Original Article

Brief Intervention and Contact after Deliberate Self-Harm: An Iranian Randomized Controlled Trial

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Objective: Previous suicide interventional studies are controversial in their results. The present study compared brief intervention and contact (BIC), with treatment as usual (TAU) in their influence on the repetition of suicide attempts 6-month after the index suicide attempt.

Methods: Adults who had attempted suicide were assigned two groups randomly: 311 in the TAU and 321 in the BIC. The brief intervention and contact contained a brief one-hour psycho-educational session combined with follow-up contacts by phone calls or visits after discharge. We used Mann-Whitney U test, ANOVA, and Chi-Square for analysis of variables.

Results: The brief intervention and contact did not significantly reduce the repeated suicide attempts, but the patients' need to get support increased significantly (alpha value = 63.67, $p<0.001$) compared to the treatment as usual group. Also, the brief intervention and contact group patients tried to get support from outpatient/inpatient services, relatives, friends or by telephone contact to a significantly larger extent (alpha value = 69.2, $p<0.001$) compared to the treatment as usual group.

Conclusion: brief intervention and contact seems to have an effect on the patients' attitude towards seeking support from outpatient/inpatient services, relatives and friends.

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Introduction

The prevention of suicide is a public health priority worldwide(1,2). It was estimated that, 877,000 people died by suicide in 2002 in the world (3,4); mortality due to suicide has increased about 60% over the last 45 years. Suicide is now among the five top causes of death for young adults of both sexes worldwide (5) and suicide is a leading cause of death across the world (2). Suicide attempts are up to 10-40 times more frequent than completed suicides and in many countries, attempts are one of the main reasons for emergency-care treatment. Also suicide is a heavy burden on health-care systems (3). As many as two-thirds of those who complete suicide have a history of a previous attempt (6) and it is well known that attempted suicide is the most powerful single predictor of subsequent completed suicide (7) as repetitive behavior in itself is a strong predictor of future behavior (8). Attempters are often ambivalent to treatment, therefore they do not attend the treatment or terminate the treatment prematurely (7,9,10). Van Heeringen and coworkers found that compliance in routine after-care seldom exceeded 40% (9). For many reasons individuals fail to attend treatment including an emergency room visit for an attempt, Repetitive evaluation, lengthy waiting periods,

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bureaucratic registration processes and poor rapport may increase non-adherence (11). Obviously, there is a gap in after-care that leads to be filled (6,12).

Up to one third suicide attempters for first time are at high risk of re-attempt (8,9,13). Repeated attempts within the six-months and one-month period after the index attempt are 10-37% and 45% (8). The risk of a fatal repetition of a suicide attempt is highest in the following 12 weeks (6,9) and 1-3.3% will die by suicide within one year (2,6,9); up to 9% within five years, and up to10% later on (6,13). Many patients re-attempt even on treatment (9). Twenty one percent of suicides in a group of patients with affective disorders were committed by in-patients (14). The link between adherence to treatment and reduction of suicidal behavior remains to be proven (9,15); insufficiency of sample sizes in previous studies was one of the problems (9).

The basic aims of the present study were to investigate whether a brief psycho-educational session combined with several follow-up contacts compared to treatment as usual during six months after the index suicide attempt, has an influence on treatment attendance and repetition of suicidal behavior or not.

Materials and Methods

The study was carried out in emergency-care departments of five general hospitals in Karaj, Iran, serving predominantly urban and inner city populations. These hospitals provided emergency care coverage in Karaj and served the respective catchments areas, 24 hours a day. All suicide attempters who were identified in the emergency-care departments by medical staff of Karaj between July 2002 and April 2003 were invited to participate in the study. In the consent form, subjects were asked to agree a follow-up, without specification of the number and time of contacts. This information was given only after subjects had been randomly assigned to their group. Those who consented underwent the detailed intake interview. A total of 945 attempters were identified; 632 subject participated in and were randomly assigned to two groups: "Treatment As Usual" (TAU) and "Brief Intervention and Contact" (BIC); 311 in the TAU and 321 in the BIC group. An allocation sequence based on a random-number table was used to randomly assign all enrolled subjects to BIC or TAU; the allocation sequence was maintained in a separate location to prevent clinician bias. The subjects were blinded as to their assignment to specific treatment groups.

A team consisting of nine psychologists, six consultants, two psychiatric residents and one nurse participated in a 28-hour workshop for filling the questionnaire and a 12-hour group education workshop for instruction of the brief psycho-educational intervention session.

The TAU and BIC groups both received the ordinary emergency department treatment (i.e., needed medical emergency care). After filling in the questionnaire; according to the protocol the TAU were followed-up six months after discharge. The BIC group participated in a one-hour psycho-educational information session, which took place close to the time of discharge, if possible. The content of this information session were as: suicidal behavior as a sign of psychological/social distress, risk factors, basic epidemiology/repetition, alternatives to suicidal behavior, and contacts/referrals.

After discharge, the subjects were followed up by phone calls or visits (as appropriate) according to the time line given below:

Discharge time, 1 week, 2 weeks, 4 weeks, 7 weeks, 11 weeks, 4 months, and 6 months after discharge. During each phone call or visit, the person was asked how he or she felt and if he or she needed any support. In the cases of a positive answer the person was referred to an appropriate channel.

The Multisite Intervention Study on Suicidal Behaviors(SUPRE-MISS) questionnaire was based on EPSIS (the European Para-suicide Study Interview Schedule). It covered detailed socio-demographic and clinical information. It was translated into Persian and adapted to cultural specificities. The content and face validity of the questionnaire were evaluated in a pilot study (5). Also, demographic variables, a description of the circumstances of the event, previous suicidal episodes/suicidal ideation, family history of suicidal behavior, and routine psychiatric diagnosis(ICD-10) were part of the questionnaire.

Re-attempters and Non re-attempters during the follow-up period were compared at six months after the index suicide attempt. We have used the Mann-Whitney U test and ANOVA for continuous variables and the Chi-Square test for categorical variables. All analyses were carried out using SPSS software (version 11.1).

Results

During the trial, 945 suicide attempters presented themselves to the emergency departments. Out of these, 313 (33.1%) did not wish to participate in the study and 632 (66.9%) participated; 321 (34%) were randomly allocated to the BIC group and 311 (32.9%) to the TAU group.

Comparing participants with non-participants; the sex and marital status are shown in table 1.

Table 1: Sex and marital status of suicide attempters

Group	Sex		Marital Status		
	Male Number(%)	Female Number(%)	Single Number(%)	Married Number(%)	Other Number(%)
BIC	116 (12.3)	205 (21.7)	172 (18.2)	139 (14.7)	10 (1.1)
TAU	121 (12.8)	190 (20.1)	166 (17.6)	135 (14.3)	9 (1.0)
Refused to participate	155 (16.4)	158 (16.7)	151(16.0)	152 (16.1)	9 (1.0)
Total	392 (41.5)	553 (58.5)	489 (51.9)	426 (45.2)	28 (3.0)

Comparing gender, marital status and sex; between participants with non-participants, there was only significant difference in gender: females participated more frequently than males ($p<0.01$).

The age characteristics of the attempters are shown in table 2.

Table 2: Age of the suicide attempters

Group	Number	Mean	SD	Min.Value	Max.Value
BIC	319	23.94	8.301	12	61
TAU	310	25.10	9.747	12	69
Refused to participate	312	26.76	10.585	11	78
Total	941	25.26	9.642	11	78

However,there was no significant difference between the two groups regarding the number of patients in table 3 (with the exception of religious), numbers of males in the BIC group were less and number of married and employed in this group were more than the TAU. Previous suicide plan and attempt, and chronic physical and psychiatric illness in the BIC group is more than the TAU. Also, previous suicidal ideation, family history of suicide and out-patient psychiatry treatment in the TAU group was more than the BIC. Finally, the BIC group rated themselves more religious than the TAU ($p<0.01$).

Table 3: Patient characteristics at the Index Suicide Attempt in two Participant groups

	BIC Group N=319 Number (%)	TAU Group N=310 Number (%)
Male	116(12.3)	121(12.8)
Married	140(22.2)	135(21.4)
Age (Mean±SD)	24±8.3	25±9.7
employed	39(12.1)	29(9.4)
Previous suicidal ideation	37(12.7)	42(15)
Previous suicide plan	14(4.8)	11(4)
Previous suicide attempt	95(29.6)	82(26.4)
Family history of suicide	43(13.5)	54(17.5)
Religious beliefs	40(12.5)	20(6.4)*
Chronic physical illness	92(28.7)	69(22.2)
Chronis psychiatric illness	182(56.7)	163(52.9)
Out-patient(psychiatric)treatment	73(24.1)	79(25.6)
Substance use,daily,past3months		
Tobacco	74(71.2)	84(78.5)
Cannabis	8(53.3)	14(66.7)
Sedatives	70(53.4)	61(46.6)
Heroin	23(45.1)	28(54.9)
Alcohol	18(28.6)	18(25.7)

*$p<0.01$

Table 4: Repeated suicide attempts during the follow-up in two participant groups.

	Treatment as Usual Number (%)	Brief Intervention and Contact Group Number (%)	Total
Re-attempters	24 (7.7)	30 (9.3)	54
Non re-attempters	287 (92.3)	291 (90.7)	578
Total	311 (100)	321 (100)	632
1 repeated attempt	20 (83.3)	21 (70)	41
2 repeated attempts	4 (16.7)	4 (13.3)	8
3 repeated attempts	-	2 (6.7)	2
4 repeated attempts	-	1 (3.3)	1
5 repeated attempts	-	2 (6.7)	2
Total repeated attempts	24 (100)	30 (100)	54

According to table 4, 54 patients re-attempted within six months after their first attempt; 24 patients (7.7%) and 30 patients (9.3%) respectively in the TAU and BIC groups.

However, there was no significant difference between the two groups, regarding the number of patients who repeated attempts. But there is a significant difference ($p<0.05$) considering the number of re-attempts: there were fewer attempts in the TAU. Although the BIC did not significantly reduce the number of attempts, it did significantly ($p<0.001$) increase the patients' need to get support and in trying to get support ($p<0.001$), compared to the TAU group. Following a repeated suicide attempt, 4 patients died; 2 (0.6%) in each group.

According to table 5 by comparing the re-attempters with non re-attempters, significant differences were found in the followings: maleness ($p<0.01$), financial stressors ($p=0.056$), chronic physical problems ($p<0.05$), histories of suicide ($p<0.01$), family histories of suicide ($p<0.01$), Substance abuse including; lifetime tobacco ($p<0.01$), alcohol ($p<0.001$), sedatives ($p<0.01$) and opioids ($p<0.01$) use. Chronic psychiatric problems were more in re-attempters but the difference was not significant.

Table 5: Characteristics at six-month follow-up based on repeated suicide attempts

	Re-Attempters Number (%)	Non Re-Attempters Number (%)
Chronic physical problem	21 (38.9)**	140 (24.2)
Without chronic physical problem	33 (61.1)	438 (75.8)
Chronic psychiatric problem	30 (55.6)	315 (54.8)
Without chronic psychiatric problem	24 (44.4)	260 (45.2)
Past history of suicide attempt	23 (42.6)*	154 (26.6)
Without past history of suicide attempt	31 (57.4)	424 (73.4)
Family history of suicide	15 (28.3)*	82 (14.3)
Without family history of suicide	38 (71.7)	492 (85.7)
History of tobacco use	28 (51.9)*	184 (31.8)
Without history of tobacco use	26 (48.1)	394 (68.2)
History of alcohol use	22 (40.7)*	112 (19.4)
Without history of alcohol use	32 (59.3)	466 (80.6)
History of sedatives use	21 (38.9)*	160 (27.7)
Without history of sedatives use	33 (61.1)	418 (72.3)
History of opioids use	13 (24.1)*	77 (13.3)
Without history of opioids use	41 (75.9)	501 (86.7)

*P<0.01
**P<0.05

Discussion

The main objective of this study was to evaluate the effects of a brief intervention session and repeated follow-up contacts after a suicide attempt. The main method of attempted suicide is self-poisoning (3). However, between 3% and 10% of self-poisoning patients eventually kill themselves and up to half of suicide victims have a history of previous deliberate self-harm (2). Self-poisoning has lower lethality than other common methods of suicide; 1.5% compared to 61% for hanging (1). In this regard suicide preventive intervention for decreasing re-attempt is much more strategic.

A total of 945 attempters were identified and nearly one third refused to participate. The suicide attempters were invited to participate in the study just before their discharge from the emergency care setting. Shortly after a suicide attempt, the patient is usually in a psychologically vulnerable state. Therefore, contacting initially non- participants, one month after discharge in order to recruit them for the study might decrease the number of refusals (9). This is of particular importance, because non-participants tended to commit suicide eventually more often than participants (8). Our recruitment rate was higher than the reported rate by Guthrie and coworkers (10). They reported that only half (51%) of the eligible patients agreed to participate which reflects the difficult engagement of such patients(10). Also Van Heeringen and coworkers had mentioned that the failure to comply with referral for out-patient after care is a well-documented problem among attempted suicide patients (16). Kapur mentioned that 60-70% attended after care following self-harm and was difficult to engage them in interventions (2).

More female suicide attempters participated in this study ($p<0.01$). This finding is consistent with those studies which more female suicide attempters were followed-up than male attempters (7,8), but it is inconsistent with the study by Guthrie and coworkers where participants were similar to those who declined participation, regarding their sex (10). According to previous studies, individuals who perceived a need for care were more likely to get care (15). This could mean that female attempters might perceive the need for care more frequently than male attempters. There was no significant difference regarding marital status among participants and non-participants that is in line with previous studies (8). The younger suicide attempters participated in the study more frequently than the older ones ($p<0.001$), which is inconsistent with previous studies, and older attempters were followed-up more than younger ones (8,17).

Comparing the BIC and the TAU, Most of the variables were not significantly different between the two groups which means that the two groups were largely comparable, except to the BIC was facing less financial problems and the TAU was more educated. Also, the BIC rated themselves as more religious than the TAU ($p<0.001$); which might have influenced the follow-up results.

Comparing the BIC and the TAU, The lack

of difference between the randomized groups concerning the repeated suicide attempts during the six-month follow-up period regarding the number of patients, is in line with results from other randomized controlled studies (9,18). Van der Sande and coworkers mentioned in their meta-analysis of suicide intervention studies (18,19) that there was no significant reduction in suicide re-attempts by interventions such as psychiatric management of poor compliance and crisis intervention. Only cognitive behavioral approaches showed significant preventive effects on repeated suicide attempts (19). Nordentoft and coworkers also found significant differences through cognitive behavioral approaches (13). An intervention have been studied by Guthrie and coworkers showed a significant reduction in suicidal ideation and suicide attempts through four sessions of psychodynamic interpersonal therapy compared with usual treatment (10). Suominen and coworkers also mentioned that psychiatric consultations during one-year follow-up had a positive effect on the outcome of suicide attempters (7). Comparing two interventions discussed in MEIU, there was an 8% difference between repeated suicide attempt rates which was suggested to be due to the one-month follow-up in the study with the lower rate (8). Aoun and coworkers assessed a suicide prevention program within two years of follow-up from a consumer perspective. Three quarters of respondents were positive about it, half of them no longer had suicidal ideation and 20% re-attempted suicide. The reported suicidal ideation and the repeated attempts were much higher in the dissatisfied group. The dissatisfaction stemmed from "the hassle created by the many systems for them to access care" (20). Dialectical behavior therapy has been found to significantly reduce the number of suicidal acts within one year in 18-45 year old females (8). Motto focused on patients who did not continue psychiatric contact and the suicide rate was lower in those who received a follow-up intervention (9). However, many patients repeat suicide attempts or complete suicide even if they are in treatment (9). Appleby and coworkers reported that continuing treatment beyond initial recovery among suicide attempters was an important suicide preventive strategy (9). Several studies suggested that supportive actions including problem solving should be delivered within 2-3 days (9). Kapur and coworkers suggested that referral for follow-up to deliberate self-harm teams or mental health professionals might be beneficial for the majority of patients (2). A study by Haw and coworkers focused on suicide attempters with a depressive episode, mostly moderate or severe, the apparent lack of efficacy of the antidepressant treatment in preventing suicide attempts in this study suggested that other treatments may be needed for this group, such as psychological interventions (12). The discussion about the effect of lithium in decreasing the risk of suicide is controversial (12,14).

Regarding the number of attempts there was a significant difference between the BIC and TAU groups ($p<0.05$); there were less attempts in TAU.

The BIC did not significantly reduce the frequency of repeated attempts, but significantly (alpha value=63.67, $p<0.001$) increased the patients' need to get support, compared to the TAU. Also, subjects from the BIC group differed significantly (alpha value=69.2, $p<0.001$) from the TAU group with regards to trying to get support from outpatient/ inpatient services, relatives, friends or by telephone contact. This is in line with studies which showed a significant beneficial effect of the intervention in compliance with referral (7,9,10,16,18,20). Also, Kurz and coworkers mentioned that the patients were more willing to follow therapeutic recommendations than to seek help spontaneously and the recommended care could be improved by intensifying the follow-up psychiatric intervention (21). Successful trials have been carried out to improve treatment compliance, among non-attendees' by motivational home visits (9,16). Improvement in psychological symptoms 12 months after a suicide attempt did not differ between the intervention and control group through motivational supports (9) or crisis intervention and problem solving aftercare (18), but brief psychodynamic interpersonal intervention (10) and cognitive behavioral approaches (13) did significantly improved the symptom measures.

Repeated suicide attempts lead to death in 2(0.6%) of the patients in each group which is lower than the reported 0.93% in Cedereke's study (8) but was higher than in Guthrie's study which reported no deaths during the same follow-up period (10).

Comparing the re-attempters with those who did not re-attempt, The rates of repeated suicide attempts (TAU 7.7% & BIC 9.3%) were below the predicted range of 14.6% (2) and 10-37% for six months (9), and the range of 10-42% for one year after the index attempt (13). Cedereke and coworkers reported that 17% of the intervention group and 17% of the control group re-attempted in their interventional study within one year follow-up (9). They mentioned that the rate of repeated suicide attempts was lower (Non Significant) than findings in an earlier one-year follow-up study from their own center (MEIU) in which 27% re-attempted suicide (9). Comparing two interventional studies in MEIU, there was an 8% difference between repeated suicide attempt rates which was suggested to be due to the one-month follow-up in the study with the lower rate (8). The difference between our rate of repeated suicide attempts and Cedereke's study might be due to the duration of the follow-up or due to different contact schedules, mainly in the earlier period of the follow-up. Van der Sande and coworkers reported that the probability of repeated suicide attempts was 0.17 for patients in the intervention group and 0.15 in the control group (18).

There were significantly (alpha value=6.33, $p<0.01$) more male re-attempters in our study, which is consistent with a study by Kapur (2) and inconsistent with findings from other studies where no significant differences were found with regard to gender (8). Consistent with findings previously reported (8), in our study no significant differences were found regarding age, marital status, need for actual support, need for ethical support, or received support. The rate of repeated suicide attempts in the range of 10-42% might be influenced by the composition of the patients studied regarding age, gender, and previous suicide attempts (13).

There were differences regarding financial stressors [not significant (alpha value=3.65, $p=0.056$)] and chronic physical problems [significant (alpha value=5.59, $p<0.05$)]; more in re-attempters.

Regarding the physical consequences and need for care after the suicide attempt, probably there was no significant difference between their suicide attempt intensity.

There were more patients with chronic psychiatric problems among the re-attempters compared to those who did not re-attempt, but the difference was not significant. Other studies have found that a history of psychiatric treatment is associated with repeated suicide attempts (2,8). There were significantly (alpha value=6.23, $p<0.01$) more patients with a past history of suicide attempt among the re-attempters compared to those who did not re-attempt, which is in line with other studies (2,8,13). This was the strongest predictor for suicide re-attempting within one year in a multi-center study of teenagers (8).

Among those with repeated suicide attempts there was significantly (alpha value=7.28, $p<0.01$) more family history of suicide than among those who did not re-attempt.

Consistent with findings previously reported (2); in our study a significantly more substance use was found in re-attempters compared to those who did not re-attempt. There were significantly more lifetime tobacco ($p<0.01$), alcohol ($p<0.001$), sedatives ($p<0.01$) and opioids ($p<0.01$) use. These findings were in line with previous studies (22).

The non-significant findings (the psychological assessments) regarding the patients' sympatomatology were in line with Cederekes' study (8).

Finally, one of limitations of this study was to evaluate the severity of suicidal attempt and match this variable in two groups.

Conclusion

Brief intervention and contact seems to have an effect on the patients' attitude towards seeking support from outpatient/inpatient services, relatives and friends.

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Prof. D.De.Leo,Brisbane and Prof. D. Wasserman, Stockholm have acted as scientific advisors.

A list of other staff contributing to the project can be obtained from WHO, Geneva.

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