

Relationship between temperament and character personality dimensions among suicide attempters in an Iranian population



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Abstract

Objective: Two temperamental components that are mostly associated with suicide are high novelty seeking (NS) and high harm avoidance (HA). This study aimed to evaluate the temperament and character personality dimensions of self-poisoning in suicidal attempters in an Iranian population.

Methods: A descriptive-analytic study was conducted with random sampling in which 77 self-poisoning patients and equal normal counterparts were selected. Cloninger's Temperament and Character Inventory (TCI) and clinical interview were used as study procedures. Data were analyzed by SPSS software version 18 using chi-square, Mann-Whitney U and regression. *P* values < 0.05 were considered statistically significant.

Results: Findings showed that people attempting suicide were significantly different from general population in terms of character and temperament. NS and HA yielded high scores in the suicide group, while reward dependence (RD), self-directedness (SD), cooperativeness (CO) and self-transcendence (ST) variables revealed significantly higher scores in the healthy group. No significant difference was observed among suicide attempters in terms of gender.

Conclusion: The results confirm the difference between non-suicidal individuals and suicide attempters in terms of character and temperament in a way that suicidal patients have high harm-avoidance and introversion. In addition, the history of attempts and early alcohol consumption might be considered as suicide re-attempt predictors.

Keywords: Character, Temperament, Suicide, Personality

Introduction

Suicide is a leading cause of death among adolescents worldwide, albeit suicide attempts occur 10-20 times higher (1). Suicide rates in Iran are lower than western countries. Meanwhile, Iran has a higher suicide rate in the Middle East which has been estimated to be 4.9 per 100 000 general population (2). Suicide attempt is considered as a psychiatric emergency, but a minority of patients with psychiatric disorders commit suicide (3).

Psychiatric disorders have a pivotal role in causation of suicide that may also be determined by personality traits (4). Several studies have reported an association between personality traits and suicidal behavior. Therefore, some suicide attempts may occur based on underlying personality difficulties (5). Personality is a unique

characteristic which discriminates a person from other individuals through motivation, feelings, thoughts and behavior (6).

Researchers have found that committing suicide among women is three times higher than men; they have introduced "gender" as a risk factor for committing suicide. This may be due to the fact that women experience stressful situations, mostly as uncontrollable conditions (7).

In recent decades personality has been characterized by using various models. Cloninger's model of personality, which has been established based on psychobiological theory of personality consists of four temperament dimensions as novelty seeking (NS), harm avoidance (HA), reward dependence (RD) and persistence (P) and



three characters dimensions including self-directedness (SD), cooperativeness (CO) and self-transcendence (ST). Temperament which is defined as “the automatic associative response to emotional stimuli that determine habits and moods”, is considered to be moderately stable through lifespan. On the other hand, character refers to “the self-aware concept that influence our voluntary intentions and attitude”, and it is pervasive as the individual’s insight matures as their experiences during lifespan (8).

It is a conceivable fact that most of suicide attempters may have maladaptive coping strategies when they experience stressful situations in an uncontrollable manner. Effective coping skills can increase self-control or self-direction and hence prevent suicide attempt. According to a study, patients with suicide attempts use emotion-focused coping strategies much more than problem-focused ones. Women’s responses differ from men in this regard because of using less effective strategies (9).

They have reported that most people attempting suicide had low-level education and 79.7% of suicide attempters had at least one maladaptive personality difficulty. The most common maladaptive personality profiles among suicidal attempters were depressive personality disorder and histrionic personality disorder, equal to 40.7% and 32.2%, respectively. Among clinical syndromes, the most common syndrome was clinical anxiety (23.7%), and major depression (23.7%) (9).

According to a study, novelty-seeking has a significant predictor value because of its meaningful high and low scores in suicidal patients and in patients without suicidal attempts, respectively. They also found that low scores in the Self-directedness is also a potent predictor of suicidal attempts (10).

So far, two temperamental components that are more closely associated with suicide are high novelty seeking (NS) and high harm-avoidance (HA), and other less relevant personality components include low reward dependence (RD), self-directedness (SD) and cooperativeness (CO) as well as high self-transcendence (ST) (11,12).

All of these points not only demand special attention for proper planning in preventing suicide, but raises the necessity of a comprehensive information system for an accurate recording of suicidal cases in Iran as well. For this reason, the authors focused on temperament and character dimensions in patients with self-poisoning suicide attempts at Sina hospital of Tabriz, Iran.

Methods

The target age group was 18- to 65-year-old people who referred to specialized Sina hospital of Tabriz, with a diagnosis of self-poisoning from March 2016 to March 2017.

The individuals in the control group with the same age and sex were selected randomly from non-suicidal outpatients who referred to internal clinics of the same hospital. Also, the people in the control group were clinically interviewed

by the examiner and recruited if they lacked previous and current psychiatric diagnosis. Informed consent was granted from individuals.

The sample size was calculated with 0.05 alpha level, power of 80%, the effect size of 0.50 with the G-Power 3.1.2 Software and based on the study of Arkar (10) in Turkey. Therefore, 77 people were selected for each group considering the 20 percent drop-out rate.

Inclusion criteria were suicidal attempts, lack of intellectual disability, ability to read and write, age range of 18 to 65 years, and the intentional attempt for drug poisoning. We excluded patients who were unwilling to participate in the study, having a delirium or dementia, a history of psychotic disorder, substance and alcohol use disorder.

In order to collect data we used Cloninger’s Temperament and Character Inventory (TCI) and General Health Questionnaire (GHQ).

TCI was developed by Cloninger based on the bio-social model of personality, measuring the temperament in four dimensions of NS, HA, RD and perseverance (P), and character in its three dimensions: SD, CO and ST. The present short version of the test contains 125 questions. It has got a good validity and reliability in Persian language (13).

The General Health Questionnaire (GHQ) was developed by Goldberg and Hiller in 1972 and it is one of the most well-known screening tools in the studies related to mental health. In addition to extracting the total score of the individual mental health, this questionnaire also consists of four subscales of physical symptoms, anxiety, social function disorder, and depression. The test scoring is based on a Likert scale. Its reliability has been confirmed in different cultures. In Iran, the internal consistency of this questionnaire for the sub-scales was 0.85, 0.87, 0.79, and 0.91, respectively, based on Cronbach’s alpha coefficient (14).

The obtained data were analyzed through SPSS software version 18. We used descriptive and inferential statistics (chi-square, Mann-Whitney U and Regression), and *P* values <0.05 were considered statistically significant.

Results

Table 1 shows all demographic data. Table 2 shows the statistics on the type and amount of drugs used for committing suicide in the suicide group.

The mean age among all participants was 32.90 ± 12.38 years, which in the suicide group it was 32.04 ± 11.65 years, and in the normal group it was 33.74 ± 13.11 . According to the results of the independent *t* test ($F = 1.03$, $t = 0.85$, $df = 149.91$, $P = 0.40$), the two groups did not differ significantly in terms of age.

In the suicide group, mean of starting age for alcohol consumption was 19.29 ± 2.87 and mean of starting age for substance use was 20.77 ± 6.89 and mean of starting age for smoking was 19 ± 4.82 , but in the normal group, the mean of starting age for smoking was 35 ± 7.07 . Suicidal patients

Table 1. Descriptive statistics of demographic variables

Variables		Suicide Group		Normal Group		Total	
		No.	Percent	No.	Percent	No.	Percent
Sex	Male	27	35.1	44	57.1	71	46.1
	Female	50	64.9	33	42.9	83	53.9
Education	Middle school	27	35.5	3	3.9	30	19.5
	Diploma	33	43.4	27	35.1	60	39
	Associate degree	2	2.6	5	6.5	7	4.5
	Bachelor	11	14.5	32	41.6	43	27.9
	M. A and upper	3	3.9	10	13	13	8.4
Marital Statues	Single	22	28.6	40	51.9	62	40.3
	Married	40	51.9	31	40.3	71	46.1
	Separated	3	3.9	0	0	3	1.9
	Divorced	11	14.3	6	7.8	17	11
	Widow	1	1.3	0	0	1	0.6
Occupation	Employed	24	31.2	69	89.6	93	60.4
	Unemployed	28	36.4	7	9.1	35	22.7
	Housewife	25	32.5	1	1.3	26	16.9
Housing	Land lord	50	64.9	63	81.8	113	73.4
	Tenant	27	35.1	14	18.2	41	26.6
Income	Weak	34	44.2	5	6.5	39	25.3
	Average	18	23.4	8	10.4	26	16.9
	Good	25	32.5	64	83.1	89	57.8
Suicide attempt history	Yes	20	26	0	0	20	13
	No	57	74	77	100	134	87
Self-injury history	Yes	20	26	0	0	20	13
	No	57	74	77	100	134	87
Psychiatric history	Yes	45	58.4	6	7.8	51	33.1
	No	32	41.6	71	92.2	103	66.9
Tattoo history	Yes	7	9.1	0	0	7	4.5
	No	70	90.9	77	100	147	95.5
History of drug use	Yes	13	16.9	0	0	13	8.4
	No	64	83.1	77	100	141	91.6
History of smoking	Yes	16	20.8	2	2.6	18	11.7
	No	61	79.22	75	97.4	136	88.3
History of alcohol consumption	Yes	7	9.1	1	1.3	8	5.2
	No	70	90.9	76	98.7	146	94.8

started smoking at younger age than healthy counterparts. Based on GHQ, non-suicidal individuals had no specific problem in the general health scores and scales (7.55 ± 1.87).

To investigate the difference between TCI variables among general population and suicide attempters in terms of the normal distribution of data, Kolmogorov-Smirnov test was used, and then using the logarithmic method (Napier), the normalization of the variables was tested, which did not obtain the required parameters for *t* test, and therefore they were analyzed through Mann-Whitney U test.

Table 3 shows the results of Mann-Whitney test for the TCI variables between the two groups.

In general, the data in Table 3 show that suicide attempters and non-suicidal individuals were significantly different

in terms of TCI variables. The suicide attempters had significantly higher scores in NS and HA, while they exhibited lower scores in RD, P, CO, SD, and ST.

No significant difference existed in the suicide-attempting group in terms of gender (male= 27, female= 50, $\chi^2 = 6.87$, $df = 1$, $P = 0.08$).

Table 4 shows results of regression test (stepwise method) and models for predicting suicide attempt. These results show that the multiple correlation coefficients for the last model (3) could predict up to 65% of suicide attempts in suicidal individuals. The results ($F(3, 72) = 46.38$, $P = 0.000$) also confirm the linearity of the model.

History of suicide attempts revealed the greatest contribution in predicting suicide attempts (beta= 0.54, $P = 0.000$). Starting age for alcohol consumption (beta= 2.98, $P = 0.000$) and the history of alcohol consumption

Table 2. The types of drug used for suicide

Type of drug	No.	Percent
No drug information	17	22.1
Analgesics	4	5.2
NSAIDs	3	3.9
TCAs	3	3.9
SSRIs	1	1.3
Mood stabilizers	2	2.6
Benzodiazepines	19	24.7
Clonidine	4	5.2
Tramadol	5	6.5
Detergents	4	5.2
Barbiturates	2	2.6
miscellaneous	5	6.5
Anti-psychotic agents	1	1.3
Organophosphorus	5	6.5
Rice tablet	2	2.6

(beta= 2.64, $P=0.000$) contributed to predicting suicide attempts, subsequently.

Discussion

Based on the findings in this study, suicide attempters have higher scores on NS, HA and lower scores on RD, P, SD, CO and ST.

Sharif et al (15) have reported that individuals with suicidal thoughts and also suicide attempters have a higher score

than healthy people in terms of neuroticism (hostility). Neuroticism can be considered as an equivalent for the NS in the Cloninger's inventory. Our results are in line with the study conducted by Sharif et al which revealed that suicide attempters had higher scores on NS.

Shakeri et al (2) demonstrated that neuroticism and introversion were prevalent among people with suicide attempts. Similarly, our results showed that the suicidal patients have higher scores in NS behavior.

According to recent findings (11,12), high HA and NS, along with low RD, SD and CO are considered as components of temperament and character among suicide attempters. These findings are consistent with our results. In spite of having meaningful differences in NS and SD between suicide attempters and non-attempters, our study did not show significant predictive values for these factors (NS and SD had higher scores in the suicide attempters and normal people, respectively). Meanwhile, Arkar (10) revealed that high NS and low SD scales were the values that may predict suicide attempts; the findings which were not confirmed by the current research.

Unlike the present study, evidence shows that marital status is a predictive variable for suicide attempt, indicating that single individuals have a higher rate of suicide (16). Previous suicide attempts, the history of and starting age for alcohol consumption were revealed as the predictive variables for suicide attempts in our study.

Table 3. The mean of the Cloninger's Temperament and Character Inventory test variables

Variables	Suicide Group Ranks (Mean)	Normal Group Ranks (Mean)	Mann-Whitney	P value
Novelty seeking	6649.50 (86.36)	5285.50 (68.64)	2282.50	0.01
Harm avoidance	8052 (104.57)	3883 (50.43)	880	0.000
Reward dependence	3899 (50.64)	8036 (104.36)	896	0.000
Persistence	3524.50 (45.77)	8410.50 (109.23)	521.50	0.000
Cooperativeness	3463.50 (44.98)	8471.50 (110.02)	460.50	0.000
Self-directedness	3106 (40.34)	8829 (114.66)	103	0.000
Self-transcendence	5218 (67.77)	6717 (87.23)	2215	0.05

Table 4. Results of regression test and models and standardized beta coefficients for predicting suicide attempt (criterion variable: suicide attempt)

Model	Variables	R	R ²	Adjusted R	SE	Unstandardized coefficients		Standardized coefficients	T	P value
						B	SE	Beta		
1	History of suicide attempt	0.62	0.38	0.37	0.97	-1.74	0.25	-0.062	-6.76	0.000
2	History of suicide attempt	0.71	0.51	0.49	0.87	-1.59	0.23	-0.57	-6.83	0.000
	Starting age for alcohol consumption					0.08	0.02	0.36	4.33	0.000
3	History of Suicide Attempt	0.81	0.66	0.65	0.73	-1.52	0.20	-0.54	-7.73	0.000
	Starting age for alcohol consumption					0.65	0.10	2.98	6.36	0.000
	History of alcohol consumption					11.13	1.97	2.64	5.65	0.000

R: Regression; R²: R-squared; SE: standard error.

Limitations

A relatively high drop-out rate and enrolling only self-poisoning patients might be considered as the study limitations.

Conclusion

The role of temperament and character in suicide tendency is re-emphasized. The suicide-attempting people have higher scores than normal people in NS and HA, and have lower scores in the scales, such as RD, P, CO, SD and ST. The suicide attempt history, the history and age of early alcohol start can predict the potential for re-attempting suicide. It is crucial for policy-makers to focus on interventions such as social life skills training and strengthening coping strategies to prevent impulsive behaviors, avoidance of drugs and alcohol consumption, creating a supportive environment, appropriate emotional drain, identifying the stimuli or situations that result in the feelings of despair or production of suicidal thoughts.

Authors' contribution

ARSK designed the project. SA and EH reviewed the literature and prepared the proposal. NS performed case finding and implemented the procedures. SS and MGJ analyzed the data. ARSK and EH wrote the manuscript. All read it and the first author finalized the paper.

Ethical issues

The study was approved by the ethics committee of Tabriz University of Medical Sciences (ethics No. TBZMED.REC.1394.266).

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