

The study of committing suicide and its related factors in a control case study

Marziyeh Hosseini¹, Reza Ghafarian Shirazi^{1,2}, Abasali Karimi¹, Mohamad Taher Rezanejad¹, Hamid Reza Ghafarian Shirazi^{3*}

¹Social Determinants of Health Research Center, Yasuj University of Medical Sciences. Yasuj, I.R.Iran

²Department of Chemistry, University of Eastern Finland, Joensuu, Finland.

³School of Public Health, Tehran University of Medical Sciences. Tehran, I. R. Iran.

*Corresponding Author: gshr3@yahoo.com

Abstract: Suicide is one of the major social and mental health problems throughout the world. Suicide is the third cause of death in adolescents and seventh in youth's death. Regarding young population of country and increase in the suicide rate in recent years it is necessary to study suicide effective factors. This study aims to determine influence of effective factors on suicide in study area. **Materials and methods:** In this evidence-based case study all suicide committers were investigated who were randomly selected in each day of a week during one year in emergency ward or hospitals of Yasuj and were consented to participate. 157 suicide and two subjects for each attempt were studied which were matched by gender and age as control. Chance and confidence interval 95% were estimated for effective factors in committing suicide. Suicide committing model was calculated and reported based on various factors using multivariate logistic regression and SPSS software. **Findings:** the widely used way for committing suicide was consuming drugs and self-immolation and the highest mortality was related to self-immolation. Suicide committing chance in individuals suffering from mental disorder, physical disorder, death of relatives, history of committing suicide, weakness in religious beliefs increases 12, 11.70, 10.75, 7.48 and 6.50 times, respectively. **Discussion and conclusion:** the most common cause of suicide as family struggles and emotional problems, so it is necessary to investigate and operate suitable and continuous solutions for prevention and care.

[Marziyeh Hosseini, Reza Ghafarian Shirazi, Abasali Karimi, Mohamad Taher Rezanejad, Hamid Reza Ghafarian Shirazi, **The study of committing suicide and its related factors in a control case study.** *J Am Sci* 2013; 9(8s):9-14]. (ISSN: 1545-1003). <http://www.jofamericanscience.org>. 3

Keywords: suicide, death, Yasuj, case control study, Odd's Ratio.

1,Introduction

Suicide is one of the major social and mental health problems in most countries especially European countries. In most countries death tolls from suicide is higher than road accident's deaths. During 2011, 5.7 suicides per 100000 men and 3.1 suicides per 100000 women have occurred in country [1]. Previous studies showed 29% of subjects had previously committed suicide. The most important factors related to suicide in most studies were family struggles (54.6%), emotional problems (18.8%), economic problems (8.3%), physical and mental problems (7.9%) and others (7.9%) and there was no certain cause in 25% of cases. Difference in suicide causes between single and married individuals was statistically significant. Difference in related factors in age group fewer than 25 and above 25 was significantly difference [2]. Eilam province has experienced significant increase in suicide phenomenon and has the highest rate of suicide in country. In a study conducted in this city all years lost because of death and disabilities related to suicide was estimated 4891 years which is equal with 9.7 years in every 1000 people. Men and women consist 36% and 64% of this ratio, respectively [3].

82.5% of successful suicides were related to women. Among effective factors on committing suicide were family struggles 49.4%, economic and social problems 16.9%, mental disorders 11%, emotional problems 15.6%, and physical disorders 2% [4].

Suicide is the third leading factor of death in adolescents and seventh factor in youths. Regarding young population of our country, increase in suicide rate in recent years, economic losses, time and costs for recovering patients it is necessary to conduct a study to determine suicide's causes [2]. This study aims to determine the influence of related factors on suicide in study group compared with control group. Although evidences imply its high rate, awareness of effective factors on committing suicide is suitable for health and care authorities of country and city in future planning. **Materials and methods:** in this control case study all suicide committers who were referred in randomly selected days in each week during a year to emergency or hospitalized in Yasuj and were consent to participate were investigated. 157 suicide committers and two neighbors were investigated which were matched by gender and age as controls. Chance and confidence interval 95% were estimated for effective factors on suicide.

Suicide committing model was calculated and reported based on various factors using multivariate logistic regression and SPSS software. In this control case study in study period which was one year a questionnaire was filled by those committed suicide and referred to emergencies or hospitalized in Yasuj in randomly selected days with informed consent. Questionnaire reliability was examined with two steps pre and post-test and experts opinion and was acceptable. Trained researcher was employed and medical ethical codes including confidentiality and other ethical codes were observed. Questionnaire was completed for two controls that were relatives or in neighborhood with patient and given factors were compared for both groups. Obtained data was analyzed using SPSS software. Significance effect of independent variables and model was calculated using multivariate logistic regression. Based on this method we can calculate probability of each dependent variable surfaces. In other words, using logistic regression and based on independent variables we can calculate two state qualitative variable surfaces which here is committing suicide (case group) or not committing suicide (control group). Independent variables were gender, struggle in family... which were included in model by input method and with variables with significant steep.

2. Findings

this study aims to determine effective factors on suicide group compared with control group. 157 cases of suicide were investigated who referred in one year to emergencies of Shahid beheshti or Imam Sajad hospitals or were hospitalized and two control for each of them that were matched by gender and age from their relatives or neighbors. 52% were female, 51% were resident in urban areas. The highest suicide commit was in 19-24 age groups and the widely used methods were consuming drugs and self-immolation. Highest mortality was because of self-immolation. Most consumes drugs were benzodiazepine 37% and Naphtali 27%. Self-immolations were committed by oil. These factors had the highest effect comparing case group with study group: mental disorder, physical disorder, death of a family member, history of suicide committing, weakness in religious beliefs 12, 11.70, 1.75, 7.48 and 6.50 times, respectively. Leading factors of suicide are husband and wife conflicts 48%, mental disease history 38%, children and parents' problems 27% and emotional problems 18%. It is clear that regarding the importance of these factors the need to planning for training or preventive actions is equal with weight effect of that factor. Suicide probability model based on effective factors was as follow: Regarding "committing suicide" model

we can estimate independent effect of suicide committing' factors in an individual.

3. Discussion and conclusion

suicide is a mental health problem which is intensified in recent century and it is important to identify its effective factors. The purpose of this study is determining effective factors of suicide committing and their intensity in case group compared with control group. In present study suicide rate resulting in death in men as 1.6 times of women rate while mean of this rate in our country for men was double as women (52) and in other countries was one to three times higher than women (43-46; 49-50; 54). In European countries women commit suicide 2 or 3 times higher than men [430]. The reason for higher rate of suicide between women is more problems, sensitivity and vulnerability against problems or gaining attention. In this study in line with other studies suicide has decreased by increasing education. The highest rate of suicide was in individuals with guidance school and elementary school education [2, 45, 48 and 52]. Based on occupation housewives have the highest suicide cases followed by unemployed persons and students. In other studies in Iran housewives had the highest cases of suicide [1-5, 12-30]. In other Islamic countries this condition holds [44, 47, 49-52] but there is no reference to it in other countries [41-44, 47-48).

Most suicide committers in this study were married although there is no significant difference, against with other studies that marriage is considered as a prohibitive factor for suicide [12, 44-46, 49-51, 56]. The most important reason for suicide was marital struggles followed by economic problems, mental disease, separation from family and death of close family members. This finding is consistent with internal studies [3, 6, 12-21]. Among those has committed suicide 20% had previous suicide, 9% had suicide in near relatives and 10% has suicide history in friends. These findings are consistent with similar foreign studies [13, 16, 52-54]. World health organization stated that suitable access to mental health services system after committing suicide is effective in reducing suicide [45, 50]. In this study most suicides were in the home and were committed by consuming drugs which is consistent with most studies [49-52]. Overdose is the leading way of suicide in Iran which is because of accessibility or lack of serious decisions [49, 46]. Most committers were in 19-24years old group, and frequent ways of suicide were consuming drugs and self-immolation. Used drugs were Naphtali 27%, benzodiazepine 37%, opium 10%, methadone 7% and other drugs 19%. Accessibility of drugs is a case which needs more attention in individuals subjected to risk.

Table 1: Comparison of effect factors in the case and control groups, to estimate odds ratios and 95% confidence interval for each of them, Yasuj July 2010.

Description	Case Number(percent)	Control Number (percent)	OR (95% CI)
Marriage	72 (46) *	138 (44)	1.08(.14, 2.03)
Differences in family	75 (48)	85 (27)	3.95(1.24, 3.69)
Difference between the child and the family	42 (48)	51 (16)	1.88(0.63, 3.15)
Mental disorder	59 (38)	15 (52)	12.00(10.63, 13.37)
Love it - emotional	28 (18)	11 (4)	5.39(3.95, 6.84)
Death of close family individuals	47 (30)	12 (4)	10.75(9.35, 12.16)
Economic Problems	61 (39)	43 (14)	4.00(2.74, 5.27)
Drug dependence	36 (23)	33 (11)	2.53(1.23, 3.84)
Physical defect	25 (16)	5 (2)	11.70(10.50, 13.35)
Religious beliefs (regardless)	28 (18)	14 (4)	6.50(5.07, 7.93)
History of attempted suicide	31 (20)	10 (3)	7.48(6.02, 8.49)
History of attempted suicide in the family	14 (9)	10 (3)	2.98(1.54, 4.51)
History of attempted suicide in Friends	3 (2)	7 (2)	0.85(1.15, 2.86)
Threats of suicide	73 (46)	52 (17)	4.38(3.13, 5.63)

Self immolation was the second way of suicide in this study which was higher than European countries and studies in our country but lower than Eilam [3, 5, 7, 9-11, 41-49]. Using materials like oil as a fuel and petrol in home is one of the effective suicide factors [50-54, 41]. High mortality has caused by self-immolation. Most self-immolations were with oil (67%) and petrol (33%). In rural areas females had high suicide rate and in cities men. Majority of females were married and males were single and this difference as significant. The most important factors of suicide were marital struggles 48%, mental disease 38%, parents and children problems 27% and emotional problems 18%. These findings were consistent with other studies in the country.

As you can see in table 2 chance of each effective factor is presented for suicide. There was no control case study in Iran about suicide which reports

chance of factors, so the results of this study were compared with similar foreign findings. Mental disorder increased chance of suicide 12 times. This is consistent with other studies [41, 48-54]. Physical disability increased chance of suicide 11.78 times. This was consistent with other studies [41-49]. Death of family members increased chance of suicide 10.75 times. This was consistent with other studies [41-47, 54]. History of suicide increased suicide chance 7.48 times. This was consistent with other studies. Weakness in religious beliefs increased chance of suicide 6.50 times. Religion is a prohibitive factor and lack of it is associated with suicide [44-45]. Emotional issues increased chance of suicide 5.39 times. This result is considered in country and neighbor countries but it is lower comparing with developed countries [41-43, 54]. History of suicide threats increased chance of suicide 4.38 times. This

holds for other countries [54, 43-41]. Economic issues which has chance of suicide 4 times higher. This result has high importance in European countries [41-49, 54]. Attention to mental health as public health and prevention of infectious disease must be considered in our country although recently department of mental health has been established in health centers of cities but their activities are limited to gathering information of reported suicides and mental disease. Attention to suggestions and programs of WHO is suitable in this regard [45].

There is not a continuous and regular attention to this problem in ministry of healthcare.

Suggestions: regarding increase in suicide rate and consequent death we present these suggestions:

1. Increasing awareness of authorities about the increase in suicide and its effective factors through workshops.
2. Increasing awareness of public about the causes of suicide and identification of effective factors through training.
3. Attention and use of WHO solutions about prevention of suicide including forming work groups, identifying vulnerable individuals and preventive measures through public and special trainings.

References:

1. Moradi S, Khademi A, Evaluation of suicides resulting in death in Iran, comparing with the world rates, *Journal of Legal Medicine of Islamic Republic of Iran* 2002;27(8): 21-16. (in Persian)
2. Rahbar M, Orang Pour R, Mousavian Roshan Zamir SA, Davam F, Survey of suicidal epidemiologic factors in emergency ward patients of Razi Hospital, Rasht, *Journal of Legal Medicine of Islamic Republic of Iran* 2004;34(10): 95-91.(in Persian.)
3. Jonghorbani M, Sharifirad G. Completed and Attempted suicide in Ilam, Iran (1995-2002): incidence and associated factors; *Archive of Iranian Medicine*, Vol.8, Num.2, 2005; 119-126.
4. Abasi A, Kamkar A, Survey of relayed factors in suicide, Kohgyloieh and Boyerahmad province, *Armaghan-Danesh Journal of Yasuj University of Medical Sciences*. 1994, Vol. 1, No 4; 15-20 (in Persian).
5. Esmaeil Nia T, Faramarzi M, Mousavi Sh, Shamsi G, Causes of attempted suicide among women of Babul town, 2001-02, *Journal of Babul University of Medical Sciences* 2005;26(7): 62-58 (in Persian).
6. Poshtmashhadi M, Molavi Nojomi M, Malakout SK, Bolhar J, Asgharzadeh Amin S, Asgharnejad Farid AA; Suicide attempt and its relation to stressors and support system: a study in Karaj City; *Tehran University Medical Journal*, 2007;4(65): 72-76
7. Knox K, Conwell Y, Caine E; If Suicide Is a Public Health Problem, What Are We Doing to Prevent It? *American Journal of Public Health*, 2004, 94 (1) 37-45.
8. Moscicki E, *Epidemiology of Suicide; International Psychogeriatrics* (1995), 7:2:137-148
9. Pritchard C. Suicide in the People's Republic of China categorized by age and gender: evidence of the influence of culture on suicide; *Acta Psychiatr Scand* 1996: 93: 362-367.
10. Bertolote MJ, Fleischmann A. A global perspective in the epidemiology of suicide. *Suicidologi* 2002, 7(2), 6-8.
11. URL: http://www.who.int/mental_health/prevention/suicide/suiciderates/en/ viewed at 12 December 2010.
12. Sayil I, Devrimci-Ozguven H; Suicide and suicide attempts in Ankara in 1998: results of the WHO/EMRO Multicentre Study of Suicidal Behavior. *Crisis*. 2002; 23(1): 6-11.
13. Lester D, Suicide and Islam, *Archives of suicide research*, 10(1), 2006(77-97).
14. K, Arensman E, Wasserman D, Hultén A, Bille-Brahe U, Bjerke T, Relation between attempted suicide and suicide rates among young people in Europe. *J Epidemiol Community Health* 1998; 52:191-194 doi:10.1136/jech.52.3.191
15. Zarghami M, Khalilian AR, *Epidemiology of committing suicide in Kordkouy, Pejohandeh Quarterly Research Journal* 2003;35(8): 370-361. (in Persian.)
16. Mousavi F, Shah Mohammadi D, Kaffashi A, *Epidemiological survey of suicide in rural areas, Quarterly Journal of Andeesheh Va Raftar* 2000;20(5): 10-4 (in Persian.)
17. Hussein Pour M, Ghaffari SM, Mehrabi Zadeh M, A study on the incentives of suicide attempts among adolescents referred to Golestan Hospital of Ahwaz in 1379-80, *Scientific Medical Journal of Ahwaz University of Medical Sciences* 2004;41(): 30-24. (in Persian)
18. Shaikholeslami H, Flahzadeh M, *Suicides referrals to the emergency clinic of Qazvin, The Journal of Qazvin University of Medical Sciences & Health Services* 1997;3(5): 30-24 (in Persian).
19. Ahmadi AM, Haji Ahmadi M, An epidemiological report on successful suicide in Mazandaran province in 1990-91, *Journal of Mazandaran University of Medical Sciences* 2000;28(10): 12-8 (in Persian.)

20. Zohoor AR, Aflatoonian MR, Epidemiological study of attempted suicide in Jiroft, Kerman (Autumn 2001), *Journal of Iran University of Medical Sciences* 2004; 38(10): 920-913. (in Persian)
21. Toobaeei Sh, Loghmani A, Yoosefian; Suicidal causes among 15 to 30 years olds in Shiraz, Southern Iran, *Iranian Journal of Medical Sciences/Vol. 24. No1, June 1999*, 14-19.
22. Moradi S, Khademi A, Evaluation of suicides resulting in death in Iran, comparing with the world rates, *Journal of Legal Medicine of Islamic Republic of Iran* 2002;27(8): 21-16. (in Persian.)
23. Rahbar M, Orang Pour R, Mousavian Roshan Zamir SA, Davam F, Survey of suicidal epidemiologic factors in emergency ward patients of Razi Hospital, Rasht, *Journal of Legal Medicine of Islamic Republic of Iran* 2004;34(10): 95-91.(in Persian).
24. Jonghorbani M, Sharifirad G. Completed and Attempted suicide in Ilam, Iran (1995-2002): incidence and associated factors; *Archive of Iranian Medicine*, 2005; Vol.8, Num.2, 119-126.
25. Abasi A, Kamkar A, Survey of relayed factors in suicide, Kohgyloieh and Boyerahmad province, *Armaghan-Danesh Journal of Yasuj University of Medical Sciences*. 1994, Vol. 1, No 4; 15-20 (in Persian).
26. Esmaeil Nia T, Faramarzi M, Mousavi Sh, Shamsi G, Causes of attempted suicide among women of Babul town, 2001-02, *Journal of Babul University of Medical Sciences* 2005;26(7): 62-58 (in Persian).
27. Poshtmashhadi M, Molavi Nojomi M, Malakout SK, Bolhar J, Asgharzadeh Amin S, Asgharnejad Farid AA; Suicide attempt and its relation to stressors
28. and support system: a study in Karaj City; *Tehran University Medical Journal*, 2007;4(65): 72-76
29. Knox K, Conwell Y, Caine E; If Suicide Is a Public Health Problem, What Are We Doing to Prevent It? | *American Journal of Public Health*, 2004, 94(1) 37-45.
30. Moscicki E, *Epidemiology of Suicide; International Psychogeriatrics* (1995), 7:2:137-148
31. Pritchard C. Suicide in the People's Republic of China categorized by age and gender: evidence of the influence of culture on suicide; *Acta Psychiatr Scand* 1996; 93: 362-367.
32. Bertolote MJ, Fleischmann A. A global perspective in the epidemiology of suicide. *Suicidologi* 2002, 7(2), 6-8.
33. URL
http://www.who.int.mental_health.prevention.suic
34. ide.suiciderates.en. viewed at 12 December 2010. 12. Sayil I, Devrimci-Ozguven H; Suicide and suicide attempts in Ankara in 1998: results of the WHO.EMRO Multicentre Study of Suicidal Behavior. *Crisis*. 2002; 23(1): 6-11.
35. Lester D, Suicide and Islam, *Archives of suicide research*, 2006; 10(1), :77-97).
36. Hawton K, Arensman E, Wasserman D, Hultén A, Bille-Brahe U, Bjerke T, Relation between attempted suicide and suicide rates among young
37. people in Europe. *J Epidemiol Community Health* 1998; 52:191-194
doi:10.1136.jech.52.3.191
38. Zarghami M, Khalilian AR, Epidemiology of committing suicide in Kordkouy, *Pejohandeh Quarterly Research Journal* 2003;35(8): 370-361. (in Persian.)
39. Mousavi F, Shah Mohammadi D, Kaffashi A, Epidemiological survey of suicide in rural areas, *Quarterly Journal of Andeesheh Va Raftar* 2000;20(5): 10-4(in Persian.)
40. Hussein Pour M, Ghaffari SM, Mehrabi Zadeh M, A study on the incentives of suicide attempts among adolescents referred to Golestan Hospital of Ahwaz in 1379-38- *Scientific Medical Journal of Ahwaz University of Medical Sciences*, 2004;41(2): 30-24. (in Persian.)
41. Shaikholeslami H, Flahzadeh M, Suicides referrals to the emergency clinic of Qazvin, *The Journal of Qazvin University of Medical Sciences & Health Services* 1997;3(5): 30-24 (in Persian).
42. Ghafarian Shirazi H.R., Hosseini M. Zoladl M. Malekzadeh M., Momeni M., Noorian Kh, Mansorian MA., Suicide in I. R. Iran, an Integrated Analysis;2012, *EMHJ • Vol. 18 No. 6*.
43. Beautrais AL, Joyce PR, Mulder RT, Fergusson DM, Deavoll BJ and Nightingale SK; Prevalence and comorbidity of mental disorders in persons making serious suicide attempts: a case-control study; *Am J Psychiatry* 1996; 153:1009-1014.
44. Andrew T. A. Cheng; Mental Illness and Suicide, a Case-Control Study in East Taiwan; *Arch Gen Psychiatry*. 1995; 52(7):594-603.
45. Lesage AD, Boyer R, Grunberg F, Suicide and mental disorders: s case- control study of young men: *Am J Psychiatry* 1994;51: 1063-1068.
46. Bertolote MJ, Fleischmann A. A global perspective in the epidemiology of suicide. *Suicidologi* 2002, arg. 7, Nr 2. (6-8).

47. URL: http://www.who.int/mental_health/prevention/suicide/suiciderates/en/
48. Sayil I, Devrimci-Ozguven H; Suicide and suicide attempts in Ankara in 1998: results of the WHO/EMRO Multicentre Study of Suicidal Behavior. *Crisis*. 2002; 23(1): 6-11.
49. Lester D, Suicide and Islam, *Archives of suicide research*, Vol 10, issue 1, 2006(77-97).
50. Hawton K, Arensman E, Wasserman D, Hultén A, Bille-Brahe U, Bjerke T, Relation between attempted suicide and suicide rates among young people in Europe. *J Epidemiol Community Health* 1998;52:191-194 doi:10.1136/jech.52.3.191
51. Jonghorbani M, Sharifirad G. Completed and Attempted suicide in Ilam, Iran (1995-2002): incidence and associated factors; *Archive of Iranian Medicine*, Vol.8, Num.2, 2005; 119-126.
52. Toobaei Sh, Loghmani A, Yoosefian; Suicidal causes among 15 to 30 years olds in Shiraz, Southern Iran, *Iranian Journal of Medical Sciences/Vol. 24. No1, June 1999, 14-19.*
53. Ghaffari-Nejad, Pouya F, Aborted suicide among psychiatric inpatients in Kerman; *Arch Iranian Med* 2002;5(4):240-243.
54. Ghafarian Shirazi HR, Hosini M, Zoladl M, Malekzadeh, M; Suicide in Iran from 1980 to 2007, an integrated analysis; *EMHJ*, 2010, 7(2), 345-349.
55. Hemmati N., Daneshamooz Badri, Panaghi Lily; prevalence of suicidal ideation in high school students Abdanan city of Ilam *New Cognitive Science journal*, 1383, vol.6, Number 1, 2, 79-86
56. Leseage A, Boyer F, Vanier C, Suicide and mental disorders: a case- control study of young men, *Am, J, Psychiatry*, 1994; 151-: 1063-1068.

7/26/2013