



Research article

Suicide attempts and related factors in patients referred to Gachsaran Hospital, Iran

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ABSTRACT

Background: Suicide is considered as an important, widespread phenomenon in the world, causing numerous deaths annually. This study is going to investigate how suicidal attempts are affected by several demographic and other underlying factors.

Objective: The present study was designed to investigate suicide attempts and its related factors in patients referred to Gachsaran Hospital, Iran.

Materials and methods: This cross-sectional study was conducted on 348 people who had attempted suicide (Please note that 348 was the number of suicidal attempts not the number of suicidal deaths). The data were collected by consent of Shiraz University of Medical Sciences and necessary coordination with the Emergency Management Statistics Center of Shahid Rajaei Hospital in Gachsaran city. The data analysis was performed through the logistic regression test using SPSS software version 19. The significance level was considered 0.05.

Results: A total of 348 individuals with a mean age of 23.9 ± 8.1 had attempted suicide in Gachsaran. Of these, 185 were female (53.2%) and 163 were male (46.8%). The results of multivariate regression showed that, after controlling the effect of probable confounding variables, the following variables had a significant relationship with suicide attempts in the individuals who had attempted to suicide: male gender, unemployment, and love problems.

Conclusion: Considering the high rate of suicide attempts among unemployed male individuals during one year, counseling centers in Gachsaran city should pay special attention to this group of people. Measures such as creating jobs for young people can help prevent this social dilemma.

1. Introduction

Suicide is of particular importance as a major phenomenon in the world, and the World Health Organization has reported about eighty-fifty thousand suicide deaths in 2000 [1]. Besides, one million people die of suicide annually [2, 3, 4]. Prevalence of suicide varies from country to country [5]. Countries with high suicide rates include Scandinavian countries, Germany, Eastern Europe to Australia and Japan which are on the suicide belt with 25 cases per 100,000, and countries such as Spain, Italy, Ireland, the Netherlands and Egypt have lowest suicide rates with 10 suicidal cases per 100,000 [6,7,8].

Various studies in Iran show that the rates of suicide and suicidal attempts are not the same in different parts of the country. According to the statistics released by the Ministry of Health in 2005, Lorestan Provinces ranked first and Mazandaran and Golestan provinces ranked second

and third in terms of committing suicide in Iran [7]. Suicidal rates can vary in a particular area during different times. For instance, in Ilam province, the prevalence of suicide has increased significantly and in recent years, changed from 2 cases in 100,000 to 63 in 100,000 people [3]. In some regions, demographic characteristics can play an important role in committing suicide among people. In Masjed Soleyman, for example, suicidal attempts among people over the age of 15 have been 34.8% for women and 19.9% for men per 100,000 [7].

Hassanian-Moghaddam and Zamani evaluated all 20-year recent published original articles on committed suicides searching Iranian scientific databases. Articles showed an overall increased trend of suicidal deaths in Iran. Discrepancies existed regarding suicide rate and demographic characteristics among 9 English and Persian published articles. Although a suicide rate of 6.2 per 100 000 was reported in 2003, almost 31 times greater than 1991, an average suicide rate of 9.9 per 100

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000 was calculated based on data interpretations [9]. The results of Okan Ibiloglu et al study revealed that a great variety of risk factors are associated with an increased risk for multiple suicide attempts. Most of these attempts appeared to be spontaneous and impulsive rather than planned. In particular, this study highlights the importance of previous suicide attempts, history of suicide in the family, history of stressful life events in the previous 6 months, poor income, unemployment, sleep disturbances, severe hopelessness with depression, and coexisting symptoms of anxiety as risk factors [10].

In Iran, suicidal attempts are more prevalent among young people than other groups, and issues such as marital conflicts, conflicts with relatives, mental disorders and unemployment are the main causes of suicide in Iran [11, 12]. Examining psychosocial variables associated with suicide attempters have shown that 82.7% of suicide attempters had mild to severe degrees of depression and the most important reasons for committing suicide were mental and family problems [13]. The study by Molavi et al. showed that problems with the spouse and parents caused 33% and 14% of the cases of suicide, respectively [14].

Investigation of the prevalence and causes of suicidal ideation can help us find useful ways to prevent suicidal attempts. Considering the high rates of suicides and the fact that suicide attempts were influenced by cultural and regional factors, we decided to conduct this study with the aim of determining the factors affecting suicidal attempts among the patients referred to the emergency department of Shahid Rajaei Hospital in Gachsaran city in 2015 in order to identify the effective factors, take educational measures and find some ways to prevent suicide.

2. Materials and methods

2.1. Study design and participants

The present study is an analytical cross-sectional one. The statistical population consisted of all individuals who attempted to suicide in Gachsaran city from April 2018 to March 2019 and were referred to the Emergency Department of Shahid Rajaei Hospital. Given that Shahid Rajaei Hospital is currently the only general hospital in Gachsaran, all cases of suicide are referred to that hospital.

2.2. Sampling method

Gachsaran is a city in the southwest of Kohkiluyeh and Boyer-Ahmad province. The population of this city was 124,096 people in 2016. The sampling in this study was a census method (non-probabilistic sampling method) and, given that 348 people attempted to suicide during one year, all of them were entered the study.

The medical records available in the hospital were used to collect the required information. They included some information about the demographic variables of the people (age, gender, education, occupation, urban and rural residency, and information on how they attempted suicide (the use of poison and chemical drugs, self-immolation, cold weapons, firearms ...) and the reason for their suicidal attempts.

2.3. Statistical analysis

For data analysis, single-variable and multivariate logistic regression analysis was performed using SPSS software version 19.

To describe the quantitative data (participants' age), we used descriptive indicators such as mean and standard deviation (mean \pm SD). The independent T-test was used to compare the quantitative variables.

Qualitative variables such as gender, educational degree, marital status, history of suicide, occupation, residency, suicide cause and methods were presented as numbers and percentages. The Pearson's Chi-square test was used to analyze the qualitative variables' associations. The confidence level was set at 95%, and the significance level was considered 0.05.

3. Results

A total of 348 people with a mean age of 23.9 and a standard deviation of 8.1 attempted suicide in 2015 in Gachsaran. Characteristics of the study participants and their frequency are presented in Table 1 and Figure 1. The incidence of suicide was 2.8 per 1,000 people in that year. Of the 348 people who had attempted suicide, 185 were female (53.2%) and 163 were male (46.8%). A great majority of the population were unmarried (67.5%), while 32.5% of them were married. Interestingly, only 7.5% of the population had a history of at least one suicide attempt while 92.5% had no history of suicide. Only 11.8% of the participants had tertiary education, whilst 88.2% of them had high school or lower education.

Most of the participants in this study (187 people = 53.7%) stated that family problems were the main reason for their suicide. The rest reported the following reasons as their main cause of suicide: mental disorders such as depression and anxiety (109 people = 31.3%), financial problems (34 people = 9.8%) and love problems (18 people = 2.5%). More than half of them had taken pills in their suicidal attempts (187 people = 53.7%). Other methods of suicide were self-harm (51 people = 14.7%), hanging (47 people = 13.5%), taking poison (29 people = 8.3%), using drugs (18 people = 5.2%), self-immolation (9 people = 2.6%), using detergents (5 people = 1.4%) and gun shots (2 people = 0.6%).

In order to investigate the relationship that the variables age, gender, education, occupation, place of residence, suicide method and suicide cause had with suicide death at the significant level $\alpha = 0.05$, a single-variable logistic regression test was conducted, the results of which are presented in Table 2. Then, a multivariate regression test was used to

Table 1. Characteristics of the participants in the study.

Variable		Frequency (%)	Mean \pm standard deviation
Gender	Male	163 (46.8%)	-
	Female	185 (53.2%)	-
Educational Degree	Junior High School	110 (31.6%)	-
	High School	197 (56.6%)	-
	Academic	41 (11.8%)	-
Marital Status	Single	235 (67.5%)	-
	Married	113 (32.5%)	-
History of Suicide	Yes	26 (7.5%)	-
	No	322 (92.5%)	-
Occupation	Housewife	74 (21.3%)	-
	Unemployed	141 (40.5%)	-
	Self-employed	46 (13.2%)	-
	Student	77 (22.1%)	-
	Employee	10 (2.9%)	-
Residency	Urban	290 (83.3%)	-
	Rural	58 (16.7%)	-
Age		-	8.1 \pm 23.9
Main Cause of Suicide	Family Problems	187 (53.7%)	-
	Mental Disorders	109 (31.3%)	-
	Financial Problems	34 (9.8%)	-
	Love Problems	18 (2.5%)	-
Methods of Suicide	Pills	187 (53.7%)	-
	Self-harm	51 (14.7%)	-
	Hanging	47 (13.5%)	-
	Taking Poisons	29 (8.3%)	-
	Using Drugs	18 (2.5%)	-
	Self-immolation	9 (2.6%)	-
	Using Detergents	5 (1.4%)	-
	Gun Shots	2 (0.6%)	-

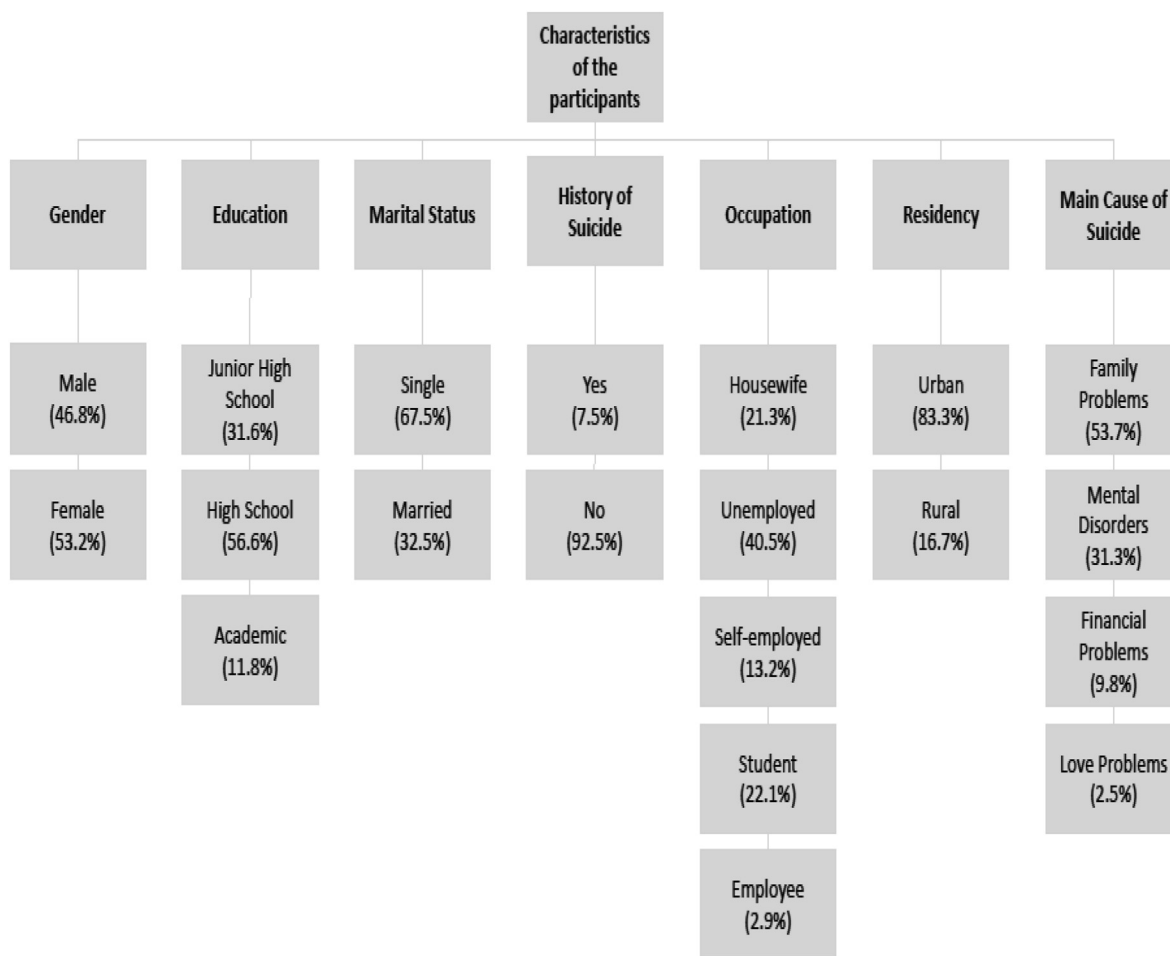


Figure 1. Characteristics of the participants in the study.

determine the effect of primary variables on suicide attempts. Thus, the variables with a significant level of less than 0.2 entered the multivariate analysis. The remaining variables entered in the multivariate analysis were age (p-value = 0.19), gender (p-value = 0.00), marital status (p-value = 0.11), occupation (p-value = 0.00), Education (p-value = 0.00) and the cause of suicidal attempt (p-value = 0.00). The results of the single-variable and multivariate analyses are presented in Table 2. Controlling the effect of probable confounding variables indicated that the variables male gender, unemployment, and love problems had a significant relationship with suicidal attempts by the study subjects (p-value = 0.00).

4. Discussion

The present study was conducted to examine the factors affecting suicide attempts in people who had attempted suicide in Gachsaran city in 2015. In the single-variable analysis, it was observed that gender, occupation, education, and cause of suicide had a significant relationship with suicide attempts. The results of multivariate analysis showed that, after controlling the effect of probable confounding variables, male gender, unemployed and love problems had a significant relationship with suicide attempts by the study subjects.

Regarding the gender variable, the results of this study showed that men had a higher chance of attempting suicide than women. A study conducted by Von Borczykowski et al also confirmed this and was consistent with the results of our study. Other studies have reported similar results [5, 15, 16, 17]. However, many other findings from other studies showed that women had a higher chance of attempting suicide

than men, while it was not consistent with the findings of our study [18, 19]. Another study in Thailand also indicated that men had more suicide attempts than women [20]. These findings suggest that gender may be a determining variable for suicidal behavior. However, the problems of both male and female genders may be solved by providing educational interventions and strategies and lastly, reduce suicide attempts. Of course, the high suicide rate among men should be due to different suicidal patterns selected by men and women. Women often tend to use non-violent methods such as overdosing, while men are more likely to be involved in violent methods such as bullet shooting or hanging, which are more likely to result in deaths.

Regarding the age of the participants, the results of this study showed that the individuals with a higher mean age had a lower chance of suicidal attempts compared to those with a lower mean age, showing that younger age groups are more likely to attempt suicide. This finding was in line with a study conducted by Alberdi-Sudupe et al. [21]. The results of the Akca et al study also showed that in most cases, suicide attempts and suicides were committed at a young age [22]. As the age increases, the rational thinking of individuals increases as well, and people look for rational solutions to solve their problems rather than acting emotionally and committing suicide. Given the fact that young people are considered the workforce in societies, paying attention to them is essential for the progress of any society.

The findings of this study showed that married people had a lower chance of attempting suicide than single ones, and this is consistent with the findings of the studies conducted in Iran [13, 23, 24]. Actually, the relation between marriage and suicide is multi-factorial and complicated and needs further investigation.

Our study showed that employees had a lower chance of suicide. On the contrary, self-employed people, students and unemployed people had a higher chance for it. In previous studies, there was also a significant relationship between unemployment and suicidal attempts [25]. The role of unemployment is important in increasing the vulnerability of individuals, especially young people, who make up the largest suicidal group. Our findings indicated that job security had a great impact on preventing suicide attempts. Students attempt suicide more because they are disappointed with the future of their job, and this requires the need for effective planning in this regard.

Considering education, our findings also showed that the individuals with high school and university education had a lower chance of attempting suicide than those with junior high school education. This was consistent with the results of the study by Aqeel Khan [26]. In their study, Aqeel Khan et al. reported that the level of education had an impact on suicide. The higher rate of suicide attempts among the people with lower education was due to their lack of insight into the complications and consequences of suicide. This finding was also consistent with Mojahedi et al.'s study [27].

Our study findings showed that the people living in urban areas were more likely to attempt suicide than those living in the countryside. This was consistent with the results of the study by Mirzaie et al. [28], Mirzaie et al. used the chi-square test and logistic regression to describe their data. It was concluded that there was a significant relationship between residence and suicide [28]. The study conducted by Lee et al. which was conducted in 2018 also showed same results [29]. The higher rate of suicide attempts in urban areas might be justified with social problems, lack of sincere social relations, economic problems and the stress caused by stressful urban life environments.

Our findings showed that the individuals who had a history of suicidal attempt had a higher chance of suicide than those who did not. In a study by Ibiloglu et al. conducted in 2015 in Turkey to investigate suicide-related factors, it was found out that 106 cases of suicide had occurred during one year and a logistic regression test showed that the history of previous suicide attempts by an individual and the history of committing suicide in the family had an important role in committing suicide by the

people of Turkey [10]. The importance of previous suicidal behaviors on suicide attempts, was also proved by a study conducted by de la Garza et al. who assessed suicidal attempts risk factors through machine learning in 2021 [30].

The findings of this study showed that people with love problems, financial problems, and psychological problems (depression and anxiety) had a higher chance of suicide, which was consistent with the results of the study by Ando [31]. A cross-sectional study was conducted by Shuntaro Ando et al. to examine the psychological factors influencing the suicide rate in patients with depression in 2013 using a standard questionnaire in Tokyo. In that study, the patients' depression was confirmed by the experts and a total of 189 people had attempted to suicide in Tokyo within one year. The results of the logistic regression test showed that higher levels of social support for depressed patients would reduce their suicide attempts [31]. The great impact of depression and other mental disorders on attempting suicide have also been mentioned in other studies [32, 33, 34]. Depression, disappointment and tiredness of those who attempt suicide could be due to increased stresses imposed by the society, including poverty and unemployment, and increased expectations of the people with the modernization of the community.

The high rate of suicide among the youth can be due to social, economic, cultural and family anomalies. It is also possible that there are some underlying factors such as frustration, lack of self-esteem, and unemployment. Moreover, there may be many other factors involved in this issue that have not been addressed in our study; therefore, proper concentration and planning for this important health problem is required.

4.1. Limitations

We are aware of the limitations of our study. The first is that there was no available source to assess the socioeconomic condition of the participants. The second is that the mental status and other contributing factors such as public dissatisfaction or related concepts were not assessed through the study. More research is recommended with focus on other factors and characteristic of the people with a positive history of suicidal attempt.

Table 2. Single-variable and multivariate analyses to determine the relationship between demographic variables and suicidal attempts in the subjects participating in the study.

Variable	Single-variable analysis		Multivariate analysis		
		Odds ratio (confidence interval)	Significance (p-value)	Odds ratio (confidence interval)	Significance (p-value)
age	year	0.98 (0.95–1.01)	0.19	0.97 (0.93–1.01)	0.26
gender	female	Reference			
	male	2.81 (1.76–4.5)	0.00	3.58 (1.8–6.8)	0.00
Marital status	single	Reference			
	married	0.66 (0.40–1.1)	0.11	0.54 (0.20–1.47)	0.54
occupation	Housewife (reference)	reference			
	Unemployed	1.55 (0.82–2.93)	0.00	1.02 (1.01–2.03)	0.04
	Student	1.16 (0.56–2.42)	0.00	0.30 (0.05–2.3)	0.05
	Employee	0.77 (0.15–4)	0.00	0.36 (0.28–2.3)	0.28
Education	Self-employed	2.61 (1.19–5.7)	0.00	0.81 (0.20–1.4)	0.70
	Junior high school	reference	0.00		
	High school	0.89 (0.54–1.46)	0.00	1.05 (0.62–1.78)	0.84
	Academic	0.45 (0.19–1.09)	0.00	0.55 (0.21–1.46)	0.23
Residency	Rural	reference	0.71		
	Urban	1.21 (0.60–2.7)			
History of suicidal attempts	No	reference	0.21		
	Yes	1.6 (0.74–3.7)			
Cause of suicidal attempts	Family problems	reference			
	Financial Problems	1.34 (0.62–2.90)	0.00	0.85 (0.35–2.02)	0.71
	Psychological problems	1.1 (0.66–1.86)	0.00	1.00 (0.56–1.7)	0.97
	Love problems	2.46 (0.92–6.54)	0.00	3.7 (11.27–11.71)	0.01

5. Conclusion

The findings of the present study showed that suicidal attempts occur mostly among a specific group of community population. Considering the high rate of suicide attempts during one year among young and unemployed people as well as those with love problems, counseling centers have to be established and developed in the city of Gachsaran to help youth and people suffering from personal problems to overcome their difficulties efficiently. It is also suggested that health policymakers take action on youth employment to take serious measures for preventing this social dilemma and thus, greatly reduce the loss of human resources and active labor force in that city. Finally, it is suggested that more research with suicide-related variables be conducted to exactly and scientifically determine the factors associated with suicidal tendencies so that health authorities and social institutions can plan and formulate strategies for institutionalizing the methods of preventing suicide attempts.

Declarations

Authors' contributions

Tayebeh Rakhshani: Conceived and designed the experiments; Contributed reagents, materials, analysis tools or data.

Tayebeh Abbasi: Performed the experiments.

Amirhossein Kamyab: Analyzed and interpreted the data; Wrote the paper.

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Declaration of interest's statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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