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ORIGINAL ARTICLE

Telephone contact with patients in the year after a suicide attempt: does it affect treatment attendance and outcome? A randomised controlled study

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Summary – Ambivalence to treatment and repeated suicidal behaviour are well-known problems in suicide attempters. A randomised controlled study was performed to investigate the influence of repeated telephone contacts on treatment attendance, repetition of suicidal behaviour and mental health the year after a suicide attempt. ***Subjects and methods.*** One month after their suicide attempt 216 patients were randomised to either two telephone interventions in addition to treatment as usual, or no such intervention during the subsequent year. The interventions included motivational support to attend and/or to stay in treatment. At 1 month and again after 12 months the following measurements were used: GSI (SCL-90), GAF and SSI. ***Results.*** At follow-up treatment attendance was high and did not differ between the randomised groups. Among those with an initial treatment contact other than psychiatric, more patients in the intervention group had such contact at follow-up. The randomised groups did not differ in repetition of suicide attempts during follow-up or in improvement in GSI (SCL-90), GAF and SSI. In individuals with no initial treatment the intervention group improved more in certain psychological symptom dimensions (SCL-90). ***Conclusion.*** Telephone interventions seem to have an effect on patients who at their suicide attempt had other treatment than psychiatric and in those with no treatment. © 2002 Éditions scientifiques et médicales Elsevier SAS

follow-up / intervention / randomised controlled study / suicide attempt

INTRODUCTION

Persons who have made a suicide attempt are at high risk of repeating suicidal behaviour (12–30%) and the risk is elevated during the first year after the attempt [10, 14, 18, 26, 27]. The risk for completed suicide within 1 year is high, i.e., 1–3.3% [14, 16, 31, 32] and repetition of suicide attempt or completed suicide often occurs soon after the attempt, i.e. within 12 weeks [4, 11].

Persons who have made suicide attempts are often ambivalent to treatment, and many patients do not attend treatment, or terminate treatment prematurely [2, 7, 21, 24]. In a review of intervention studies, van Heeringen found that compliance in routine after-care seldom exceeds 40% [30]. Few specific socio-demographic, psychiatric or clinical characteristics have been found in non-attenders [13, 23, 25]. Efforts have been made to increase compliance to treatment. In Germany, Norway and Belgium, successful trials have been carried out to improve treatment compliance

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among non-attenders by motivational home-visits [7, 23, 31]. However, reductions of suicidal behaviour were not proven. In a study by Motto and Boström [22], half of the individuals who did not attend aftercare after inpatient treatment of depression or suicidality were randomly assigned to receive repeated contacts over the next 5 years. The contacts were aimed to show concern for the patient and his/her well-being and not on the first hand to motivate attendance to treatment. Those who were contacted had a significantly lower suicide rate during the first 2 years compared to those who had not been contacted, though not later.

Many patients repeat suicide attempts or commit suicide even if they are in treatment [21, 28]. A review of controlled studies of treatment strategies found no method which had significantly reduced repetition of suicidal behaviour, except for Dialectical Behaviour Therapy [15, 20]. In this study, 18–45-year-old females with previous parasuicide incidents had a significantly lower number of suicide acts during follow-up [20].

Evans and coworkers (1999) reported a non-significantly lower rate of repeated deliberate self-harm in the experiment group when individuals who deliberately had harmed themselves for the first time were offered easy access to a psychiatrist trainee and encouraged to seek help in case of future difficulties [9]. However, an increased rate of deliberate self-harm was found in the experiment group among those with previous suicide attempts.

Thus, the link between adherence to treatment and reduction of suicidal behaviour remains to be proven. One problem in confirming this connection may be insufficient sample sizes in previous studies. However, improvements in psychosocial functioning and psychological symptoms 12 months after a suicide attempt have been found after extended treatment strategies [29].

Former follow-up studies have mainly focused on improving treatment attendance among non-compliant patients. The ambivalence to treatment, the increased risk for repetition of suicidal behaviour and a high rate of psychiatric morbidity among all suicide attempters stress the need of follow-up contacts with both attenders and non-attenders, to improve and maintain treatment compliance and thereby to ensure their need of help.

The first aim of the present study was to investigate whether two telephone interventions in addition to treatment delivered as usual, compared to no such intervention between 1–12 months after a suicide attempt, had any impact on treatment attendance at follow-up in relation to treatment attendance at the index attempt. Second, we investigated whether these interventions had any influence on repetition of suicidal behaviour, and third, whether the interventions had any effect on global functioning and mental health.

MATERIAL AND METHODS

Clinical setting

All patients who were treated after a suicide attempt at the University Hospital in Lund, mostly at the Medical Emergency Inpatient Unit (MEIU), were assessed by a psychiatrist and a social counselor [32]. The patients were then offered referral to further treatment, mostly in general psychiatry. At the MEIU the patients were informed that a psychiatric nurse or a social counselor would contact them after 1 month to ensure their need of professional help. Neither of them had been involved in the psychiatric consultation at the MEIU. They distributed the patients evenly among them.

After 1 month a personal meeting was arranged and the patients were asked about their mental health, including suicidal behaviour and present problems. After that the patients were asked about participation in the randomised study (see below). The 1-month interviews were performed after a mean time of 49 ± 24 (S.D.) days after the index suicide attempt.

Design of the study

At the 1-month follow-up the patients were asked if further contacts could be made with them during the following year to ensure professional support. They were informed that besides ordinary treatment two telephone contacts would be made randomly with half of the patients (at 4 and 8 months) to ensure treatment, and that all patients would be followed up after 12 months. Those who consented to participate took part in an extended interview, including various assessments. The randomisation was performed after the interview, and the patients did not know whether they would be contacted at 4 and 8 months or not.

Those who consented to participate at the 1-month interview were assigned by random allocation (sealed envelope) by blocks of two or four patients. The personal that performed the randomisation had not taken part in the assessment at the MEIU or the 1-month

interview. All study participants were interviewed again after 12 months at a personal meeting.

The interventions at 4 and 8 months

The telephone interventions at 4 and 8 months were aimed to increase motivation for professional treatment. They were made separately from the ordinary treatment. In a semi-structured interview the interviewers asked about suicidal behaviour, social situation, psychological distress, acute problems, physical ill health and satisfaction or disapproval of treatment received. Patients who were in treatment were encouraged to continue their treatment, and patients who had not attended or dropped out from treatment were motivated to attend treatment. If required the interviewers gave advice, e.g., it was suggested to the patient to inform the primary care provider about suicidal thoughts, needs of support or assistance to social services. Further, the interviewers could assist patients to seek treatment. In case of life-threatening situations the interviewers could organise assistance, i.e., consult a psychiatrist, pay an immediate home visit, follow the patient to the Psychiatric Emergency Unit or contact the primary care provider.

The time for the telephone interventions ranged from 20–45 minutes. Both interviewers had at least 10 years' experience of working with specifically suicidal patients. The interviewers made the follow-up interventions with the same patients assigned to them at the 1-month interview. To our knowledge this kind of follow-up interventions has not been used before.

Sample

At the 1-month follow-up, 246 patients were reached. They belonged to a sample of 281 consecutive patients living in the catchments area and who had been treated at the MEIU after a suicide attempt, February 1995 through April 1997. Three of these patients had died, one from sequela of his index attempt after 14 days, and two patients had committed suicide. It was impossible to reach another 32 patients. Of those 246 patients, 27 did not want to participate in the study and three patients offered communication problems, i.e., they were too ill or had language problems. The remaining 216 patients (88%) were randomly assigned, 107 to telephone interventions after 4 and 8 months, i.e., the intervention group, and 109 to no such interventions during the year, i.e., the control group.

Those who did not want to participate more often were ordinarily employed (63% vs. 42%, $P < 0.05$), they tended to have lower scores on SIS (10.2 ± 7.9 vs. 13.2 ± 7.5, $P = 0.06$) and they were less often referred to inpatient treatment (37% vs. 62%, $P < 0.05$). There were no differences in age, marital status or diagnoses set at the MEIU.

The randomised sample

The randomised groups did not differ concerning sociodemographic characteristics, diagnoses, previous suicide attempts or ongoing treatment at the MEIU *(table I)*.

At the 1-month interview there were no differences in global functioning (GAF) [1] or psychological symptoms (SCL-90) [8], but the intervention group scored higher ($P < 0.05$) in suicide ideation (SSI) [5] than the control group.

METHODS

We used the definition of suicide attempt introduced by Kreitman [19]: "Parasuicide is a non-fatal act in which the individual deliberately causes self-injury or ingests a substance in excess of any prescribed or generally recognised therapeutic dosage."

Power analysis

The successful study of Linehan et al. using dialectic cognitive therapy with an outcome of a different variety of suicidal behaviour needed a population of 44 subjects to get significant differences [20]. The present intervention is less extensive and we hypothetically supposed that we should have a good chance to reach a significant level with a population four times as large. This power is supported by a recent study of Guthrie and coworkers, which had a similar intervention and reached a significant level with 95 subjects [12].

Follow-up interviews and assessments at 1 and 12 months

At the interviews at 1 and 12 months the interviewers asked about suicidal thoughts and ideation, social situation, acute problems, mental health, repetition of suicide attempt and need of professional help. At the 12-month interview the patients were also asked about treatment during the year. The interview took 60–90 minutes and was accomplished face-to-face, either at

Table I. Characteristics at the MEIU investigation at the index suicide attempt and at the 1-month interview in the randomised groups.

	Intervention group n = *107*	*Control group* n = *109*
MEIU investigation		
men	36 (34%)	37 (34%)
age M ± SD	40 ± 18	42 ± 18
married/cohabiting	39 (37%)	42 (39%)
ordinary employment	28 (26%)	34 (32%)
disability pension/sick leave	20 (19%)	25 (23%)
Diagnoses DSM III R axis I		
mood disorders	52 (49%)	39 (36%)
adjustment disorders	28 (26%)	34 (31%)
other diagnoses	20 (25%)	27 (33%)
Previous suicide attempt	57 (54%)	56 (51%)
number of earlier attempts M ± SD	1.2 ± 1.5	1.0 ± 1.3
suicide intention, SIS M ± SD	13.8 ± 7.4	12.6 ± 7.6
ongoing psychiatric contact	59 (55%)	54 (50%)
Referral to aftercare	102 (95%)	105 (96%)
referral inpatient (all)	67 (63%)	65 (60%)
referral outpatient (all)	35 (33%)	40 (37%)
1-month interview		
Suicide attempt 0–1 month	6 (6%)	10 (9%)
Global functioning, DSM-III R M ± SD	50.8 ± 19.4	49.7 ± 20.7
Suicide ideation (SSI) M ± SD	8.4 ± 8.7	5.3 ± 6.7*
Psychological symptoms, GSI (SCL-90) M ± SD	1.07 ± 0.7	0.96 ± 0.8

Mann-Whitney U-test * $P < 0.05$

the patient's home or at the Department of Psychiatry (as the patient preferred).

The same measurements were used at the 1- and 12-month interviews. The interviewers estimated Global Assessment of Functioning DSM-III R, axis V [1]. Two self-rating scales were used. The Symptom Check List-90 (SCL-90) is a questionnaire with 90 items of psychological symptoms on a five-point scale of distress (from 0 = "not at all" to 4 = "extremely") during the last 14 days [9]. The questions are scored and interpreted in terms of nine primary symptom dimensions. Three global indices of distress are submitted; in this study the Global Severity Index (GSI) [9] is presented. The Scale of Suicide Ideation (SSI) is a self-rating scale with statements of suicide intentions on a three-point level [6].

The nurse and the social counselor co-rated the initial 25 interviews to ensure similar estimation but no inter-rater tests were carried out.

The following items from the psychiatric assessment at the MEIU were also used

The psychiatrists in charge set the diagnoses at the MEIU according to DSM-III R, axis I [1], but no structured interviews were used and the suicide risk was assessed by the use of Suicide Intent Scale (SIS) [5]. Socio-demographic data and clinical characteristics were collected in the semi-structured interview covering previous suicidal behaviour, previous and ongoing psychiatric and other treatment contacts. "Other treatment" as referred to in the text includes treatment mostly by a general practitioner but also contacts with a a community nurses, community day-care centre, addiction services and a private psychotherapist.

The first suicide attempt assessed at the MEIU during the study period is in this paper referred to as the index suicide attempt.

Survival 1 year after the index suicide attempt and repetition of attempts

Information on deaths including suicide during the follow-up period was collected by the local authority and by the Swedish register of deaths at Statistics Sweden, National Board of Health and Welfare. Information on repeated suicide attempts was collected in the interviews, and checked against patient- and admission charts.

The Research Ethics Committee at the Medical faculty of the University of Lund approved of the study.

Statistics

The software used for statistical analyses was SPSS 10.0 for Windows [24].

The χ^2 test was used to analyse differences in proportions and continuity correction values were used. Comparisons of ratings between subgroups were carried out with non-parametric tests, the Mann Whitney U-test and Kruskal Wallis Test.

Standardised residual change scores were used as measures of change in the SSI, GAF and GSI in order to control for the influence of baseline scores on follow-up scores. These change scores were derived from regression analyses using the baseline scores as an independent variable and the follow-up score as a dependent variable.

The Wilcoxon matched pairs test was used to investigate differences in repeated measures. Age differences were tested with Student's *t*-test.

An intent-to-treat analysis was performed on all patients who were followed up (n = 178) and the results were the same as in those 172 patients who got at least one intervention.

RESULTS

Attrition

Deaths within 11 months after 1-month examination

Two randomised patients committed suicide, both within 4 months, 0.9% (2/216): one woman from the intervention group and one man from the control group.

Twelve-month follow-up of randomised groups

After 12 months it was possible to interview 178 (82%) of the randomised patients. Besides the two patients who had committed suicide, 18 patients were impossible to reach, 12 had moved out of the region and six did not want to participate further in the study.

The attrition rate did not differ between the randomised groups, 18/107 (17%) from the intervention group and 20/109 (18%) from the other group. Those 38 patients (18%) who did not take part in the 12-month interview were younger than the others (34 ± 14 years vs. 42 ± 18 years, $P < 0.01$), but they did not differ in other characteristics at the MEIU investigation or at the 1-month interview.

Among those who were followed up at 12 months (n = 178), 89 had been randomised to no interventions, and 89 patients to two interventions. Sixty-four patients in the intervention group got two interventions, 20 got one intervention, (nine at 4 months and 11 at 8 months) and six patients got no intervention (three could not be reached and three due to technical problems). The latter six patients were excluded from the analyses, leaving 83 patients in the intervention group. The 20 patients who got one intervention did not differ in their characteristics from those who got two interventions at the MEIU, at the 1-month assessment or in the 12-month outcome, and they were included in the analyses. The final calculations on 12-month outcome are based on 172 patients, 83 in the intervention group, i.e., those who got at least one of the intended interventions at 4 or 8 months, and 89 in the control group.

Follow-up results

Attendance to treatment

Initially 76% (63/83) in the intervention group and 72% (64/89) in the control group had psychiatric or other treatment. At follow-up the corresponding figures were 72% (60/83) and 65% (58/89), and did not differ significantly between the randomised groups. The frequencies of patients with different treatment contacts at MEIU and at 12-month follow-up are presented in *table II*. Initially 55% (45/83) in the intervention group and 50% (45/89) in the control group had psychiatric treatment, 22% (18/83) and 21% (19/89) respectively had other treatment, mostly GP, while 24% (20/83) and 28% (25/89) had no treatment contact.

Among those with initial psychiatric treatment 67% (30/45) in the intervention group and 78% (35/45) in the control group had psychiatric treatment at follow-up.

Among those who had an initial contact other than psychiatric, more patients in the intervention group had such a contact at follow-up, 55.6% (10/18) as compared to the control group 10.6% (2/19), $P < 0.01$. Those remaining in contact most often had contact with their general practitioner. In both randomised groups half of those with no initial treatment contact had no treatment at follow-up. Among patients with no treatment at follow-up, the frequency of patients hav

Table II. Treatment contacts at the MEIU-investigation and at 12 months and suicide attempts 1-12 months, in intervention (n=83) and control group (n=89).

Treatment at the MEIU investigation		*Treatment at 12 months*			*Incidence of suicide attempts 1–12 months. Treatment at 12 months*		
		PT	*OT*	*No*	*PT*	*OT*	*No*
Psychiatric treatment (PT)	Interv.=45	30	7	8	8	1	1
	Control=45	35	4	6	9	1	1
Other treatment (OT)	Interv.=18	3	10	5	2	0	0
	Control=19	5	2	12	2	0	0
No treatment (No)	Interv.=20	6	4	10	2	0	0
	Control=25	6	6	13	1	1	0

ing had treatment during the follow-up year did not differ between the randomised groups, 28% in the intervention group and 34% in the control group.

Repetition of suicide attempts between 1–12 months

The frequencies of patients who repeated suicide attempts between 1–12 months did not differ between the randomised groups: 14 individuals (17%) in the intervention group made 26 suicide attempts, and 15 individuals (17%) in the other group made 27 suicide attempts. In all, seven subjects from the intervention group and four from the control group repeated more than once. The number of individuals who repeated and the number of attempts between 1–4, 4–8 and 8–12 months did not differ significantly between the randomised groups.

Before the telephone intervention at 4 months ten patients (three in the intervention group and seven in the control group) had made suicide attempts.

The frequencies of re-attempters during follow-up did not differ in relation to initial treatment contact between the randomised groups *(table II)*. In the intervention group 71% (10/14) and 73% (11/15) in the control group had ongoing psychiatric treatment at MEIU (NS).

At follow-up those who had reattempted suicide more often had psychiatric contact than those who had not reattempted suicide in both the intervention and control group, 86% vs. 40% ($P < 0.01$) and 80% vs. 45% ($P < 0.05$).

Improvements in GAF, GSI, SSI during 1–12 months

All individuals did not fill in all ratings, and the analyses are based on complete ratings, 163 for GAF, 87 for the SSI and 101 individuals for SCL-90. Individuals with incomplete ratings did not differ from the others *(table III)*.

The improvement rate did not differ between the randomised groups in any of the measurements including the primary symptom dimensions of SCL-90, even when those 20 subjects that got only one intervention were excluded. However, at the 1-month interview the intervention group tended to rate higher on SSI ($P < 0.10$), both when calculated on 172 patients and 178 intent-to-treat patients.

At 12 months there had been significant improvements within both the intervention and control groups in global functioning (GAF) and in suicide ideation (SSI). The intervention group had also improved significantly in GSI. Concerning the nine primary symptom dimensions of SCL-90, the intervention group improved in seven dimensions; obsession-compulsiveness ($P < 0.05$), sensitivity ($P < 0.05$), depression ($P < 0.001$), anxiety ($P < 0.05$), psychoti

Table III. Comparisons of 1 month and 12-months follow-up data within and between the randomised groups.

Measure mean±SD	*Two interventions*		*No intervention*	
	1 month	*12-months*	*1 month*	*12-months*
Global assessment of functioning (GAF) n = 163	50.5 ± 19.9	61.4 ± 20.4[c]	50.3 ± 21.1	58.6 ± 20.2[b]
Scale of suicide ideation (SSI) n = 87	7.9 ± 8.4[d]	5.8 ± 7.8[a]	5.0 ± 6.8[d]	4.0 ± 6.2[a]
Psychological symptom scale (SCL-90, GSI) n = 101	1.05 ± 0.74	0.82 ± 0.78[a]	1.02 ± 0.77	0.88 ± 0.72

Within group differences: [a] $P < 0.05$; [b] $P < 0.01$; [c] $P < 0.001$ Wilcoxon rank test. Between-group differences: [d] $P < 0.10$ Mann-Whitney rank test.

sism ($P < 0.01$), paranoid ($P < 0.001$) and additional ($P < 0.05$), while the control group improved in one dimension; sensitivity ($P < 0.05$).

At follow-up, there were no differences in SCL-90 measurements between the randomised groups.

Improvements in relation to treatment type at MEIU

Changes in GAF and SSI within each type of treatment did not differ between the intervention and control groups. Among those with no treatment at MEIU, the intervention group tended to improve more than the control group in GSI (SCL-90) ($P = 0.056$) and more specifically in the primary dimensions obsession-compulsiveness ($P < 0.05$), depression ($P < 0.05$) and the additional dimension ($P < 0.05$).

However, there were no differences in GSI improvement between the randomised groups in those with other treatment or psychiatric treatment.

Within the intervention and control groups pair-wise comparisons were made between types of treatment. In the intervention group those who had no treatment tended to reduce GSI more than those individuals who had other treatment ($P = 0.08$).

Among patients with no treatment at follow-up ($n = 54$), those who had got interventions had reduced their psychological symptoms more than controls ($P < 0.05$).

Follow-up characteristics at the 12-month interviews

The randomised groups did not differ in follow-up characteristics. Of all patients, one-fourth had suicidal thoughts and almost half had sleep disturbances. About half of the patients expressed a need for professional help to solve current problems. One-fifth found professional help insufficient, 14% in the intervention group and 24% in the control group. Eight percent of the patients stated that their mental health had not improved, and they mostly related this either to their mental disorder or failure of treatment.

DISCUSSION

The main objective of this study was to evaluate whether two follow-up interventions during the year after a suicide attempt, as compared to no intervention, had any effects on treatment attendance. These interventions were aimed to increase and maintain motivation for treatment throughout the year and thereby to effect suicidal behaviour, global functioning and mental health.

Former evaluations of follow-up strategies have mainly focused on patients who are non-compliant with care after a suicide attempt [7, 23, 31]. As far as we know the effects of repeated follow-up interventions, including treatment attenders, have not been investigated before.

The patients in our study were recruited from a consecutive sample of suicide attempters who had been assessed at the MEIU consultation according to a well-established methodology at our centre [32]. Most patients who were followed up at 1 month took part in the study, and those who declined to participate seem to have lower suicide risk factors, i.e., they had less often been referred to inpatient treatment. Among those who took part in the study 82% were followed up, which is satisfactory. In all, 80% of the 1-month sample could be evaluated concerning the effects of follow-up interventions.

Effects on treatment attendance

There is no significant difference in treatment attendance at follow-up between those who got interventions and those who had not. Twelve months after the index suicide attempt 69% of all patients are in treatment, which we find satisfying, bearing in mind that suicide attempters often fail to complete treatment [2, 7, 22, 25]. We further analysed intervention effects in relation to the type of initial treatment. Among patients who had 'other treatment' at the MEIU-investigation, those who got interventions more often had 'other treatment' at follow-up, mostly a GP.

Previously, effects of telephone-calls in primary care were found. Patients who got follow-up telephone-calls had greater adherence to adequate dosage of antidepressants and fewer depressive symptoms as compared to patients who received no follow-up calls [17].

Many suicide-prone patients have treatment contacts other than psychiatric, e.g., a general practitioner. In a retrospective study of 472 suicide victims, Andersen and coworkers found that almost 70% had been in contact with a GP within the last month previous to their suicide [3]. Therefore it is important to find preventive strategies among these patients.

This relatively small intervention had no effect on those already in psychiatric treatment. The study by Motto and coworkers focused on patients who did not

continue in psychiatric contact and the suicide rate was lower in those who got follow-up interventions. In their study patients in psychiatric treatment had a higher suicide rate than non-psychiatric patients [22].

The high rate of treatment attendance at 12 months may indicate a need for long-term treatment contact in many of these patients. Appleby and coworkers [4] suggested that treatment lasting beyond initial recovery among suicide attempters is an important suicide-preventive strategy. To prevent loss in after-care, it is suggested that supportive action, including problem solving, should be delivered within 2–3 days [11, 19, 31].

Effects on repetition of suicide attempt

The lack of differences between the randomised groups concerning repeated suicide attempts during the year is in line with results from randomised controlled studies on treatment interventions [15, 28]. The frequencies of repetition in this study, 17%, is lower (NS) than findings in an earlier 1-year follow-up study from our centre, in which 27% reattempted suicide [32]. The follow-up sample probably is too small to detect differences in repetition of suicide attempts in this heterogeneous group [15].

Effects on improvement in other measures

Improvement in global functioning, psychological symptoms and suicide ideation did not differ between the intervention and the control group. Analysing improvement rate in relation to initial type of treatment, we found that among subjects with no initial treatment, those who got interventions reduced certain psychological symptoms (SCL-90), (obsession-compulsiveness, depression and additional dimensions) more than the control group. This indicates that this kind of intervention has an effect among those with no contact with health services. There were no differences in improvement in psychological symptoms between the randomised groups in 'other treatment' or psychiatric treatment. However, there was no effect on global functioning (GAF) or suicide ideation (SSI) between the randomised groups in relation to type of treatment contact at MEIU. Initial treatment contact was high; at the time of the index suicide attempt about half of all patients had an ongoing psychiatric treatment and another fifth had other treatment contacts, mostly GP. In a previous study from our centre a similar treatment attendance was found, 49% of the patients admitted to hospital after a suicide attempt had an ongoing psychiatric treatment contact [32]. At follow-up, many patients were still in treatment, mostly within psychiatric services.

When looking at those with no treatment at follow-up, those who had got intervention, most of which had had no initial contact, had reduced their psychological symptoms more than controls.

Methodological issues

One shortcoming is that several persons performed the investigation at MEIU and that no inter-rater tests have been performed between the psychiatrists who set the diagnoses and rated SIS. The characteristics of this population do not differ from populations in earlier studies from our unit [32]. However, we do not know the representativeness of our sample of suicide attempters in general.

It should be noticed that the rather small numbers in the effects of the intervention in relation to type of initial treatment contact may increase the likelihood of false positive findings. Replication of these findings is warranted.

The 1-month contact probably served as an intervention as well, and might also have influenced the course of the patients in the control group. To evaluate such an effect there ought to have been a control group without this 1-month interview. Shortly after a suicide attempt the patient is in a psychologically vulnerable state, and for ethical reasons we neither wanted to ask for participation in the randomised study at the MEIU assessment nor did we want to exclude any patient from the follow-up at 1 month.

Perhaps a follow-up contact ought to be performed earlier than after 1 month. Within 1 month two individuals had committed suicide, 7% had already repeated a suicide attempt, and 11% could not be reached. Between 1 and 4 months, ten patients repeated suicide attempts and two committed suicide. This means that none of these patients got the follow-up support that was intended. Early repetition of suicide attempt among suicide attempters has been reported previously [11]. The results of our study indicate that there is a need to offer help and support very soon after a suicide attempt. Appleby and coworkers [4] have reported early suicides after contact with psychiatric hospital services. In their study 24% of all suicides within 1 year occurred within

3 months after discharge and almost half of them within the first four weeks.

Finally, there was a general psychosocial improvement during follow-up in our study. Improvements in psychological symptoms after 12 months have been found in former studies [15, 28].

CONCLUSIONS

Repeated interventions had some effect on treatment attendance in patients with other treatment than psychiatric. Among those with no treatment contact psychological symptoms changed more than among controls.

Further evaluations with a greater sample size are needed to investigate the effects of follow-up interventions among non-psychiatric patients as well as to study differentiation of treatment methods among those already in psychiatric contact.

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REFERENCES

1 American Psychiatric Association. Diagnostic and statistical manual of mental disorders, 3rd Ed. (Rev.). Washington, DC: APA; 1987.
2 Andersen B, Bille-Brahe U. Aftercare of suicide attempters. In: Bille-Brahe U, Schiödt H, Eds. 4th European Symposium on Suicidal Behaviour. The Odense suicide prevention project. Intervention and Prevention. Odense: University Press; 1994. p. 177-84.
3 Andersen UA, Andersen M, Rosholm JU, Gram LF. Contacts to health care system prior to suicide: a comprehensive analysis using registers for general and psychiatric hospital admission, contacts to general practitioners and practising specialists and drug prescriptions. Acta Psychiatr Scand 2000 ; 102 : 126-34.
4 Appleby L, Shaw J, Amos T, McDonnell R, Harris C, McCann K, et al. Suicide within 12 months of contact with mental health services: National clinical survey. Br Med J 1999 ; 318.
5 Beck A, Herman I, Schuyler D. Development of suicidal intent scales. In: Beck ATRH, Lettieri D, Eds. The prediction of suicide. Bowie: Charles Press; 1974. p. 45-6.
6 Beck A, Kovacs M, Weissman A. The Scale for Suicide Ideation. J Consult Clin Psychol 1979 ; 47 : 343-52.
7 Borg S. Active intervention and comprehensive services following suicide attempts: a community-based program. In: Bille-Brahe U, Schiödt H, Eds. 4th European Symposium on Suicidal Behaviour. The Odense suicide prevention project. Intervention and prevention. Odense: University Press; 1994. p. 159-67.
8 Derogatis L. SCL-90: administration, scoring and procedure manual for the revised version of the SCL-90. Baltimore: The Johns Hopkins University School of Medicine; 1979.
9 Evans MO, Morgan HG, Hayward A, Gunell DJ. Crisis telephone consultation for deliberate self-harm patients: effects on repetition. Br J Psychiatry 1999 ; 175 : 3-27.
10 Foster T, Gillespie K, McClelland R. Mental disorders and suicide in Northern Ireland. Br J Psychiatry 1997 ; 170 : 447-52.
11 Gilbody S, House A, Owens D. The early repetition of deliberate self harm. J R Coll Physicians Lond 1997 ; 31 : 171-2.
12 Guthrie N, Kapur N, Mackway-Jones K, Chew-Graham C, Moorey J, Mendel E, et al. Randomised controlled trial of brief psychological intervention after deliberate self poisoning. Br J Psychiatry 2001 ; 322 : 1-5.
13 Hawton K, Aresman E, Townsend E, Bremner S, Feldman E, Goldney R, et al. Deliberate self harm: systematic review of efficacy of psychosocial and pharmacological treatments in preventing repetition. Br Med J 1998 ; 317 : 441-7.
14 Hawton K, Catalan J. Attempted suicide: a practical Guide to its nature and management, 2nd ed. Oxford: Oxford University Press; 1987.
15 Hawton K, Fagg J. Suicide and other causes of death following attempted suicide. Br J Psychiatry 1988 ; 152 : 259-66.
16 Holley H, Fick G, Love EJ. Suicide following an inpatient hospitalisation for a suicide attempt: a Canadian follow-up study. Soc Psychiatry Epidemiol 1998 ; 33 : 543-51.
17 Katon W, Rutter C, Ludman EJ, Von Korff M, Lin E, Simon G, et al. A randomized trial of relapse prevention of depression in primary care. Arch Gen Psychiatry 2001 ; 58 : 241-4.
18 Kerkhof A, Arems E, Bille-Brahe U, Crepet P, De Leo D, Hjelmeland H, et al. Repetition of attempted suicide: results from the WHO/EU Multicentre Study on Parasuicide, repetition-prediction part. 7th European Symposium on Suicide and Suicidal Behaviour. Ghent: University Press; 1998.
19 Kreitman N, Philip AE. Reflections on the management of parasuicide. Br J Psychiatry 1979 ; 115 : 746-7.
20 Linehan M, Armstrong HE, Suare A, Allmond D, Heard HL. Cognitive-behavioural treatment of chronically parasuicidal borderline patients. Arch Gen Psychiatry 1991 ; 48 : 1060-4.
21 Morgan H, Jones EM, Owen JH. Secondary prevention of non-fatal deliberate self-harm. The green card study. Br J Psychiatry 1993 ; 163 : 111-2.
22 Motto J, Boström AG. Post-crisis suicide preventing without therapy. Alcohol Dis 1993 ; 5 : 564-7.
23 Möller H. Efficiency of different strategies in after-care for patients who have attempted suicide. J R Soc Med 1989 ; 82 : 643-7.
24 Norusis M. SPSS for Windows 9.0. Chicago: SPSS Inc; 1999.
25 O'Brien G, Holton AR, Hurren K, Watt L, Hassanyeh F. Deliberate self-harm and predictors of out-patient attendance. Br J Psychiatry 1987 ; 150 : 246-7.
26 Ryngnestad T. A 15-year follow-up study after deliberate self poisoning. Nordisk Laegeforen 1997 ; 117 : 3065-9.
27 Schmidtke A, Bille-Brahe U, DeLeo D, Kerkhof A, Bjerke T, Crepet P, et al. Attempted suicide in Europe: rates, trends and sociodemographic characteristics of suicide attempters during the period 1989-1992. Results of the WHO/EURO Multicentre Study on Parasuicide. Acta Psychiatr Scand 1996 ; 93 : 327-38.

28 van der Sande R, Buskens E, Allart E, van der Graaf Y, van Engeland H. Psychosocial intervention following a suicide attempt: a systematic review of treatment interventions. Acta Psychiatr Scand 1997 ; 96 : 43-50.

29 van der Sande R, Buskens E, Allart E, van der Graaf Y, van Engeland H. Intensive in-patient and community-interventions versus routine care after attempted suicide. A randomised controlled interventions study. Br J Psychiatryb 1997 ; 1717 : 35-41.

30 van Heeringen K. The management of non-compliance with outpatient after-care in suicide attempters: a review. Ital J Suicidol 1992 ; 2 : 79-83.

31 van Heeringen K, Jannes S, Buylaert W, Henderick H, De Bacquer D, van Remoortel J. The management of non-compliance with outpatient aftercare among suicide attempters. Psychol Med 1995 ; 25 : 963-70.

32 Öjehagen A, Danielsson M, Träskman-Bendz L. Deliberate self-poisoning: treatment follow-up of repeaters and nonrepeaters. Acta Psychiatr Scand 1992 ; 5 : 370-5.