

A Randomized Controlled Trial of Postcrisis Suicide Prevention

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Objective: This study tested the hypothesis that professionals' maintenance of long-term contact with persons who are at risk of suicide can exert a suicide-prevention influence. This influence was hypothesized to result from the development of a feeling of connectedness and to be most pertinent to high-risk individuals who refuse to remain in the health care system. **Methods:** A total of 3,005 persons hospitalized because of a depressive or suicidal state, populations known to be at risk of subsequent suicide, were contacted 30 days after discharge about follow-up treatment. A total of 843 patients who had refused ongoing care were randomly divided into two groups; persons in one group were contacted by letter at least four times a year for five years. The other group—the control group—received no further contact. A follow-up procedure identified patients who died during the five-year contact period and during the subsequent ten years. Suicide rates in the contact and no-contact groups were compared. **Results:** Patients in the contact group had a lower suicide rate in all five years of the study. Formal survival analyses revealed a significantly lower rate in the contact group ($p=.04$) for the first two years; differences in the rates gradually diminished, and by year 14 no differences between groups were observed. **Conclusions:** A systematic program of contact with persons who are at risk of suicide and who refuse to remain in the health care system appears to exert a significant preventive influence for at least two years. Diminution of the frequency of contact and discontinuation of contact appear to reduce and eventually eliminate this preventive influence. (*Psychiatric Services* 52:828–833, 2001)

Suicide continues to be a leading cause of death in the developed world, and despite numerous efforts to improve physicians' skills in recognizing and assessing suicide risk, no specific treatment or management techniques have yet been shown by a randomized controlled study to have a significant preventive impact.

One major concern in suicide prevention efforts is how to provide ongoing assistance to high-risk patients af-

ter they are discharged from a psychiatric inpatient setting. A variety of resources are usually available for compliant patients, but a special challenge to mental health care is presented by high-risk persons who decline continued outpatient treatment or, having accepted such treatment, quickly discontinue the planned program.

The problem of patients' refusing follow-up care is widespread, ranging from 11 percent to 50 percent of pa-

tients in various studies (1). Van Heeringen and colleagues (2) used a program of home visits to provide "additional motivation" for 318 non-compliant patients who had attempted suicide to accept outpatient treatment after discharge from the hospital. This program was associated with an increase in compliance from 43 percent to 53 percent, although the difference in the rate of repeated suicidal behaviors in one year was not significantly different from that of a control group. Similar findings were reported by Torhorst and colleagues in a sample of 226 patients (3).

The use of personal contact was also tried by Litman (4), who had volunteers maintain a continuing relationship with 200 patients in a two-year aftercare program. The patients' personal relationships and depression improved, but the rate of suicide was not lower than that in a control group. Chronic alcohol abuse was seen to prevent the potential effectiveness of this method.

Bronisch and Hecht (5) reported that 40 percent of the 72 patients in their sample who attempted suicide did not accept any treatment program after discharge. De Vanna and coworkers (6) found that 57 percent of 60 patients in their study had no contact with the medical staff after leaving the hospital. This finding was attributed to the patients' resistance to any program of regular and frequent meetings with a care provider, to the focus on somatic treatment during hospitalization, and to the patients' resistance to being considered "psychiatric cases." Kreitman (7) reported comparable results, finding that among patients who attempted suicide and were referred to day hospi-

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tals, only half kept in touch with the health care system. Möller (8) provided an excellent review of noncompliance as a central problem in the post-discharge care of suicidal patients.

We approached the problem of high-risk patients' declining continued treatment by using a prospective, randomized, controlled study based on three hypotheses. The first hypothesis was that a suicidal person's sense of isolation would be reduced and his or her feelings of connectedness enhanced by regular, long-term contact with someone concerned about that person's well-being. The second hypothesis was that to be effective this contact must be initiated by the concerned individual and must make no demands on the suicidal person. The third hypothesis was that a systematic program of this kind would exert a suicide-prevention influence on high-risk persons who refuse assistance by traditional means.

Encouraging results of this program over a five-year period (9) raised the question of whether the apparent influence of ongoing contact in this population would remain after the contact was discontinued. This article reviews the five-year outcome and considers a 15-year perspective on this question.

Methods

Between 1969 and 1974, a total of 3,005 persons were identified in nine psychiatric inpatient facilities in San Francisco as having been admitted because of a depressive or suicidal state. Previous studies have indicated that this population has a high risk of subsequent suicide, especially in the first two years after discharge (10). Each patient was interviewed by a member of the research staff in a thorough, two- to four-hour psychosocial evaluation.

Thirty days after each patient's discharge, a follow-up inquiry determined whether the patient had accepted a posthospital therapy plan and had continued the plan for the entire 30 days. A program was considered to be therapy if it entailed therapeutic work with a professional from a field such as psychiatry, psychology, social work, and pastoral counseling. An arrangement for such therapeutic

follow-up was a routine part of discharge planning for this population.

Patients who accepted continuing assistance were designated treatment patients; those who had declined treatment or discontinued treatment in less than 30 days were designated no-treatment patients. The no-treatment patients were randomly assigned to one of two groups, designated the contact group and the no-contact group. Subsequent procedures were directed only at patients in the contact group, without further active involvement with patients in the no-contact group or those in the treatment group.

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In this process a fourth category emerged, designated "undetermined," comprising patients who had died within 30 days of discharge and patients whom we were unable to locate or who did not respond to three inquiries about ongoing care. Although this group, which appears to be at the greatest risk of suicide, could not be studied, such patients would be an interesting subject of future studies.

Patients in the contact group were started on a schedule of regular communications, in the form of a short letter, from the research staff member who had interviewed them in the hospital. Each contact letter was simply an expression of concern that the

person was getting along all right and invited a response if the patient wished to send one. The letters were always worded differently, were individually typed, and included responses to comments from the patients if such comments had previously been received. A self-addressed, unstamped envelope was always enclosed. An example of a contact letter is "Dear _____: It has been some time since you were here at the hospital, and we hope things are going well for you. If you wish to drop us a note we would be glad to hear from you."

We were careful to avoid suggesting that we desired any specific information or action from the patients. By doing so we hoped to show that our intention was simply and entirely to let the person know that we remained aware of his or her existence and maintained positive feelings toward him or her. One such letter was not expected to have much impact, but we believed that the cumulative effect of repeated contacts of this kind might have considerable psychological force.

The schedule for these contacts was monthly for four months, then every two months for eight months, and finally every three months for four years—a total of five years and 24 contacts. Many of the patients contacted changed addresses repeatedly, and a subcategory of "lost after contact" was soon established. The number of contact letters known to have been received varied from two to 24, but, in order to incorporate anticipated field conditions and to make the interpretation of data as conservative as possible, all patients who were contacted at all were considered to be in the contact group. In addition, if any patient in the contact group accepted treatment during the follow-up period, that patient was still considered to be in the contact group.

We postulated that whatever preventive influence might have been exerted by this program would be measured most simply by the difference in suicide rates between the contact and no-contact patients, the latter serving as a control group. Information about mortality was obtained from the California State Department of Health, coroners' records, death certificates,

Table 1

Suicides and nonsuicidal deaths among 3,005 patients during five and 15 years after hospital discharge, by whether they accepted or declined ongoing treatment and whether they were periodically contacted by letter

Category	Suicides		Nonsuicidal deaths		Total deaths	
	N	%	N	%	N	%
During first five years						
Treatment (N=1,939)	121	6.2	84	4.33	205	10.6
No treatment						
Contact (N=389)	15	3.9	19	4.9	34	8.7
No contact (N=454)	21	4.6	21	4.6	42	9.3
Undetermined (N=223)	35	15.7	13	5.8	48	21.5
Total (N=3,005)	192	6.4	137	4.6	329	10.9
Over 15 years						
Treatment (N=1,939)	159	8.2	243	12.5	402	20.7
No treatment						
Contact (N=389)	25	6.4	55	14.1	80	20.6
No contact (N=454)	26	5.7	61	13.4	87	19.2
Undetermined (N=223) ¹	39	17.5	27	12.1	66	29.6
Total (N=3,005)	249	8.3	386	12.8	635	21.1

¹ The undetermined group comprised patients who had died within 30 days of discharge and patients who could not be located or who did not respond to three inquiries about ongoing care.

clinical sources, and family members and other individuals.

Informed consent involved an oral statement of our special interest in understanding the patient's particular difficulties; assurance that no identifying information would be processed—the patients were identified only by number; assurance that no special procedures in the hospital beyond the assessment interview would be required; and assurance that the patients were free to decline participation. The committee on human subjects of the University of California, San Francisco, Medical Center approved the project.

Results

The distribution of patients by category and cumulative five- and 15-year outcome is shown in Table 1. The contact and no-contact groups had similar age and sex distributions, as shown in Table 2.

Nonsuicidal deaths in the treatment, contact, and no-contact groups were compared for the five-year and 15-year periods. Although our concern was primarily with patients in the contact and no-contact groups, the treatment group was included for comparison. No significant differences were found between groups in the rate of nonsuicidal deaths during these periods.

Table 2

Age and sex of 3,005 patients, by whether they accepted or declined ongoing treatment and whether they were contacted by letter

Category	Male		Female		Mean age	Age over 39 years	
	N	%	N	%		N	%
Treatment	830	43	1,109	57	34.0	600	31
No treatment							
Contact	164	42	225	58	34.4	114	29
No contact	211	46	243	54	32.8	127	28
Undetermined ¹	123	55	100	45	32.6	55	25
Total	1,328	44	1,677	56	33.9	896	30

¹ The undetermined group comprised patients who had died within 30 days of discharge and patients who could not be located or who did not respond to three inquiries about ongoing care.

The comparison of suicidal deaths over the five-year contact period is shown in Figure 1. A clear separation of the categories is seen—the contact group had the lowest rate every year. The difference between suicide rates in the contact and no-contact groups was greatest in the first and second years. The curves became parallel in years 3 and 4 and began to converge in year 5.

A formal survival analysis was carried out on survival time from the date of discharge to January 1, 1978. Persons who died a nonsuicidal death were removed from the sample as of their time of death. Estimated Kaplan-Meier probabilities of survival by number of years after admission to the study are shown in Table 3. The differences between groups were in the predicted direction, and the Breslow generalized Kruskal-Wallis test for equality of survival distributions indicated that for the first two years only, the difference in survival distributions was significant (one-tailed $p=.043$). When the same test was applied to the entire five-year period, the differences were not significant.

It is especially interesting that the period during which there was a significant difference is also the period during which suicides are most likely to occur—the first two years after discharge from the hospital—and that this period included the time of maximum frequency of contact—year 1.

The comparison of suicidal deaths over the 15-year follow-up period is shown in Figure 2. The gradual convergence of the suicide rates in the contact and no-contact groups, noted to begin in year 5, continued irregularly after the contact patients were no longer being contacted, until the rates finally converged in the 14th year.

The year-by-year suicide data for the contact and no-contact groups are shown in Table 4. These data replicate the contrasting patterns of the two groups, in that suicides continue to occur among the contact patients at a relatively constant rate over the entire follow-up period. In contrast, the no-contact group followed the anticipated pattern in which most suicides are observed during the first two years, especially during the first

year, after discharge from the hospital. During those two years the suicide rate of the no-contact group was approximately twice that of the contact group.

Discussion and conclusions

The outcome of our study is consistent with our hypotheses: during the period of maximum contact, year 1, and during the subsequent year, the suicide rate was significantly lower in the contact group than in the control group. It also appears that no obvious extraneous influence distorted the data—for example, age or sex differences or concealment of suicides as accidental or natural deaths.

Our expectation that patients in the treatment group would be older on average, given the reputation of younger patients to decline help, was not borne out. An explanation for the consistently higher suicide rate among the patients who accepted treatment than among those who declined was not evident but may be related to the severity and chronicity of illness, which would affect the number of options a patient has about whether to accept ongoing assistance. Torhorst and colleagues (3) found such a pattern, noting that patients with good compliance seemed to be more at risk than patients with poor compliance.

The most challenging questions posed by the findings are, first, whether maintaining the most intensive contact schedule, as used in year 1, would have continued to be associated with a significantly lower suicide rate among patients in the contact group and, second, whether extending the duration of the program would have prolonged the apparent benefit. In a study pertinent to the latter question, Stein and Test (11) found that after a 14-month program to stabilize chronically disabled psychiatric patients, many clear gains deteriorated when the program was discontinued. Similarly, Caton and colleagues (12) observed a deterioration in the positive effects of a day treatment program for homeless mentally ill men when the men were reassessed six and 18 months after the 14-month program was terminated. The need for ongoing programs was

stressed in both of these reports.

Similarly, Salkovskis and colleagues (13), using cognitive-behavioral problem solving, found evidence of a treatment effect on the rate of repeated suicide attempts. This effect persisted for six months after termination of treatment, but patients ceased to show any benefit one year after treatment. This phenomenon was also shown by Linehan and coworkers (14), who found in a randomized clinical trial that dialectical behavior therapy for one year was associated with a lower rate of parasuicidal behaviors and a lower number of hospital days among female patients with borderline personality disorder, but the benefit could be shown for only six months after the treatment ended.

Inherent in these questions is the basic concept of the role of a feeling of being joined to something meaningful outside oneself as a stabilizing force in emotional life. Kaiser (15) referred to this concept as a healthy “delusion of fusion,” and Frank (16) called it a sense of “connectedness to others.” However characterized, it is this force that we postulate as having exerted whatever suicide-prevention influence the contact program might have generated. Morgan (17) expressed this concept clearly after recounting suicide prevention measures over 600 years and contemplat-

Table 3

Estimated Kaplan-Meier probabilities of survival by number of years after admission to the study, expressed as mean±SE

Number of years after discharge	Contact group	No-contact group
1	.990±.005	.978±.007
2	.983±.006	.964±.009
3	.976±.008	.960±.009
4	.968±.009	.955±.010
5	.957±.010	.955±.010

ing what is really new, observing that “there is surely at least one common theme through the centuries—it is the provision of human contact, the comfort of another concerned person, often authoritative but maybe not, conveying a message of hope consonant with the assumptions and values relevant to that particular time.”

Each patient has a unique potential to respond to efforts of this kind. Among the 389 people in the contact group, 11 requested that the letters be discontinued, and they were. About 25 percent of the patients in the contact group expressed positive reactions in writing, such as “Thank you for your continued interest,” “It is a good feeling to know you are still in-

Figure 1

Cumulative percentage of suicidal deaths among 2,782 patients during the five years after hospital discharge, by whether they accepted or declined ongoing treatment and whether they were periodically contacted by letter

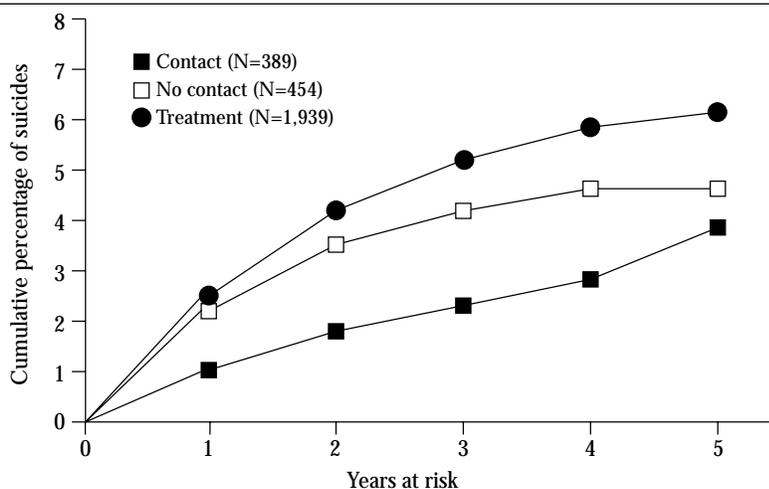
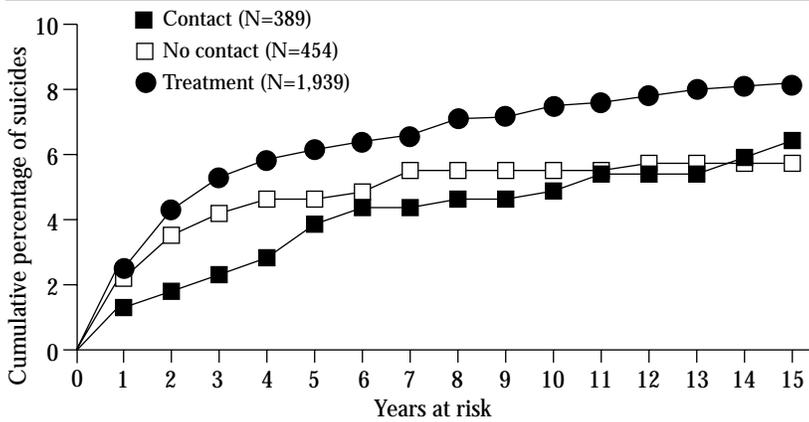


Figure 2

Cumulative percentage of suicidal deaths among 2,782 patients during 15 years after hospital discharge, by whether they accepted or declined ongoing treatment and whether they were periodically contacted by letter



terested,” “Farewell until your next note,” “After I threw the last letter out I wished I hadn’t, so I was glad to get this one,” “I really appreciate your persistence and concern,” “It gives me great pleasure to know that someone is concerned,” “Your note gave me a warm, pleasant feeling. Just knowing someone cares means a lot,” “I was surprised to get your letter. I thought that when a patient left the hospital your concern ended there,” “You will never know what your little

notes mean to me. I always think someone cares about what happens to me, even if my family did kick me out. I am really grateful,” and “You are the most persistent son of a bitch I’ve ever encountered, so you must really be sincere in your interest in me.”

A definite impression was conveyed that the responses of the contact patients were not simply “dose specific”—that is, determined only by the number of contacts received—but were primarily characterologic. Thus

some patients responded to very few contacts, others required more contacts, and some were impervious to the contacts.

A variant of this program was carried out from 1971 to 1973 in Scotland by the Samaritans, who invited people to write to a friendly and receptive correspondent (18). The response indicated that there was a real need for supportive letter writing, that there are people who are unable to cope with face-to-face interviews but who can form a relationship by letter, and that many people can express themselves by letter in a way that is cathartic and therapeutic.

Another variant of this approach is being explored in Australia, where a schedule of contact by postcard is being used as a supplement to usual care in a population of patients hospitalized for deliberate self-poisoning. The targeted outcomes are a reduction in the number of repeated episodes of disability and a reduction in the need for subsequent inpatient care (19).

Clinical studies to date have led to a wide range of views about the efficacy of suicide prevention measures. Gunnell and Frankel (20) observed that no single intervention has been shown to reduce suicide rates in a well-conducted randomized controlled trial. However, Goldney (21) argued that there is every reason to be optimistic, because an increasing number of studies confirm that suicide prevention is possible, but he cautioned that any intervention must be long term. In this regard, McNeil and Binder (22) found that although psychiatric hospitalization was associated with a substantial reduction in the estimated short-term (one week) suicide risk, the decrease in long-term (one year) risk was much less, indicating a need for further research on interventions to improve long-term risk. Our study attempted to address that need.

An incidental benefit of our contact program that may have contributed to the outcome was that patients in the contact group or their families occasionally turned to project personnel for help reentering the health care system. Citing “embarrassment” or “not knowing what to do” because of

Table 4

Suicides over 15 years among 843 patients who declined ongoing treatment, by whether they were periodically contacted by letter

Number of years after discharge	Contact group (N=389)				No-contact group (N=454)			
	Suicides		Cumulative suicides		Suicides		Cumulative suicides	
	N	%	N	%	N	%	N	%
1	4	1.03	4	1.03	10	2.20	10	2.20
2	3	.77	7	1.80	6	1.32	16	3.52
3	2	.51	9	2.31	3	.66	19	4.19
4	2	.51	11	2.83	2	.44	21	4.63
5	4	1.03	15	3.86	0	—	21	4.63
6	2	.51	17	4.37	1	.22	22	4.85
7	0	—	17	4.37	3	.66	25	5.51
8	1	.26	18	4.63	0	—	25	5.51
9	0	—	18	4.63	0	—	25	5.51
10	1	.26	19	4.88	0	—	25	5.51
11	2	.51	21	5.40	0	—	25	5.51
12	0	—	21	5.40	1	.22	26	5.73
13	0	—	21	5.40	0	—	26	5.73
14	2	.51	23	5.91	0	—	26	5.73
15	2	.51	25	6.43	0	—	26	5.73

their prior refusal of care, some patients could accept the assistance of the writer of the contact letter to obtain professional care in a new crisis.

Möller (8) pointed out that the only convincing evidence for the efficacy of a suicide prevention program would be a significantly lower rate of suicide within a certain follow-up period among the patients treated according to that program than among control patients. Our randomized, controlled study met those criteria: it showed that a contact program was associated with a significant reduction in suicide rates among high-risk persons who refused ongoing treatment; the association was evident for at least two years after discharge from an inpatient setting. An important aspect of this observation is that, when the high-risk person's refusal of formal therapy is accepted, such a program can be carried out with very modest resources of space, equipment, and personnel. ♦

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