



## Trends of Suicide Attempts and Completed Suicide in Ilam Province of Iran; A Demographic Analysis Study

Yousef Veisani<sup>1</sup>, Ali Delpisheh<sup>2</sup>, Fathola Mohamadian<sup>3\*</sup>, Reza Valizadeh<sup>4</sup>

<sup>1</sup>Psychosocial Injuries Research Center, Ilam University of Medical Sciences, Ilam, Iran

<sup>2</sup>Department of Clinical Epidemiology, Ilam University of Medical Sciences, Ilam, Iran

<sup>3</sup>Department of Psychology, Psychosocial Injuries Research Center, Ilam University of Medical Sciences, Ilam, Iran

<sup>4</sup>Department of Psychiatry, Psychosocial Injuries Research Center, Ilam University of Medical Sciences, Ilam, Iran

\*Corresponding author: Fathola Mohamadian

Address: Department of Psychology, Psychosocial Injuries Research Center, Ilam University of Medical Sciences, P.O. Box: 69311-63545, Ilam, Iran.

Tel/Fax: +98-84-32240404

e-mail: mobinmohamadian@yahoo.com

Received: February 21, 2018

Revised: May 20, 2018

Accepted: May 21, 2018

### ABSTRACT

Suicide is a serious public health concern in the world. Epidemiologists are considered the mainstay of the management of problem. The purpose of this study was to investigate the trend of suicide (attempts and completed) by age and gender in a 6-year time period and to compare the suicide rates between in age and gender groups in Ilam. In this cross-sectional study, a total of number of suicidal attempts during a 6-year period from 2011 to 2016 were recorded. The data were derived from the systematic registration suicide data (SRSD) which collects official statistics from the Ilam University of Medical Sciences. Suicide rate in period of the study in men was reported to be 24.0 in 2011 to 17.9 in 2016 per 100,000 populations; also this rate in women was between 16.2 in 2011 to 7.3 in 2016 per 100,000 populations. Trend analysis revealed a decreasing trend ( $r = -0.82$ ,  $p = 0.043$ ), in attempts, as well as completed suicides ( $r = -0.53$ ,  $p = 0.048$ ). The current data demonstrated a decreasing trend in both attempts and completed suicide rates from 2011 to 2016. Also we found that the rate of completed suicide in all age groups were higher in men compared to women.

**Keywords:** Attempts; Suicide; Trend; Gender; Age.

Please cite this paper as:

Veisani Y, Delpisheh A, Mohamadian F, Valizadeh R. Trends of Suicide Attempts and Completed Suicide in Ilam Province of Iran; A Demographic Analysis Study . *Bull Emerg Trauma*. 2018;6(3):245-248. doi: 10.29252/beat-060310.

Suicide is defined as an intentional act of self-killing [1]. In 2015, there were 800,000 new recorded cases of suicide globally. The global incidence of suicide in same year was 10.7 per 100,000 people (13.6 men and 7.8 women). The rate of suicide in Iran has been reported to be 3.6 per 100,000 people in both genders annually, that is lower than the global

suicide rate [2]. Therefore, suicide is serious public health concern that needs more attention. Previous report in Ilam province has shown that the suicide rate was 19.53 per 100,000 in 2016 [3]. Previous studies revealed that suicide is more common in men [4]. Others have shown that suicide occur more oftenly in older people [5, 6]. The 15-24 aged groups

has been reported to have the highest rate of suicide per 100,000 people in Iran [7]. The purpose of the study was to investigate the trend in suicide rate according to the age and gender and also to compare the suicide rate between different age and gender groups in Ilam.

In this cross-sectional study, the total number of attempts and completed suicides during a 6-year period from 21 March 2011 to 21 March 2017 were included in the current study. Data was derived from the systematic registration suicide data (SRSD) which collects official statistics from the Ilam University of Medical Sciences. In the second step, completed suicides were added to SRSD by Forensic Medicine Organization. The incidence rate was calculated per 100,000 populations per year. The incidence was also compared between age and gender groups. All analysis was performed using statistical software package STATA for Windows version 11.2 and statistical package for social sciences (SPSS Inc., Chicago, Illinois, USA) version 21. Data are presented as mean±SD and proportions as appropriate. A 2-sided p-value of less than 0.05 was considered statistically significant.

The attempts and completed suicidal rates by gender are shown in Table 1. Attempts; the results indicate that the attempts in men ranged from 177.9 to 172.2 per 100,000 populations per year in the study period.

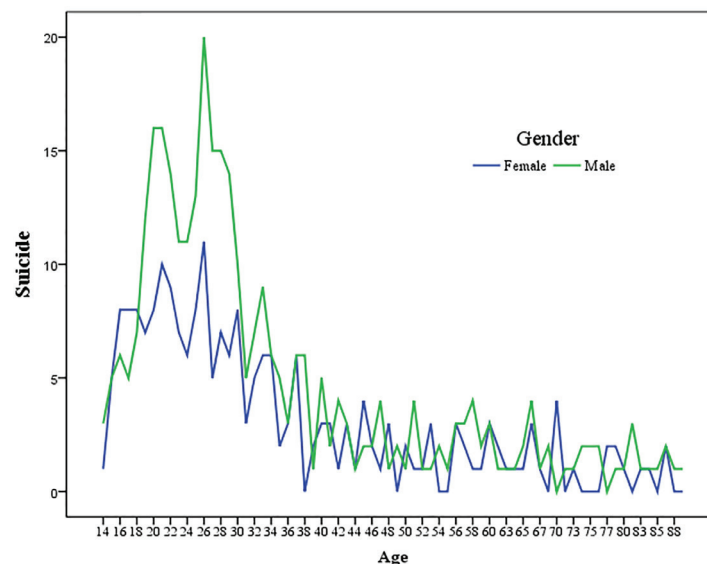
The highest rate occurred in 2012 (232.0 per 100,000) and lowest in 2014 (168.0 per 100,000). Attempts in women ranged from 221.1 to 144.9 per 100,000 populations per year in the study period. The highest rate occurred in 2011 (272.2 per 100,000) and lowest in 2016 (144.9 per 100,000). The overall attempts rate was higher in women compared to men (219.4 per 100,000) and (191.1 per 100,000), respectively. The total number of attempt in the 6-year period was 205.2 per 100,000 in both genders. Suicide rate in period of the study in men was reported to be 24.0 in 2011 to 17.9 in 2016 per 100,000 populations; also this rate in women was between 16.2 in 2011 to 7.3 in 2016 per 100,000 populations. The incidence rate of the completed suicide was significantly higher in men compared to women (18.7 vs.14.3 per 100,000 per year;  $p=0.003$ ).

Figure 1 shows the trends in suicide by age and in both genders from 2011 to 2016. The attempts and completed suicidal rates by all age groups is shown in Table 2. The highest attempts rate per 100,000 people was observed in 15-24 age groups (663.4 per 100,000) and the lowest was observed in <15 age groups (18.4 per 100,000). The overall suicide rate per 100,000 people in <15, 15-24, 25-44, 45-64, and 65+ year age groups were 0.50, 33.9, 18.8, 12.7 and 28.8, respectively. Trend of suicide and attempt per 100,000 people between 2011 and 2016 are shown in Figure 2.

**Table 1.** Attempts/completed rates by gender in Ilam province between 2011 and 2016

Acts/Gender		year										Total		
		2011		2011		2013		2014		2015			2016	
		N	Rate	N	Rate	N	Rate	N	Rate	N	Rate		N	Rate
Attempts	Male	504	177.9	664	232.0	576	199.1	491	168.0	594	201.1	510	172.2	191.1
	Female	597	221.1	743	272.2	671	243.1	635	227.6	586	207.7	413	144.9	219.4
	Total	1101	199.5	1407	251.1	1247	221.1	1126	197.8	1180	204.4	923	158.5	205.2
Suicide	Male	68	24.0	52	18.1	54	18.6	60	20.5	46	16.1	44	14.9	18.7
	Female	44	16.2	39	14.2	31	11.2	44	15.7	36	12.7	21	7.3	14.3
	Total	112	20.1	91	16.1	85	14.9	104	18.1	82	14.2	65	11.1	16.5

<sup>a</sup>per 100,000 people

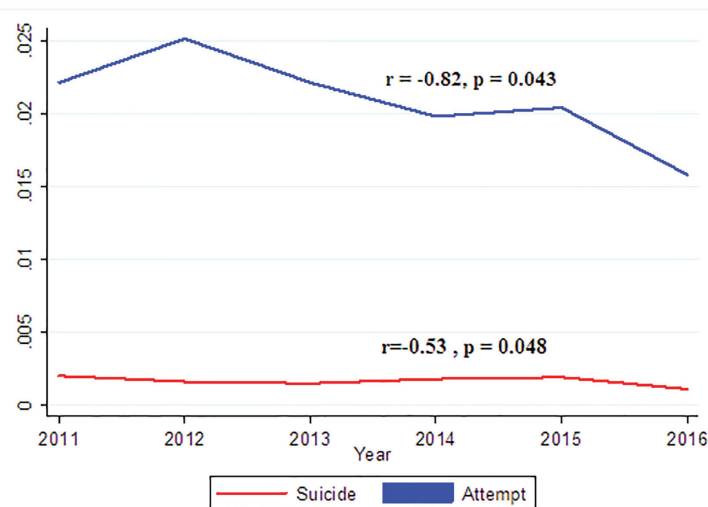


**Fig. 1.** the distribution of suicide by age in both genders

**Table 2.** Attempts/completed rates by age groups in Ilam province between 2011 and 2016

Acts/Age groups		year												Total
		2011		2012		2013		2014		2015		2016		
		N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	
Attempts	<15	37	28.2	16	12.2	26	20.1	26	19.5	24	17.8	17	12.6	18.4
	15-24	657	466	808	757.4	658	748.5	565	642.2	600	672.2	464	520.0	663.4
	25-44	422	194.9	515	237.9	492	224.2	478	217.8	484	217.4	397	170.2	210.4
	45-64	18	19.0	61	64.4	54	56.2	47	48.9	58	59.6	87	89.4	56.2
	65+	10	32.1	10	32.0	17	52.9	10	31.1	14	43.0	8	24.5	34.1
Suicide	<15	0	0	1	0.76	0	0	1	0.75	1	0.78	1	0.76	0.50
	15-24	49	56.4	31	35.7	26	29.5	32	36.3	28	31.3	13	14.5	33.9
	25-44	56	25.8	40	18.4	34	15.5	46	20.9	36	16.1	37	16.6	18.8
	45-64	10	10.5	12	12.6	17	18.2	17	17.7	9	9.2	8	8.2	12.7
	65+	7	22.5	7	22.1	8	21.6	8	24.9	10	30.7	5	15.3	22.8

<sup>a</sup>per 100,000 people

**Fig. 2.** Trend of attempts/completed rates per 100,000 people in Ilam province between 2011 and 2016

Trend analysis demonstrated that attempts rate significantly decreased during the study period ( $r=-0.82, p=0.043$ ). Also the variations of completed suicide in the time period of the study decreased significantly ( $r=-0.53, p=0.048$ ).

In the current study we have demonstrated that the incidence rate of both attempts and completed suicides decreased significantly during the 6-year period of the study. Our results showed that in all years of study period (except 2016) the rate of attempts was higher in women compared to men. The results are consistent to current trend of attempts in Iran according to existing literature. In one study that conducted in Hamadan province in 2012, it was demonstrated that majority of attempts occurred in women [8]. In Zahedan city, in 2014, 65%, and in Kermanshah city 62% of attempts were women [9, 10]. Some factors have been shown that related to more frequency of attempts in women including, hormonal changes especially in girls [11], and severe morbidity of mental disorders in women [12].

Our results demonstrated that attempt rate per 100,000 was decreasing in over the time period of the study in both genders (2011-2016). This finding is consistent to global trend of suicide [2]. The important global strategies leading to reduced

suicide rate include the restrictions and limiting access to pesticides, and development of medical emergencies toward suicide [13]. According to our finding the highest attempts and completed rates was observed in 15-24 age groups and, the lowest was observed in <15 age groups. Previously, similar results have been reported from different geographic and ethnic regions of Iran [7-9]. Socioeconomic factors such as educational level and income level was the important factors related to suicide in Iran [8, 9]. In place of our study inequality in age between attempters [14] and also inequality in addiction and mental disorders has been reported [4]. In USA, some factors were linked to the high prevalence of suicide in young people aged 15-19 including school concerns. Legal/disciplinary problems, Family conflict, and mental health conditions such as depression [15].

In conclusion, our results demonstrated that the incidence rates of both completed and attempts of suicide have decreased significantly from 2011 to 2016 in Ilam province of Iran. The completed rate of suicide was significantly higher in men when compared to women.

**Conflicts of Interest:** None declared.

## References

1. Mergl R, Koburger N, Heinrichs K, Szekely A, Toth MD, Coyne J, et al. What Are Reasons for the Large Gender Differences in the Lethality of Suicidal Acts? An Epidemiological Analysis in Four European Countries. *PLoS One*. 2015;**10**(7):e0129062.
2. In: World Health Organization. Suicide rates, Suicide rates (per 100 000 population). [Accessed: 2017] Available from: [http://www.who.int/gho/mental\\_health/suicide\\_rates/en/](http://www.who.int/gho/mental_health/suicide_rates/en/).
3. Veisani Y, Delpisheh A, Sayehmiri K, Moradi G, Hassanzadeh J. Suicide Attempts in Ilam Province, Western Iran, 2010-2014: A Time Trend Study. *J Res Health Sci*. 2016;**16**(2):64-7.
4. Veisani Y, Delpisheh A, Moradi G, Hassanzadeh J, Sayehmiri K. Inequality in Addiction and Mental Disorders in 6818 Suicide Attempts: Determine of Positive Contribution of Determinants by Decomposition Method. *Iran J Public Health*. 2017;**46**(6):796-803.
5. Baker SP, Hu G, Wilcox HC, Baker TD. Increase in suicide by hanging/suffocation in the U.S., 2000-2010. *Am J Prev Med*. 2013;**44**(2):146-9.
6. Nock MK, Borges G, Bromet EJ, Cha CB, Kessler RC, Lee S. Suicide and suicidal behavior. *Epidemiologic reviews*. 2008;**30**(1):133-54.
7. Afghah S, Aghahasani M, Noori-Khajavi M, Tavakoli E. Survey of suicide attempts in Sari. *Iranian journal of psychiatry*. 2014;**9**(2):89.
8. Amiri B, Pourreza A, Rahimi Foroushani A, Hosseini SM, Poorolajal J. Suicide and associated risk factors in Hamadan province, west of Iran, in 2008 and 2009. *J Res Health Sci*. 2012;**12**(2):88-92.
9. Sadeghi S, Heydarheydari S, Darabi F, Golchinnia A. Suicide Attempts Among Patients Admitted to Hospital of Kermanshah University of Medical Sciences. *Int J High Risk Behav Addict*. 2015;**4**(1):e23028.
10. Behmanesh Poor F, Tabatabaei SM, Bakhshani NM. Epidemiology of Suicide and its Associated Socio-demographic Factors in Patients Admitted to Emergency Department of Zahedan Khatam-Al-Anbia Hospital. *Int J High Risk Behav Addict*. 2014;**3**(4):e22637.
11. Rabbani A, Mahmoudi-Gharaei J, Mohammadi MR, Motlagh ME, Mohammad K, Ardalan G, et al. Mental health problems of Iranian female adolescents and its association with pubertal development: a nationwide study. *Acta Med Iran*. 2012;**50**(3):169-76.
12. Everett Jones S, Lollar DJ. Relationship between physical disabilities or long-term health problems and health risk behaviors or conditions among US high school students. *J Sch Health*. 2008;**78**(5):252-7; quiz 98-9.
13. Sinyor M, Tse R, Pirkis J. Global trends in suicide epidemiology. *Curr Opin Psychiatry*. 2017;**30**(1):1-6.
14. Veisani Y, Delpisheh A, Sayehmiri K, Moradi G, Hassanzadeh J. Decomposing Socioeconomic Inequality Determinants in Suicide Deaths in Iran: A Concentration Index Approach. *Korean J Fam Med*. 2017;**38**(3):135-40.
15. Cash SJ, Bridge JA. Epidemiology of youth suicide and suicidal behavior. *Curr Opin Pediatr*. 2009;**21**(5):613-9.

**Open Access License**

All articles published by Bulletin of Emergency And Trauma are fully open access: immediately freely available to read, download and share. Bulletin of Emergency And Trauma articles are published under a Creative Commons license (CC-BY-NC).