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Kirsi H. Suominen · Erkki T. Isometsä ·
Aini I. Ostamo · Jouko K. Lönnqvist

Health care contacts before and after attempted suicide

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Abstract *Objective* The prevalence and timing of contact with health care predicting and after a suicide attempt are not well known. This study systematically investigated the pattern of all health care contacts both before and after attempted suicide. *Methods* All consecutive 1,198 suicide attempters treated in hospital emergency rooms in Helsinki during a 12-month period were identified. Data were gathered on all health care contacts 1 year before and after the index attempt. *Results* The vast majority of the suicide attempters had contact with health care during the 12 months before and after the index attempt. However, half were without a treatment contact during the final 30 days before the index attempt and one-third in the 30 days following the attempt. Suicide attempters who were not referred to aftercare, did not suffer from a previously recognised major mental disorder, were male, or made non-violent attempts were less likely to be receiving treatment after the attempt. *Conclusion* Although most suicide attempters have contact with health care within the year before and after the parasuicide, far fewer actually have a treatment contact at the time of the attempt.

Key words attempted suicide – health care – treatment – aftercare

K. H. Suominen, MD, PhD (✉) · E. T. Isometsä, MD, PhD ·
A. I. Ostamo, MA, LicSocSc · J. K. Lönnqvist, MD, PhD
Department of Mental Health and Alcohol Research
National Public Health Institute
Mannerheimintie 166
00 300 Helsinki, Finland
Tel.: +3 58-9/47 44 82 13
Fax: +3 58-9/47 44 84 78
E-Mail: kirsi.suominen@ktl.fi

K. H. Suominen, MD, PhD
Jorvi Hospital
Department of Psychiatry
Helsinki University Central Hospital
Espoo, Finland

Introduction

Non-fatal suicidal behaviour is a considerable public health problem. Recent major epidemiological studies reveal that as many as 3–5% of the general population have made a suicide attempt and almost one-fifth (10–18%) have reported suicidal ideation at some time in their lives [1, 2]. Furthermore, it is well known that both attempted suicide and mental disorders are important risk factors for later suicide [3]. Given the high proportion of mental disorders [4, 5] and the high overall mortality among suicide attempters, greater priority should be given to the provision of adequate aftercare in addition to treatment of the immediate medical consequences of the attempt.

A contact with health care professionals before a suicide attempt provides an opportunity to prevent suicidal behaviour. A contact subsequent to an attempt offers a chance for treatment intervention. Previous studies have investigated health care contacts either before or after the suicide attempt [6–13], but the pattern of all health care contacts both before and after the attempt has not been systematically studied in a large, representative sample of suicide attempters.

The aims of this study were to comprehensively investigate all health care contacts before and after an attempted suicide and the characteristics predicting lack of treatment contact after the attempt in a representative population of suicide attempters treated in the hospital emergency rooms of Helsinki during a 12-month period.

Subjects and methods

Data were gathered on all parasuicide cases in Helsinki during the period 15. 1. 1997–14. 1. 1998, and on all health care contacts of these people 1 year before and after the index attempt.

Data concerning attempted suicide have been systematically collected in Helsinki since 1989 as a part of the WHO/EURO Multicentre Study on Parasuicide [14]. The data for the present study included

all suicide attempts of Helsinki residents aged 15 years or more admitted to health care during the study period.

Since virtually all suicide attempters in Helsinki are acutely medically treated in general hospital emergency rooms, the data were gathered from all four of the city's general hospitals treating suicide attempters: two university clinics and two municipal hospitals. The medical staff registered the parasuicide cases, while the research group checked the daily lists and added any missing cases. WHO's definition of parasuicide was applied [15], and attempted suicide and parasuicide used as synonyms. Simple alcohol intoxications were excluded. All 1,210 consecutive suicide attempters treated in general hospitals in Helsinki during the study period were identified. The data were gathered from case files according to a structured schedule containing 20 items, including sex, age, date and method of the attempt, previous attempts, use of alcohol, psychiatric consultation and recommended aftercare. The Ministry of Social Affairs and Health approved the use of information in the patient records of the suicide attempters.

Health care contacts

After identifying the cases, we gathered record data on all their health care contacts during 1 year before and 1 year after the index attempt. Health care institutions in Helsinki are divided into seven major sub-areas (Southern, Western, Central, Northern, North-eastern, South-eastern and Eastern). The Helsinki City municipal hospitals and the Helsinki University Central Hospital (HUCH) both offer health services to the city's residents. Record data were systematically gathered from both sources on all public sector health care received by the study cases. This information included inpatient treatment in psychiatric and somatic hospitals, treatment contacts with health centres, mental health clinics and other psychiatric outpatient care, and somatic outpatient treatment contacts. Data on contacts with private health care providers and occupational health services were not available. The ICD-10 clinical diagnoses were included and classified as substance use disorders (F 10–19), non-affective psychotic disorders (F 20–29), mood disorders (F 30–39) and personality disorders (F 60–61). Multiple diagnoses were allowed. The diagnosis was assigned if it had been received in clinical setting within 12 months before or after the suicide attempt. The treatment setting was classified hierarchically into four intensity categories: 1. Psychiatric inpatient care; 2. Psychiatric outpatient care; 3. Health centre; and 4. No contact.

The computerised data files on health care contacts were linked with the existing database concerning suicide attempts during the study period 15. 1. 1997–14. 1. 1998. The data on treatment received were incomplete because of wrong identity numbers in 12 cases and these were excluded from the analyses.

The subjects of this study were all 1,198 suicide attempters treated for an index suicide attempt in general hospitals in Helsinki during the study period whose psychiatric and medical records were available.

Statistical analysis

Differences between treatment setting before and after the index attempt were analysed with the Wilcoxon Signed Ranks test. The mean number of health care visits in the last 30 days before the index attempt was compared with the mean number of health care visits per month during the previous 11 months using the two-tailed paired-samples t-test. Correspondingly, the mean number of health care visits in the 30 days following the index attempt was compared with the mean number of health care visits per month during the next 11 months using the two-tailed paired-samples t-test. The day of the index attempt was excluded from the analyses. The logistic regression model was created with sex, age, use of alcohol before the attempt, previous parasuicide, method of index attempt, recommended aftercare and clinical diagnosis of substance use (F 10–19), psychotic (F 20–29), mood (F 30–39) and personality (F 60–61) disorder received before the attempt and subarea as explanatory variables and lack of treatment contact (psychiatric care or contact with health centre) during the 30 days following the attempt as the dependent variable.

Results

The majority of the suicide attempters had received psychiatric inpatient or outpatient treatment, or had contact with a health centre during the 12 months both before and after the index attempt (Table 1); only 40 patients (3%) had no such contact. The intensity of care increased after the index attempt (Table 1: treatment setting before vs after the attempt, Wilcoxon Signed Ranks test $Z=-11.8$, $p < 0.001$). Half of the suicide attempters were without a treatment contact during the final 30 days before the index attempt and a third during the 30 days after it (Fig. 1). Factors predicting lack of treatment contact 30 days after the attempt are shown in Table 2.

Both health centre contacts and psychiatric outpatient visits seem to cluster slightly in the last 30 days before attempted suicide (Figs. 2 and 3). Emergency outpatient health care visits in the last 30 days before the index attempt also clustered somewhat (visits in the last 30 days (mean 0.66) vs previous 11 months (mean 0.45 visit/month) $t=6.2$, $df=1197$, $p < 0.001$). The means of health care visits of suicide attempters are shown in

Table 1 Sociodemographic and clinical characteristics of 1,198 suicide attempters

Variable	Males (N=567)		Females (N=631)		Total (N=1198)	
	N	%	N	%	N	%
Mean age (\pm SD) (years)	37.3 \pm 12.8		38.8 \pm 13.7		38.1 \pm 13.3	
Method of index attempt						
Self-poisoning	496	87	583	92	1079	90
Violent	68	12	44	7	112	9
Other, non-violent	3	1	4	1	7	1
Used alcohol before the attempt						
Yes	386	68	397	63	783	65
No	107	19	137	22	244	20
Missing information	74	13	97	15	171	14
Previous parasuicide						
Yes	232	41	294	46	526	43
No	180	32	219	35	399	34
Missing information	155	27	118	19	273	23
Psychiatric consultation						
Yes	264	47	367	58	631	53
No	272	48	227	36	499	42
Missing information	31	5	37	6	68	6
Recommended aftercare						
Nothing	172	30	117	18	289	24
Outpatient	215	38	314	50	529	44
Inpatient	135	24	156	25	291	24
Missing information	45	8	44	7	89	7
Treatment setting 12 months before the index attempt						
Psychiatric inpatient	151	27	148	23	299	25
Psychiatric outpatient	137	24	181	29	318	26
Health centre	201	35	239	38	440	37
No contact	78	14	63	10	141	12
Treatment setting 12 months after the index attempt						
Psychiatric inpatient	215	38	253	40	468	39
Psychiatric outpatient	157	28	212	34	369	31
Health centre	142	25	129	20	271	23
No contact	53	9	37	6	90	8

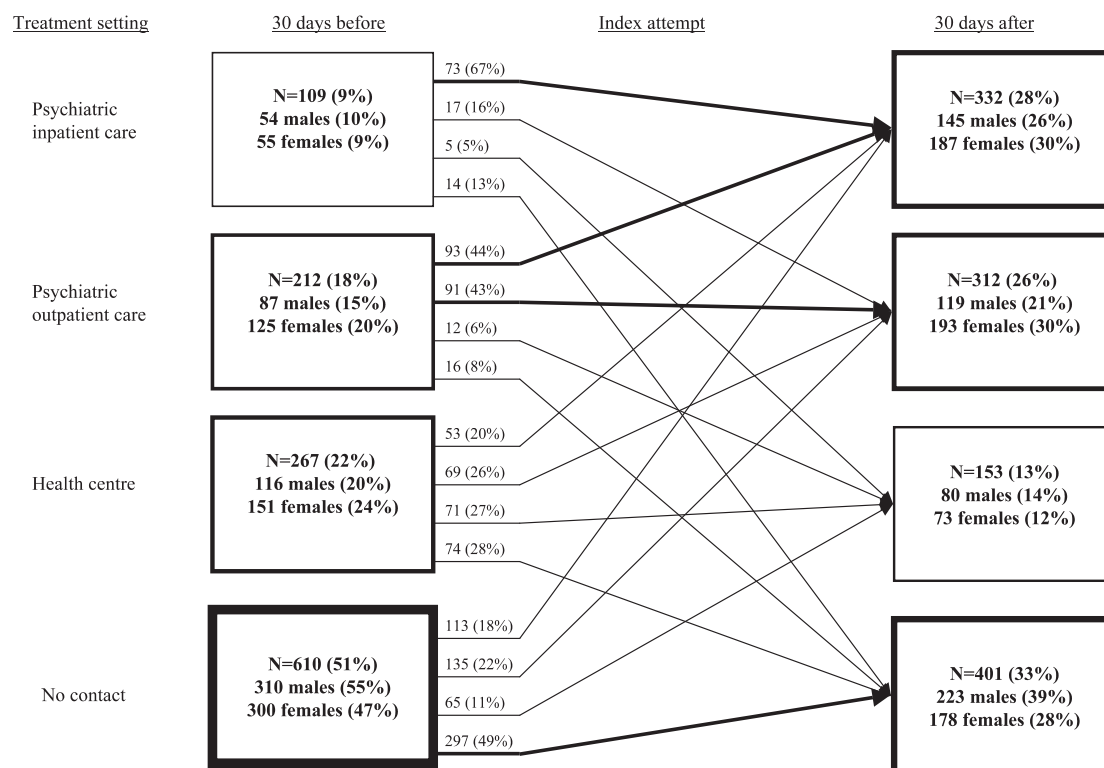


Fig. 1 Treatment setting among 1,198 male and female suicide attempters 30 days before and after the index attempt (before vs after Wilcoxon Signed Ranks test $Z=-15.7$, $p<0.001$)

Table 2 Logistic regression model predicting lack of health care contact during the 30 days following attempted suicide among 1,198 suicide attempters

Variable	OR	95% CI	p
Gender (male/female)	1.40	1.00–1.98	0.04
Age (years)	0.99	0.98–1.01	0.43
Used alcohol before the attempt (yes/no)	1.49	0.96–2.30	0.07
Previous parasuicide (yes/no)	0.99	0.69–1.41	0.95
Method of index attempt (non-violent/violent)	2.02	1.00–4.06	0.05
Recommended aftercare (inpatient/outpatient/nothing)	0.29	0.22–0.38	< 0.0001
Substance use disorder (yes/no)	1.01	0.66–1.55	0.96
Psychotic disorder (yes/no)	0.19	0.08–0.44	0.0001
Mood disorder (yes/no)	0.49	0.31–0.77	0.002
Personality disorder (yes/no)	0.48	0.27–0.85	0.01
Subarea	0.99	0.98–1.00	0.26

Table 3 and compared with those of residents of Helsinki aged 15 years or more (unpublished data from the Health Department of City of Helsinki).

During the last year before the index attempt 203 suicide attempters (17%) had received somatic treatment (for conditions other than suicide attempts) in a general hospital, 174 (14%) treatment in a psychiatric hospital and 125 individuals (10%) both. One-tenth of all the suicide attempters ($N=124$) were discharged from psychiatric hospital within 3 months before the index attempt and 43 (4%) made a suicide attempt during

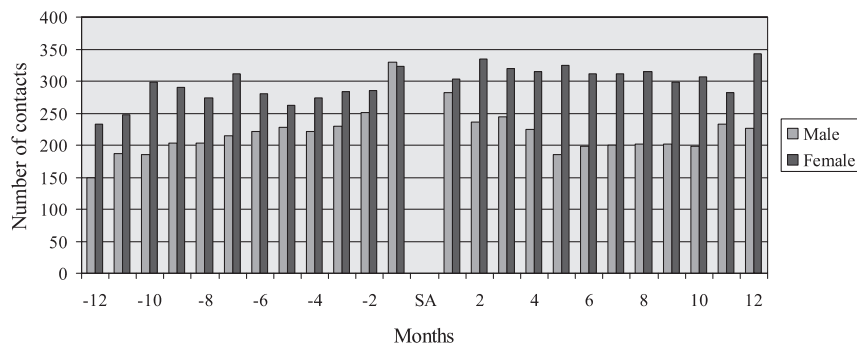
their psychiatric inpatient treatment or on the day of discharge.

Discussion

Suicide attempters had elevated rates of health care contacts, with somewhat more visits in the final month before the attempt. Furthermore, the majority had contact with health care during the year before and after the index attempt, and the intensity of care increased after the attempt. The fact that half of the suicide attempters had no contact during the final month before the attempt means that health care providers were able to intervene to prevent suicidal behaviour in no more than half of the cases. Although according to Finnish recommendations [16] all suicide attempters should be referred to aftercare after a parasuicide, one-third of these attempters had no health care contact in the following month, largely due to lack of referral to aftercare.

This appears to be the first reported sample of suicide attempters and their health care contacts both before and after the attempt. The large sample included all medically treated suicide attempters in Helsinki during 1 year and all their contacts with the city's health services 1 year before and after the attempt. The careful data gathering process ensured complete coverage of all suicide attempters treated in health care. Furthermore, the size of this sample enabled us to estimate accurately

Fig. 2 Health centre contacts of 1,198 male and female suicide attempters 12 months before (N=971) and after (N=969) the index attempt



SA= index suicide attempt

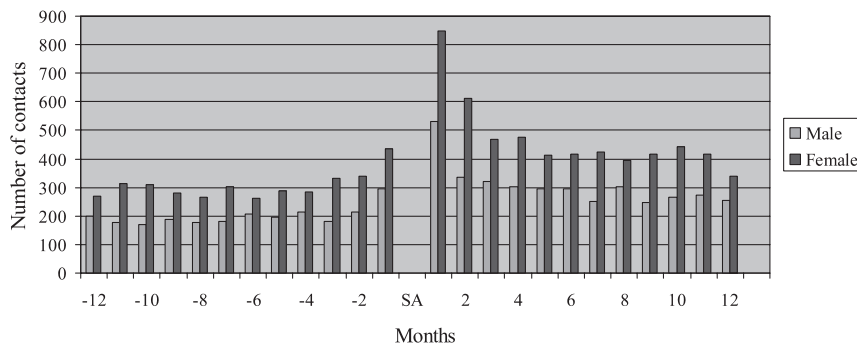
Before the index attempt (median number of visits 4.0):

Visits in the last 30 days (mean 0.54) vs previous 11 months (mean 0.41 contact/month) $t=4.7$, $df=1197$, $p<0.001$
(Males 0.58 vs 0.37 $t=4.7$, $df=566$, $p<0.001$; females 0.51 vs 0.44 $t=1.8$, $df=630$, $p=0.07$)

After the index attempt (median number of visits 4.0):

Visits in the first 30 days (mean 0.49) vs next 11 months (mean 0.44 contact/month) $t=1.4$, $df=1197$, $p=0.15$
(Males 0.50 vs 0.38 $t=2.9$, $df=566$, $p=0.005$; females 0.48 vs 0.50 $t=-0.48$, $df=630$, $p=0.63$)

Fig. 3 Psychiatric outpatient contacts of 1,198 male and female suicide attempters 12 months before (N=611) and after (N=832) the index attempt



SA= index suicide attempt

Before the index attempt (median number of visits 5.0):

Visits in the last 30 days (mean 0.61) vs previous 11 months (mean 0.41 contact/month) $t=5.4$, $df=1197$, $p<0.001$
(Males 0.52 vs 0.34 $t=3.9$, $df=566$, $p<0.001$; females 0.69 vs 0.48 $t=3.9$, $df=630$, $p<0.001$)

After the index attempt (median number of visits 6.0):

Visits in the first 30 days (mean 1.15) vs next 11 months (mean 0.60 contact/month) $t=10.6$, $df=1197$, $p<0.001$
(Males 0.93 vs 0.50 $t=7.2$, $df=566$, $p<0.001$; females 1.35 vs 0.69 $t=8.0$, $df=630$, $p<0.001$)

Table 3 The mean number of health care visits (and 95 % confidence interval) of 1,198 suicide attempters 12 months before and after the index attempt and the mean number of health care visits of residents of Helsinki 1997

Treatment setting	12 months before	12 months after	Residents of Helsinki ^a
Any outpatient ^b	14.4 (13.5–15.4)	18.1 (17.0–19.1)	5.6
Psychiatric outpatient ^b	5.2 (4.6–5.7)	7.9 (7.1–8.7)	0.4
Primary care ^b	5.2 (4.8–5.6)	5.6 (5.1–6.1)	3.6
Psychiatric inpatient ^c	11.0 (8.8–13.1)	17.8 (15.1–20.5)	0.6

^a Unpublished data from the Health Department of City of Helsinki

^b Mean number of visits

^c Mean of days in hospital

the use of public health care services before and after attempted suicide. The most important methodological limitation of this study is that we could only very crudely compare the rates of health care contacts between the suicide attempters and the general population. Another limitation is that information on contacts with private health care providers and occupational health services was not available. However, these are unlikely treatment settings for these suicide attempters as only 23 % were

employed. While the reliability of the health care register data is not known, the accuracy of the Finnish register data compared with medical records is generally excellent [17]. Health care services differ somewhat between countries and the generalisability of these findings remains to be investigated.

Earlier studies have revealed increased health care contacts in the year prior to an attempt [6, 8, 13], and among those who die by suicide contact with health ser-

vices is common before death [18]; our findings are in accordance. In previous studies up to two-thirds (25–62.5%) of suicide attempters had visited their general practitioner (GP) in the month prior to the attempt [8, 9, 11, 12], one-quarter (22–27%) had had a psychiatric treatment contact during the last month [9, 11] or last 3 months [6] before the attempt, and one-quarter to almost half (24–44%) had been receiving psychiatric care [9, 10]. However, the parasuicide populations in these studies have been small or selected. Our findings revealed that as many as half of the suicide attempters had not sought help from health care in the last month before the attempt.

In Finland, each person attempting suicide is recommended to be investigated and appropriate treatment arranged [16]. Furthermore, it is suggested that recognition and treatment of mental disorders, careful assessment of the risk factors for suicide, as well as aftercare of those with a high suicidal risk are the most important methods of preventing suicide [19, 20]. While our results accord with previous findings that the majority of suicide attempters are referred to aftercare (Table 1) [7, 21] and have a health care contact during the year following the attempt, we found that one-third of attempters did not receive even the very minimum recommended aftercare during the month after the attempt. A previously recognised major mental disorder or active referral to aftercare were both powerful independent predictors of health care contact after the suicide attempt. However, even after controlling for referral, for the presence of diagnosed mental disorders, and for other background factors, male suicide attempters were less likely to have a health care contact. From a preventive point of view this is unfortunate, as the risk for completed suicide is particularly high among male attempters.

Although there is uncertainty over which forms of psychosocial and physical treatments of patients who harm themselves are most effective [22], evidence accumulates that psychopharmacological interventions such as long-term lithium prophylaxis and clozapine treatment reduce the rates of attempted and completed suicide [23]. There is also some evidence that paroxetine [24], depot flupenthixol or dialectical behaviour therapy [22] have a beneficial effect on the repetition risk of suicide attempts. Furthermore, it is well known that the vast majority of suicide attempters suffer from mental disorders [4, 5] and, thus, that they should receive diagnosis-specific treatment after the parasuicide in addition to the minimum intervention.

Conclusion

Although most suicide attempters have contact with health care within the year before and after the parasuicide, far fewer actually have a treatment contact at the time of the attempt. Suicide attempters who are male, make non-violent attempts or are not actively referred to aftercare are less likely to be receiving treatment.

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