

## An Annual Survey of Successful Suicide Incidence in Hamadan, western Iran

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### Abstract

**Background:** Suicide has constituted a critical public health problem for many decades. The number of completed suicide is traditionally high in Iran. The objective of the present study was to describe the patterns of methods of suicide among registered deaths due to suicide in Hamada, western Iran

**Methods:** In this cross-sectional study, all completed suicide cases (n=146) were included from March 2004 through March 2005 based on Hamadan's Forensic center registered deaths because of suicide. Supplementary data were gauged through a questionnaire from the attempters' relatives. All statistical analyses were performed using version 13 of the statistical software package SPSS and an alpha level of .05 for all statistical tests.

**Results:** Prevalence of completed suicide was 8.3 per 100,000 in Hamadan, Iran. From 146 cases, the male-to-female ratio was 7.1:1. Average age of cases was 33.9 yr (Min=10, Max=94) across all age groups, males show consistently higher completed suicide rates than females. Of the 69.2% were from urban population versus 30.8% from rural population. The most common method of suicide was hanging (78.1 %). Other common methods were poisoning (11.6%), and self-burning (6.2%).

**Conclusion:** Suicide rate in Hamadan is high among males through hanging which can be due to substance dependency and unemployment.

**Keywords:** *Suicide, Substance dependency, Suicide method, Mental disorders, Iran*

### Introduction

Suicide is referred to conscious or semiconscious destruction of individual who chose suicide as the best method due to various ailments and commit it (1). Retterstol offers a more detailed definition: An act with a fatal outcome, which is deliberately initiated and performed by the deceased him- or herself, in the knowledge or expectation of its fatal outcome, the outcome being considered by the actor as instrumental in bringing about desired changes in consciousness and/or social conditions (2). There are many different methods and means of deliberate self-injury according to geographical region, social factors and gender (3). It is

well known that availability of means to commit suicide has a major impact on actual suicides in any region (4). The incidence, pattern and trends of suicide differ considerably between Asian and Western countries. They also differ considerably between Asian countries and regions (5).

In the last 45 yr, suicide rates have increased by 60% worldwide. Suicide is now among the three leading causes of death among those aged 15-44 yr (both sexes). In the year 2000, approximately one million people died from suicide and global mortality rate of suicide is estimated 16 per 100,000 (6). The rate of successful suicide was 5.7 cases in every

100,000 for males versus 3.1 for females in Iran. Moreover, western provinces of Iran have a high proportion of suicide, while the suicide ratio was the highest in Hamadan (7). There are various factors influencing suicide amongst different counties and cultures and the objective of the present study was to describe the patterns of methods of suicide among registered deaths due to suicide in Hamada, Iran.

**Material and Methods**

This cross-sectional study was done in Hamadan Province, West of Iran. All successful suicides in the 1 yr period from March 2004 through March 2005 obtained from Forensic Center of Hamadan, Iran (ICD codes E950.0-E959.9). There were 146 cases of completed suicide in Hamadan Province in 2005; all of them were referred to Forensic Center and consequently death reason was confirmed based on forensic medicine's specialists as suicide. A special checklist was applied to study the mental health and socio-demographic status of the cases. Factors recorded included age, gender, educational and marital status, methods of suicide, history of addictions, and psychological and organic disorders.

All statistical analyses were performed using version 13 of the statistical software package SPSS and an alpha level of .05 for all statistical tests.

**Results**

Mortality rate of suicide was estimated 8.3 per 100,000. Among all of the suicide cases, 87.7% of cases were male which male to female ratio for suicide was estimated 7.1: 1. The most cases of suicide were observed in the age of 21-30 yr (Table 1,  $P < 0.05$ ). 79.5% of cases were employed and 20.5% of them were unemployed tended to commit suicide. Regarding marital status, 49.3% were married, 43.2% were unmarried, and 7.5% were divorced and widowed ( $P < 0.05$ ). 69.2% of all suicides happened in urban area and 30.8% in the rural area and Hamadan City had the highest rate of suicide ( $P < 0.05$ ). For seasonality, the suicide rate in spring was in the highest level (28.1%) but winter was in the lowest level (21.9). The most common method for doing suicide was hanging followed by self-poisoning. In most cases (70.5%) a history of substance abuse such as marijuana or opium was observed. More than 62.3% had a history of mental disorder and 8.9% had been suffering organic disease (Table 1).

**Table 1:** Frequency of some associate factors in patients who attempted suicide

Variable	Frequency (%)	P	Variable	Frequency (%)	P	
Gender	Male	128(87.7)	Educational level	Low	20(13.6)	
	Female	18(12.3)		Intermediate	119(81.7)	$P < 0.01$
				High	7(4.7)	
Age	10-20	23(15.8)	Substance abuse	No abuse	43(29.5)	
	21-30	55(37.7)		Smoking	25(17.1)	$P < 0.01$
	31-40	25(17.1)		Opium	14(9.6)	
	41-50	25(17.1)		Alcohol & Marijuana	8(5.5)	
	51-60	8(5.5)		Heroin	6(1.4)	
More than 61	10(6.9)	Combine	50(34.2)			
Location	City	101(69.2)	Method of suicide	Hanging	114(78.1)	
	Village	45(30.8)		Poisoning	17(11.6)	$P < 0.01$
Job	unemployed	30(20.5)	Psycho logic disorder	Self-burning	9(6.2)	
	Governmental	14(9.6)		Other	6(4.1)	$P < 0.01$
	Student	10(6.8)		Depression	64(43.8)	
Season	Self-employed	92(63)	Organic disorder	Schizophrenia	12(8.2)	
	Spring	41(28.1)		Bipolar	15(10.3)	$P < 0.01$
	Summer	37(25.3)		No disorder	55(37.7)	
	Autumn	36(24.7)		Yes	13(8.9)	
Marital status	Winter	32(21.9)	Stress	No	133(91.1)	
	Married	72(49.3)		Yes	22(15.1)	$P < 0.01$
	Single	63(43.2)		No	124(84.9)	
	Widow&Divorced	11(7.5)				

## **Discussion**

Rapid increasing of completed suicide has brought with it the necessity of epidemiologic surveys in each region, on the findings of which to determine the strategies to reduce suicides. Compared with the statistics presented by Moradi and Khademi in 2000, we did not find any remarkable change in 2005 in Hamadan (7) while suicide rate in northern Thailand and the state of Osijek in Croatia is much higher than our observations (8-11). Statistic of 2000 show that men committed suicide twice as many as the women while this rate in Hamadan has hit three times. It can be compared with Serbia-Montenegro and northern Thailand where men committed twice and three times, respectively.

Our results show that men committed suicide seven times more than women did. It seems that men face more with socio-economical problems that lead to more suicide and in addition, higher incidence of substance related disorders and uncured medical diseases make the men commit suicide more than the women do.

In most countries, the age range occurs in adolescence that is compatible with our observations (8-10). In contrast with many studies reporting suicide more among single person, we found the suicide rate is higher among the married (9), the reason of which is unknown but it appears to be the unemployment, substance related disorders and economical problems.

Based on the statistics presented in Japan, suicide rate increase in April and reduces in autumn while it is higher in spring in Faisalabad of Pakistan. Our findings show a relative increase in spring (3, 11, 12).

There are many different methods for suicide, the most famous of which is device availability with the cases of hanging, self-firing, poisoning with drugs, falling from height and warm and cold weapons. Our finding show that the incidence of self-firing and hanging are more common in women and men, respectively which is compatible with those of some other studies (8,11,14).

The study performed in eight northern-east of the U.S.A shows that the most common method of completed suicide is by warm weapon, the major reason of which can be the lack of forbidding warm weapons in these regions (8). On the other hand, Iran's Forensic Center reports show that men tend to use warm weapon more (15-19).

Our survey shows that drug abuse is observed in most of the people committing suicide, which is the most important factor of suicide the history of medical disease has been observed among more than half of attempters with depression more common than other disorders.

The high rate of unemployment and financial problems are the most important predicaments of young people, which lead to disappointment and repression one hand, and marriage inability, crime increase, addiction and corruption, on the other hand, in the society that provides a ground for people to commit suicide.

Assessment of suicide risk exactly and carefully is up to a practitioner. Of ten persons committing suicide, eight persons express their intention to someone else and in 50% of completed suicides; the attempters had referred to emergency parashioners a month before. In many cases, suicide in psychic patients can be prevented with a complete resume and psychic assessment of the patients. It is not possible to prevent all suicides or totally and absolutely protect a given patient from suicide. What is possible is to reduce the likelihood of suicide for populations or subpopulations and to reduce the risk of it for a given person

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