Prevalence of Suicide Ideation, Attempts and the Associated Factors among a Sample of Iranian Population in South Part of the Country: A Population Based Study

Hassan Ziaaddini, MD[1]
Soodabeh Navadeh, MD[2]
Ali Saeedi, Msc[3]

1 Neuroscience Research center, Kerman University of Medical Sciences, Kerman, Iran
2 Physiology Research Center, Kerman University of Medical Sciences, Kerman, Iran
3 Prison organization, Kerman, Iran

Corresponding author:
Hassan Ziaaddini, MD
Associate Professor of Psychiatry, Neuroscience Research Center, Department for Research Affairs, Kerman University of Medical Sciences, Jahad St., Kerman, Iran. Postal code: 7619813159 ,
Tel:+98-913-1415267,
Fax: +98-341-2110856
Email: h_ziaaddini@yahoo.com

Objective: Suicide represented 1.8% of the total global burden of disease in 1998 and it will increase to 2.4% in 2020. We performed a cross sectional study to assess the prevalence of suicide ideation, attempt and its associated factors.

Method: We designed a cross sectional study in Mahan and Bardsir cities, Kerman province, Iran. Based on the multistage cluster sampling, 860 subjects aged 15 and older were selected as the non-attempter group and 58 hospital cases admitted due to suicide attempts were selected as the attempter group. General Health Questionnaire, Suicide Ideation Scale and demographic form were filled for each participant.

Results: This study showed that the prevalence of suicide ideation was 10% in total: 48.3% in the suicide attempters and 7.33% in the non-attempters. Being female, young, single, more educated and less religious, living in urban areas, opium use and having somatic complaints and other psychiatric problems were associated with suicide attempts.

Conclusion: Suicide ideation and attempt aren't uncommon in Iran and should be recognized as important problems existing in these two cities of Kerman province**.**

Key words: *Attempted Suicide, Iran, Prevalence, Suicide*

Suicide is now among the three leading causes of death among those aged 15-44 years (both sexes) worldwide. Suicide represented 1.8% of the total global burden of disease in 1998 and it will increase to 2.4% in countries with market and former socialist economies in 2020 (1).

Iran's suicide rates like other Asian countries are moderate. Bertolote et al showed that the prevalence of life time suicide ideation was 14%)2(;and the review of the Nock et al showed that the prevalence of the life time suicide attempts are between 1.2 and 1.4% in Iran)3). These rates, suicide ideation and suicide attempts, were 12.7% and 3.3% respectively in a study conducted by Malakouti et al. (4).

Mental disorders particularly depression and substance abuse are associated with more than 90% of all the suicide cases (1). In Iran, 10.8% of the subjects aged 18 years and older suffer from at least one psychiatric disorder, and major depressive disorder is the top common disorder among this population(5.(

Kerman is a south eastern province in Iran and one of the main opium trade routes of Afghanistan. In addition to neighboring Afghanistan, some cultural beliefs in Kerman lead to the high prevalence of opium addiction (6).

Bardsir and Mahan are two small cities in this province with estimated population of 89365 and 17166 respectively with similar geographical and socio-cultural situation .

As no precise data are present on suicide in Kerman, this study was aimed to assess the prevalence of suicide ideation, attempt and its related factors in order to find out the epidemiology and the most common determinants of this public health problem in two ordinary cities in the central part of Iran.

Materials and Methods
Sample
This cross sectional study was conducted in Bardsir and Mahan during Jul to Aug 2005. Based on the assumptions in calculating the sample size ($\alpha = 5\%$, $\beta = 10\%$, the prevalence of the psychiatric disorders (= 21% [(7]))),and the considering minimum OR between psychiatric disorders disordersand , suicide ideation and also the design effect of 840 subjects were calculated. The selected sample size was divided into 4 categories based on the rural and urban population in each of the Mahan and Bardsir cities (Mahan and Bard sir). Based on the multi-stage clustered sampling method, The the sample of 859 subjects out of a total

number of 106531 individuals with the aged age range of 15 and older based on the multi-stage clustered sampling method were selected. Based on the urban and rural population of Mahan and Bardsir Bardsirin The , 43 clusters were randomly selected from the list of households of health centers. The clusters consisted of 20 subjects. To complete each cluster cluster, we used a specific rule, with a household base method. It means that we started recruiting people in the first house that was selected from the health centers' list of household householdsof health center.. All of the 15 and older persons in the a household that who hadn't had did not have a history of suicide attempts in their life were recruited selected to the study as the non-attempter group. We completed the cluster using the those people living in the next house on the right side.

The attempter group (58 subjects) was chosen from the patients admitted to the emergency wards of Mahan and Bardsir hospitals because of suicide attempt at the same time. The study was carried out in on all the subjects who completed the informed consents consents;and confidentiality of personal data was emphasized. Educated personnel interviewed the subjects and collected the demographic data. The response rate was 97%.

Measures
The instruments adopted to assess the subjects' health status, suicide ideation and coping strategies were General Health Questionnaire (GHQ-28), Scale for Suicide Ideation (SSI) and Billings and Moss coping skill questionnaire translated into Farsi by psychiatrists and clinical psychologists. The validity and reliability of GHQ28, SSI and Billings and Moss coping skill questionnaire were evaluated by different investigations in for Iranian population (7-9).

The interviewer collected the demographic characteristics of samples such as sex, age, educational level, marital status, living in a rural or urban place, substance use and past medical history. The participants answered to the question of "How much do you consider yourself as a religious person?" To to evaluate their religious believes beliefs according to the 3 points Likret scale.

We used descriptive statistics to show the frequency rate of variablesvariables, and used chi square test to assess the relation between the variables. Stata v. 10 (Survey Commands) were was used as the analysis method. The district code was considered as the strata andstrata, and the identification code for the clusters were was used as the primary sampling unites in the analysis.

Results
Table 1 presents the demographic characteristics of the study sample. The frequency of being single, living in an urban area, having a positive past medical history and history of substance use were significantly higher

Table 1- Demographic characteristics of the subjects

	Total [CI] (n= 917)	Non-attempter [CI] (n= 859)	Attempter [CI] (n= 58)	Pvalue
Gender				
Female	51.91 [48.66,55.14]	51.8 [48.45,55.14]	53.45 [40.65,65.81]	NS
Male	48.09 [44.86,51.32]	48.2 [44.86,51.55]	46.55 [34.19,59,35]	
Age group				
15 - 24	33.82	31.69	64.91	
25 - 44	40.22	40.94	29.82	<0.001
45 – 64	16.63	17.41	5.263	
>= 65	9.326	9.964	0	
Living area				
Urban	60.96 [57.84,63.99]	59.6 [56.36,62.77]	81.03 [68.92,89.17]	0.001
Rural	39.04 [36.01,42.16]	40.4 [37.23,43.64]	18.97 [10.83,31.08]	
Marital Status				
Single	32.57 [29.62,35.66]	30.92 [27.92,34.09]	56.9 [43.95,68.96]	
Married	62.08 [58.89,65.16]	63.71 [60.44,66.86]	37.93 [26.42,50.98]	<0.001
Divorced	5.355 [4.069,7.017]	5.368 [4.042,7.095]	5.172 [1.675,14.87]	
Past History				
Nervous	10.54 [8.685,12.73]	9.472 [7.662,11.66]	25.86 [16.22,38.6]	
Somatic	10.09 [8.274,12.25]	10.31 [8.419,12.57]	6.897 [2.607,17.01]	<0.001
Psychiatric disorder	6.39 [4.958,8.2]	5.036 [3.742,6.747]	25.86 [16.22,38.6]	
Opium use				
Never	77.44 [74.52,80.12]	78.3 [75.31,81.03]	65.52 [52.47,76.58]	
Occasionally	6.744 [5.274,8.629]	6.608 [5.083,8.551]	8.621 [3.631,19.11]	0.06
Every day	15.81 [13.52,18.41]	15.09 [12.77,17.74]	25.86 [16.21,38.61]	
Religious believes				
Strong	50.88 [47.63,54.11]	52.58 [49.22,55.91]	25.86 [16.21,38.61]	
Moderate	47.07 [43.82,50.28]	45.43 [42.12,48.78]	70.69 [57.78,80.95]	<0.001
Weak	2.083 [1.332,3.245]	1.991 [1.24,3.181]	3.448 [.8609,12.81]	
Education				
Illiterate	21.7 [19.15,24.48]	22.8 [20.12,25.72]	5.263 [1.705,15.11]	
High school	54.85 [51.73,57.92]	54.76 [51.56,57.92]	56.14 [43.11,68.38]	0.002
Diploma	17.29 [15,19.85]	16.33 [14.04,18.92]	31.58 [20.86,44.69]	
Academic	6.167 [4.781,7.922]	6.11 [4.692,7.922]	7.018 [2.652,17.29]	

All the variables were compared by χ2, NS: Not Significant, CI: Confidence Interval, CI95% were represented in [...]

**Table2. Suicide ideation, psychological aspects of general health (GHQ28) and Coping strategies
in both suicide attempters and non-attempters**

	Total [CI] N= 917	Non-attempter [CI] N= 859	Attempter [CI] N= 58	Pvalue
Suicide Ideation				
Negative	90.04 [87.92,91.83]	92.67 [90.71,94.25]	51.72 [39.03,64.2]	<0.001
Moderate	6.195 [4.795,7.969]	5.31 [3.992,7.055]	18.97 [10.81,31.13]	
Severe	3.761 [2.701,5.215]	2.00 [1.252,3.211]	29.31 [19.08,42.17]	
Somatic symptoms				
Negative	95.3 [93.69,96.51]	95.45 [93.81,96.68]	92.98 [82.72,97.35]	NS
Positive	4.703 [3.492,6.306]	4.545 [3.324,6.187]	7.018 [2.654,17.28]	
Anxiety				
Negative	97.05 [95.7,97.99]	97.33 [95.97,98.24]	93.1 [83.03,97.39]	NS
Positive	2.948 [2.013,4.298]	2.67 [1.762,4.025]	6.89 [2.614,16.97]	
Social dysfunction				
Negative	98.01 [96.86,98.74]	97.87 [96.64,98.66]	100	NS
Positive	1.993 [1.258,3.144]	2.13 [1.345,3.358]	0	
Sever depression				
Negative	98.17 [97.02,98.87]	98.28 [97.11,98.98]	96.55 [87.19,99.14]	NS
Positive	1.83 [1.126,2.976]	1.72 [1.02,2.886]	3.448 [.8606,12.81]	
Coping strategies				
Emotionally Focused	58.66 [51.22,65.73]	57.72 [48.75,66.22]	60.71 [47.27,72.71]	NS
Problem Focused	41.34 [34.27,48.78]	42.28 [33.78,51.25]	39.29 [27.29,52.73]	

All the variables were compared by $\chi2$, NS: Not Significant, CI: Confidence Interval, CI95% were represented in [...]

in the attempters compared to the non-attempters (P<0.05). In addition, the attempters were younger (p<0.001), more educated and less religious (P<0.05.(

Table 2 demonstrates that the attempters had a significantly more suicide ideation than the non-attempters (P<0.001) while somatic symptoms, anxiety, social dysfunction, severe depression and using different coping strategies were not different in the groups.

The strength of association between suicide attempt and predictors are shown in table 3. The male subjects were less likely to attempt suicide than females (OR = 0.93; P = 0.8). Living in urban areas increased the odds of suicide attempt 2.9 times more than living in rural areas (P=0.02). Marriage significantly decreased the odds of suicide attempt 68% (P<0.001).

Having the history of somatic complaints did not have any significant effect, while having the history of nervousness and psychiatric disorders increased the odds of suicide attempt 4.9 and 9.3 times respectively (P<0.001). Opium use was positively associated with suicide attempt (OR=2; P=0.02). Less religious subjects had a higher risk (OR=3.1) of suicide attempt (P<0.001) compared with those with strong religious beliefs. Suicide attempt increased significantly in those with higher educational status (P<0.05) and in the subjects with suicide ideation (P<0.001). Considering the GHQ28 and using problem focused intervention as the coping strategy, having somatic symptoms, anxiety and severe depression had no significant effects on suicide attempt.

Among all the variables, sever suicide ideation remained positively associated with suicide attempt after adjusting other factors (OR= 86.7; 95% CI [1.65-4.54]).

Discussion

This study showed that the prevalence of suicide

ideation was 10% totallyin total, : 48.3% in suicide attempters and 7.33% in non-attempters. Our estimates were much lower than the prevalence of the suicide ideation among adolescents in Guyana (18% and 21.6% respectively) (10,-11) but similar to the rates of suicide ideation that were carried out in Iran (12.7%) (12).

Like the other reports, our results showed that after adjusting all the contributor contributing factors for suicide attempt, women are more likely to attempt suicide, 4.3 times more than men with a borderline significant P value of (P=0.08) (3, 9, - 10.).

In our study, 64.9% of the attempters were in the age range of 15 – 25 years old. It means that young people are more likely to attempt suicide suicidewhich , and this finding was similar to the findings of previous studies (3, 12).

In addition, we found that 56.9% of the attempters were single. Previous reports in Iran (12) and other countries (143) confirmed this result.

Suicide attempt was more prevalent in more educated peoplesubjects. This result agrees is in accordance with the previous reports in Iran and other countries (3, 12, 154, - 165). We found associations between opium use, religion and suicide attempts that agrees comply with previous reports[reports (12.).

However mMany of our findings which included the correlation between demographic factors and suicide ideation and attempt are similar to the findings of other studies conducted in Iran and also other countries (176).

Limitations

Our study has had some limitations. We used the GHQ-28 that assesses only 4 aspects of the subjects' health status status, and many of the signs and symptoms remain unknown. BesidesFurther, the GHQ-28 can not assess some of the mental disorders such as

Table3. The association of different factors with suicide attempts; a logistic regression model

	Crude OR [CI 95%]	Adjusted OR [CI 95%]
Gender		
Male¥	1	1
Female	1.06 [.54,1.59]	4.33 [0.80,23.2]
Age group		
15 - 24¥	1	1
25 - 44	0.35 [0.19,0.64]*	0.19 [0.02,1.63]
45 – 64	0.14 [0.04,0.48]	0.15 [0.019,1.16]
Living area		
Rural¥	1	1
Urban	2.89 [1.47,5.66]*	0.43 [0.06,2.87]
Marital Status		
Single¥	1	1
Married	0.32 [0.18,0.56]*	1.88 [0.11,29.72]
Divorced	0.52 [0.15,1.78]	1.27 [0.02,60.59]
Past History		
Negative	1	1
Nervous	4.9 [2.49,9.86]*	4.48 [0.50,40.03]
Somatic	1.21 [0.41,3.59]	0.96 [0.11,8.08]
Psychiatric	9.33 [4.55,19.1]*	0.67 [0.02-26.7]
Opium use		
Never¥	1	1
Occasionally	1.55 [0.58,4.12]	0.63 [0.15,26.7]
Every day	2.04 [1.09,3.84]*	----
Religious believes		
Strong¥	1	1
Moderate	3.16 [1.72,5.81]*	7.10 [0.91-55.2]
Weak	3.52 [0.74,16.71]	----
Education		
Illiterate¥	1	1
High school	4.44 [1.34,14.65]*	----
Diploma	8.37 [2.41,29.05]*	4.01 [0.26-60.4]
Academic	4.97 [1.07,23.0]*	----
Suicide Ideation		
Negative¥	1	1
Moderate	6.38 [3.00,13.59]*	11.48 [0.77,169.4]
Severe	26.13 [12.1,56.2]*	86.71 [1.6,4548.5]*
Somatic symptoms		
Negative¥	1	1
Positive	1.58 [0.54,4.61]	0.06 [0.001,1601.5]
Anxiety		
Negative¥	1	1
Positive	2.70 [0.89,8.1]	0.08 [0.004,1.67]
Sever depression		
Negative¥	1	1
Positive	2.04 [0.45,9.24]	0.26 [0.015,4.39]
Coping strategies		
Emotionally Focused¥	1	1
Problem Focused	0.88 [0.45,1.69]	1.08 [0.13,8.81]

OR-Odds Ratio; CI-Confidence Interval; ¥ Baseline group; * P<0.05
All the variables were entered in the model to calculate the adjusted odds ratio.

28 can not assess some of the mental disorders such as Axis 2 disorders, Traumatic life events, etc. soIt should be noted that, these disorders can play important roles in attempting to suicide.

We collected the history of suicide attempts retrospectively thereforeretrospectively; therefore, the participants might have been reluctant to answer to the questions mainly due to variety of affective state.

We didn't did not collect data on some factors that other studies showedreported that havetheir effect on suicide attempt like such as familial history of the suicide attempt and using antidepressant drugs.

As Further, we should had to select the attempters from the emergency wards, so we couldn't could not exactly match the characteristics of this group to non-attempters precisely.

Conclusion

This study indicated that the prevalence of suicide ideation is 10% in total: 48.3% in suicide attempters and 7.33% in non-attempters. Being female, young, single, more educated, and less religious, living in urban areas, opium use and having nervousness and psychiatric diseases were associated with suicide attempt. The results demonstrate that suicide ideation and attempt are common in Kerman; and their recognition is important.

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