Original Article

Suicide by Self-Immolation, A Cross Sectional Study in Kermanshah-Iran

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Objective: Although in international studies, it has been reported to be the sixth most common method of suicide, self-Immolation is reported to be one of the most common methods of suicide in Iran. Considering the differences in epidemiological and psychiatric characteristics of suicide in different societies, we aimed to determine the psychological characteristics of those patients who attempted suicide by setting themselves on fire in Kermanshah in order to develop preventive measures against this tragic form of self harm.

Methods: In a cross-sectional study in 2003, 227 in-patients of a burn unit in Kermanshah who had attempted suicide by self-immolation were screened out for mental illness. One hundred and ninety seven of them were subsequently assessed psychologically by using DSM-IV criteria.

Results: Eighty one and half percent of the patients were female with a mean age of 27.1. The majority of the patients were married and unemployed. Most of them were living in urban areas. Twenty one percent of the patients had a history of chronic physical illness and 59.9% a history of depression. Somatoform disorders were detected in 36.5% of the cases and substance misuse in 7.5%. There was a 17.6% past history of deliberate self-harm in the patients and 20% in the family members. Suicide by self-burning had been precipitated by marital conflicts in 33.9% of the cases and by family conflicts in 23.2%. There was a high rate of mortality among the patients (50.2%).

Conclusion: Although most of the risk factors for suicide in our population were similar to what is already known in the literature, we found that married women in Kermanshah province were particularly at higher risk of killing themselves by the method of self immolation.

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Introduction

Suicide is a major public health concern as around 0.9 percent of all deaths are the due to suicide (1). About 1,000 people are thought to commit suicide each day worldwide. From 1983 to 1998, the overall suicide rate has remained relatively stable whereas the rate of the suicide in 15 to 24 year old individuals has increased from two to threefold (1). Men have more suicidal attempts after the age of 45, while for women the critical ages are after 55 years old (1).

Risk factors of suicide include psychiatric disorders and bio-psychosocial factors. Self-immolation is one of the most tragic methods of suicide with different psychosocial and clinical features among the victims (2).

In different studies, the rate of self-immolation is reported to be between 0.9 % to 2.2% of all suicides (3). It is the eighth most common method of suicide (4). Because of its horrendous consequences, which are mainly death or a disability, survivors might continue to struggle with fears and nightmares till the end of their life.

Unfortunately in the western part of Iran, including Kermanshah province, this form of suicide is frequently seen. It has been estimated that 26.52% of all suicides in Kermanshah are by self-immolation (5). A recent study in Ilam, another western province near Kermanshah, with a common cultural and traditional background, has reported that self-burning is the most frequent method of suicide (6).

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Materials and Methods

Inclusion and exclusion criteria

We asked all the patients with self-immolation, who had been admitted to the burn unit of Imam Khomeini Hospital in Kermanshah in 2003, to participate in the study. Only those patients who consented to take part in the study were included. Those patients, who were in denial of self immolation and those who died subsequently, were not included in the study.

Assessment tool

We first interviewed 227 patients and their family members and looked at their admission notes to collect various background information including patients' demographic characteristic, the extent and degree of burning, duration of hospitalization and circumstances around suicide.

Because after the first interview 30 patients either died or denied a suicidal attempt a psychiatric evaluation was just carried out on 197 patients. For a psychiatric assessment, we used a standardized and translated version of DSM-IV symptom check list which was first introduced by Sadeghi et al., for screening of mental disorders in urban population in Kermanshah (7). This questionnaire covers the criteria for diagnosis of 29 common mental disorders. The average time needed for filling the questionnaire was about 30-40 minutes.

The data were then analyzed by SPSS package using descriptive statistic methods, t and Chi-square tests.

Results

In our study 81.5% of the patients were female. Table 1 shows a comparison of different mental health problems between male and female patients.

Self-immolation was highest among 15 to 24 years old in both sexes. Average age was 30.5 ± 14.7 for men and 26.3 ± 11.3 for women. There was a marked decrease in the rate of self- immolation after the age 35 in both sexes. The patients with a diagnosis of phobia were the youngest (21 years), followed by patients with adjustment disorders (21.24 years). Patients with major depression (28.11 years) and somatoform disorder (27.3 years) constituted the oldest population.

Table 1. Prevalence* of mental disorders based on the sex of the patients with self – immolation who were admitted in Kermanshah Imam Khomeini Hospital

Mental Disorders	Female (n: 186)		Male (n: 41)		*P* value
	n	%	n	%	
Somatoform Disorders	65	35.1	7	16.6	0.079
Major Depression	62	33.5	17	40	0.069
Dysthymic Disorder	36	19.4	3	7.1	0.125
Adjustment disorder	28	15.1	5	11.9	0.920
Personality Disorders	20	10.6	7	16.6	0.502
Obsessive Compulsive Disorder	17	9.1	5	11.9	0.342
Generalized Anxiety Disorder	16	8.6	3	7.1	0.995
Psychotic Disorders	4	2.1	2	4.7	0.231
Panic Disorder	4	2.1	0	0	0.385
No mental Disorder	8	4.3	1	2.3	0.698

- *Some patients had more than one illness
- Significant $P\ value \leq 0.001$

In our study self-burning was more common in patients with either no or low education. One hundred and thirty four (59.9%) of the patients were living in urban area. Petroleum was the most frequently used substance for self-burning in our study.

Forty seven patients (21%) had chronic medical diseases, especially hypertension.

The attempted suicide was impulsive in 130 cases (57.3%), and premeditated in 99 cases (43.7%). One hundred and sixty nine patients (74.4%) showed remorse for their suicidal acts. Table 2 shows the differences between demographic characteristics,mortality rate and extent of burned body area in patients with true suicidal intent and those with Para suicidal idea.

Depressive disorders 118 (59.9%) and somatoform disorder 72 (36.5%) were the most commonly diagnosed mental illnesses. Table 3 shows the prevalence of various mental illnesses in patients who committed suicide by setting themselves on fire.

Table 2. Comparison of demographic characteristics, mortality rate, burned surface area and duration of hospitalization in patients with suicidal and non suicidal intent

		with suicidal intent		without suicidal intent		P value
		n	%	n	%	
Gender	Females	98	53	87	47	0.108
	Males	28	67	14	33	
Marital status	Unmarried	42	51	40	49	0.89
	Married	79	56	59	44	
	Divorced	5	83	1	17	
	Widow	3	75	1	25	
Mortality	----	77	67.5	37	32.5	0.001
Mean burned surface area	----	--	61	--	50	0.001
Mean duration of Hospitalization (day)	----	8.1	--	10.3	--	0.027

Table 3. Prevalence of different mental health problems in patients with self – immolation who were admitted in Kermanshah Imam Khomeini Hospital

Disorder	n	%
Depressive Disorders		
Major depression	79	40.1
Dysthimia	39	19.8
Anxiety Disorders		
Generalized anxiety disorder	19	9.6
Obsessive compulsive disorder	22	11.2
Panic disorder	4	2
Psychoses	6	3.04
Somatization	72	36.5
Personality Disorders	36	18.3
Adjustment Disorders	33	16.8
No mental illness detected	9	4.6
Not assessed	30	13.2
Total	217	100

We found that 35 patients (15.4%) had a previous history of deliberate self-harm. There was a family history of suicide in 45(19.8%) of our cases.

A history of substance abuse was detected in 17 cases (7.5%), of which, 9 (52.9%) were due to opium abuse and 8 (47.5%) heroin abuse.

The most common precipitating factors for self immolation were conflict with a spouse, a family member or a friend (Table 4).

Table 4. Comparison of suicidal motives in male and female patients with self–immolation who were admitted in Kermanshah Imam Khomeini Hospital

Motives	Females		Males		Total		*P* value
	n	%	n	%	n	%	
Marital problems	72	31.7	5	2.2	79	33.9	0.001
Problems with other Family members	40	17.6	13	5.7	53	23.3	0.199
Emotional difficulties with friends	39	17.1	13	5.7	52	22.8	0.171
Mental disorders	27	11.8	11	4.8	38	16.6	0.070
Physical problems	9	4	2	0.8	11	4.8	0.978
Financial problems	3	1.3	8	3.5	11	4.8	0.001
Addiction	1	0.4	9	4	10	4.4	0.001
Substance misuse in partner	7	3.1	--	--	7	3.1	0.202
Educational problems	3	1.3	3	1.3	6	2.6	0.044
Legal conflicts	1	0.4	--	--	1	0.4	0.635

Discussion

Although in studies of self-immolation in some areas (Sophia, Russia and Verona), there are no reported differences between male and female (8-10), similar to most studies in Ilam (6), Mazandaran (11), London (12), Salzburg (13), Egypt (14)and Rome (15), we found a female to male ratio of 4 to 1. This ratio has been reported to be reverse (m>f) in Hong Kong (16), Brisbane (17) and New Castle (18). Variations in the findings in different countries may be due to differences in demographic, cultural or socio-economical characteristics of the sample populations.

In contrast to studies carried out in other part of the world (1,9,16), we had a younger sample population (mean age: 27.11 ± 11.8). This is similar with the findings of studies conducted in other parts of Iran (6,11) and in South Africa (3). We speculate that in our sample population, the excess of younger generation can be explained by the fact that they usually avoid mental health services because of fear of stigmatization. Therefore they are more likely to come to the attention of the services in crisis (i.e. at the time of deliberate self harm).

It seems that marriage has no protective effect on suicide by self-burning as we found that self-immolation was much commoner method of suicide in married couples. Other studies in Iran also support this finding (6,11).

Although in Western population financial obstacles and political protests (19,20), and in

some areas as India , religious overtones and Hindu beliefs (21) have been found as the most frequent motives for self-burning, our study, along with studies in south Asian populations shows that a family conflict is the most common trigger for self-burning (11, 22).

We also found that financial problems, addiction, mental illness and physical problems were the most frequent motives for self-immolation in men over the age of 30.

The average burned surface area in patients with suicidal intent was larger than in those with no suicidal intent (60.9% vs. 49.06%) (P=0.001) (Table 2). In other studies the average burned surface area had been reported to be about 35.4% (23)' and 64% (20) in intentional suicides and about 1.2% (23) and 32% (19) in para-suicidal patients. These variations may reflect the differences in the type of substance used for self-burning (petrol, boiled water or other chemical agents).

We had a mortality rate of 67.5% among the patients with suicidal intent and 32.5% in those with para suicidal idea (P=0.001).

Our study also revealed a prevalence of mental illness in 95% of those patients with suicidal intent, which is similar to the findings of other studies (11,19,23,24). Most of our cases were suffering from depression and somatoform disorder. Personality disorders however, were much commoner in para suicidal patients (P=0.028).

Although our results were similar to those reported in other parts of Iran, we found some unique characteristics in our patients, which are possibly a reflection of different cultural background and specific illness behavior. Preventive measures such as legislation for compulsory education and provision of mental health awareness will reduce the stigma of the mental illness among younger generation and their families. Establishing centrally funded mental health units especially in areas with low socio-economical background can play a major role in early recognition and management of mental illness. These measures with the help of enthusiastic mental health professionals will hopefully reduce the rate of self-burning and its tragic impact on the victims and their families.

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