Followup of Neuropsychiatric Patients in Suicide Observation Status

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FOLLOWUP STUDIES of persons previously hospitalized for suicidal attempts have shown that this group exhibits a subsequently higher incidence of suicide than occurs in a neuropsychiatric hospital population or in the general population. For example, for every 100 persons who had previously attempted suicide, 1 to 4 suicides were reported (*1–3*); for every 1,000 neuropsychiatric patients, there were 1 to 3 suicides (*4, 5*); and for every 10,000 people in the general population, 1 suicide was reported (*6*). In the absence of clear-cut causes and effects for so infrequent an event as suicide, one strategy is to locate subpopulations in which the event is most probable. Such populations can then be studied for distinctive personality attributes or distinctive antecedent stress situations which may yield identifying and predictive clues. The identification of a population with high suicidal risk is obviously of great prevention value in public health. It is also of considerable methodological value. This study is an effort in that direction.

This study also extends the scope of other followup studies by seeking to relate identifiable aspects of a patient's past history to a more extensive spectrum of suicidal behavior than is usually studied. Suicidal behavior has been broadened to include suicidal attempts and suicidal threats or expressions of suicidal ideation. These are, of course, arbitrary distinctions which have been long used as nosological categories in the case histories examined. The value of these distinctions awaits empirical demonstration. They are continued in this study, however, since the data were already cast in this form. The category of "subsequent suicide" was broadened to include attempted suicide and expressions of suicidal ideation, as well as committed suicide. We hope this study will increase the efficiency of suicide evaluation procedures, provide clues for understanding the dynamics of suicide, suggest other categories for description of suicidal behavior, and indicate rewarding directions for future research.

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At the time of the study, Dr. Eisenthal was a research associate and Dr. Farberow and Dr. Shneidman (the co-directors of the Los Angeles Suicide Prevention Center) were the co-principal investigators at the central research unit for the study of unpredicted death, Veterans Administration Center, Los Angeles.

Method

Study Population

The population selected for study was composed of all neuropsychiatric patients in the Veterans Administration Hospital, Brentwood, Los Angeles, Calif., who had been placed in suicide observation status (S status) between 1954 and 1958. The followup period was from time of placement in S status, 1954 to 1958, until

1962. A total of 912 such patients were identified by the hospital's unisort card system. Of the 912 patients in S status, reliable information on life status was found for 822, or 90 percent. This report is confined to these 822 patients.

A comparison of the study population (the patients for whom data were complete) with the patients for whom data were lacking revealed some differences. The disabilities of 67 percent of the 822 with complete data were service connected, compared with 26 percent of the 90 with incomplete data—a significant difference by Chi-square. The patients for whom data were incomplete were younger, their mean age being 34.3 years, while the mean age of the group for whom data were complete was 40.5 years. The patients with incomplete data were hospitalized a shorter time—1–2 months compared with 3–4 months for patients with complete data. A larger proportion of the persons with incomplete data were neurotic (50 percent) than were persons with complete data (30 percent), and a smaller proportion (14 percent) were schizophrenic than the persons with complete data (34 percent). Only 87 percent of the group for whom data were lacking were male, while 93 percent of the group for whom data were complete were male. No significant differences were found by year of admission, year of discharge, reason for placement in S status, year of placement in S status, race, religion, or marital status. Since the most reliable source of complete case information was the patient's claims file, the veterans with service-connected disabilities are likely overrepresented in the study population. It is not possible, however, to evaluate any likely differences in subsequent suicidal behavior on the basis of these differences.

Predictors and Measures

The data collected on the study population were classified as (*a*) case history information —to be evaluated as predictors of subsequent suicidal behavior, and (*b*) measures of subsequent suicidal behavior. The predictors of subsequent suicidal behavior were listed under three headings—prior suicidal behavior, demographic data, and neuropsychiatric hospitalization data.

"Prior suicidal behavior" included the reason for placement of the patient in S status (that is, attempted suicide, expression of suicidal ideation, or other reason), the patient's behavior to the date of such placement, and the number of prior attempts and their seriousness. ("Subsequent" and "subsequently" refer to the period after placement of the patient in S status unless specifically defined otherwise.)

To evaluate the seriousness of attempts, the senior author, with the assistance of Alcon Devries, Ph.D. (at the time of the study, a biometrician at the Suicide Prevention Center, Los Angeles), devised a five-point scale of seriousness of intention in attempted suicide. This scale was based on ratings of suicide methods as to seriousness of intention which had been formulated by 15 experts from the Suicide Prevention Center, Los Angeles, and from the Veterans Administration central research unit for the study of unpredicted death.

The demographic data were sex, age, race, religion, marital status, and occupational group.

The neuropsychiatric hospitalization variables were the primary psychiatric diagnosis, length of hospitalization, service connection of disability, and type of disposition for the S status hospitalization.

The variables under "subsequent suicidal behavior" were the form of suicidal behavior (committed suicide, attempted suicide, or expressed suicidal ideation), interval between placement in S status and subsequent suicidal behavior, method of suicide attempts, number of suicide attempts, and mortality.

The source of data for the predictors of subsequent suicidal behavior was the patient's consolidated clinical folder. These folders contain detailed records of each patient's VA hospitalization history. The sources of information for measures of subsequent suicidal behavior were the consolidated clinical folder and the claims file. The claims file contains information about monetary awards for service-connected disabilities and for pensions, recent disability ratings, and any communication concerning the patient's relationship with the Veterans Administration. The claims file was used to gather information about the subsequent life status of each patient because postdischarge information is not available in the clinical folder after the patient

leaves the hospital. The claims file was therefore the major source of data on patients who committed suicide or who died of other causes following their hospitalization. A test of the reliability between two raters pertaining to their collection of the data for the suicide history and on demographic and hospitalization variables yielded an overall agreement of 94 percent with a range of 71 to 98 percent.

Prior Suicidal Behavior

A patient was placed in S status when, in the opinion of the admitting or ward physician, he was actively suicidal and appeared in continuing danger of self-injury or self-destruction. The greatest number of patients, 406 (or 49 percent of the 822 in S status), had been placed in S status because of suicide threats or expressions of suicidal ideation. Current suicidal attempts, which were made by 271 patients (33 percent), ranked next as a cause for such placement. A sizable proportion, 18 percent (145 patients), although not manifestly suicidal, exhibited depression, agitation, or acting-out behavior; the majority of these had a suicidal history.

Of the 822 patients placed in S status, 456 (56 percent) had been suicidal previously; of those previously suicidal, 287 (35 percent) had attempted suicide and 169 (21 percent) had expressed suicidal thoughts. No suicidal behavior was documented for the remaining 366 (45 percent).

The commonest setting for the behavior leading to placement of patients in S status was the patient's home environment just before hospitalization, as the following table shows:

	Patients (N=822)	
Setting [1]	*Number*	*Percent*
Home just before admission	561	69
Brentwood Veterans Administration Hospital grounds	153	19
Other Veterans Administration hospital grounds [2]	73	9
Veterans Administration Center domiciliary	14	2
Pass or leave from Brentwood Veterans Administration Hospital	7	1
Non-Veterans Administration hospital	5	1
Elopement from Brentwood Veterans Administration Hospital	2	0
Jail	1	0
Military service	1	0
Unknown	5	1

[1] If the patient had been placed in S status more than once during the study year, setting of the behavior which led to his first placement in S status was used.

[2] Usually the Wadsworth General Medical and Surgical Hospital, which is part of the Los Angeles Veterans Administration Center.

The five commonest methods of attempted suicide which led to placement of patients in S status were, in order of frequency, barbiturates, cut wrists, cut or stab in the neck, tranquilizers, and gas or chloroform. The number and percent of S status patients using the various suicide methods were as follows:

	Patients (N=271)	
Method	*Number*	*Percent*
Barbiturates	63	23
Cut wrists	49	19
Miscellaneous	48	19
Cut or stab in neck	20	7
Tranquilizers or anticonvulsants	19	7
Gas or chloroform	13	5
Cuts or stabs other than neck or wrist	10	4
Drowning	10	4
Hanging	10	4
Poison	10	4
Auto exhaust fumes	3	1
Jump from a height	3	1
Gunshot	3	1

Social Data

The study population was 93 percent male, 93 percent white, and 53 percent Protestant. Forty-nine percent of the subjects were married. Craftsmen comprised 18 percent of the population, professional workers 14 percent, and service workers 12 percent. The age of the majority of the subjects was between 25 and 44 years; the median age was 37 and the mean age 41.

Neuropsychiatric Hospitalization

A larger proportion of the S status patients (34 percent) had a primary diagnosis of schizophrenic reaction than any other primary psychiatric diagnosis. The large majority had neuropsychiatric or other diabilities that were service connected.

The median hospitalization period was between 3 and 4 months. The length ranged, however, from less than 1 full day to more than 5 years. The number of patients placed in S status tended to increase during the years 1954–58: 17 percent of the S status patients had been placed on suicide observation in 1954; 26 percent, in 1958. Five percent had been admitted to the Brentwood hospital before 1954.

Most of the study population (85 percent) had been discharged from the Brentwood hospital by December 31, 1958. As of August 1961, 56 percent of the S status population had received regular discharges from the hospital, 30 percent had left on irregular discharges, 10 percent had died, and cases of 3 percent were still active.

Results: Predictors of Suicidal Behavior

Forty percent of the study population manifested suicidal behavior subsequent to placement in S status. Six percent committed suicide, 17 percent made unsuccessful suicide attempts, and 17 percent manifested suicidal ideation.

In the following sections we relate the predictor variables—prior suicidal behavior and demographic factors—to subsequent suicidal behavior and also discuss the best predictor variables for evaluating suicide potentiality in the study population.

Prior Behavior Variables

Form of prior suicidal behavior. Table 1 shows that the proportion of subsequent suicides among patients who had a history of attempting suicide was slightly larger (7 percent) than among patients who had a history of expressing suicidal ideas (5 percent of whom committed suicide) and considerably larger than among members of the depressed group (1 percent of whom committed suicide).

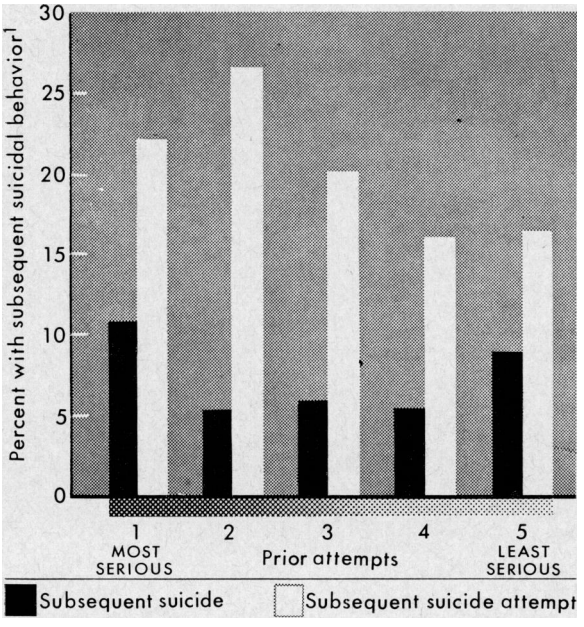
Patients who had a history of attempting suicide were more likely to attempt suicide after placement in S status than patients who had merely a history of having threatened suicide or than patients in the depressed group. Twenty percent of the patients who had attempted suicide before such placement made subsequent attempts, compared with 12 percent of those who had merely threatened suicide and 16 per-

Table 1. Percent distribution of subsequent forms of behavior among neuropsychiatric patients in suicide status according to their prior suicidal behavior

Prior suicidal behavior	Number of patients [1]	Subsequent behavior (percent of patients)				
		Nonsuicidal (N=493)	Suicidal			
			Total (N=329)	Committed suicide (N=46)	Suicide attempts (N=139)	Suicidal thoughts [2] (N=144)
Total in suicide status	822	60	40	6	17	17
Reason for S status: [3]						
Suicide attempt	271	59	41	7	21	13
Suicidal thoughts	406	58	42	6	14	22
Depression, agitation, and acting-out behavior	145	66	34	2	17	15
Complete suicide history (including reason for S status):						
Suicide attempts	458	57	43	7	20	16
1	274	66	34	5	14	15
2 or more	184	43	57	10	29	18
Suicidal thoughts	294	62	38	5	12	21
No suicide history but depressed, agitated, acting-out behavior	70	69	31	1	16	14

[1] Each number represents 100 percent and is the basis for the 5 percentages to the right of it.
[2] If a patient manifested both suicide attempts and suicide thoughts, he is classified under "suicide attempts."
[3] If a patient was placed in S status more than once during the study years, the data from the first placement were counted.

Relationship of seriousness of method in prior suicide attempts to subsequent suicidal behavior



[1] Percentage is based on all S status patients who had made a prior suicide attempt—that is, at the time of, or before, placement in S status. The chart does not, however, depict the subsequent behavior of those whose method in the prior suicide attempt could not be rated on our five-point scale.

cent of the depressed group. The threateners, however, more frequently expressed subsequent suicidal thoughts (21 percent of them did so) than those who had previously attempted suicide (16 percent) or than the depressed group (14 percent).

Number of prior attempts. A history of two or more prior attempts at suicide was the best single predictor of subsequent committed suicide and nonlethal suicidal attempts in the study population. Ten percent of those with a history of multiple attempts and 5 percent of those with a history of one attempt subsequently committed suicide (table 1). Furthermore, 29 percent of those with a history of multiple attempts and 14 percent of those with a history of one attempt subsequently made other nonlethal attempts—again a ratio of better than two to one.

When patients with a history of only one suicidal attempt were compared with those with a history of expression of suicidal thoughts, the data showed the two groups had the same potentiality for committing suicide (5 percent).

Recency of prior attempt. Patients who attempted suicide at time of placement in S status were compared with those who had made an attempt before such placement (table 1); the differences in subsequent committed or attempted suicides were negligible. Thirteen percent of the patients who attempted suicide at time of placement in S status expressed suicidal thoughts subsequently, compared with 20 percent of those who had made an attempt before such placement.

Seriousness of prior attempt. The belief that suicidal attempts become successively more serious was not supported in this population. Eighty patients were found who had made two or more attempts by a method which could be rated for seriousness (that is, intention to succeed). A Chi-square test, however, yielded no statistically significant relationship between the degree of seriousness in these patients' prior and subsequent attempts.

We tried to determine whether the seriousness of prior suicidal attempts was related to the form of subsequent suicidal behavior. A positive relationship was found between the seriousness of prior methods of attempting suicide and the occurrence of subsequent attempts at suicide. No relationship was found, however, between seriousness of prior suicide attempts and subsequent committed suicide (see figure).

Demographic Variables

The demographic data on sex, race, religion, marital status, age, and occupation were related to the subsequent behavior of S status patients (tables 2 and 3).

Sex. The women in this population were twice as likely to commit suicide as the men: 10 percent of the women and 5 percent of the men committed suicide. The women were also more than one and one-half times as likely to make nonlethal attempts as the men: 27 percent of the women compared with 16 percent of the men made such attempts.

Race. The most distinctive feature of the data in respect to race was that, although the group contained 59 nonwhites, only white persons committed suicide.

Religion. Jewish patients had the highest

percentage of committed suicide (13 percent), more than twice that of Protestants (4 percent) or of Catholics (6 percent). Religion thus appears to be a good predictor of suicide potentiality. Subsequent nonlethal suicidal attempts were higher among Catholics (22 percent) than among Protestants (15 percent) or among Jews (13 percent).

Age. Among men, there was no trend for committed suicide to rise with age. The first ranking age group for men for committed suicide was between 55 and 64 years, while the second ranking age group was between 19 and 24 years. (Percentages in table 2 are not carried out to enough decimal points to show the rank of the age groups in all instances.)

Nonlethal attempts and the expression of suicidal thoughts were found to decrease with age. The percent of nonlethal attempts was about the same at the ages 19–44, but at the ages 45–54 it dropped sharply to almost one-half (from 18 to 10 percent). The percent of patients expressing suicidal thoughts was also about the same at ages 19–54, dropping at ages 55–64 by more than one-half (from 24 to 9 percent).

Marital status. Committed suicide after placement in S status occurred most frequently among the divorced: 9 percent of this group committed suicide. Single and divorced patients attempted suicide more often than married or widowed patients: 20 percent of the single patients and 19 percent of the divorced made nonlethal attempts during or subsequent to their S status hospitalization.

Occupation. A larger proportion of white-collar workers (7 percent) committed suicide than of blue-collar workers (4 percent). The

Table 2. Percent distribution of subsequent forms of behavior among neuropsychiatric hospital patients in suicide status according to sex, age, race, religion, and marital status

Demographic variable	Number of patients in suicide status [1] (N=822)	Subsequent behavior (percent of patients)				
		Nonsuicidal (N=493)	Suicidal			
			Total (N=329)	Committed suicide (N=46)	Suicide attempts (N=139)	Suicidal thoughts [2] (N=144)
Sex:						
Male	763	61	39	5	16	18
Female	59	48	52	10	27	15
Age group (years):						
19–24	49	58	42	6	20	16
25–34	273	54	46	6	23	17
35–44	256	56	44	6	18	20
45–54	105	62	38	4	10	24
55–64	88	76	24	8	7	9
65–74	34	82	18	3	6	9
75 and over	17	76	24	6	6	12
Race:						
White	763	59	41	6	17	18
Negro	56	71	29	0	13	16
Oriental	2	100	0	0	0	0
Other	1	100	0	0	0	0
Religion:						
Protestant	470	63	37	4	15	18
Catholic	227	55	45	6	22	17
Jewish	76	58	42	13	13	16
None stated	41	49	51	5	23	23
Other	8	50	50	0	25	25
Marital status:						
Married	398	67	33	4	15	14
Single	218	55	45	6	20	19
Divorced	179	48	52	9	19	24
Widowed	26	76	24	0	12	12

[1] Each number represents 100 percent and is the basis for the 5 percentages to the right of it.
[2] If a patient manifested both suicide attempts and suicide thoughts, he is classified under "suicide attempts."

Table 3. Distribution of subsequent forms of behavior among neuropsychiatric hospital patients in suicide status according to patient's occupation

Occupation [1]	Number of patients in suicide status [2] (N=822)	Subsequent behavior (percent of patients)				
		Non-suicidal (N=493)	Suicidal			
			Total (N=329)	Committed suicide (N=46)	Suicide attempts (N=139)	Suicidal thoughts [3] (N=144)
Professional, technical, and kindred workers	114	64	36	6	18	12
Farmers and farm managers	8	49	51	13	25	13
Managers, officials, and proprietors, except farm	28	75	25	4	14	7
Clerical and kindred workers	85	57	43	8	18	17
Sales workers	65	65	35	6	14	15
Craftsmen, foremen, and kindred workers	144	64	36	3	17	16
Operative and kindred workers	89	51	49	8	16	25
Private household workers	0	0	0	0	0	0
Service workers, except private household	94	58	42	3	19	20
Farm laborers and foremen	6	66	34	17	0	17
Laborers, except farm and mine	55	70	30	2	15	13
No occupation stated	98	51	49	7	15	27
Housewives	19	52	48	16	16	16
Students, no other data	17	53	47	0	35	12
White-collar workers	292	63	37	7	16	14
Blue-collar workers	388	60	40	4	17	19

[1] Occupations were classified according to the Dictionary of Occupational Titles (reference 22).
[2] Each number represents 100 percent and is the basis for the 5 percentages to the right of it.
[3] If a patient manifested both suicide attempts and suicide thoughts, he is classified under "suicide attempts."

proportion in both groups who engaged in nonlethal suicidal attempts was similar (white-collar workers 16 percent, blue-collar workers 17 percent). The percentage of patients expressing suicidal thoughts was higher among blue-collar workers (19 percent) than among white-collar workers (14 percent). Skilled and unskilled workers committed proportionately fewer suicides (3 and 2 percent) than the semiskilled (8 percent). On the other hand, no relationship was evident between the degree of skill among the three blue-collar groups and the percentage of nonlethal attempts; the proportion of patients engaging in nonlethal attempts was similar in all three blue-collar groups (16–17 percent).

Neuropsychiatric Hospitalization Variables

Primary psychiatric diagnosis. Table 4 shows that a slightly greater percentage of psychoneurotic patients committed suicide (8 percent) than schizophrenic patients (6 percent) or functional psychotics other than schizophrenics (4 percent). Nonlethal attempts occurred most frequently among paranoid schizophrenics (28 percent), patients with acute brain syndromes—mostly alcoholics—(25 percent), and patients with personality disorders (23 percent). Nonlethal attempts occurred least frequently among patients with functional psychoses other than schizophrenia (8 percent), patients with chronic brain syndromes (11 percent), and patients with neurotic depressions (12 percent). With respect to expression of suicidal thoughts only, it is noteworthy that patients with the following diagnoses had relatively low percentages of such expressions: acute brain syndrome (4 percent), chronic brain syndrome (13 percent), and neurotic depressions (13 percent).

Months hospitalized. Table 5 indicates that patients hospitalized 7–12 months had a higher percentage of committed suicides (9 percent) than those hospitalized 1–2 months (5 percent) or than those hospitalized 25 months (3 percent). There seemed to be a curvilinear relationship between the months patients were hospitalized and committed suicides.

Attempts at suicide increased between the 1st and 12th months of hospitalization, going from 14 percent to 23 percent, but stabilized after 12 months. Expression of suicidal thoughts after discharge did not vary with the length of hospitalization.

Service connection of disability. Veterans with nonservice-connected disabilities had a higher percentage of suicides following discharge from the Brentwood hospital than did patients with service-connected disabilities (7 percent compared with 5), but had a lower percentage of subsequent nonlethal attempts (13 percent compared with 19), as well as a lower percentage of expressions of suicidal thoughts (11 percent compared with 21).

Type of disposition. Patients with AMA discharges, that is, discharges demanded by the patient and granted but against best medical advice, had a higher percentage of subsequent suicides (6 percent) than those with regular discharges (4 percent) or than those with elopement discharges (2 percent). (Elopement discharges are those effected after the patient has left the hospital without permission and has not returned.) The percentage of nonlethal attempts subsequent to discharge was similar in patients regularly and irregularly discharged. Expressions of suicidal thoughts occurred most frequently among the patients who had received regular transfers to other hospitals (23 percent) and least frequently among the patients who had eloped (13 percent).

Interval before suicidal behavior. Table 6 shows the cumulative percentages of patients who committed and attempted suicide in each of the 8 years following placement in suicide status; also, for those who actually committed suicide, the cumulated percentages are given for each of the 8 years following discharge from the Brentwood hospital. Thirty percent of the suicides occurred within the first year of placement in S status; the median interval between such placement and suicide was 24 months. Twenty percent of the suicides occurred within 1 year of discharge from the S status hospitalization; the median interval between the discharge and the suicide was 30 months.

Fifty-one percent of the patients who made nonlethal suicidal attempts did so within 1 year of placement in S status; the median interval between such placement and attempted suicide was 9 months.

Setting of subsequent suicides. Thirty-five

Table 4. Percent distribution of subsequent forms of behavior among neuropsychiatric hospital patients in suicide status according to their primary psychiatric diagnosis

Psychiatric diagnosis	Number of patients in suicide status [1] (N=822)	Subsequent behavior (percent of patients)				
		Nonsuicidal (N=493)	Suicidal			
			Total (N=329)	Committed suicide (N=46)	Suicide attempts (N=139)	Suicidal thoughts [2] (N=144)
Brain syndromes:						
Acute	28	71	29	0	25	4
Chronic	64	73	27	3	11	13
Functional psychoses:						
Schizophrenic reactions	278	51	49	6	22	21
Paranoid	123	46	54	6	28	20
Other	155	55	45	6	17	22
Other functional psychoses [3]	75	67	33	4	8	21
Psychoneurotic disorders	250	63	37	8	14	15
Depressive reaction	168	67	33	8	12	13
All others	82	52	48	9	17	22
Personality disorders	103	54	46	5	23	18
No diagnosis or no disorder found	24	79	21	0	4	17

[1] Each number represents 100 percent and is the basis for the 5 percentages to the right of it.
[2] If a patient manifested both suicide attempts and suicide thoughts, he is classified under suicide attempts.
[3] Includes involutional psychotic reactions, pychotic depressive reactions, and all types of manic-depressive reactions.

Table 5. Percent distribution of subsequent forms of behavior among neuropsychiatric hospital patients in suicide status according to hospitalization variables

Hospitalization variable	Number of patients in suicide status [1] (N=822)	Subsequent behavior (percent of patients)				
		Non-suicidal (N=493)	Suicidal			
			Total (N=329)	Committed suicide (N=46)	Suicide attempts (N=139)	Suicidal thoughts [2] (N=144)
Months hospitalized:						
1–2	317	64	36	5	14	17
3–6	196	59	41	7	15	19
7–12	91	49	51	9	23	19
13–24	94	64	36	5	18	13
25 or more	124	55	45	3	23	19
Type of disposition:						
Regular discharge	464	59	41	4	18	19
Regular discharge except transfer [3]	412	61	39	4	17	18
Transfer	52	48	52	4	25	23
Irregular discharge	249	60	40	5	18	17
Against medical advice	197	59	41	6	17	18
Elopement	47	62	38	2	23	13
Other	5	80	20	0	0	20
Death	82	61	39	20	9	10
Active cases	27	56	44	0	22	22
Service connection of disability:						
Service-connected	554	55	45	5	19	21
Not service-connected [4]	268	69	31	7	13	11

[1] Each number represents 100 percent and is the basis for the 5 percentages to the right of it.
[2] If patient manifested both suicide attempts and suicide thoughts, he is classified under suicide attempts.
[3] Includes patients discharged because they had received maximum hospital benefit, those discharged for observation and evaluation, and those discharged for trial visits.
[4] Includes patients who registered no claims for disability.

percent of the suicides committed subsequent to placement in S status occurred during the S status hospitalization, 26 percent during a period of rehospitalization, and 40 percent outside of a Veterans Administration hospital (table 7). Suicide in this population was thus a little more likely to occur during hospitalization. The setting of suicide for the 28 patients who were on the Veterans Administration hospital rolls tended to be off the hospital grounds: 39 percent of the suicides occurred on a trial visit or pass, 25 percent on elopement, and 36 percent on the hospital grounds.

The suicide settings of patients with schizophrenic reactions were compared with those of patients who were psychoneurotics and those who had personality disorders. Eighty-one percent of the patients with schizophrenic reactions committed suicide during hospitalization compared with 44 percent of the psychoneurotics and the patients with personality disorders.

The Best Predictors

Table 8 summarizes the 10 highest ranking predictors of suicides and nonlethal attempts. For the 10 highest predictor variables of suicide, the range of prediction for each variable was from 8 through 13 percent. The first ranking variable was religion—Jewish (13 percent of this group committed suicide), and the 10th reflected the suicide method—slashing of wrists (8 percent of those who slashed their wrists died).

For the 10 highest predictor variables of nonlethal suicidal attempts, the range of prediction for each variable was from 23 through 29 percent. The first in rank was two or more suicidal attempts (29 percent of those who had made two or more attempts subsequently committed suicide), and the 10th in rank was hospitalization for 25 or more months (23 percent of those hospitalized for this length of time subsequently committed suicide). The magni-

tude of success in predicting suicide is thus less than half as great as in predicting nonlethal suicidal attempts.

Discussion

All S status patients, not just those who attempted suicide, had a higher probability of subsequent suicidal behavior than other neuropsychiatric patients. While S status patients remained on the hospital rolls, the percentage of suicides among them (2.02 percent) was 6 times higher than among patients not in S status (estimated 0.33 percent) at the Brentwood Veterans Administration Hospital (*5*), and 18 times higher than among neuropsychiatric hospital patients in general (0.12 percent), according to a 1960 report by authors Farberow and Shneidman. After discharge from Brentwood, the percentage of suicides and nonlethal attempts among the S status patients was much higher than found in the general population (*6*, *7*). Unfortunately, no comparative norms are available for suicidal behavior among neuropsychiatric patients of Veterans Administration hospitals after discharge.

Suicidal behavior in this population seems to have become a pattern of response relatively resistant to modification. The data show that 56 percent of the patients in this population had a suicide history before placement in S status

Table 6. Cumulative percentages of suicides and suicide attempts among study patients in 8 years after placement in suicide status and cumulative percentages of suicides in 8 years after hospital discharge

Year	Interval measured from placement in suicide status to—		Interval measured from hospital discharge to suicide (N=30)
	Committed suicide (N=46)	Suicide attempt (N=139)	
1	30	51	20
2	52	72	43
3	63	85	53
4	78	91	73
5	83	95	83
6	91	96	90
7	97	98	96
8	100	100	100

Table 7. Settings of the 46 suicides

Settings	Number of suicides	Percent of the suicides
Original suicide status hospitalization	16	35
In hospital	7	15
On pass or trial visit	5	11
On elopement	4	9
During subsequent Veterans Administration hospitalization	12	25
In hospital	3	6
On pass or trial visit	6	13
On elopement	3	6
Not hospitalized or other non-Veterans Administration hospital setting	18	40

Table 8. Predictor variables with the highest percentage of subsequent committed suicides and suicide attempts

Variable [1]	Patients in category [2]	Percent with suicidal behavior	Rank
Committed suicide			
Jewish religion	76	13	1. 0
Most serious suicide method	143	10	2. 0
2 or more suicide attempts	186	10	3. 5
Female	59	10	3. 5
Divorced	179	9	5. 0
Least serious suicide method	78	9	6. 0
Hospitalized 7–12 months	91	9	7. 0
Neurotic reaction other than depression	82	9	8. 0
Clerical occupation	85	8	9. 5
Suicide method—slashed wrists	49	8	9. 5
Attempted suicide			
2 or more suicide attempts	186	29	1. 0
Paranoid schizophrenia	123	28	2. 0
Female	59	27	3. 0
2d most serious suicide method	57	26	4. 0
Suicide method—barbiturates	63	24	5. 0
25–34 years at admission	273	23	6. 5
Disposition—elopement	47	23	6. 5
Personality disorder	103	23	8. 0
Hospitalized 7–12 months	91	23	9. 0
Hospitalized 25 or more months	124	23	10. 0

[1] Only predictor variables characterizing 40 or more patients were considered, that is, at least 5 percent of the patients in suicide status.

[2] Number of patients in each variable category, a percentage of whom subsequently manifested suicidal behavior.

and that 40 percent of the patients placed in S status continued to manifest suicidal behavior. Since all patients studied were in suicide status, traditional treatment apparently was unable to alter the suicidal pattern of a substantial percentage. This result is all the more important since these figures are a lower and not an upper limit of manifestations of suicidal behavior.

The followup data can be of practical use in evaluating suicide potentiality. First, the results provide a basis for re-examining current standards of judgment about suicide potentiality. Second, they can supplement standards currently in routine use in the evaluation process. Third, they can identify, for further study, the subgroups in which intensive treatment and followup would bring the highest payoff.

High predictive power was not found among the variables in the patients' suicide histories. This result lends support to the view that some suicidal behavior represents a personally dangerous attempt, literally a life or death gamble, to influence other people. The contrasting fact, that relatively few of the people exhibiting suicidal behavior go on to kill themselves, although many continue to act suicidal, may suggest that the "significant others" are influenced by such acts and that some results are achieved which are desirable to those performing them (*3*, *8–12*). Our data conform to the theoretical position that many suicidal attempts reflect a cry for help and that failure to heed the person's cry may result in his self-destruction.

Among variables in suicide history, two merit further consideration—multiple attempts and the seriousness of the suicide method. Do repeated suicidal attempts come from impulsive, easily defeated persons whose threshold for suicidal behavior is low or from the cumulative impact of unmanageable and continuing situational crises? A close analysis of diagnostic and demographic data on persons making multiple attempts provides no answer. This variable is particularly important for further study since it is one of the best predictors of subsequent suicidal behavior.

It has often been assumed that a good index of suicide potentiality is the seriousness of prior suicidal behavior (*3*, *11*, *13*). Among the first questions usually asked about the behavior of a suicidal patient are, "Was his attempt genuine or a gesture?" "Did he really mean it when he threatened to kill himself?" If the attempt was genuine, the implication is that the patient will continue to be a serious suicide risk, but that if it was a gesture, suicide is unlikely. This type of analysis implies that situational variables instigating action are unchanging, unimportant, or merely secondary determinants of suicidal behavior.

For the study population, seriousness per se was not a useful predictor of suicide. Persons who attempted suicide were no more likely to commit suicide than threateners unless such persons had a history of prior attempts. Moreover, the seriousness of the suicidal attempt was not significant as a predictor of subsequent suicide. Stengel and Cook (*3*) believe that suicidal behavior usually causes some alteration in the instigating conditions. In followup studies of persons who attempted suicide, they found that subsequent suicide was based on different motivation than the original attempt.

Among the variables associated with neuropsychiatric hospitalization that were particularly noteworthy as predictors were the diagnosis, length of hospitalization, and interval between placement in S status and subsequent suicidal behavior.

Much has been written recently about the unreliability of psychiatric diagnoses (*14*). With such restrictions in mind, four features of the diagnostic data invite further attention.

1. In the population of patients in suicide status, severe personality disorganization was not found to be significantly related to committed suicide. In fact, the neurotics in S status had a slightly higher percentage of suicides than did the psychotics. Psychotic disorganization, particularly in schizophrenia, accounted for a higher percentage of unsuccessful suicide attempts, however, than neurotic behavior patterns did. Our study results appear inconsistent with an observation made by authors Farberow and Shneidman in a report (unpublished) from the central research unit for the study of unpredicted death to the Veterans Administration central office, Washington, D.C., 1960. They reported that schizophrenics ac-

counted for 71 percent of the committed suicides in Veterans Administration neuropsychiatric hospitals. This percentage is twice what would be expected from the proportion of suicides in the current study that were committed by schizophrenics. The difference results in part from comparing hospitalized patients (1960 report by authors Farberow and Shneidman) with both hospitalized and discharged patients of this study. Separate analyses of our data for hospitalization status at the time of suicide were made. Thirteen (47 percent) of the 28 suicides that occurred during hospitalization or rehospitalization, as well as 3 (17 percent) of the 18 suicides that occurred after discharge, were committed by schizophrenics.

2. The proportion of neurotics in S status was greater than was to be expected from their proportion in the neuropsychiatric population of the Brentwood hospital, whereas the proportion of schizophrenics in S status was smaller than was to be expected from their proportion in the neuropsychiatric hospital population. Neurotics may be recognized and labeled suicidal risks more frequently than other neuropsychiatric patients because they are struggling more openly with their suicidal urges and thus achieve greater recognition of their concern. Also, they are more likely to be taken seriously when they communicate suicidal thoughts than other neuropsychiatric patients since they are in better contact with reality and their remarks tend to be more accurate and appropriate.

3. Depression has been listed as one of the preconditions of suicidal behavior. We could only evaluate crudely the implication of degree of depression by comparing neurotic and psychotic depressions. Our data did not show that the severity of depression was related to suicide potentiality. Patients with psychotic depressions were less suicidal than most other psychotics and neurotics. Patients with neurotic depressions were less suicidal than other neurotics but more suicidal than psychotics. Zilboorg (*15*) long ago asserted that depression is neither a necessary nor sufficient cause of suicide.

4. Eighty-one percent of those diagnosed as schizophrenic who committed suicide did so during neuropsychiatric hospitalization. Neurotics did not show this difference with respect to where they killed themselves—approximately one-half of their suicides were in the hospital. The explanation for the high proportion of suicides during hospitalization cannot simply be that schizophrenic patients did not have the opportunity to commit suicide in the community, since 46 percent of hospitalized schizophrenic patients who committed suicide did so on pass or leave. In part, the high proportion may be explained by the generally longer period of hospitalization for schizophrenics compared with neurotics. A more critical determinant of suicide among schizophrenic patients during hospitalization probably is the patient's beliefs about whether he can return to the community.

Our data suggest that suicide in this particular population—neuropsychiatric patients in S status—is not a sudden or unexpected response to personal difficulties. The median interval between placement in S status and suicide was more than 2 years. These patients therefore had been struggling for a long time to find other solutions to their problems. We did not find that any particular period after discharge had the greatest suicide potentiality. Other investigators have reported that suicide potentiality is high during the first 3 months after discharge from a Veterans Administration hospital (*16*, *17*).

In part, this difference in suicide potentiality may reflect the populations studied. Our investigation was devoted exclusively to S status patients who, we estimate, account for nearly one-half of suicides of Veterans Administration neuropsychiatric hospital patients. In other studies, the study samples were selected on the basis of suicidal outcome and not prior suicide history. Such populations of suicides would contain both patients in S status and patients not in S status. Moreover, there is a difference in calculating the interval before suicide between this study and others. In other studies, the interval before suicide was computed from time of discharge from the most recent hospitalization. We used the interval between discharge from the hospitalization in which the patient was placed in S status and the suicide. The objective was to establish a perspective on the time between psychiatric recognition of the problem and suicidal outcome.

Among the demographic variables, there

were surprising reversals with respect to sex, religion, and age. The data on race were consistent with other research (*6*, *18*): white patients were more suicidal than Negro patients. The data on marital status were consistent with those found in other research (*6*, *8*) namely, that divorced and single persons have the highest rate of suicides and suicidal attempts.

The suicide data for the female study subjects were a partial reversal of expectations. Women in the general population and in the psychiatric hospital population have a lower rate of suicide than men (*6*), but in this study women had a higher rate. For attempted suicides, the rates for women in this population were consistent with those in the general population, the women having a higher percentage of suicide attempts than men (*6*, *7*). In both instances, this rate is higher than for males. The question might be raised whether female veterans have atypical sex-role concepts. We are not familiar, however, with any research that has documented noteworthy differences between civilian and military women that might serve as a clue to this partial reversal.

Our results also indicated differences in occurrence of suicide among religious groups. In the general population, the rate of suicide occurs in the rank order of Protestants, Catholics, and Jews (*18*). In our study population, however, this order was reversed. The ranking was Jews, and then Catholics and Protestants. We have no explanation for this reversal. Interpretation is difficult since a measure of religion taken from an admission fact sheet provides no information about the quality of the religious affiliation.

Another area of difference in suicide potential was by occupation. Our population did not show that the extremes of the occupational scale—the professionals and the unskilled workers—were the most suicidal, as other authors have reported (*6*, *19*). In our group, patients who had been unskilled workers had a lower percentage of suicides than patients from all other major occupational groups, except for skilled workers. These data must be interpreted with some caution, however, since the measure used reflects occupational identity rather than the patient's recent occupational role and history. Furthermore, results of other investigations of the association of occupation with suicide have been inconsistent (*6*, *19*, *20*).

With age, the suicide rate for white men in the general population rises (*6*, *21*), whereas for this S status population it remained fairly stable. Perhaps the disruption of social ties and the lack of integration of the older man into society, which is said to elevate the suicide rate of older men in the general population, has already occurred many years previously for the neuropsychiatric patient. If so, age would not be a very useful clue in the evaluation of suicide potentiality among S status patients.

Limitations

For clarity and ease of comprehension, the data presentation has been essentially one-dimensional, for we have treated the suicidal outcome with respect to one variable at a time. Recognizing the limitations of such an analysis, we also attempted to overview all the variables and to integrate these varied results in the hope that they would yield a prototypical suicidal patient or a psychologically unified set of antecedent conditions. A careful review of all the results, however, has convinced us that the data oppose such an objective. Suicidal behavior in this particular population appears to be a complex outcome of the interaction of both personality and situational variables. The view that suicide is the outcome of a specific personality type and that a person of this type responds suicidally to the ordinary stresses of life is without support. Our conclusions of course apply to a population of patients whose behavior warranted their placement in S status. Various investigators, such as Stengel and Cook (*3*), have asserted that there are important differences between those who commit suicide and those who make nonlethal attempts. A further reason to be cautious in generalizing is that this VA hospital population is from southern California—hardly a typical community. Also, lack of cross-validation makes it necessary to be rather cautious in generalizing from this S status population to other populations.

Placement of particular patients in S status, however, served to identify a population with much higher suicidal potentiality than other neuropsychiatric hospital patients or the general

population. In most instances, the criteria for assignment to such status were based on the current situational factor of overt self-destructive behavior. Other criteria were vague and indefinite; nevertheless they were impressively efficient in categorizing a neuropsychiatric hospital population. This study has helped emphasize and delineate some of these other indistinct criteria to which the neuropsychiatric hospital staff had been reacting. These criteria can thus contribute to formulation of procedures for early identification and recognition of the patients most likely to commit suicide and thus provide opportunity for initiation of preventive measures.

We recommend further research to validate our study results and to investigate multiple-suicide attempts.

Summary

A followup study was conducted of 912 patients in a Veterans Adminisration neuropsychiatric hospital who had been placed in suicide observation status between 1954 and 1958. Complete followup data were obtained for 90 percent of the patients. Forty percent of these patients subsequently manifested further suicidal behavior; 6 percent committed suicide, 17 percent made nonlethal suicidal attempts, and 17 percent manifested suicidal ideation. Analysis of the patients' suicide histories, demographic information, and neuropsychiatric hospitalization data did not reveal any single pattern typifying the suicidal person.

The success of the best predictors in forecasting suicide was from 8 to as high as 13 percent, while the best predictors of attempted suicide forecast the event with success ranging from 23 to as high as 29 percent. In this particular population, suicide is much more probable than in the neuropsychiatric hospital population or the general population.

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