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## Epidemiological aspects of suicide lead to death in Iranian population during 2004-2008; A retrospective study

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### ABSTRACT

Suicide is raised in many countries around the world as one of the major problems in medical and social advocacy. The increasing incidence of suicide in the community is sensible and irreparable damage to the body of a society's human resources. Therefore the present study aimed to explore the epidemiological aspects of suicide leads to death in Iranian population during 2004-2008. In a retrospective study a census sampling method was used. All records formed of suicide death in Ilam province during 2004 to 2008 in the Office of the State Coroner were evaluated. Data was collected by a checklist including age, gender, marital status, educational level, occupation, number of families, suicide instrument location of attempted to suicide, place of death and season. SPSS software Package 14 was used to analyze the data of this project. Mean  $\pm$  SD, median and percentages were used to describe the data. The average percentage of suicide lead to death in Ilam province was 18.7 per 100,000 person's. Women and men have a suicide rate roughly equal (50.8% and 49.2%). There was a significant relationship between month ( $P=0.02$ ), season ( $P=0.03$ ), the number of families ( $P=0.001$ ) and percentage of suicide lead to death. Self-burning was the most common method used by suicide lead to death. This study showed that suicide remains a serious problem and an increase occurred in suicide in Ilam province in comparison with previous years.

**Key words:** Ilam, retrospective study, suicide

### INTRODUCTION

Suicide is an act that most societies prohibit it. Many religions consider it a sin, and surprisingly, in some countries it is a crime. No act affects so bitter and lasting memorial for friends and relatives. This action leaves regret, guilt, shame and stigma that their relatives may have led it to his grave. It can be said that suicides occur in the world. But the statistics are different for countries in terms of percentage (1).

During the past 50 years, the total number of suicide has been increased globally by 60% (2). Suicide is the eighth leading cause of death in America (3). Centers for Disease Control and Prevention (CDC) introduce suicide as the tenth leading cause of death for all ages in 2013. Also, based this report happened 113 suicides each day in the United States during 2013 (4). From 2003 to 2004 suicides has increased among young women and since 2005, suicide is the third leading cause of death among all adults aged over 10 years (5). One million people commit suicide each year, and 20 million people have attempted suicide (2).

In Western countries such as Greece, Mexico and America, suicide in men and women is 3 to 5 times whereas the rate in Asian countries is twofold. But China is the only country where more women commit suicide than men (6). Since, several studies evaluated the relationship between the seasons and suicide in different locations (7-9). A study reported a high incidence of suicide in early spring and a low incidence of suicide in the winter (7).

According to the 2003 report, Ilam province had the highest prevalence rate for suicide in the Iran. So that statistically the suicide rate is 9.4 per 100.000 persons (10).

Therefore, in order to conduct a new review of the status of fatal suicides in Ilam, this study is performed. It is hoped that the results of the interventions undertaken by different organizations be considered.

### MATERIALS AND METHODS

In a retrospective study evaluated the epidemiological aspects of suicide leads to death in Ilam, Iran. The census sampling method was used and the researchers studied the records is formed of all cases, suicide deaths in Ilam province during 2004 to 2008 in the Office of the State Coroner.

Data collection was carried out by a checklist including age (4 subgroups including  $\geq 20$ , 21-30, 31-40, and  $\leq 41$ ), gender, marital status, educational level, occupation (including 6 subgroups), the number of families, suicide instrument (including 6 subgroups), location of attempted to suicide (including 5 subgroups), place of death (including 5 subgroups), season and disease was noted.

This study was undertaken with the approval of the Ethical Committee of the Ilam University of Medical Sciences, Iran. To enhance confidentiality, all checklists were completed anonymously and only required information was collected.

SPSS software Package 14 was used to analyze the data of this project. Mean  $\pm$  SD, median and percentages were used to describe the data.

### RESULTS

The results showed that the average percentage of suicide lead to death in Ilam province is 18.7 per 100,000. The percentage of suicide lead to death in Ilam province during 2004- 2008 are presented in figure 1.

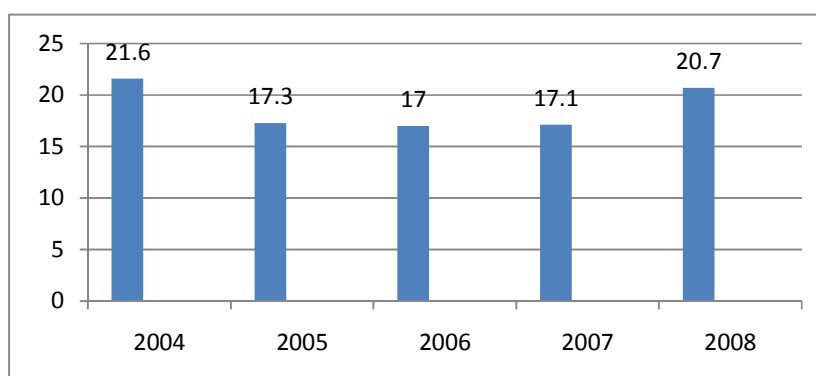


Figure 1: The percentage of suicide lead to death in Ilam province during 2004- 2008

The age group 20-30 years was the highest percentage of suicide cases with 39.2%. The percentage of suicide lead to death based the age group are presented in table 1.

**Table 1: The percentage of suicide lead to death based on the age group in Ilam province during 2004-2008**

Age group Year	Under 20	20-30	31-40	Over 41	Total
2004	31	39.1	13.8	16.1	100
2005	33	44.3	6.8	15.9	100
2006	23.5	37.7	15.6	14.3	100
2007	20.5	44.3	10.2	25	100
2008	21.7	32.1	17	29.2	100
total	27.4	39.2	12.8	20.6	100

About a third of suicide lead to death was illiterate or had primary education and 5 % of all suicide lead to death had university education. In 42% of suicide lead to death, there were no specific reasons for suicide. Females and males were 50.8% and 49.2% of suicide lead to death, respectively. In the evaluation of married status, the results indicated that 55% of all were single, 37.7% were married and the married status was unclear in 7.35 of all suicide lead to death. The percentages of suicide lead to death based on place of death are presented in tab2.

**Table 2: The percentage of suicide lead to death based on place of death in Ilam province during 2004-2008**

Place Year	In accident place	Duration transport to hospital	In hospital	Inconvalescen home	unknown	Total
2004	42	3.7	52.3	0.2	0	100
2005	42.4	11.4	46.6	0	0	100
2006	46	8	43.7	0	2.3	100
2007	57.7	10.2	34.1	0	0	100
2008	34.3	4.6	61.1	0	0	100
Total	43.5	7.3	48.3	0.2	0.4	100

The hospital has the highest percentage of place of death (48.3%). Other characteristics of suicide lead to death are presented in tab 3 -5.

**Table 3: The percentage of suicide lead to death based on occupation in Ilam province during 2004-2008**

Year	Occupation					
	Scholl student	University student	Housworker	Employment	Unemployed	Unclear
2004	19.3	2.8	36.7	2.8	15.6	22.9
2005	11.4	4.5	25	3.4	29.5	26.1
2006	9.3	2.3	32.6	4.7	27.9	23.3
2007	10.3	3.4	35.6	3.4	10.3	36.8
2008	11.2	0.9	36.4	0.9	22.4	28
5-year period	12.6	2.7	33.5	2.9	21	27.3

**Table 4: The percentage of suicide lead to death based on location of attempted to suicide in Ilam province during 2004-2008**

Year	Location of attempted to suicide				P-value
	Home	Prison	Military location	Unclear	
2004	84.1	2.8	3.7	9.3	0.001
2005	85.2	1.1	1.1	21.5	0.000
2006	75.9	2.3	4.6	17.2	0.001
2007	80.7	3.4	5.7	10.2	0.001
2008	85.2	0	1.9	13	0.000
5-year period	82.4	1.9	3.3	12.3	0.001

**Table 5: The percentage of suicide lead to death based on a suicide instrument in Ilam province during 2004-2008**

Year	Suicide instrument						P-value
	Hanging		Drug toxicity	Poisoning	Weapon	Unclear	
2004	25.2	0.001	1.9	6.5	15.9	0	0.03
2005	18.2	0.000	2.3	11.4	18.2	0	0.002
2006	29.1	0.001	2.3	14	9.3	4.7	0.001
2007	39.1	0.001	2.3	9.2	16.1	0	0.001
2008	24.1	0.000	1.9	7.4	9.3	0.9	0.000
5-year period	26.9	0.001	2.1	9.5	13.7	1.1	0.000

There was a significant relationship between the number of families ( $P= 0.001$ ) and percentage of suicide lead to death. Most suicide cases in this study were happened on May, June and July respectively. However the lowest occurred in the months leading up to the end of the year. The results showed that seasonal spring, 33.1% of summer, 26.6% for fall, 21.7% and winter, and 19.6%. There was a significant relationship between month ( $P= 0.02$ ) and season ( $P= 0.03$ ) with the suicide lead to death.

## DISCUSSION

In the present study, the epidemiological aspects of suicide lead to death have been evaluated based on data recorded in the Ilam Office of the State Coroner during 2004-2008.

The results of the present study reported that the percentage of suicide lead to death in Ilam province is 18.7 per 100.000 persons. However, the present percentage is higher than the previous study performed in 2004 in Ilam (18.7 per 100.000 persons VS 16.8 per 100.000 persons) (11).

Based the results the highest percentage of suicides leads to death was reported in the age group 20-30 years. In another report the age group 18 to 25 have the highest percentage of a suicide plan (2.5%) than the age group 26 to 49 (1.35%) and aged 50 or older (0.6%) (4)

We found that the percentage of suicides leads to death is equal among women and men. In Western countries suicide is higher among men than women, but always mortality rate is lower in women than in men. (6). Use of high risk methods including self- burning and hanging (2) is probably reason to increased the death rate in our women samples. Rocchi et al reported the higher prevalence of suicide attempts among women with mental disorders than men with similar condition (12), but also, other researchers believe that men with mental disorders, have suicide attempts more than similar women (13, 14).

In the present study the singles have a higher percentage of suicide leads to death than married. In Muslim population marriage should be a protective factor of social harm, including suicidal act. Another study confirms the effect of family factors and increased the risk of suicide (15).

Our results indicated the burning and drug toxicity, as the highest and lowest percentage of suicides leads to death in our sample study. However the use of firearms is the leading suicide method among U.S. youth. On the other hand, the suicide methods have been changed from 2003 to 2004. So that hanging increased among females aged 10-14 and 15-19 (15).

The results of present study demonstrated the spring as the most common seasonal of suicide leads to death in our study population. Some psychologists have suggested hypotheses about the possible relationship between weather and increased suicide risk (16). Although the risk of suicide is higher in summer than in other seasons (9, 17). There is a significant relationship between seasonal of suicide and mortality from suicide (12).

According to the findings, the complete suicide rate in Ilam province is twice the percentage of suicides in the country. Suicide patterns in this province have changed. Youth and Young Adults, single people, housewives and lower educated and uneducated people have committed suicide greater than other groups. The self-burning was the most used method for suicide. Most suicides were occurred in the home environment, and unfortunately, nearly half of those have died in medical centers. However, most suicides occurred in spring. These results suggest that suicide in Ilam province still faced with the dilemma that requires serious attention to the relevant authorities and families.

## CONCLUSION

This study showed that suicide remains a serious problem and an increase occurred in suicide in Ilam province in comparison with previous years.

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