

## Study of Process and Causes Related to Suicide in Ilam Province During 1992-2005

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**Abstract:** Causes related to suicide are affected by quick variations in the social, cultural and economical status of societies. Ilam province had a quick development during 2 recent decades and this phenomenon has changed the attitude of people living in this part of the country. This study aims to evaluate some variables related to suicide and compare these variables between successful and unsuccessful suicide during 1992-2005 in Ilam province. By a retrospective study, all data related to 2854 people who committed suicide during 1992-2005 was investigated in details. Definitions and their related codes for some variables in different years were justified and using ANOVA, Chi squared and logistic regression all data were analysed. Among 2845 suicide records 61/6% were female and mean age of patients was 24.8 years ( $\pm 11.2$ ). About 24.5% of all records had successful suicide and there was a significant relationship between the percentage of successful suicide and years of suicide commitment ( $p < 0.001$ ). Also there was a significant relationship between method of suicide and years of suicide commitment ( $p < 0.001$ ). The main causes related to suicide were family conflict (42.1%), psychological problems (29.7%) and physical problems (8.8%), respectively. There was a significant relationship between causes of successful suicide and years of suicide commitment ( $p < 0.001$ ). The most frequent method of suicide was using tablets (44.7%), burning by petroleum (25.2%) and toxin (21.5%), respectively. Logistic regression revealed that successful suicide was considerably affected by tools of suicide, town of living, age, cause of suicide and racial status ( $p < 0.001$ ). Causes and tools of suicide as well as place of living, educational levels and racial status of patients who committed suicide have been changed during 1992-2005 and therefore time could be considered as an important factor which should be evaluated in suicide analysis.

**Key words:** Causes of suicide, method of suicide, tools of suicide, Ilam Province, successful suicide, Tahrán

### INTRODUCTION

The incidence rate of suicide in different societies is affected by a variety of variables, one of which is time passing. Transition from a traditional culture to industrial living is accompanied with a higher communication and using a modern technology that will considerably effect on people attitude and their life expectations.

In the industrial societies people will face with different difficulties including economical crises, psychic forces, limitations, hopelessness, fails and refractory disorders. Traditional norms are stepped down in the industrial societies without a new substituted norm and people therefore are confused in these conditions which results in changing of the life behaviours (Thanh *et al.*, 2006). As a defence mechanism, people try to find a way to escape from these conditions. As a fact people show different emotional feelings, when face to an unusual problem and may not be able to adapt to a new or difficult status and therefore one of their reactions for escaping

from hard conditions could be suicide. Depression, disappointment and thinking about suicide are disorders which people may face with in difficult conditions. Eschtan Meier said, suicide is a cognitive action that could be considered as a multifactorial discomfort in a needy human who thinks that he has chosen the best solution for his problem. According to WHO definition, suicide is a cognitive action that results in a death which is occurred by someone who attempts to kill himself (Bertolote, 1993). Suicide is the only and ultimate way that is selected by an individual who tries to kill himself.

Emil Dorkim said suicide term attributed to those deaths which directly or indirectly are occurred as a result of a positive or negative action of an individual who knows that his action will results in his death (Shirzad and Gharadaghi, 2006). The total number of suicide has been increased globally by 60% during the past 50 years and about one million people commit suicide annually. The mean number of suicide in the world accounts for 16 /100,000 populations and averagely one patient commits

suicide in every 40 sec. According to the global statistics, suicide is the 3rd cause of death among youth and young populations in most of the countries and it is totally considered as the 8th cause of death in the world.

Previous studies have reported a prevalence rate of 9.4/100,000 population in Iran for suicide and one of the highest prevalence rates has been attributed to Ilam province in the recent years. According to the 2003 report, Ilam province had the highest prevalence rate for suicide in the country (Ghoraishi and Mosavinasab, 2007).

Rose suggested three main causes for suicide including psychic diseases, social problems and organic or physical problems. Psychic diseases which can result in suicide include: depression, schizophrenia, personal disorders, alcoholism, addiction etc.

Social problems include Limitations, lack of occupation, industrial life, homelessness, losing beloveds, loneliness, seclusion etc. and physical problems include: malignancy, chronic diseases, organ failures etc. (Shirzad and Gharadaghi, 2006).

Depending on varieties of cultures in the societies and accessibility of tools, selected methods for suicide have been different. A lot of methods have been selected for suicide among which the most frequently used methods includes submerging, execution, suffocation, electric shock, toxicity, cutting the blood vessels, self-burning, etc. (Aghabigloei *et al.*, 2001). Self-burning is one of the brutal ways to end the life that is mostly selected by patients for this purpose.

Patients burn their bodies in this method cognitively to end their lives (Enaiati *et al.*, 2005). Unfortunately self-burning is happened among young and married patients and it results in a sort of psychic, social, individual and economical problems for patients and their families. Also, self-burning causes either superficial or deep burn that results in patient's torture and in case of salvation, patients will face to a lot of psychic and physical complications (Enaiati *et al.*, 2005).

After Iran-Iraq war, Ilam Province has been faced to a quick variation in its social, cultural and economical structures which has effected on the attitude of its population and consequently on the causes of suicide in this province.

This study aims to evaluate the causes, methods and variables related to suicide and compare these variables between successful and unsuccessful suicide during 1992-2005 in Ilam Province.

## MATERIALS AND METHODS

All suicide records between 1992-2005 were taken from statistic directorate of Ilam University of Medical

Sciences. Epidemiological variables as well as causes, methods and outcomes of suicide among 2854 people who committed suicide during 1992-2005 have been extracted. All definitions and variables codes have been uniformed for different years and were entered into SPSS version 12.0. ANOVA, Chi squared and logistic regression were used to analyse the data and a  $p < 0.05$  was considered as a statistical significant level.

## RESULTS AND DISCUSSION

Among 2845 records for suicide in Ilam Province during 1992-2005, 61/6% were female and mean age of patients was 24.8 years (SD 11.2). The mean age for half of the patients was  $>22$  years and about 83% of all patients had equal or  $>30$  years old. Age distribution has not been changed during study period ( $p < 0.11$ ). The suicide rate in Ilam Province had an increasing trend during study period. Suicide incidence rate was 2.1/100,000 population in 1992 however, it was 68/100,000 population in 2005 (Fig. 1).

Totally 2665 patients had their records for year and outcome of suicide among which 24.5% showed successful suicide and there was a significant relationship between year and percentage of successful suicide ( $p < 0.001$ ) (Table 1).

The main causes related to suicide were family conflict (42.1%), psychological problems (29.7%) and physical problems (8.8%), respectively. There was a significant relationship between causes of successful suicide and years of suicide commitment ( $p < 0.001$ ) (Table 2). The most frequent method of suicide

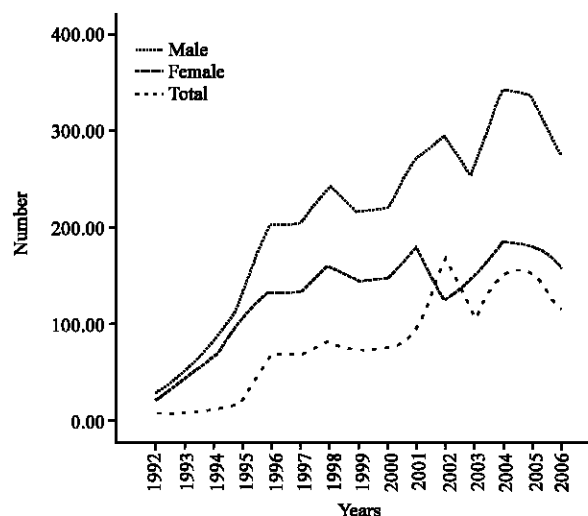


Fig.1: The number of suicide in Ilam Province during 1992-2005 according to male and female

Table 1: Frequency of suicide in Ilam Province between 1992-2005 according to year and outcome of suicide

Years	Outcome of suicide		Total
	Successful	Unsuccessful	
<b>1992-2001</b>			
Number	414.0	1067.0	1481
Percentage	28.0	72.0	100
<b>2002</b>			
Number	51.0	202.0	253
Percentage	20.2	79.8	100
<b>2003</b>			
Number	64.0	277.0	341
Percentage	18.8	81.2	100
<b>2004</b>			
Number	61.0	260.0	321
Percentage	19.0	81.0	100
<b>2005</b>			
Number	62.0	207.0	269
Percentage	23.0	77.0	100
<b>Total</b>			
Number	652.0	2013.0	2665
Percentage	24.5	75.5	100

Pearson Chi-Square = 23.7, p<0.001

was using tablets (44.7%), burning by petroleum (25.2%) and toxin (21.5%), respectively. There was a significant relationship between method of suicide and year of suicide commitment (p<0.001).

About 61% of patients were single and there wasn't a significant relationship between marriage status and year of suicide commitment (p<0.92). There was a significant relationship between educational level and year of suicide commitment (p<0.001). Since 2001 the suicide commitment has been increased among those with higher educational level (Table 3).

Regarding to racial status, amongst 2765 patients for whom this information has been recorded, 66.6% were Kord, 19.6% were Lor and 13.8% were from other nations (Table 4). There was a significant relationship between racial status and year of suicide commitment (p<0.001). Logistic regression revealed that successful suicide was considerably affected by tools

Table 2: Frequency of suicide in Ilam Province between 1992-2005 according to year and outcome of suicide

Year of suicide	Cause of suicide							Total
	Family conflict	Miscellaneous	Educational problems	Physical problems	Psychic problems	Economical problems	Unknown	
<b>1992-2001</b>								
Number	567.0	15.0	63.0	29.0	475.0	52.0	182.0	1383
Percentage	41.0	1.1	4.6	2.1	34.3	3.8	13.2	100
<b>2002</b>								
Number	126.0	47.0	7.0	2.0	65.0	6.0	0.0	253
Percentage	49.8	18.6	2.8	0.8	25.7	2.4	0.0	100
<b>2003</b>								
Number	39.0	23.0	6.0	191.0	75.0	1.0	6.0	341
Percentage	11.4	6.7	1.8	56.0	22.0	0.3	1.8	100
<b>2004</b>								
Number	183.0	38.0	0.0	3.0	95.0	13.0	3.0	335
Percentage	54.6	11.3	0.0	0.9	28.4	3.9	0.9	100
<b>2005</b>								
Number	172.0	33.0	1.0	2.0	57.0	6.0	1.0	272
Percentage	63.2	12.1	0.4	0.7	21.0	2.2	0.4	100
<b>Total</b>								
Number	1087.0	156.0	77.0	227.0	767.0	78.0	192.0	2584
Percentage	42.1	6.0	3.0	8.8	29.7	3.0	7.4	100

Table 3: Frequency of suicide in Ilam Province between 1992-2005 according to year of suicide and educational level

Years	Educational level					Total
	Uneducated	Primary education	Secondary education	Diploma	Student	
<b>1992-2001</b>						
Number	377.0	312.0	344.0	475.0	53.0	1561
Percentage	24.2	20.0	22.0	30.4	3.4	100
<b>2002</b>						
Number	53.0	30.0	46.0	112.0	9.0	250
Percentage	21.2	12.0	18.4	44.8	3.6	100
<b>2003</b>						
Number	41.0	37.0	74.0	49.0	101.0	302
Percentage	13.6	12.3	24.5	16.2	33.4	100
<b>2004</b>						
Number	46.0	28.0	76.0	100.0	23.0	273
Percentage	16.8	10.3	27.8	36.6	8.4	100
<b>2005</b>						
Number	517.0	407.0	540.0	736.0	186.0	2386
Percentage	21.7	17.1	22.6	30.8	7.8	100

Pearson Chi-Square = 384.7, p<0.001

Table 4: Frequency of suicide in Ilam Province between 1992-2005 according to year of suicide and their racial status

Years	Race			Total
	Kord	Lor	Others	
<b>1992-2001</b>				
Number	1154.0	57.0	350.0	1561
Percentage	73.9	3.7	22.4	100
<b>2002</b>				
Number	123.0	128.0	2.0	253
Percentage	48.6	50.6	0.8	100
<b>2003</b>				
Number	173.0	168.0	0.0	341
Percentage	50.7	49.3	0.0	100
<b>2004</b>				
Number	176.0	107.0	54.0	337
Percentage	52.2	31.8	16.0	100
<b>2005</b>				
Number	181.0	73.0	19.0	273
Percentage	66.3	26.7	7.0	100
Total				
Number	1807.0	533.0	425.0	2765
Percentage	65.3	19.3	15.4	100

Pearson Chi-Square = 719.7, p<0.001

of suicide, town of living, age cause of suicide and racial status (p<0.001) (Table 5). According to the results of this study, the probability of death among those who selected petroleum was about 29 times more than those who selected tablets for suicide.

Compare to other causes of suicide those for educational problems showed a higher probability to survive after suicide commitments. Along with every year increasing in the age of patients, the probability of successful suicide has been increased by 20%.

This study revealed that 1 out of 4 patients who committed suicide resulted in death. A study by Lambrous has reported that the number of patients who committed suicide was 3 times more than those who had a successful suicide (Keinia, 2002). The current study showed that women had 1.6 times more successful suicide than men with a significant difference (p<0.001). This finding is in contrast to other studies which reported a higher successful suicide among men than women (Hymen, 1998; Kaplan and Sadock, 2007; Naghavi, 2003). One of the main higher causes of successful suicide among women than men in this study could be related to the higher rate of self-burning among women than men in Ilam province. About 33% of all suicides among women accounted for self-burning, however this figure among men was only 12.3%.

Other studies have reported that the most common methods of suicide among men were execution, gunshot, jumping from a height and the most common methods among women were using tablets and toxins (Shirzad and Gharadaghi, 2006; Hymen, 1998; Kaplan and Sadock, 2007). The methods of suicide reported by other studies are different from the results obtained by the current study.

Table 5: Logistic regression results of suicide in Ilam Province between 1992-2005 according to causes and tools of suicide and their racial status

Factor related to successful suicide	OR	95% CI	p-value
<b>Tools of suicide</b>			
Ref.	0.0001	-	-
Tablets	5.5	3.1-10.0	0.0001
Toxin	2.1	1.4-3.3	0.0001
Cord	18.8	8.6-41.2	0.0001
Knife	3.1	0.9-9.7	0.06
Gunshot	14.4	5.2-39.4	0.0001
Petroleum	28.8	20.1-41.2	0.0001
<b>Causes of suicide</b>			
Ref.	0.001	-	-
Others	2.7	1.5-4.7	0.001
Educational problem	1.4	0.6-3.2	0.4
Physical problem	1.4	0.8-2.6	0.2
Psychic problem	1.0	0.7-1.4	0.9
Economical problem	1.5	0.7-3.4	0.3
Unknown	2.1	1.4-3.4	0.001
<b>Racial status</b>			
Ref.	0.02	-	-
Kord	1.0	0.7-1.5	0.9
Lor	0.4	0.2-0.9	0.01
<b>Place of living</b>			
Ref.	0.0001	-	-
Ilam	1.1	0.7-1.8	0.7
Abdanan	0.5	0.2-1.2	0.1
Daresshahr	0.6	0.3-1.1	0.1
Aivan	0.4	0.2-0.7	0.002
Shirvan chardavel	1.2	0.6-2.3	0.6
Mehran	2.0	0.9-4.3	0.07
Dehloran	0.5	0.2-1.3	0.2
<b>Age</b>			
Age	1.0	1.0-1.03	0.001
Constant		0.0001	-

The most important causes of suicide in Ilam province were family conflict (42.1%), psychic problems (29.7%) and physical problems (8.8%), respectively. A study by Shirzad and co-workers found that the main causes of suicide were psychic disorders (41%), economical problems (31%) and family conflict (13%), respectively. The causes of suicide in the other studies are almost similar to those in the current study but the percentages attributed to these causes are different. Family conflict as the main cause of suicide is a multifactorial variable and it should be investigated in more details in the future studies.

## CONCLUSION

According to logistic regression analysis, successful suicide was affected by tools of suicide, city of living, age, cause of suicide and race. Causes and tools of suicide as well as educational level and racial status have been changed in Ilam province during study period and therefore, the factor of time should be considered as an important factor in suicide analysis. The results of this study can be used for prevention purposes, reduction or

elimination of causes related to suicide by responsible organisations. Also, high risk families should be identified and referred to the consultative centres.

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