitive therapy and did not enter therapy. The number of visits ranged from one to 25. Only one patient (5.9%) was in treatment at the time of his suicide. Eight (47.1%) had made at least one prior suicide attempt, and five (29.4%) had received an alcohol-related diagnosis.

### Group Differences

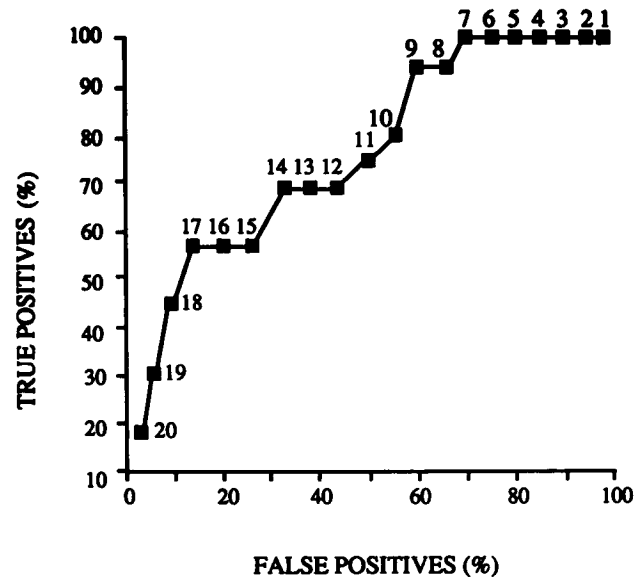
We examined the mean ages and Beck hopelessness and depression scores of those who committed suicide, those who died of natural causes, and living patients. In the case of one of the patients who committed suicide, who began treatment at the center on two separate occasions, self-report scores were available for the initial admission, which occurred in 1976, predating the period under study; consequently, the scores from the initial admission were used. Predictably, the patients who eventually died of natural causes were older as a group (mean±SD age=48.08±18.82 years) than the patients who committed suicide (40.35±11.61 years) and the living patients (36.01±12.31 years) ( $F=6.71$ ,  $df=1$ , 1,955,  $p<0.001$ ). As hypothesized, patients who committed suicide had higher scores on both the Beck Hopelessness Scale and the Beck Depression Inventory (mean±SD=15.29±4.47 and 30.59±11.52, respectively) than the patients who died of natural causes (7.33±5.21 and 20.92±8.64) and the living patients (9.98±5.42 and 20.14±9.88) (hopelessness scale:  $F=9.60$ ,  $df=2$ , 1,955,  $p<0.001$ ; depression inventory:  $F=9.44$ ,  $df=2$ , 1,955,  $p<0.001$ ).

### The Beck Hopelessness and Depression Scales

**Determination of optimal cutoff scores.** Optimal cutting scores for the two Beck scales were derived by applying a technique drawn from signal detection theory, the receiver operating characteristic curve (14). To construct such a curve, the percentage of positive responses in the presence of a signal ("hits" or true positives) is plotted against the percentage of positive responses in the absence of a signal ("false alarms" or false positives) for successive stimulus intensities. In terms of the present study, completed suicide is the signal and test score is the stimulus level.

Receiver operating characteristic curves for the Beck Hopelessness Scale and the Beck Depression Inventory are shown in figures 1 and 2. For situations in which maximizing *sensitivity* (the probability of suicide in subjects who are classified as at high risk by their test scores) and minimizing *specificity* (the probability of no suicide in subjects who are classified as at low risk

**FIGURE 1. Receiver Operating Characteristic Curve for the Relationship Between Scores on the Beck Hopelessness Scale and Ultimate Suicide Among 1,958 Psychiatric Outpatients<sup>a</sup>**



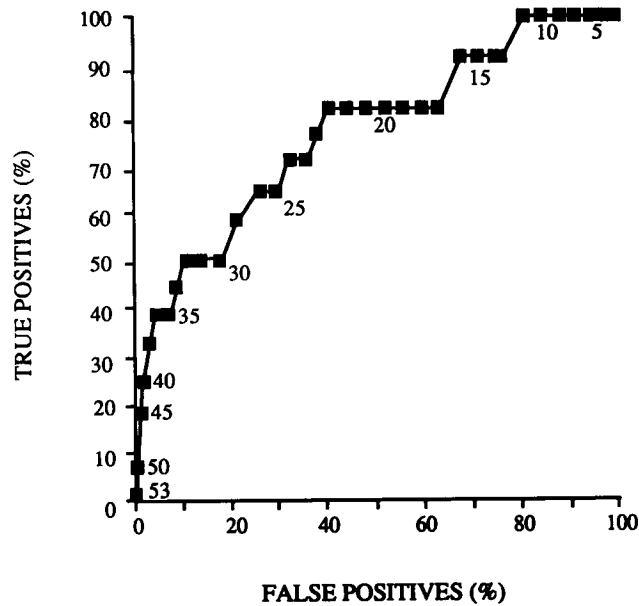
<sup>a</sup>The numbers within the graph represent scale scores used to identify patients at high risk for suicide. True positives are patients classified as being at high risk who did commit suicide. False positives are patients classified as being at high risk who did not commit suicide.

by their test scores) are equally important, the optimal cutting score occurs at the point of furthest displacement of the curve. Because false negatives represent a loss of life, sensitivity is paramount in suicide prediction. The cutting score that maximizes sensitivity (at the expense of specificity) occurs where the distance from the vertical axis is minimized, while the distance to the horizontal axis is maximized. A Beck hopelessness score of 9 and a Beck depression score of 23 satisfy this criterion.

**Predictive validity.** The Beck hopelessness score of 9 or above defined a group (N=1,161) that included 16 (94.1%) of the 17 patients who committed suicide. The Beck depression cutoff score of 23 or above defined a smaller group (N=743) that included 13 (76.5%) of the patients who committed suicide. Although the Beck depression inventory had higher specificity (62.4%) than the Beck Hopelessness Scale (41.0%), the hopelessness scale had higher sensitivity (94.1%) than the depression inventory (76.5%). In addition, the high-risk group defined by the hopelessness scale (N=16 of 1,161) was 11.0 times more likely to commit suicide than the low-risk group (N=1 of 797); this was more than double the relative rate for the high- and low-risk groups defined by the depression inventory (N=13 of 743 and 4 of 1,215; odds ratio=5.3).

**Sensitivity to other risk factors.** We also wished to compare the 94.1% sensitivity rate found for the Beck Hopelessness Scale, by using a cutoff score of 9 or

**FIGURE 2. Receiver Operating Characteristic Curve for the Relationship Between Scores on the Beck Depression Inventory and Ultimate Suicide Among 1,958 Psychiatric Outpatients<sup>a</sup>**



<sup>a</sup>The numbers within the graph represent scale scores used to identify patients at high risk for suicide. True positives are patients classified as being at high risk who did commit suicide. False positives are patients classified as being at high risk who did not commit suicide.

above against the outpatient sensitivity rates for selected suicide risk factors that had been previously investigated in the inpatient study of the relationship between hopelessness to ultimate suicide (9). The risk factors included gender, previous suicide attempts, and a diagnosis of alcoholism. Of the 17 patients who eventually committed suicide (table 1), nine were men; the sensitivity rate for maleness was thus 52.9%. With respect to a history of previous suicide attempts, eight of the 17 patients who committed suicide had made at least one prior attempt; the sensitivity rate was 47.1%. Five of the 17 patients had received an alcohol-related diagnosis; the sensitivity rate for alcoholism was 29.4%. Obviously, the sensitivity rates for the three characteristics were substantially lower than that for the Beck Hopelessness Scale when a cutoff score of 9 or above was used (94.1%).

To gauge the specificity rates with respect to the previous characteristics, a subsample of 17 of the patients who did not commit suicide was chosen at random. In this subsample there were 10 men; the specificity rate for maleness was 41.2%. None of these patients had made a prior attempt or had a diagnosis of alcoholism; the specificity rates were both 100%. Therefore, the specificity rate for these past history variables was maximal, but the sensitivity rates were low compared to those of the Beck Hopelessness Scale and the Beck Depression Inventory.

**TABLE 1. Characteristics of 17 Outpatients Who Committed Suicide**

Patient	Sex	Number of Prior Attempts	Alcohol-Related Diagnosis	Number of Therapy Sessions	Beck Hopelessness Scale Score
1	M	2	Yes	0	10
2	M	0	Yes	15	14
3	M	0	Yes	3	17
4	M	0	No	7	11
5	M	3	No	4	20
6	M	0	No	14	14
7	M	0	No	0	18
8	M	0	No	25	18
9	M	2	No	0	9
10	F	1	No	0	20
11	F	2	No	0	19
12	F	6	No	13	20
13	F	0	Yes	8	19
14	F	0	Yes	14	9
15	F	1	No	0	18
16	F	1	No	0	17
17	F	0	No	1	7

## DISCUSSION

The present study was conducted specifically to ascertain whether level of hopelessness would be as predictive of eventual suicide in outpatients as it had been in the previously reported study of hospitalized patients with suicidal ideation (9). In the present study, patients who ultimately committed suicide scored significantly higher on both the Beck Hopelessness Scale and the Beck Depression Inventory than did patients who did not commit suicide and patients who died from natural causes. Moreover, an optimal cutting score on the hopelessness scale identified a group that was 11 times more likely to commit suicide than the low-risk group, and twice as likely to commit suicide as the high-risk and low-risk groups defined by the Beck Depression Inventory.

The present results replicate the earlier study of psychiatric inpatients by Beck et al. (9), which found a similar prediction rate with the same Beck Hopelessness Scale cutoff score of 9 or above. Together, these studies support the growing body of research which suggests that hopelessness is more directly related to suicide intent than depression alone (see Wetzel et al. [8] for a review). Fawcett et al. (15), for example, in a prospective study of a heterogeneous study of psychiatric patients, found that the hopelessness rating from the Schedule for Affective Disorders and Schizophrenia (16) was among the factors that differentiated the 25 patients who committed suicide from the 929 survivors. The relationship between hopelessness and suicide has also been demonstrated in schizophrenic patients, a group that is also at a significant risk for committing suicide (17). Drake and Cotton (18) found that ratings of hopelessness derived from the patients' charts, completed during hospitalization, accounted for the relationship between depression and suicide in a group of schizophrenic inpatients who eventually committed suicide: The hopelessness ratings were the

best predictor of eventual suicide in their sample. The foregoing findings may explain the perplexity reported by clinicians who are confronted with unexpected suicidal deaths among discharged schizophrenic patients (19, 20), in the absence of assessment of hopelessness.

The present study and related research (9) represent a departure from previous investigations (21) of suicide prediction that have largely been limited to the study of demographic (e.g., socioeconomic status, unemployment status), organismic (e.g., gender, age), and past history (previous suicide attempts, alcoholism) variables. In contrast, hopelessness, as a measurable psychological dimension, represents an ongoing fluctuating index of relative suicide potential *within* these risk groups and provides a means for gauging the effects of clinical interventions. Further, in contrast to demographic variables, hopelessness is subject to direct clinical intervention.

One possible objection to the use of the Beck Hopelessness Scale in prediction is that in the present study it yielded a large proportion of false positives (59.0%). The nearly inevitable overinclusiveness of valid predictors of rare phenomena such as suicide was first demonstrated by Meehl and Rosen (22) and has since been widely discussed (23–25). However, it should be noted that the connotations of the terms “false negative” and “false positive” may not be completely appropriate in the present context. Generally, these terms are applied when a specific test is able or unable to demonstrate the *presence or absence* of a known disease, such as diabetes or tuberculosis. However, the Beck Hopelessness Scale attempts to identify the *potential* for fatal suicide attempts and not the behavior itself. Many persons with high scores on this scale may continue to be at risk for suicide beyond the observation period, even though they have not yet made a fatal suicide attempt.

In the interpretation of the results of the present study, hopelessness may best be construed as a *risk factor*—perhaps analogous to a history of smoking or elevated blood pressure as a predispositional factor in heart disease. In this connection, Murphy (17) has commented, “In the clinical context . . . the problem of false positives is not what it is in the laboratory. The decisions made are investigation and treatment decisions, involving much more than the issue of suicide. There is the continuing opportunity for feedback, and thus for modification of risk assessment and intervention.”

In clinical practice, it would seem to be desirable to define and monitor patients at high risk for suicide. In addressing the issue of the economic cost of following a large number of high-risk patients who may or may not eventually commit suicide, Pallis et al. (26) stated:

Since nearly two thirds of attempters are likely to receive inpatient or outpatient psychiatric care—a number far exceeding that classified high risk on any scale—the question is not whether to treat a high risk group but *how to ensure that it includes most of the true prospective suicides* [italics added] . . . by using [valid predictors of suicide], one is

more likely to ensure that those at the highest risk would receive a closer follow-up or more appropriate attention. (p. 147)

Why does hopelessness serve as such a powerful predictor of eventual suicide? We believe that the intensity of hopelessness displayed during one depressive episode is indicative of the level that emerges in future episodes. In preliminary explorations of this issue, Beck (unpublished data, 1988) studied 59 outpatients at the center for cognitive therapy who sought treatment on two different occasions. Their mean  $\pm$ SD Beck hopelessness score at the index admission was  $8.97 \pm 4.68$ , and their mean score at the time of the next admission to our clinic was  $10.73 \pm 4.89$ . The correlation between index and reevaluation hopelessness scores was 0.51. Since the patients applied for readmission to the clinic because of recurrence of their index disorder or the appearance of a different disorder, the Beck hopelessness score at readmission was uniformly higher than at the time of the previous discharge from the clinic and may be regarded as indicative of a psychiatric disturbance or personal crisis rather than as a stable trait measure.

In this context, hopelessness as it occurs in depressed patients may be viewed as having state *and* trait characteristics. It rises and falls as the disorder develops and subsides. At the time of recurrence of the disorder it increases approximately to the same level as that reached at the time of the previous episode. Thus, a patient with severe depression but mild hopelessness or a patient with modest depression with marked hopelessness in one episode is prone to the same pattern in subsequent episodes. People who respond with marked hopelessness in one personal crisis will be likely to respond in the same way at the next crisis. Some individuals, however, are chronically hopeless regardless of whether they are depressed and are prone to suicidal wishes and behavior on a continuous basis. In such cases, hopelessness may constitute a stable belief, incorporating negative expectancies that are very resistant to change in suicide-prone patients.

In any event, hopelessness is an important clue that should alert clinicians to immediate or long-term suicide potential. It should be emphasized, however, that a comprehensive assessment of suicide risk should include, in addition to Beck hopelessness scores, such clinical predictors of suicide as the presence of an affective disorder, a high level of suicide ideation, a history of suicide attempts, a family history of suicide, a history of alcohol and drug abuse, and relevant demographic factors such as age, sex, and race. Future studies should be conducted to determine the applicability of the Beck Hopelessness Scale to a variety of other clinical populations, as well as to replicate the findings of the present investigation.

Finally, as mentioned earlier, hopelessness, unlike certain other predictors of suicide, such as age, sex, or race, is a characteristic that can be modified. A study by Rush et al. (27), in fact, showed that depressed

patients treated with cognitive therapy showed a more rapid reduction in hopelessness scores than a comparison group of depressed patients treated with an antidepressant drug. Effective nonpharmacological treatments have an additional advantage in that they do not carry with them the additional risk of intentional overdose with antidepressant medication, as was the case with four of the 17 patients who committed suicide in the present study.

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