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Non-Judicial Hanging in Guilan Province, Iran between 2011 and 2013

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Abstract

Introduction: Hanging is one of the most commonly used way to commit suicide in many countries. This method used in suicide is considered a problem in Iran too, but no clear data exists regarding hanging in different regions or the country as a whole. Because of the epidemiologic differences in non-judicial hanging in different regions, this study aimed to assess it in Gilan province, Iran between 2011 and 2013. **Methods:** In this cross-sectional study, profiles of hanging cases registered in Poorsina hospital in Gilan, Iran between 2011 and 2013 were evaluated. Age, sex, marital status, place of residency, level of education, occupation, history of suicide, history of clinical illness, season of suicide and hanging outcome were evaluated. **Results:** 59 cases of hanging (mean age 31.4 ± 13.1 years and 83.0% male) were evaluated. 12 (20.34%) suffered from psychological disorders, and 9 (15.2%) confessed to substance abuse. 7 (11.9%) had a history of suicide attempts by hanging. Hanging was significantly higher in men ($p<0.001$), people with an education level of less than high school diploma ($p=0.02$) and the unemployed ($p<0.05$) patients. In the end, 20 (33.9%) of these attempts resulted in death. **Conclusion:** The results of this study showed that in 2 years, 59 cases committed suicide by hanging themselves, 33.9% of which finally died. Committing suicide by hanging was significantly more prevalent in men, people with an education level of less than high school diploma and the unemployed.

Key words: Suicide; outcome assessment; hanging

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Introduction:

Suicide is one of the most complex aspects of human life, many features of which is still not fully identified. This phenomenon seems to be restricted to the human race and has not been seen in any other being. It is a conscious move that leads to ending one's life (1-4). About 1 million people commit suicide worldwide each year and it is predicted that this number will reach 1.5 million people a year by 2020 (5). World health organization (WHO) estimates that for each suicide, 10-20 cases of suicide attempt occurs with the most prevalence in the youth and women (6). In Iran, the rate of suicide has changed from 1.3 in 100,000 people in 1984 to 6.4 in 100,000 people in 2003 (7). Also estimations in 19 provinces of Iran have shown that in the 10-14 age group, for each recorded suicide there has been 80 cases of suicide attempt (8).

Hanging is one of the most commonly used methods for suicide as it is a simple but effective way. As Gunnellet et al. have expressed, the mortality rate is at least 70% (9). A study based on the data from WHO in 56 countries showed that 53% of the suicides in men and 39% in women is by hanging. In England and Wales, about half of the suicides in men aged 15-44 are carried out this way. In Iran, reports by forensic service showed that the most common method used among men who died from suicide was hanging (56.05%) (10). Though the prevalence of this method is low compared to other countries such as the United States, it is still high. It is considered a problem in Iran's health system but no clear data exists regarding hanging in different regions or the country as a whole (11-13). Because of the mentioned points and the epidemiologic differences in non-judicial hanging in different regions, this study aimed to assess non-judicial hanging in Guilan, Iran between 2011 and 2013.

Methods:

This cross-sectional study assessed the epidemiological pattern of suicide cases with the hanging method who were admitted to Poorsina Hospital, Rasht, Iran from 2011 to 2013. The study protocol has been approved by

the ethics committee of Guilan University of Medical Sciences. The patients have participated voluntary and the written consent form was signed by either the patient or their guardian. The researchers abided by the principles of Helsinki convention over the course of the research and patients' data were kept confidential. All the patients that had attempted to hang themselves were included. Exclusion criteria included not willing to take part in the study and judicial hanging.

Data were gathered using a checklist. Age, sex, marital status, place of residency, level of education, occupation, history of suicide, history of illness, season of suicide, hanging outcome (death or Survived). The data were gathered by a physician who had been trained to fill out medical research checklists.

Sample size was calculated to represent the general population on the basis of 50% hanging resulted in death, 10% precision, and 95% confidence interval. Thus, sample size was estimated at 49. Data were analyzed using SPSS 21.0. Quantitative data were reported as mean ± standard deviation and qualitative data were expressed as frequency and percentage. In evaluating the relationship between sex, marital status, level of education, place of residency, and occupation with committing suicide, multinomial logistic regression test was used. In the end, to assess the relationship between the outcome (death or Survived) with the demographic characteristics, Mann-Whitney (for quantitative and ordinal qualitative data), chi square and the fisher exact test (for nominal qualitative data) were used. $P < 0.05$ was considered as significance.

Results:

Finally, 59 cases of hanging were referred to the hospital. Mean age of the patients was 31.4 ± 13.1 years (age range of 12-80 years). 83% were male. 30 (50.8%) patients were married and 35 (64.3%) cases lived in the city. 12 (20.34%) patients suffered from psychological disorders, and 9 (15.2%) patients confessed to substance abuse. 7 (11.9%) subjects had a history of committing suicide and 22 (37.3%) of the suicide attempts were done in fall (Tables 1 and 2). Suicide attempts by hanging was significantly higher in men ($p<0.001$), people with an education level of less than high school diploma ($p=0.02$), and the unemployed ($p<0.05$). In the end, 20 (33.9%) cases of these attempts resulted in death. Table 3 shows the relationship between demographic factors of the patients with suicide outcome. None of these factors had any correlation with the outcome ($p > 0.05$).

Table 1: Demographic and basic factors of the patients included

Factor	Frequency (%)	P
Sex		
Female	10 (17.0)	
Male	49 (83.0)	<0.001
Marital status		
Single	30 (50.8)	
Married	29 (49.2)	0.9
Place of living		
Rural area	23 (39.7)	
The city	35 (60.3)	0.12
Level of education		
Under diploma	37 (64.9)	
High school diploma	20 (35.1)	0.02
Occupation		
Unemployed	27 (49.1)	
Worker	14 (25.4)	0.04
Student	6 (10.9)	0.001
Self-employed	6 (10.9)	0.001
Retired	2 (3.6)	<0.001

Table 2: Factors related to suicide in the studied patients

Substance abuse status	Frequency (%)
Negative	50 (84.8)
Positive	9 (15.2)
History of psychological disorders	
Negative	47 (79.7)
Positive	12 (20.3)
History of suicide	
Negative	52 (88.1)
Positive	7 (11.9)
Season	
Spring	13 (22.0)
Summer	13 (22.0)
Fall	22 (37.3)
Winter	11 (18.7)

Discussion:

The results of this study showed that in 2 years, 59 people attempted suicide by hanging. Hanging was more prevalent among men, people with an education level of less than high school diploma and the unemployed patients. In the end 33.9% of these attempts resulted in death.

Hanging is a way of suicide with a mortality rate of at least 70% as Gunnellet et al. have shown. These researchers stated that the reason for the high prevalence of this method is that the materials for hanging are highly accessible. Therefore it is considered a method which is hard to prevent (9). Akhlaghi et al. express that hanging constitutes 22.1% of suicide deaths (14).

In the present study, mean age of patients was 31.4 years, half of which were under 28 years old. 83.1% were male which means the frequency of suicidal males has been 5 times more than the females. Sharija et al. have also shown that 71.3% of the suicide by hanging cases were male and 82.1% were either young or middle aged (15). A study based on the data from WHO in 56 countries showed that 53% of the suicides in men and 39% in women is by hanging. In England and Wales, about half of the suicides in men aged 15-44 are carried out this

Table 3: The relationship between the patients' demographic and basic factors with their suicide outcome

Factor	Outcome		p
	Death	Survived	
Sex			
Male	17 (34.7)	32 (65.3)	0.99
Female	3 (30.0)	7 (70.0)	
Marital status			
Single	11 (36.7)	19 (63.3)	0.65
Married	9 (31.0)	20 (69.0)	
Place of living			
Rural area	8 (34.8)	15 (65.2)	0.97
The city	12 (34.3)	23 (65.7)	
Level of education			
Less than high school diploma	9 (45.0)	11 (55.0)	0.25
High school diploma	11 (29.7)	26 (70.3)	
Occupation			
Unemployed	10 (37.0)	17 (63.0)	0.36
Worker	5 (35.7)	9 (64.3)	
Student	3 (50.0)	3 (50.0)	
Self-employed	0 (0.0)	6 (100.0)	
Retired	1 (50.0)	1 (50.0)	
Substance abuse status			
Negative	19 (38.0)	31 (62.0)	0.12
Positive	1 (11.1)	8 (88.9)	
History of psychological disorders			
Negative	16 (34.0)	31 (66.0)	0.96
Positive	4 (33.3)	8 (66.7)	
History of suicide			
Negative	0 (0.0)	7 (100.0)	0.08
Positive	20 (38.5)	32 (61.5)	
Season			
Spring	5 (38.5)	8 (61.5)	0.18
Summer	7 (53.8)	6 (46.2)	
Fall	4 (18.2)	18 (81.8)	
Winter	4 (36.4)	7 (63.6)	

way (14). Also Höfer et al. showed that the ratio of suicide by hanging in men and women is 7 to 1 (16).

The prevalence of psychological disorders in this study was 20.3%. The prevalence of psychological disorders in Iran in cities and rural areas were 20.9% and 21.3%, respectively (17). Therefore, there is no different between our study and the national average rate for general population. However, the prevalence of substance abuse in Iran has been reported to be 4-7% (18-20). In this study, the prevalence of substance abuse was 15.2%, which was about twice the national average rate for general population. This result is in line with those of similar studies which express that suicide is more prevalent in People with substance use disorders (21, 22).

Limitations of this study include the low number of cases, which was due to the nature of the subject of study and the low number of hanging cases that reach the hospital. Other limitations include not evaluating the clinical characteristics and medical interventions, history of alcohol abuse, and type of opium abused.

Conclusion:

The results of this study showed that in 2 years, 59 cases committed suicide by hanging themselves, 33.9% of which finally died. Committing suicide by hanging was significantly more prevalent in men, people with an edu-

cation level of less than high school diploma, and the unemployed

Conflict of interest:

None

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Authors' contributions:

All authors passed four criteria for authorship contribution based on recommendations of the International Committee of Medical Journal Editors.

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