

# A 5-year follow-up study of suicide attempts

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Seventy-five patients were admitted to the ward of the Lund Suicide Research Center following a suicide attempt. After 5 years, the patients were followed up by a personal semistructured interview covering sociodemographic, psychosocial and psychiatric areas. Ten patients (13%) had committed suicide during the follow-up period, the majority within 2 years. They tended to be older at the index attempt admission, and most of them had a mood disorder in comparison with the others. Two patients had died from somatic diseases. Forty-two patients were interviewed, of whom 17 (40%) had reattempted during the follow-up period, most of them within 3 years. Predictors for reattempt were young age, personality disorder, parents having received treatment for psychiatric disorder, and a poor social network. At the index attempt, none of the reattempters had diagnoses of adjustment disorders or anxiety disorders. At follow-up, reattempters had more psychiatric symptoms (SCL-90), and their overall functioning (GAF) was poor compared to those who did not reattempt. All of the reattempters had had long-lasting treatment (>3 years) as compared to 56% of the others. It is of great clinical importance to focus on treatment strategies for the vulnerable subgroup of self-destructive reattempters.

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Risk factors for suicide attempts and completed suicide differ to some degree. Hirschfeld and Davidson (1), in a review of 11 studies, found that those who completed suicide more often were men, while suicide attempters more often were women, and under the age of 30 years. Not being married, unemployment and depression were risk factors for both groups, and for completed suicide, schizophrenia. A suicide attempt is one of the strongest predictors for suicide as well as repeated suicide attempts (2, 3).

Approximately 1% of suicide attempters die from suicide within a year after their attempt (4, 5), and approximately 3% die from suicide within 3-8 years after an attempt (6). Studies covering an observation period of 5 to 10 years have shown that 4-12% of suicide attempters eventually die by suicide (7-11). The suicide rate varies because of the different patient selection in these studies. Retterstol (12) compared two samples in his 8-year follow-up study. In one psychiatric inpatient sample 7% committed suicide, and in another sample from a psychiatric outpatient clinic 2% committed suicide. These findings illustrate the influence of the selection of study populations.

Risk factors for repetition of suicide attempts have been identified, e.g. personality disorders (6), alcohol and drug dependence (13-15), being divorced or separated (13), having a history of deliberate self-harm (16, 17), a history of psychiatric treatment (13, 15, 18), a diagnosis of dysthymia (18, 19), and inter-personal conflicts (19).

So far three follow-up studies have been reported, in which the investigators have used a face-to-face interview, and have also focused on psychosocial adjustment in a long-term perspective after a suicide attempt (20-22). In these studies, 20-40% of the subjects repeated suicide attempts during the follow-up period (3-8 years), and 6-8% committed suicide. A high proportion of the patients who reattempted during the follow-up period abused alcohol, and about one third were treated for a psychiatric illness. In comparison to non-repeaters, they were estimated as unstable people with limited resources for coping with social and mental stress, and they had difficulties in the area of personal relations and partnership (20-22).

The present investigation is a 5-year follow-up study using a face-to-face interview of patients who

were referred to a psychiatric ward after a suicide attempt. The aims of this study were to investigate predictors for repeated suicidal behavior as well as changes in social network, psychosocial adjustment and treatment received during the follow-up period.

### Subjects and methods

The study was carried out at the Lund Suicide Research Center at the Department of Psychiatry of Lund University Hospital.

Our definition of a suicide attempt is: 'those situations in which a person has performed an actually or seemingly life threatening behaviour with the intent of jeopardizing his/her life or to give the appearance of such intent, but which has not resulted in death' (23).

Information on completed suicides was obtained from the Department of Forensic Medicine in Lund. The study was approved by the Medical Ethics Committee of the University of Lund.

### Sample

The sample consisted of 75 patients (31 men and 44 women) admitted to the Suicide Research Center after a suicide attempt, i.e. index admission. They were inpatients during the period 1987 to 1989, and took part in a multidimensional inpatient research programme including psychiatric, biological, psychological and social issues.

The mean age for men was  $37.8 \pm 10.5$  years and for women was  $42.4 \pm 16.5$  years.

Forty-eight per cent had made one or more suicide attempts before the index admission. The main diagnoses according to DSM-III-R, axis I (24), at index admission were major depressive disorder (MDD, 35%), dysthymia (21%), substance use disorder (8%), adjustment disorder (17%), anxiety disorder (9%), psychoses (5%) and eating disorders (1.3%).

Personality disorder (DSM-III-R, axis II) was present in 68% of the patients.

The sample, including the investigation at index admission, has been described in detail in an earlier paper (25).

### Methods

All patients were first contacted by letter, and 5–7 days later the principal author made a telephone call to provide more information about the interview and to receive consent to participate. If we could not contact the patient, one or two more letters were sent.

Of the 63 patients who were alive at follow-up, 42 individuals (28 women and 14 men) were inter-

viewed, while 21 (9 women and 12 men) were impossible to interview for various reasons. Eleven of the latter did not answer our letters or did not turn up at the appointments agreed upon. Ten patients did not want to participate in the study, and the reasons were as follows: unwillingness to review that particular period in their life (5), psychiatric illness (1), and moving abroad (1), and the remaining three gave no explanation.

Follow-up data concerning suicide attempts and psychiatric treatment for nonrespondents were gathered from psychiatric records of the main psychiatric hospital. At index admission the nonrespondents, in comparison to respondents, tended more often to be men (57% vs. 33%,  $P < 0.10$ ), to be older ( $41.3 \pm 15.4$  vs.  $36.5 \pm 10.4$ , NS), and they were less often employed/studying (53% vs. 79%,  $P < 0.10$ ). No other differences were found between these subgroups.

*The follow-up interview.* At follow-up, a face-to-face interview was conducted by the principal author who had no previous information about the patients. Four patients were known to the author, and these interviews were conducted by one of the co-authors (A.Ö).

The semistructured interview covered sociodemographic, psychosocial and psychiatric areas. The questions focused on the following data from the follow-up period: suicide attempts and circumstances related to these attempts, suicidal thoughts, treatment contacts and admissions to psychiatric wards, current psychiatric symptoms, and social situation, including family, employment, living conditions and financial situation. Included also were social changes during the follow-up period. Another objective was to compare the patients' view of their social network at index and at follow-up. Finally, the individuals were asked if problems at the index suicide attempt as well as current problems had been resolved.

As a complement to the interview, different assessment instruments were used:

- (1) SCL-90, a self-rating scale which measures present psychiatric symptoms (26). It consists of 90 questions each of which has a five-step scale from 'not at all' to 'very much'. The formula reflects 9 dimensions of symptoms and three global indicators.
- (2) ISSI (the Interview Schedule for Social Interaction) (27). The scale was translated into Swedish by Orth-Gomér and Undén (28). Reliability and validity have been tested in Australia and in Sweden and have been found to be satisfactory. This selfrating scale covers availability and adequacy of the two dimen-

sions of social integration and attachment. Hence, it is divided into four subscales: Availability of social integration (AVSI), availability of attachment (AVAT), adequacy of social integration (ADSI) and adequacy of attachment (ADAT).

- (3) SAS-SR (Social Adjustment Scale) a self-rating scale which measures social adjustment over the past 2 weeks in six major areas of functioning (29).
- (4) The overall functioning of the patients according to axis V, DSM III-R (24).

**Statistics**

The Chi-square test was used to analyse differences in the proportions of patients. Student's *t*-test was used in analyses of differences between means. Standardized residuals were used to analyse differences in tables with more than 2 × 2 cells. Residuals >2.0 were considered significant at the 0.05 level. The Mann-Whitney *U*-test was used. Wilcoxon matched-pair test was used for comparisons between two measurements in the same subjects.

**Results**

**Mortality**

Twelve patients had died within 5 years after the index attempt. Two had died from somatic diseases, and ten (13.3%) had committed suicide. Eight of the 10 suicides occurred within the first 2 years after the index attempt, five during the first year, three during the second year, and the remaining two during the third and fourth year, respectively. The deaths were caused by drug overdose (3), drowning (2), shooting by handgun (1), hanging (1), train accident (1) and poisoning by carbon monoxide (1). All who committed suicide were receiving ongoing psychiatric treatment at the time of the suicide.

The percentage of women was the same among those who committed suicide and those who did not (60% vs. 57%). In comparison to the survivors, those who committed suicide tended to be older (49.8 ± 17.7 vs. 39.0 ± 13.5 years, *P* = 0.09). They more often had a mood disorder (MDD, dystymia, depression UNS) (70% vs. 55%, NS), while personality disorders were about as common in both groups. Concerning social variables, no differences were found between those who committed suicide and the others.

**Repetition of suicide attempts during the follow-up period**

During the follow-up period, 17 (40%) of the 42 patients who were interviewed repeated suicide

attempts, and 9 of them made 2 or more reattempts. In all, 51 reattempts occurred. Sixteen individuals made 38 suicide attempts during the first 3 years after the index attempt, and during the fifth year 5 individuals reattempted.

Ten (59%) of 17 patients who reattempted suicide had made suicide attempts before the index attempt, as compared to 10 (40%) of 25 patients who did not reattempt during follow-up (NS).

In the following presentation, those who repeated suicide attempts, RSA (*n* = 17), will be compared with those who did not reattempt, NRSA (*n* = 25), during the follow-up period.

*Social and psychiatric characteristics at index admission.* As seen in Table 1, RSA subjects were more often women (NS), and they were significantly younger than NRSA subjects. RSA and NRSA subjects differed concerning psychiatric diagnoses, i.e. none of the RSA subjects had an adjustment disorder or anxiety disorder. In comparison with NRSA subjects, RSA subjects more often had a personality disorder, while type of personality disorder according to three clusters suggested by the DSM III Task Force (24) did not differ significantly between RSA and NRSA groups. RSA subjects

Table 1. Social and psychiatric characteristics at index admission in subjects who repeated suicide attempts (RSA) and in those who did not repeat attempts (NRSA) during follow-up

Total ( <i>n</i> = 42)	RSA ( <i>n</i> = 17) (%)	NRSA ( <i>n</i> = 25) (%)
Age (mean ± SD) years	37 ± 10	39 ± 11*
Women	28	56.0
Married/cohabiting	15	40.0
Employed/studying	33	80.0
Previous suicide attempts	20	40.0
Psychiatric treatment	20	36.0
Parental psychiatric treatment	26	48.0*
Father	21	36.0*
Mother	12	32.0
Diagnosis, DSM III-R		
<i>Axis I</i>		
Major depressive disease	11	28.0
Dysthymia	9	12.0
Depressive UNS	1	0.0
Substance abuse	4	8.0
Adjustment disorder	8	32.0*
Anxiety disorder	5	20.0*
Psychosis	2	0.0
Eating disorder	2	0.0
<i>Axis II</i>		
Personality disorder	29	56.0*
Cluster A	2	8.0
Cluster B	16	24.0
Cluster C	5	8.0
Cluster D (unspec.)	6	16.0

Chi-square test: \**P* < 0.05. Students *t*-test: \**P* < 0.05.

more often had a father and/or mother who had been treated for psychiatric illness (88% vs. 48%). This difference could be ascribed to psychiatric treatment of fathers (75% vs. 36%). In both RSA and NRSA groups alcohol abuse was the most common disorder among fathers.

**Social network at index and at follow-up.** At the index admission RSA subjects rated their social network (ISSI) as less satisfying than NRSA (Table 2). At follow-up the patients again rated their social network. When comparing index and follow-up ratings, an improvement was found (ISSI, maximum score) in both RSA subjects and NRSA subjects, which reached significance in the RSA subjects. Both groups showed an improvement in the two subscales of adequacy, RSA subjects on attachment (ADAT), and NRSA subjects on social integration. At follow-up, RSA subjects still rated a less satisfactory network in comparison to NRSA subjects (NS).

**Social and psychiatric characteristics at follow-up.** In comparison with the NRSA subjects, the RSA subjects tended to be less often married/cohabiting, while they were more often employed/studying (NS) (Table 3).

In comparison to NRSA subjects, the social adjustment (SAS-SR) was less satisfactory and the

Table 2. The Interview Schedule for Social Interaction (ISSI) and its subscales at index admission and at follow-up

	RSA (n=17)		NRSA (n=25)	
	Index	Follow-up	Index	Follow-up
ISSI total score (max = 30 points)	13.2 ± 5.6*	17.7 ± 7.6	17.3 ± 7.1*	20.5 ± 7.8
AVSI Availability of social integration (max. = 6 points)	2.0 ± 1.3	1.7 ± 1.8	2.7 ± 1.7	3.2 ± 2.0
AVAT Availability of attachment (max. = 6 points)	4.5 ± 1.2	4.7 ± 1.8	4.5 ± 1.7	4.5 ± 2.0
ADSI Adequacy of social integration (max. = 8 points)	3.4 ± 2.3	4.4 ± 2.8	4.9 ± 2.5 <sup>1)</sup>	6.3 ± 2.4
ADAT Adequacy of attachment (max. = 10 points)	3.4 ± 2.4 <sup>2)</sup>	5.9 ± 2.9	5.1 ± 2.9	6.7 ± 3.3

Mann-Whitney U-test:

Comparison between RSA and NRSA subjects at index, \*P<0.05

Wilcoxon matched pairs:

Comparison between NRSA subjects at index and follow-up <sup>1)</sup>=(\*) P=0.07.

Comparison between NRSA subjects at index and follow-up <sup>2)</sup> = \*P=0.02.

Table 3. Social and psychiatric characteristics at follow-up in subjects who repeated suicide attempts (RSA) and in those who did not repeat attempts (NRSA) during follow-up

	RSA (n=17)		NRSA (n=25)	
		%		%
Married/cohab. (28)	(8)	47	(20)	80(*)
Employed/studying (31)	(15)	88	(16)	64(*)
Ongoing psychiatric treatment (21)	(10)	59	(11)	48
Social adjustment (SAS-SR) (M ± SD)	2.1 ± 0.5		1.8 ± 0.4*	
Overall functioning (DSM III R, axis V) (M ± SD)	68 ± 11		81 ± 10***	
Current problems (23)	(12)	71	(11)	44(*)
Last 12 months.				
Suicidal thoughts (23)	(12)	71	(11)	44(*)
Weariness of life (21)	(11)	65	(10)	40
Depressive mood (19)	(10)	59	(9)	36
Anxiety (20)	(12)	71	(8)	32*
Irritability (18)	(7)	41	(11)	44
Hopelessness (19)	(11)	65	(8)	32(*)

Students t-test \*\*\*P<0.001, \*P<0.05.

Chi-square test: \*P<0.05, (\*) P<0.10.

overall functioning scores (DSM-III-R, axis V) were lower in RSA subjects.

At the follow-up interview the patients were asked about suicidal ideation, weariness of life, depression, anxiety, irritability and hopelessness during the last 12 months. The RSA subjects had more often experienced suicidal thoughts, anxiety, and hopelessness as compared to NRSA subjects.

Seventy-one per cent of RSA subjects reported current problems, in comparison to 44% of NRSA subjects. In both groups half of the individuals described their problems as psychiatric/psychological, while the others reported a combination of social and psychiatric/psychological problems.

RSA subjects also had more psychiatric symptoms according to SCL-90 (Fig. 1), in the subscales of obsessive compulsive, interpersonal sensitivity, depression, anxiety, hostility, paranoid ideation, psychotism, global severity index and positive symptom distress index. There were no differences between men and women.

The majority of the respondents (30/42) were able to recall the circumstances of the index suicide attempt, more often in the case of NRSA subjects than RSA subjects (88% vs. 47%, P<0.05). Twelve responders did not remember anything about the index attempt, and eight of them had made two or more suicide attempts after the index attempt.

**Treatment during follow-up.** In total, 19 patients (45%) were readmitted to inpatient psychiatric services during the follow-up period, 94% of RSA subjects as compared to 12% of NRSA subjects (P<0.05). Thirty-one subjects (74%), had outpatient treatment for 3 years or more, all of the

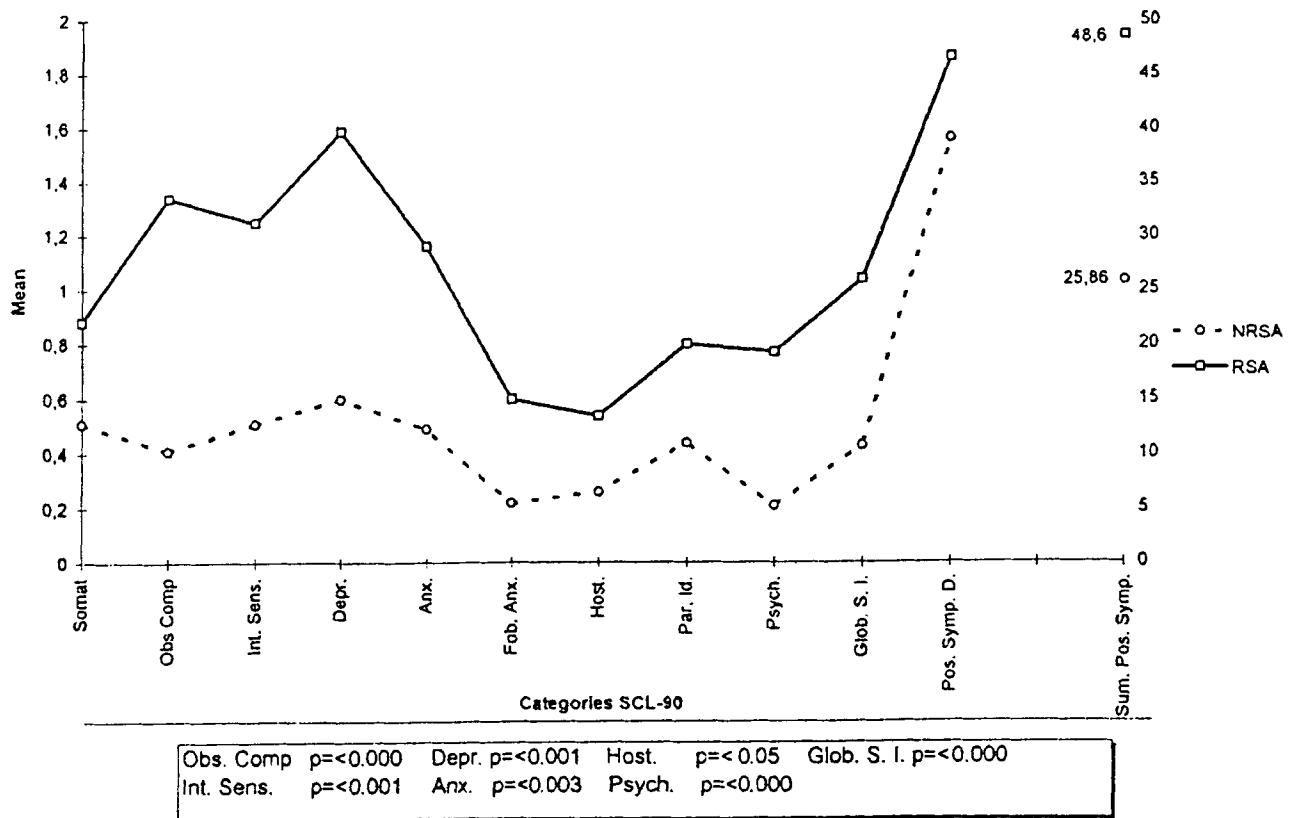


Fig. 1. Profiles of psychiatric symptoms (SCL-90) among subjects who repeated suicide attempts (RSA,  $n=17$ ) and those who did not reattempt (NRSA,  $n=25$ ) during follow-up.

RSA subjects as compared to 14 (56%) of the NRSA subjects ( $P < 0.05$ ). At the follow-up interview, 82.4% of RSA subjects and 48% of NRSA subjects were receiving ongoing treatment.

Among those who received treatment for 2 years or less ( $n=11$ ) 55% had an adjustment disorder compared to 7% among those who received longer treatment ( $P < 0.05$ ).

During the entire follow-up period, 60% received combined treatment, i.e. psychiatric treatment and supportive/psychodynamic therapy, 77% of RSA subjects as compared to 32% of NRSA subjects ( $P < 0.05$ ). Thirty-five per cent of RSA subjects and 20% of NRSA subjects had received psychodynamic therapy.

Seventy-one per cent had received psychopharmacological treatment during the follow-up period, 82% of the RSA subjects as compared to 60% of the NRSA subjects. At the follow-up interview 48% had ongoing psychopharmacological treatment, 53% of RSA subjects as compared to 44% of NRSA subjects. The most common medication was antidepressants with or without benzodiazepines.

Results, non-respondents

Seven out of 21 subjects (33%) had no chart notes from the main psychiatric hospital after index

admission. Four of the patients (19%) had repeated suicide attempts during the follow-up period. One patient had made one reattempt while the others had made three or more attempts. Eleven patients (52%) were readmitted to a psychiatric ward during the follow-up period.

Discussion

This follow-up study consists of a group of patients at high risk for future suicidal behaviour, as they were hospitalized after a suicide attempt. Furthermore, half of the group had attempted suicide before the index suicide attempt. It is of great clinical importance to identify predictors for suicide and suicide attempts in a high-risk group of suicide attempters, in order to develop prevention strategies.

Most follow-up studies of suicide attempters focusing on repeated suicidal behaviour have used register data (19, 11, 30, 31). The opinions of the patients themselves provide a better understanding of their needs.

We were able to describe the course after index discharge in 75% of the study sample. The difficulty of conducting personal long-term follow-up studies has been identified by others (3, 20, 30). One third

of our sample could not be interviewed, which somewhat reduces the extent to which the results can be generalized. In the non-respondent group, our information on the repetition rate is uncertain and therefore not comparable with reports from those interviewed, but to our knowledge there were fewer reattempts in this group. Another possible shortcoming is the sample size. For example, the number of RSA and NRSA subjects, respectively, is rather small for drawing reliable conclusions.

There was a high frequency of completed suicides in our study, as well as a high repetition rate of suicide attempters in the interviewed group. Most of the suicides occurred within the first 2 years, and the suicide attempters within 3 years after the index admission. Such high frequencies of suicidal behaviour have also been reported in other comparable studies (8, 20). Hawton and Catalan reported that 12–25% of hospital-referred attempters are readmitted due to further attempts within 1 year (32). All subjects who committed suicide or reattempted suicide in our study had ongoing psychiatric treatment.

Our main findings concern predictors of repeated suicidal behaviour and characteristics of repeaters at follow-up. In this clinical sample, those who committed suicide tended to be older, and more than half of them were women. Mood disorders were the most common diagnoses at index. Similar findings have been reported from other studies (12, 19). In some other studies, alcohol abuse has been overrepresented among suicide attempters who commit suicide (7, 33).

Predictors for repetition of suicide attempts were young age, personality disorder, a poor social network (at index), and treatment of psychiatric disorders in parents. A couple of these predictors, i.e. personality disorders and young age, have been reported in previous studies (1, 6). All repeaters had index diagnoses other than adjustment disorder and anxiety disorders. Our findings might mirror vulnerability as well as environmental influences from childhood to adulthood.

At follow-up, RSA subjects evaluated their social network as more satisfying in comparison to the situation at the index admission. Most of the RSA subjects were employed or studying, while half of them were living alone. At follow-up their overall social adjustment was less satisfactory than among NRSA subjects. These follow-up results, including high psychiatric symptom levels and reports of current problems combined with our findings of predictors of further suicide attempts, indicate psychological suffering in a long-term perspective. Psychological suffering and poor social network make this group, without doubt, vulnerable to entering critical situations and further suicidal behaviour.

Long-term treatment (> 3 years) was common in the total group. At follow-up a large proportion of reattempters were still in treatment, and so was the other group. A combination of treatment strategies during follow-up was common among reattempters.

All who committed suicide and all reattempters had received psychiatric treatment at the time of their suicidal acts. These findings indicate that there is a need for further improvement and evaluation of treatment strategies for this high-risk group. In order to evaluate the possible impact of long-term treatment models on suicidal behaviour, a controlled design is warranted in spite of apparent methodological drawbacks.

To sum up, 5 years after a suicide attempt, the majority of high-risk subjects still present various symptoms, and about half of them are receiving ongoing psychiatric treatment. Certain features could be extracted from the index data of those who committed suicide and those who reattempted suicide during follow-up. It is of great clinical importance to share our experiences, and to focus on treatment strategies for this vulnerable subgroup of self-destructive patients.

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