

PREDICTORS OF SUICIDAL BEHAVIOR IN A SAMPLE OF  
TURKISH SUICIDE ATTEMPTERS

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*In a Turkish sample, 100 suicide attempters, were compared with 60 healthy controls on measures of hopelessness, depression, and suicidal ideation. Suicide attempters were more depressive, more hopeless, and displayed greater suicidal ideation than healthy controls. Depression severity rather than hopelessness correlated with suicidal intent. Suicide lethality was independent of depression severity, hopelessness, and suicidal ideation and intent, suggesting that lethality is likely due to chance.*

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*Suicide attempt* or *parasuicide* is defined as “an act with nonfatal outcome in which an individual deliberately initiates a non-habitual behavior that, without intervention by others, will cause self-harm, or ingests a substance in excess of the prescribed or generally recognized therapeutic dosage, and which is aimed at realizing changes which he/she desired via the actual or expected physical consequences” (World Health Organization, 1986).

A number of factors, including depression and hopelessness, have been identified as amplifiers of suicide risk. Many studies have revealed a relationship between suicidal behavior and depression (Chabrol & Moron, 1988; Cole, 1989; De Man, 1999). In most of the multiple factor models reviewed, depression was identified as the best single predictor of suicide ideation (Zhang, 1996). Hopelessness has been defined as a negative expectation or pessimistic attitude toward oneself or the future and could be regarded as part of the cognitive distortion of depressed and suicidal patients (Beck, Brown, & Steer, 1989). In a study by Beck, Steer, Beck, and Newman (1993), hopelessness was found to be 1.3 times more important than depression in explaining suicidal ideation. It has been reported that hopelessness is predictive of eventual suicide both in psychiatric outpatients and hospitalized suicidal ideators (Beck et al., 1993). Dyer and Kreitman (1984) reported hopelessness as the strongest predictor of suicidal ideation, showing a significant correlation with suicidal ideation which occurred independently of the severity of depression. It was also reported that hopeless depressives displayed greater suicidal ideation than individuals with the same degree of depression who nonetheless retained hope for the future (Van Gastel, Scotte, & Maes, 1997).

Knowledge of predictive factors and their potential linkages may help mental health and emergency service professionals in their efforts to understand and manage suicidal behavior. In the present study we wanted to investigate the risk factors for suicidal behavior and the cross-cultural validity of some known risk factors by studying a sample of Turkish suicide attempters.

There are no official statistics on suicide attempts, nor have any comprehensive, population-based studies have been performed in Turkey. Thus, data provided by research on attempted suicides in Turkey mostly involve small areas and hospital records (Sayil, 1997), and these data reflect an attempted suicide rate of 113 per 100,000 in 1995 (Sayil et al., 1998), a figure that is quite high compared with most Western nations. Specifically, the suicide attempt rate was found to be 31.5 per 100,000

inhabitants for 1995 in Trabzon region (Bekaroglu, Bilici, Hocaoglu, Gurpinar, & Uluutku, 2000). Turkish society is socialized to adopt a collectivistic orientation to social relations wherein social support is high even though the suicidal behavior is negatively viewed. Hopelessness may also be more readily dissolved in this social structure. Therefore our study aims to test the already established link between hopelessness and suicidal intent in a non-individualistic, non-Western sample of suicide attempters.

## Method

### *Participants*

Our sample included 160 participants: 100 suicide attempters who were referred to the emergency department of Vakif Gureba Training and Research Hospital in Istanbul, Turkey, after a suicide attempt and 60 healthy controls randomly selected from non-medical hospital staff and relatives of patients. The participants were asked if they were under psychiatric or medical treatment for the last 6 months and those who responded positively were excluded. Healthy controls had no history of any medical or psychiatric problems and were free of psychiatric medication. The groups were matched according to age, gender, socioeconomic status, and education. Sociodemographic characteristics of the suicide attempter group and healthy controls are presented in Table 1.

**TABLE 1** Sociodemographic Characteristics of the Suicide Attempter Group and Healthy Controls

Characteristic	Attempters	Controls	Significance
Gender (male/female)	20/80	16/44	$\chi^2 = 0.95$ , $df = 1$ , <i>ns</i>
Age (mean and standard deviation)	24 (7.8)	26.7 (9)	$t = 1.89$ , $df = 158$ , <i>ns</i>
Education (literate/elementary/ secondary/high school/university)	3/50/13/29/5	0/29/8/20/3	$\chi^2 = 2.05$ $df = 4$ , <i>ns</i>
Marital status (single/married)	58/42	31/29	$\chi^2 = 0.60$ , $df = 1$ , <i>ns</i>
Economic status (poor/intermediate/good)	15/46/39	10/37/13	$\chi^2 = 5.30$ , $df = 2$ , <i>ns</i>

### *Procedures*

All referred suicide attempters were interviewed during a 1-year (1999) period. Patients who were diagnosed with schizophrenia and other psychotic disorders according to *Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition* (DSM-IV; American Psychiatric Association, 1994) criteria were excluded from the study. The study was approved by the Ethics Committee of Vakıf Gureba Training and Research Hospital and all of the patients gave informed consent before participation. All of the suicide attempters who were not transferred to an Intensive Care Unit were interviewed within the first day of Emergency Service admission (84 of 100 patients). Those patients who were transferred to the Intensive Care Unit were interviewed after consciousness was restored. Interviews were carried out by a consultant psychiatrist (Kemal Sayar) and a psychiatry resident (Burcin Acar). Sociodemographic information including previous psychiatric history and family history of suicide attempts was obtained during these interviews.

### *Measures*

The *Beck Hopelessness Scale* (BHS; Beck, Weissman, Lester, & Trexler, 1974) was used to assess hopelessness. This self-report scale consists of 20 true-and-false statements that measure the individual's negative expectations for the future. Nine of the items are keyed false and 11 are keyed true. Each of the items is scored as 0 or 1, with a total score ranging from 0 to 20. The scale has been shown to possess adequate psychometric levels of reliability and validity.

Depression was assessed by the *Zung Depression Scale* (ZDS; Zung, 1965). This is a 20-item, self-report scale for measuring the severity of depression, which is quantified by the frequency of symptoms. Half of the items are positively worded and the other half are negatively worded and scored on a scale of 1 to 4, with a total score ranging from 20 to 80. A score 48 and above is considered a threshold for major depression (Beck, 1966; Zung, 1965).

Suicidal ideation was assessed by the 19th item of the ZDS scale. This item, "I feel that others would be better off if I were dead", is also scored between 1 and 4. The answer "none of the time" is scored as 1 and "all of the time" as 4 (Beck, 1966; Zung, 1965).

The *Albert Einstein College of Medicine Suicide Intent Scale* (SIS; Plutchik, Van Praag, Picard, Conte, & Korn 1989) was used to assess suicidal intention. This 16-item, self-report scale was constructed to assess the intent to die before the suicide attempt. Patients respond affirmatively or negatively. The Internal reliability of the scale as measured by coefficient  $\alpha$  was 0.80 according to Plutchik et al. (1989). The scale was reported to discriminate significantly between patients admitted to inpatient psychiatric wards after a suicide attempt and those admitted for other reasons (Plutchik et al., 1989).

The *Suicide Lethality Scale* (SLS) was used to assess the lethality of the patient's suicide attempt. This 5-item questionnaire was rated by the physician on a 3-point scale of seriousness or closeness to death. Internal reliability of this lethality scale based on the alpha coefficient was 0.48 according to Plutchik et al. (1989). Although the alpha coefficient is below the traditional acceptability level of 0.80 (Anastasi, 1988), some of the items are low frequency events, which may explain the lower than expected alpha coefficient. In our study, internal reliability was moderate with a Cronbach's alpha of 0.60.

### **Statistical Analyses**

The SIS and the SLS were only administered to the suicide attempters group, whereas other scales were given to all participants. Suicide attempters were dichotomized according to gender and the repetition of suicide attempt. Psychometric measures were compared between females and males, and first-timers and repeaters and married and single participants using a Chi-square analysis, an independent samples *t* test, and the Mann-Whitney U test. Correlation of hopelessness, depression, suicidal ideation, suicide intent, and the lethality of the suicide were conducted using Pearson's product-moment correlation analysis and Spearman's rank correlation. Multiple regression analysis (stepwise selection of independent variables) was performed to examine the influence of different variables on suicide intent. Only suicide attempters were analyzed within this model ( $n = 100$ ). The suicide attempters were dichotomized as depressive and non-depressive according to a cut-off score of 48 on the ZDS. The depressive group ( $n = 44$ ) was compared with non-depressives ( $n = 56$ ) on the measures of hopelessness, suicidal ideation, suicide intent, and lethality. The patient and the healthy controls were compared on the measures of hopelessness, depression, and suicidal ideation.

## Results

Ninety-five percent of the patients had attempted suicide by ingestion of drugs, 3% by ingestion of insecticides, 1% by hanging, and 1% by jumping from a height. Twenty-four percent of the patients had made previous suicide attempts, and 75% of the repetitive suicide attempters ( $n = 18$ ) had made the second attempt; 17% of them ( $n = 4$ ) made a third attempt; 4% attempted suicide a fourth time ( $n = 1$ ); and 4% of the subjects ( $n = 1$ ) made a fifth attempt.

Twenty-four of the patients had previous a psychiatric history, of which 13 were diagnosed with major depressive disorder, 7 with anxiety disorder, 3 with alcohol abuse, and 1 with conversion disorder. The most frequent psychological stress factor for the suicide attempt was reported as conflict within the family (40%), followed by marital discord (21%), depressed mood (14%), occupational problems (8%), problems with girlfriend/boyfriend (7%), and school difficulties (5%). Thirteen patients reported a history of suicide attempt within their family, whereas none of the control group participants reported a suicide attempt in their families.

There were no statistically significant differences in gender, age, educational, marital, and economical status between the study and control groups (Table 1). When the suicide attempter group was dichotomized into first-timers and repeaters, no significant difference was found on the measures of hopelessness, depression, and suicide lethality between the two groups. Suicidal ideation and intent was significantly higher in the repeater group (Table 2). When the suicide attempt group

**TABLE 2** Means and Standard Deviations of Measures for First-Time and Repetitive Suicide Attempters

Measure	Group first-timers		Repeaters			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>p</i>
Beck Hopelessness Scale	8.6	5.2	11.2	6.5	98	<i>ns</i> (.06)
Zung Self-Rating Depression Scale	44.1	9.9	48.7	1.87	98	<i>ns</i>
Suicide Intent Scale	8.6	3.0	10.7	3.3	98	.04
Suicidal Ideation (Z-19)	2	1.1	2.6	1.2	98	.002
Suicide Lethality Scale	3.3	1.3	3.0	1.2	98	<i>ns</i>

was dichotomized according to gender, females were found to display significantly greater suicidal ideation than males but there were no significant differences between males and females on the other measures (Table 3). When the suicide attempt group was dichotomized according to marital status, no significant difference was found between married and single suicide attempters on the measures of hopelessness, depression, suicidal ideation, suicide intent, and lethality of the suicide.

With the Pearson correlation analysis, age was found to be positively correlated with hopelessness: older participants displayed higher hopelessness scores. The prevalence of a previous psychiatric history was significantly higher in the study group. The prevalence of a family history of suicide attempts was also significantly higher in the suicide attempt group than in normal controls. Depression was strongly correlated both with suicide intent and suicidal ideation. Suicidal ideation was found to be correlated with suicide intent, although lethality of the suicide attempt was not associated with any of the other measures (Table 4).

In the multiple regression analysis, severity of depression correlated significantly with suicide intent when hopelessness was controlled, whereas the correlation between hopelessness and suicide intent was marginally significant when depression was controlled. Depressive suicide attempters were more hopeless and displayed greater suicidal ideation and intent than non-depressive suicide attempters. There was no significant difference on the measure of lethality of suicide between depressive and non-depressive suicide attempters (Tables 5 and 6).

Suicide intent scores ranged between 3–15 with a mean of 9.1 ( $SD = 3.2$ ), which implies mild to moderate severity. The scores of the lethality of the suicide attempt ranged between 2–7 with a mean of 3.2 ( $SD = 1.2$ ), which also points toward a mild to moderate severity. Suicidal ideation scores ranged between 1 to 4, with a mean of 2.1 ( $SD = 1.2$ ).

**TABLE 3** Means and Standard Deviations of Measures for Male and Female Suicide Attempters

Measure	Males ( $n = 20$ )	Females ( $n = 80$ )	$df$	$z$	$p <$
Hopelessness	7.1 (5.0)	9.8 (5.7)	98	1.87	<i>ns</i> (0.06)
Depression	41.2 (9.8)	46.2 (9.9)	98	1.89	<i>ns</i> (0.05)
Suicidal Ideation	1.5 (0.8)	2.3 (1.2)	98	2.73	0.006
Suicidal Intent	8.3 (2.8)	9.3 (3.3)	98	1.51	<i>ns</i>
Suicide Lethality	2.95 (1.2)	3.3 (1.3)		1.25	<i>ns</i>

**TABLE 4** Correlation Matrix of Psychometric Scale Scores

Measure	SLS	SIS	Z-19	ZSDS
SIS	0.11			
Z-19	0.04	0.48**		
ZSDS	0.17	0.49**	0.52**	
BHS	0.09	0.47**	0.52**	0.72**

*Note.* SIS = Suicide Intent Scale; Z-19 = Suicidal Ideation; ZSDS = Zung Self-rating Depression Scale; BHS = the Beck Hopelessness Scale; SLS = the Suicide Lethality Scale.

\*\* $p < 0.01$ .

The suicide attempters scored significantly higher on the measures of hopelessness, depression, and suicidal ideation than healthy controls (Table 7).

## Discussion

A previous history of suicide has been identified as a correlate of suicide risk. In our study, repeat attempters displayed higher suicidal ideation and intent but no significant difference was found in suicide lethality scores. The number of previous attempts has been reported to decrease survival time and increase the risk of reattempts (Tjedor, Diaz, Castillon, & Pericay, 1999). Our findings support the idea that suicide attempters and completers represent distinct populations. The risk of completed suicide is highly variable in suicide attempters. Attempt characteristics such as intent, seriousness, and repetition have been reported to have poor

**TABLE 5** Means and Standard Deviations of Measures for Depressive and Nondepressive Suicide Attempters

Measure	Depressives ( $n = 44$ )	Non-depressives ( $n = 56$ )	$df$	$t$	$p <$
Beck Hopelessness Scale (BHS)	13.2 (4.4)	6.2 (4.5)	98	7.718	0.001
Suicide Intent Scale (SIS)	10.5 (2.4)	8.0 (3.4)	98	4.197	0.001
Suicide Lethality Scale (SLS)	3.0 (1.3)	3.4 (1.2)	98	1.481	NS
Suicidal Ideation (Z-19)	2.7 (1.2)	1.7 (0.9)	98	4.870	0.001

*Note.* BHS = Beck Hopelessness Scale; ZSDS = Zung Self-rating Depression Scale; SIS = Suicide Intent Scale; Z-19 = Suicidal Ideation; SLS = Suicide Lethality Scale.



**TABLE 6** Stepwise Regression of Variables on Suicide Intent

Variable	$R^2$	$F$	$\beta$	$p <$
Depression	0.26	17.8	0.10	0.014
Hopelessness	0.26	17.8	0.13	0.059

sensitivity and specificity in predicting suicide (Elliot, Pages, Russo, Wilson, & Roy-Burne, 1996). On the other hand, there are also reports that view a previous attempt to be the strongest predictor of eventual suicide (Suominen, Isometsa, Henriksson, Ostama, & Löngqvist, 1997).

Suicide intent is defined as the seriousness or intensity of the wish of a patient to terminate his/her life. It might be inferred from our findings that repeaters may have a higher risk for completed suicide than first-timers. In a study by Suokas and Lönnqvist (1991), it was shown that 21% of suicides occurred within 1 month after the index suicide attempt, and more than half (55%) of all suicides took place during the first year of the follow-up period. Fawcet et al. (1991) found that suicidal ideation and history of previous attempts were associated with suicide occurring after 1 year. Those patients who make repetitive suicide attempts may be monitored closely to reduce long-term suicide risk.

In a previous study in Turkey, suicide attempt rates were higher in females than in males, higher in individuals in the 15–24 age group than in individuals in older age groups, higher in employed persons than in non-employed persons, and higher in married than in non-married participants (Bekaroglu et al., 2000). Ninety-seven percent of the participants reported a distressing event preceding suicide attempts, and 25% of the cases attempted suicide previously. The previous suicide attempt rate was 43% in psychiatric patients in Turkey (Cosar, Kocal, Arikan, & Isik, 1997). In our study, females displayed significantly greater suicidal

**TABLE 7** Means and Standard Deviations of Measures for Suicide Attempter Group and Healthy Controls

Measure	Suicide attempters ( $n = 100$ )	Healthy controls ( $n = 60$ )	$z$	$p <$
Hopelessness	9.3 (5.6)	6.7 (4.6)	2.86	0.005
Depression	45.2 (10.0)	40.1 (7.2)	3.45	0.001
Suicidal Ideation	2.17 (1.2)	1.3 (0.8)	1.98	0.001

ideation than males. This could be interpreted in light of the finding that males outnumber females among those who complete suicide, whereas females usually outnumber males among those who attempt suicide (Hirschfeld & Davidson, 1988). In a recent study in a catchment area of Turkey, being male was a risk factor for completed suicide, and being female was a risk factor for attempted suicide (Sayil & Ozguven, 2002). This can be explained by the fact that women in Turkey are more prone to suffer life crises, as they are under heavy stress because of close family ties and lack of autonomy, as mentioned by Cilingiroglu (1998).

Studies of suicide intent among attempters generally did not disclose major differences between males and females (Linehan, 1986), and this was consistent with the findings of our study. Bearing in mind that female participants tended to score higher than males on the measures of depression and hopelessness, we might think this higher suicidal ideation is confounded by these measures. Although unmarried individuals have been reported to be at greater risk for suicide attempt than married people (Linehan, 1986), our findings revealed no significant difference on psychometric measures, including suicidal ideation, suicide intent, and the lethality of the suicide.

The lethality of the suicide attempt was independent of the severity of hopelessness, depression, suicidal ideation, and suicide intent in our sample. In a study by Plutchik et al. (1989), no relation was found between the intent to commit suicide and the nature and results of suicide attempts. Our finding is also consistent with that of Linehan (1986), who did not show a significant correlation between the intent to die and the lethality of the method used in the attempt. Taiminen Saarijarvi, Helenius, Keskinen, and Korpilahti (1996) also reported a lack of correlation between measure of suicidal intent and lethality of the suicide attempt. It has been assumed that seriousness of the suicide attempt may be a function of chance (Plutchik et al., 1989). In our sample, the majority of the suicide attempters were brought to the emergency service because of drug overdoses as in a previous report by Bekaroglu et al. (2000). It may be speculated that attempters were unaware of the dose at which the ingested drugs were considered lethal. This is also evident in the comparison of the suicide attempter group after being dichotomized into depressives and non-depressives according to a cut-off score. The depressive subgroup did not differ from the other in terms of suicide lethality. The more depressed participants did not even chose more

lethal means of committing suicide. Self-poisoning with drugs may reflect help-seeking behavior or protest toward a significant person rather than a wish to die.

In our study, not only hopelessness but also depression was associated with suicidal ideation and intent. Using multiple regression analysis to determine the extent to which these two measures influence one another, we found that when depression was statistically controlled, the correlation between hopelessness and suicide intent was not significant, whereas when hopelessness was controlled, the correlation between depression and suicidal intent decreased yet remained significant. This finding shows that severity of depression is correlated with suicide intent independent of the measure of hopelessness. Our finding is congruent with that of Rudd (1990), who used a nonclinical college sample to show that depression and hopelessness both predicted suicide ideation, with depression showing a somewhat stronger correlation. On the other hand, the BHS was not found to be a good predictive instrument for future suicide attempts in an inpatient sample (Nimeus, Traskman-Bendz, & Alson 1997).

Beck et al. (1993) assumed that attempters might have experienced a decrease in depressed mood and hopelessness due to the cathartic effect of the suicide attempt. Our finding is consistent with the report of Mendonca and Holden (1996), which presumes cognitive distortion but not hopelessness as the primary predictor of suicidal intent. Iancu et al. (1999), comparing suicidal depressive patients with non-suicidal depressives, found that suicidal depressive patients displayed higher levels of depression than non-suicidal depressive patients indicating that suicidality correlates with the severity of depression. In a study by Chiles et al. (1989), which compared Chinese and American patients on the grounds of depression, hopelessness, and suicidal behavior, a different result emerged in the Chinese sample. In pattern opposite to American patients, the correlation between hopelessness and suicidal intent in the Chinese sample became non-significant when depression was partialled out. Depression, but not hopelessness was related to suicidal intent in the Chinese patients. The authors concluded that hopelessness was buffered by cultural and moral experiences and beliefs. The hopelessness theory of depression (Abramson, Metalsky, & Alloy, 1989) suggests that hopelessness is a cause of a subtype of depression, the symptoms of which include suicidal behaviors. Our finding that severity of depression is correlated with suicide intent independent of the measure of hopelessness

may support Abramson et al.'s formulations linking possible pathways from depression to suicide that do not involve hopelessness. In summary, the severity of depression rather than hopelessness seems to be the predictor of suicide intent in a Turkish sample of suicide attempters.

Several limitations of our study should be addressed when interpreting our results. The absence of ill controls—depressed patients without suicide attempts, whether having suicidal ideation or not—may be considered a limitation. Another limitation was that the suicide attempts in our study group were overwhelmingly via overdose, a relatively non-lethal means in most cases, which calls into question any attempt to separate high- and low-lethality groups. Also the cross-sectional study design does not allow us to draw a definite line of causation in this study.

In conclusion, suicidal ideation was found to be higher in females and both suicidal ideation and intent were found to be higher in repeaters. The severity of depression rather than hopelessness correlated well with suicidal ideation and intent. Our finding that severity of depression rather than hopelessness is related to suicidal intent may raise questions about the cross-cultural validity of an association between hopelessness and suicide intent, an issue that should be elucidated by further studies. The research presented here is important for enhancing our understanding of factors that may contribute to the development of suicidal behaviors in a Turkish sample. Further research and examination of additional variables that may have direct or mediating effects on suicidal behaviors will provide a better understanding of suicidal behavior and its management.

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