

Clinical Assessment Versus Research Methods in the Assessment of Suicidal Behavior

Kevin M. Malone, M.D., Katalin Szanto, M.D., Elizabeth M. Corbitt, Ph.D.,
and J. John Mann, M.D.

***Objective:** This study examined how accurately routine inpatient clinical assessments documented a history of overt suicidal behavior in inpatients with a diagnosis of major depressive episode. Secondary questions involved the exploration of possible factors influencing the quality of routine clinical documentation of suicidal behavior, such as lethality of attempts, axis II comorbidity, and presence of recent suicidal behavior. **Method:** Hospital records for 50 patients, known to have a history of suicidal behavior on the basis of research ratings, were reviewed to assess reporting of the number of lifetime suicide attempts, suicidal ideation and planning behavior, most medically lethal suicide attempt, and family history of suicidal behavior. These measures of suicidal behavior were compared with a comprehensive research assessment, completed concurrently and independently. **Results:** At admission clinicians failed to document a history of suicidal behavior in 12 of 50 patients identified by research assessment as depressed and as having attempted suicide. Fewer total suicide attempts were clinically reported than in research data. Documentation of suicidal behavior was least accurate in the physician discharge summary and was most accurate on hospital intake assessment, which employed a semistructured format for recording clinical information including suicidal behavior. **Conclusions:** A significant degree of past suicidal behavior is not recorded during routine clinical assessment, and the use of semistructured screening instruments may improve documentation and detection of lifetime suicidal behavior. The physician discharge summary must accurately document suicidal behavior, since it best identifies a high-risk population for outpatient clinicians responsible for follow-up.*

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Suicidal behavior is a significant health problem, with over 300,000 suicide attempts per year in the United States (1), and is a frequent complication of the major psychiatric disorders such as major depression (2) and schizophrenia (3). It is estimated that up to 50% of all patients who commit suicide suffer from major depression, 25% of patients with major depression attempt suicide in a lifetime, and 15% of patients with major depression ultimately die by suicide (4, 5). Pre-

vention may be a possibility because 58% of outpatients who commit suicide appear to have seen a psychiatrist in the previous week (3).

The most robust clinical predictor of future suicidal behavior is a history of suicidal behavior (2, 6-8). Up to 40% of people who eventually commit suicide have made a prior suicide attempt (9, 10), and there is a 32% increase in relative risk associated with each prior attempt (11). Lethality and suicidal intent scores progressively increase in those who repeatedly attempt suicide (12, 13). Therefore, in the clinical management of a high-risk group such as patients with a major depressive episode, the treatment plan should weigh the presence or absence of a lifetime history of suicidal behavior as an important regulator of acute intervention and follow-up, such as determining the level of supervision pending response to antidepressant treatment. A reduction in overt suicidal behavior among depressed patients (particularly in the early days and months after hospital discharge) (2, 3, 7) could significantly reduce psychiatric morbidity and mortality as well as health costs. Although the risk of suicide is highest in the year

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Donna Abbondanza, R.N., Diane Dolata, B.S.N., R.N., and Tom Kelly, A.C.S.W., carried out research assessments. Christine Water-naux, Ph.D., provided statistical consultation.

TABLE 1. Characteristics of 50 Inpatients With Major Depressive Episode (DSM-III-R) and Lifetime History of Suicide Attempt

Variable	Mean	SD	Minimum	Maximum	Median
Age (years)	34.0	11.1	18	63	32.5
Number of previous hospitalizations	2.55	3.36	0	13	1.0
Number of prior major depressive episodes	1.34	1.68	0	6	1.0
Treatment length (days)	27.7	21.4	5	141	22.0
Admission score					
Hamilton Depression Rating Scale (24-item)	29.0	9.5	11	53	29.0
Global Assessment Scale	36.9	8.1	20	62	38.0
Number of lifetime suicide attempts	3.0	2.4	1	13	2.1

following a suicide attempt (10), an additional 10% of subjects who attempt suicide commit suicide in the following 10 years (14). Correct identification of depressed patients who have a history of overt suicidal behavior is essential for detection of high-risk patients. If clinicians fail to document suicidal indicators, the communication of the high-risk status of the patients to primary care physicians and other clinicians involved will be ineffective, and appropriate management strategies jeopardized.

Research into correlates of suicidal behavior is also dependent on an accurate lifetime history of suicidal behavior. We have for several years been investigating the psychological and biological factors associated with suicidal behavior in major depression (11, 15–18). Accurate and comprehensive data on lifetime history of suicidal behavior have been essential to our biological and psychosocial studies because we seek to compare subjects with the same psychiatric illness who attempt and who do not attempt suicide in order to identify risk factors. Suicidal behavior is multidimensional, and these dimensions may reflect different biological and psychological mechanisms (19). For example, we have reported a factor analysis of Beck's Suicide Intent Scale (20) and identified a two-factor model consisting of planning behavior and subjective suicidal intent. We have found significant associations between the suicidal planning factor and serotonergic function, as well as a strong correlation between the medical lethality of suicide attempts and suicidal planning (19). We have also reported higher levels of suicidal ideation, aggression, hostility, and impulsivity in subjects who attempt suicide than in those who do not (17). Without accurate suicide history data, these conclusions would not have been possible, and their clinical relevance would have been obscured.

We have identified no study examining how assessment of suicidal behavior may differ between standardized semistructured interviews by researchers and routine evaluations by clinicians. Newson-Smith and Hirsch (21) compared social workers' assessments of suicidal behavior with those of physicians and suggested that social workers can safely and reliably assess these patients. Moreover, Catalan et al. (22) found no major differences between suicide assessments by doctors and nurses.

On the basis of our impression that the results of suicide assessments performed as part of the ongoing study of suicidal behavior in major depressive disorder by the National Institute of Mental Health (NIMH)-funded Clinical Research Center for the Study of Suicidal Behavior often differed from the routine clinical assessments recorded in the hospital charts, we hypothesized

that lifetime suicidal indicators are underestimated in clinical practice in the absence of systematic questioning about lifetime suicidal behavior. Therefore, we compared results of systematic clinical research assessments with the routine clinical assessment of suicidal behavior performed by physicians, nurses, and social workers on admission, during treatment, and on discharge from a psychiatric hospital. Secondary questions involved the exploration of possible factors influencing the quality of routine clinical assessment and documentation of suicidal behavior, such as lethality of attempts, axis II comorbidity, and a recent suicide attempt.

METHOD

Research Data

Before research interviews all patients gave written informed consent as required by the University of Pittsburgh Institutional Review Board. We compared the routine clinical assessments of 50 psychiatric inpatients (24 men and 26 women) at hospital admission, during treatment, and at discharge with the assessments of our study of suicidal behavior (the NIMH Clinical Research Center). All patients met DSM-III-R criteria for a current major depressive episode as determined by the Structured Clinical Interview for DSM-III-R (23). Each patient had made at least one suicide attempt, defined by the research study as the combination of a suicidal act with the intention of death as a consequence of the act, and was admitted to the inpatient units of the Mood Disorder Module of Western Psychiatric Institute and Clinic between January 1990 and May 1993 for evaluation and treatment of major depression. Other research instruments used were the International Personality Disorder Examination (24), Hamilton Depression Rating Scale (24-item) (25), and Global Assessment Scale (GAS) (26). Demographic and clinical data are presented in table 1. Because of high rates of comorbid borderline personality disorder (53%) in our study groups, we also explored the possible effect of a diagnosis of borderline personality disorder on the findings.

Routine Clinical and Research Assessment

All patients requiring admission to Western Psychiatric Institute and Clinic were assessed at intake in the diagnostic evaluation center by a physician, a nurse, and a social worker. Assessments were recorded on an intake psychiatric evaluation form (27). (Information on the form is available from Dr. Juan Mezzich, Western Psychiatric Institute and Clinic, 3811 O'Hara St., Pittsburgh, PA 15213.) Following admission, a resident's note, an attending physician's note, an admitting nurse's note, and social history were completed, and a treatment plan was constructed on the basis of this material. Before

discharge, a physician-generated discharge summary with treatment recommendations was compiled. To gather objective information from the clinical records on the different aspects of suicidal behavior, the medical charts of the patients were reviewed by two research psychiatrists (K.M.M. and K.S.). For each patient, the chart review covered the same time period as that of the suicide research assessment, and the following indices were reviewed: number of lifetime suicide attempts, presence of suicidal ideation, objective planning behavior for a suicide attempt, and degree of medical damage caused by the most lethal and recent attempts. We also investigated the documentation of family history of suicidal behavior, including family history of suicide attempts and history of suicide in the first- and second-degree blood relatives. These measures of suicidal behavior were compared with results from a separate, comprehensive research assessment conducted concurrently by other research staff.

The research study evaluation of recent suicidal ideation used the Scale for Suicide Ideation (28). We used the Suicide Intent Scale (29) to provide a summarized score for recent suicide planning behavior. The Lethality Scale was used for the measurement of medical lethality of attempts (29). A suicide history form (copyright NIMH Clinical Research Center for the Study of Suicidal Behavior) recorded the number of lifetime suicide attempts and family history of suicidal behavior. (Further information on the form is available from Dr. Malone.)

Data Analyses

To assess the accuracy of routine clinical documentation of the number of suicide attempts, data were scored following these guidelines: 4=all attempts recorded; 3=one attempt missed; 2=two to four attempts missed; 1=five to seven attempts missed, but at least one was diagnosed; and 0=eight or more attempts missed or no attempt was detected. Subsequently, scores of 3 or 4 were classified as adequate, whereas scores of 0, 1, or 2 were classified as inadequate documentation.

Composite suicide assessment accuracy scores were computed for the routine clinical assessment documentation of 1) number of suicide attempts as computed earlier, 2) recent suicidal ideation, 3) recent suicide planning behavior, 4) degree of medical damage resulting from the most recent attempt, 5) medical damage caused by the most lethal attempt, 6) family history of a suicide attempt, and 7) family history of suicide. Complete or partial information on the seven indices was classified as adequate assessment documentation, whereas the absence of information in the chart or the presence of misleading or incorrect information was classified as inadequate assessment documentation. For example, if it was mentioned in the case notes that the patient needed hospitalization because of the medical consequences of the suicide attempt, the medical damage item was scored as adequate. If in the medical record the method of the suicide attempt was mentioned (e.g., the amount and the quality of the overdosed drug), but the circumstances of the attempt and the medical damage were not, this information was scored as partial information and classified similarly as adequate assessment. Subsequently, a composite clinical accuracy score was computed as follows: adequate assessment scores for at least four of the seven categories were classified as overall adequate assessment documentation of suicidal behavior, whereas adequate scores on fewer than four categories were defined as inadequate assessment documentation.

Patients were divided into two groups: those correctly clinically documented as having attempted suicide and those documented as not having attempted suicide by clinicians but documented as having attempted suicide by research assessments. Univariate analyses of variance were performed to test mean differences across groups on dimensional variables. Cross-classification analyses (Pearson, chi-square when appropriate) were performed to test group differences on categorical variables. Chi-square tests were used to analyze accuracy of diagnosis by such factors as long or short length of stay, presence or absence of recent suicide attempts, presence or absence of borderline personality disorder, and high or low number of previous depressive episodes.

In order to test differences between patients' clinical characteristics as determined by routine clinical assessments versus clinical research assessments, paired *t* tests were performed. The Wilcoxon signed

rank test was used to analyze rank order differences in documentation of suicidal behavior between clinicians at admission and discharge, when research assessments were arbitrarily assigned 100% assessment accuracy. All analyses were performed by using the Statistical Package for the Social Sciences (SPSS/PC), and all tests used two-tailed probability values. Results are reported as means and standard deviations unless otherwise stated.

RESULTS

Of the subjects identified by research assessment as having attempted suicide, clinicians failed to document past suicidal acts for 24% (N=12) at admission and 28% (N=14) at discharge. Moreover, clinicians reported fewer total lifetime suicide attempts than did research data assessments, even in the psychiatric evaluation form, the most accurate clinical assessment record (mean=1.92 versus 2.96) ($t=-3.59$, $df=49$, $p=0.001$). According to the psychiatric evaluation form, the 50 patients had made a total of 96 attempts, compared with the research findings of 148 attempts. The residents and physicians documented 80 attempts, the admitting nurses 46 attempts, the social workers 66 attempts, and the discharge summary a total of 72 suicide attempts (table 2).

We found that the information documented on all the dimensions of suicidal behavior in the physician's discharge summary was significantly less accurate than information on suicidal behavior documented at the initial clinical semistructured assessment at hospitalization ($p<0.01$, Wilcoxon signed rank test) (table 2). The physician's discharge summary did not document the presence of recent suicidal ideation or planning behavior in 38% of the patients.

For the overall accuracy of routine clinical assessment documentation of suicidal behavior, the composite suicide assessment accuracy score was calculated as described earlier. As table 2 demonstrates, the clinicians' composite suicide assessment accuracy scores were inferior to research assessments. The semistructured interview (the psychiatric evaluation form) was superior to the suicidal behavior data documented in the discharge summary. Different aspects of patients' clinical characteristics affected the accuracy of clinicians differentially. We assessed the following possible factors. For hospital admission clinical assessments (the psychiatric evaluation form), patients with adequate composite suicide assessment accuracy scores (complete or partial information for at least four of the seven categories) subsequently tended to have longer hospital stays (more than 22 days) than those with inadequate accuracy scores ($\chi^2=3.44$, $df=1$, $p=0.06$). Social work assessments more frequently had adequate accuracy scores for patients who had made recent suicide attempts (past month: $\chi^2=5.47$, $df=1$, $p=0.02$; past 3 months: $\chi^2=4.16$, $df=1$, $p=0.04$) and in the absence of a diagnosis of borderline personality disorder ($\chi^2=5.14$, $df=1$, $p=0.02$). In the physician's discharge summaries, adequate accuracy scores were more frequent for patients with a greater number of previous depressive episodes (more

TABLE 2. Differences Between Clinician and Research Assessments in the Documentation of Suicidal Behavior

Dimension of Suicidal Behavior	Patients With Adequate Assessment of Dimensions of Suicidal Behavior ^a							
	Semistructured Admission Evaluation ^b		Admitting Nurse's Note		Social Worker's Note		Physician's Discharge Summary ^b	
	N	%	N	%	N	%	N	%
Documented suicide attempts	46	92	23	46	33	66	36	72
Number of lifetime suicide attempts ^c	72		28		48		50	
Recent suicidal ideation	50	100	49	98	40	80	31	62
Recent suicide planning behavior	50	100	47	94	39	78	31	62
Medical lethality of suicide attempt								
Most recent attempt	21	42	5	10	14	28	12	24
Most lethal attempt	19	38	3	6	9	18	9	18
Family history								
Suicide attempts	8	16	2	4	2	4	0	0
Suicide	4	8	0	0	1	2	0	0
Adequate accuracy overall ^d	25	50	6	12	12	24	7	14

^aAdequate assessment entailed complete or partial information about suicide indicators.

^bSignificant difference between admission evaluation and physician's discharge summary in percentages for all eight indices of suicidal behavior ($T^1=0$, $p<0.01$, Wilcoxon signed rank test).

^cQuantitative assessment of 148 suicide attempts. All other variables are numbers and percentages of patients (N=50).

^dAssessment adequate for at least four of the seven dimensions.

than two: $\chi^2=4.21$, $df=1$, $p=0.04$). Other factors did not significantly correlate with the adequacy of assessment documentation.

We also examined correlates of nondocumentation or inadequate documentation of specific suicidal behavior indices in the discharge summary. The temporally more remote the suicide attempt was from the time of clinical assessment, the less likely it was to be documented by clinicians ($r=0.49$, $N=46$, $p<0.001$). Further, less suicidal ideation reported in the week before admission decreased the likelihood of chart documentation of past suicide attempts ($r=0.28$, $N=48$, $p<0.05$). Subjects who had attempted suicide but were not so documented in the discharge summary did not differ from those whose attempts were documented in level of depression, number and lethality of suicide attempts, and clinical characteristics such as length of hospital treatment, number of previous treatment episodes, and global functioning (table 3). Clinically undocumented and documented subjects who had attempted suicide also did not differ in frequency of comorbid borderline personality disorder (57% [$N=8$] versus 52% [$N=19$], respectively) ($\chi^2=0.13$, $df=1$, $p=0.72$).

For subjects who had attempted suicide on multiple occasions (more than two lifetime attempts), the clinical documentation of the number of lifetime suicide attempts was less accurate than for patients with only one or two lifetime attempts (psychiatric evaluation form: $\chi^2=5.06$, $df=1$, $p=0.02$; discharge summary: $\chi^2=3.95$, $df=1$, $p=0.05$). The lethality of the most lethal and most recent suicide attempts was correlated with the accuracy of the clinical assessment of the number of suicide attempts at admission (psychiatric evaluation form: $r=0.32$, $p<0.05$ and $r=0.34$, $p<0.05$, respectively; $N=50$). The accuracy of the psychiatric evaluation form in assessing number of suicide attempts also tended to be higher for patients with higher

Hamilton depression scores (scores higher than 25; $\chi^2=3.59$, $df=1$, $p=0.06$).

According to the research assessments, six patients had a family history of suicide, and nine patients had a history of suicide attempts among first- and second-degree blood relatives. The psychiatric evaluation form was the most accurate clinical instrument for assessing and documenting a family history of suicidal behavior. According to the psychiatric evaluation form, one patient had a family history of suicide, and five patients had a family history of suicide attempts. Those patients identified as having a family history of suicide at the routine clinical assessments were the same patients the research findings identified as having a family history of suicidal behavior. No discharge summary mentioned a family history of suicidal behavior.

CONCLUSIONS

In this study, clinicians, including psychiatrists, performing routine intake and discharge assessments of 50 patients identified by systematic research evaluations as having attempted suicide and having a current major depressive episode failed to document adequately the presence of a lifetime history of a suicide attempt in 24% of cases on admission and in 28% of cases in the discharge summary. In addition, the physician's discharge summary did not document the presence of recent suicidal ideation or planning behavior in 38% of the patients.

It is essential that outpatient clinicians be aware of degree of suicidal risk in order to facilitate effective patient care, and the physician's discharge summary should communicate risk assessment to outpatient clinicians as accurately as possible. The patient record should provide a comprehensive assessment of long-

and short-term indicators of risk of suicide, and the discharge summary, which is the main guide to follow-up treatment, should summarize the essentials of this assessment. Our study found that the discharge summary underdocumented past and recent suicidal behavior and ideation.

Given that a history of past suicidal behavior is the most robust predictor of future suicidal behavior (7, 8, 30), that subsequent attempts are likely to be more lethal (12, 13), and that up to 40% of subjects who commit suicide have made a previous suicide attempt (31–34), correct identification and documentation of this high-risk population are crucial, particularly during a major depressive episode. Moreover, because only about 40% of those who die by suicide have been previously reported to have attempted suicide (31–34), our results suggest that the percent with previous suicide attempts might be much higher if appropriate histories were obtained with semi-structured clinical interviews relevant to suicidal behavior. Specific intervention and clinical management strategies for suicidal behavior with major depression cannot be tested or implemented until improvements are made in documenting cases. The current study indicates that no single part of the routine clinical assessment consistently provides comprehensive information on the overall suicidal behavior of the patient.

Although it is essential that all clinicians be aware of indicators of suicidal risk, in order to facilitate effective patient care, efficiency and completeness of assessment may be improved through the implementation of a semi-structured suicide interview by one responsible clinician, possibly at intake assessment but subsequently summarized in the discharge summary. This suggestion is supported by our observation that the psychiatric evaluation form consistently had the most accurate documented information about lifetime suicidal behavior (table 2), and this interview has a prompt to ask patients about "suicidal indicators." The Scale for Suicide Ideation (28) assesses the dimensions of suicidal ideation and planning, while the Suicide Intent Scale (29) assesses subjective suicidal intent and objective planning (20). Both interviews have been extensively used by researchers with a high degree of reliability and validity. When clinicians are trained, these semistructured interviews can be completed in 30 minutes. Correct identification of depressed patients with a history of suicidal acts should therefore improve treatment for this high-risk population. Better documentation of suicidal behavior should also enhance communication to

primary care physicians and outpatient psychiatric services and alert them to the short- and longer-term risks of suicide. Better documentation of relevant information may improve treatment prevention strategies for suicidal patients.

Because routine clinical assessment of suicidal behavior lacks structured measurement of suicidal intent and medical damage of suicide attempts, clinicians tend to ignore these dimensions of suicidal behavior. Factors influencing clinicians' adequacy of assessment include higher lethality of suicide attempt (measured by the psychiatric evaluation form), low number of attempts (two or less) (psychiatric evaluation form and physician's discharge summary), no axis II borderline diagnosis (social worker's assessment), higher level of suicidal ideation in the week before admission (psychiatric evaluation form and physician's discharge summary), more recent suicide attempt (social worker's assessment), higher number of previous depressive episodes (2 or more) (physician's discharge summary), and longer hospital stay (at least 22 days) (psychiatric evaluation form). Our initial hypothesis that greater medical lethality of suicide attempts would lead to better detection and documentation of suicidal behavior was only partly supported. Greater lethality of the most lethal and the most recent suicide attempts increased the accuracy only for the psychiatric evaluation form assessment. Similarly, the intensity of depression tended to improve accuracy only for the psychiatric evaluation form assessment.

There is a frequent clinical misconception that patients with personality disorders, particularly borderline personality disorder, will make multiple, nonserious suicidal gestures. Our previous findings for patients with both major depression and borderline personality disorder (17, 35) support results of other investigations (36–39) indicating that the presence of a concurrent personality disorder may increase risk for suicidal be-

TABLE 3. Research Assessments of 50 Patients With Suicide Attempts That Were or Were Not Documented in the Discharge Summaries

Variable	Patients With Documented Attempts (N=36)		Patients With Undocumented Attempts (N=14)		r
	Mean	SD	Mean	SD	
Age (years)	34.0	12.4	34.2	7.5	0.01
Duration of inpatient stay (days)	25.1	10.0	21.2	9.1	0.18
Time between last suicide attempt and admission (months)	12.5	39.8	33.8	31.7	-0.49**
Medical lethality of suicide attempt					
Most lethal attempt	3.0	1.8	3.3	2.2	0.07
Most recent attempt	2.6	1.8	2.6	2.5	0.00
Number of lifetime suicide attempts	3.2	2.5	2.4	2.1	0.16
Preadmission suicidal ideation score	22.9	9.1	16.4	12.7	0.28*
Admission score					
Global Assessment Scale	36.5	8.4	38.3	7.6	0.09
Hamilton Depression Rating Scale (24-item)	29.4	9.9	28.1	8.5	0.06

*p<0.05. **p<0.001.

havior in patients with axis I disorders. Evidence suggests that in this dual diagnosis group, the subsequent suicide attempts are at least as lethal as those made by patients with major depression without comorbid axis II diagnoses (35). In the current study, comorbid borderline personality disorder decreased the accuracy of only social work assessments. Thus, for physicians, comorbid borderline personality disorder is not a factor. For patients with comorbid borderline personality disorder, clinicians occasionally labeled a suicidal act with intent to die as a suicidal gesture if it was not medically life threatening or if the patient sought help after the attempt. Labeling a suicide attempt as a "gesture" reduces its significance as an indicator of risk of suicide. The term "suicidal gesture" has been used to distinguish those persons who engage in self-destructive behavior but do not intend to die from those persons who are trying to commit suicide. In the current study, we found several examples of mislabeling attempts as gestures and of inconsistencies in the definition of a suicide attempt. For example, one psychiatric evaluation form noted: "The patient has a one-year history of suicidal ideation and two gestures; six months ago attempting to overdose on sleeping pills, and once . . . attempting to drive his car into another car." The discharge summary, on the other hand, stated that "the latter was an attempt to end the patient's life." The definition of a suicide attempt and a gesture is somewhat vague in the literature. For our research, we have used the definition that a suicide attempt is the combination of an act with an intent to die.

In conclusion, a significant degree of past suicidal behavior is not recorded during routine clinical assessment. The use of semistructured screening instruments may improve documentation and detection of lifetime suicidal behavior. Physicians' discharge summaries, in particular, require adequate documentation of suicidal behavior when present, since it identifies a high-risk population for other clinicians during follow-up and is an important predictor that may have been underdocumented and subsequently underestimated in previous studies of outcome.

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