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Original Article

Social risk factors and outcome analysis of poisoning in an Iranian referral medical center: A toxico-epidemiological approach

Ali Mohammad Sabzghabaee[1], Marzieh Soleimani[2], Ziba Farajzadegan[1], Sarah Hosseinpoor[2], Seyyed Mohammad Mahdy Mirhosseini[2], Nastaran Eizadi-Mood[1]

[1]Isfahan Clinical Toxicology Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

[2]Department of Clinical Toxicology, Isfahan University of Medical Sciences, Isfahan, Iran

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Corresponding author:
Dr. Nastaran Eizadi-Mood,
E-mail: izadi@med.mui.ac.ir

ABSTRACT

Objective: Suicide is the second major reason of death in the age range of 15-24 and is the eighth reason for overall death of adults. Because of high accessibility of people to different medications in our society, one of the easiest ways for suicide is intentional self-poisoning with medications. Therefore, the aim of this study was to determine the rate of suicide with respect to influencing social factors on patients with intentional self-poisoning.

Methods: This was an analytic-descriptive prospective study. All study data were collected through a checklist in patients with intentional self-poisoning who had been referred to referral hospital within 2011-2012.

Findings: A total of 400 patients (60% female) were evaluated. Age average ± standard deviation of participants was 22.57 ± 9.20 years. About 78.2% had high school degree or less. Nearly 27.8% of all happened suicides take place as a result of family disputes, marital problems (21%) and poverty (11.5%). Love issues with a rate of 10.3% were set in the next step. About 23.2% had a history of a past psychological disorder. Around 97.5% of the patients survived. The shorter the time of hospitalization is for each patient, the better survival rate is obtained through post-suicidal medical care. A statistically meaningful relationship was observed between self-poisoning to commit suicide and absence of academic education ($P = 0.02$).

Conclusion: Suicide attempt through self-poisoning is more common in female, married individuals, people without academic education and those with a poor socio-economic status. Furthermore, results announce family disputes as the most pre-disposing factor for suicide.

Keywords: Intentional; medications; self-poisoning; suicide

INTRODUCTION

Determining the exact number of suicide or suicide attempts world-wide is a real challenge. Despite all international researches on its etiology, suicide and suicide attempts still has remained as a significant global health issue. According to estimates by World Health Organization, up to one million commit suicide every year. This will grow to 1.5 million per a year by the end of 2020 as is claimed in most of estimations.[1]

Although rate of suicide varies in countries, ethnic groups, based on gender or age, but still most of the studies world-wide announce it as a major reason of death, specifically in the age range of 15-35. Suicide is also claimed to be the second major reason of death in the age range of 15-24 and 8th reason for overall death of adults.[1] With very few exceptions, completed suicide is more frequent in men and the elderly in almost every part of the world, whereas suicide attempts are more frequent in women and in younger ages.[2]

There is a list of leading factors to suicide, which on top of it we see sex. Not only sex is an influential factor on suicide incidence rate, but also affects how a patient decides to do it. Patients' socio-economic status and generally their life-style also seem to

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be as important. Familial transmission, genetic predisposition and traumatic child experiences are other examples of risk factors for suicide behaviors.[1]

In a recent epidemiologic study in 2012, Wilcox *et al.*, introduced childhood living situations and environment in the form of exposure to violence and physical or sexual abuse as a leading factor to a higher possibility of future suicide behaviors. Even adoption or being born to a young mother, single mother or a mother with unstable marital status may increase the risk.[3] Links between rural living environment and suicide risk is still unclear and under negotiation.[4,5]

About 90% of suicide cases have a past history of at least one psychological disorder. Even physical burden can enhance risk of suicide committing for 2 to 100 times, based on the severity of sickness. The maximum rate is attributed to cancers, incurable or refractory disease, chronic disease and human immunodeficiency virus.[6-8]

Among all common ways to commit suicide, self-poisoning has an old history. The rate of suicide through self-poisoning highly depends on available chemicals and drugs in each country, so related to the system of prescription in the health system of a country.[8,9]

Because of high accessibility of people to different medications in our society,[10] one of the easiest ways for suicide is intentional self-poisoning with medications. For this purpose, we aim to specifically give a close watch to patients in the age range of 18 to 60 and by considering mentioned leading factors to suicide committing, which have been proposed in various studies.

METHODS

This was an analytic-descriptive prospective study performed on 400 patients with an age range of 18 to 60 who were hospitalized in Isfahan Noor Hospital (a poisoning referral hospital), with the diagnosis of intentional self-poisoning within 2011-2012 (Isfahan University of Medical Sciences, Research Project Number, 390171). Collecting data was both through the check list and patients' medical records.

After taking oral or written informed consent, patients' demographic data including age, sex, living place, occupational, educational, social and marital status as well as suicide details like its etiology, methodology and how it took place was asked through a checklist. After being referred to hospital, patients were gone through therapeutic management and after recovery they were sent for psychological consultation. Those diagnosed as intentional self-poisoning to commit suicide and hospitalized for more than 24 h were given a testimonial and after being fully explained and aware, entered in to our study. Patients discharged by its own decision were excluded from the study. All interview data were then documented and analyzed by SPSS for windows (SPSS, Chicago, IL, USA) version 17.0. Statistical-evaluating tests including Chi-square for qualitative data and ANOVA test for hospitalization period comparison were applied. $P < 0.05$ was assumed as statistically meaningful difference. For comparison between categorical data, Chi-square was performed.

RESULTS

Totally, 400 admitted patients (40% male and 60% female) were evaluated during the study period. The mean ± standard deviation (SD) age of patients was 27.57 ± 9.20 (18-60) years. The average ± SD time from ingestion to admission was 3.41 ± 0.20 (0.5-48) h.

All patients' demographic data is mentioned in Table 1. They mostly lived in towns rather than rural areas. About 87.5% of all suicides take place at home. The common route of suicide was ingestion. Approximately, 49% of all cases used one kind of a drug. The most common taken medications include benzodiazepines, opioids, analgesics and tricyclic antidepressants [Table 2].

Most of them refused to give a net reason of their suicide attempts and "etc.," were the most common given answer to questions of etiology in patients' questionnaires. Other answered reasons included family disputes, marital problems and poverty as the most common reply. Love issues were for the second score. About 23.2% had a past history of a psychological disorder [Table 3].

Our study results showed that age or sex has no significant influence on whether a patient is going to survive or not. However, patient's living place, days of hospitalization and arrival time to hospital have a great influence on this issue. Living in cities ($P = 0.006$) and shorter period of hospitalization ($P = 0.03$) were associated with a lower rate of mortality.

Among all variables, a statistically meaningful relationship was observed between self-poisoning to commit suicide and absence of academic education ($P = 0.02$).

Mean ± SD length of hospital stay was 25.34 ± 0.71 h (6-96). About 97.25% of the patients survived without complications, 0.25% survived with complications and 2.5% died.

DISCUSSION

If we assume suicide as a direct or indirect, positive

Table 1: Demographic and social factors in patients with intentional self-poisoning (*N*=400)

Variable	Number (%)
Sex	
Male	160 (40)
Female	240 (60)
Job	
Household	113 (28.2)
Jobless	64 (16)
Occupied with non-governmental career	54 (13.5)
Student at university	33 (8.2)
Student at high school	28 (7)
Worker	26 (6.5)
Driver	8 (2)
Others	22 (5)
No answer	52 (13)
Education	
Illiterate	13 (3.2)
High school degree or less	271 (67.8)
University education	79 (19.8)
No answer	37 (9.2)
Marital status	
Married	197 (49.2)
Single	173 (43.2)
Engaged	7 (1.8)
Separated	7 (1.8)
No answer	16 (4)
Income	
High income	102 (25.5)
Low income	273 (68.3)
No answer	25 (6.2)
Location	
Urban	373 (93.3)
Rural	18 (4.5)
No answer	9 (2.2)
Physical disorder history	
Yes	56 (14)
No	325 (81.2)
No answer	19 (4.8)
Psychiatric disorder history	
Yes	94 (23.2)
No	286 (71.5)
No answer	20 (5)
Life condition	
Alone	10 (2.5)
With family	363 (90.8)
With others	6 (1.5)
No answer	21 (5.2)
Patronage	
Self	51 (12.8)
Family	318 (79.5)
Friends	8 (2)
No answer	23 (5.8)

Table 2: Results of intoxication variables in patients with intentional self-poisoning (*N*=400)

Variable	Number (%)
Location of poisoning	
House	350 (87.5)
Work place	10 (2.5)
Other places	38 (9.5)
No answer	2 (0.5)
Route of poisoning	
Ingestion	391 (97.8)
Injection	4 (1)
Inhalation	3 (0.8)
Unknown	2 (0.5)
History of poisoning	
Yes	81 (20.2)
No	303 (75.8)
No answer	16 (4)
Parents history of poisoning	
Yes	10 (2.5)
No	366 (91.5)
No answer	24 (6)
Intoxication's drug	
Different medications	196 (49)
Benzodiazepines	45 (11.25)
Opioids	25 (6.25)
Analgesics	24 (6)
Tri cyclic antidepressant	17 (4.25)
Antipsychotic	12 (3)
Organophosphorus	11 (2.75)
Anti-epilepsy	6 (1.5)
Paraquate	6 (1.5)
Alcohol	4 (1)
Others	54 (13.5)
Outcome	
Recovery without morbidity	391 (97.75)
Recovery with morbidity	6 (1.5)
Mortality	3 (0.75)

or negative action, which the victim is aware of what this might result in, then not suicide itself, but the rate of suicide in a society deserves attention.[1] In social sciences, this rate is defined as a dependent variable of many independent variables including sex, age, marital status and patient's rate of involvement to social institutions such as family, religion, occupation, education and so on.[2] By this aspect of the issue, our study is aimed to negotiate both social reasons and consequences of suicide attempts through intentional self-poisoning.

Self-poisoning through drug agents was resulted as the most common way of suicide, which is also concurrent with the results of both national and international studies.[10,11] Self-poisoning through various drug agents including benzodiazepines, opioids and analgesics were reported as the three most common agents of misuse among suicide cases. However, psychotropic agents were reported as the most common desired choice of action in Masoumi's *et al.*, study.[11] The difference might

Table 3: Different social problems or personal habits in patients with intentional self-poisoning (*N*=400)

Variable	Number (%)
Marital problems	84 (21)
Disagreement with mother in low	12 (3)
Dying of relatives	5 (1.2)
Disagreement with partner's family	9 (2.2)
Unemployment	21 (5.2)
Educational difficulties	5 (1.2)
Economical poverty	46 (11.5)
Addiction	15 (3.8)
Fear of punishment from their family	2 (0.5)
Fail in love	41 (10. 3)
Family disputes	91 (22.7)
Saying prayers	174 (43.5)
Reading holly Quran	46 (11.5)
Drinking	33 (8.2)
Illicit sexual behavior	9 (2.2)
Watching international networks	171 (42.8)
Exercise	111 (27.8)
Others	129 (32.2)

be due to different target populations of the two studies as well as some groups' more awareness of psychotropic agents.[12]

The average age range for suicide through self-poisoning was concurrent to the results of Masoumi *et al*., study in year 1388 and those of others.[11] Although the number of studied females was greater in our study, no significant relation was found among sex and suicide rate. Furthermore, sex and age were found not to be connected to survival rate of patients who were admitted to hospital after suicide committing. Patients' educational status, on the other hand, showed a great connection. As is also confirmed by former studies, the connection is so explicit that if we categorize participants to two groups, with and without academic education, not only suicide rate is much more common with the group of beneath diploma, also the gap is statistically meaningful. Patients' occupational and socio-economic status can also suggest the same relationship.

The average time of hospitalization was 25 h and the average time between the time of suicide committing and initiation of hospital medical care was 3 h. Our results suggest the shorter both time of administration and hospitalization are the greater our survival rate is. Former studies approve the same data.

A great number of our study participants were rather actually unemployed or potentially unemployed (including students, soldiers and even households), so the fact that most suicides take place at home could be a leading clue for future investigations. Family disputes, marital problems, poverty and love issues were the most common reasons to suicide committing among patients.

A poor socio-economic status of a patient as a primary etiology for suicide could be rather confirmed or rejected through different studies data, as most of the suicides take place in cities in comparison with rural areas. The hypothesis is now mostly substituted with the theory of patients' poor social belonging status. If we define social belongings as the quality and quantity of patients' desired public relationships, then most of our cases are in a poor status of social belongings. This is also proved in our study, which family disputes, marital problems and love issues are announced as the three most common reasons of committing suicide. If suicide rate is defined as a negative index of a society psychological soundness, then the effect of improving individuals' social belongings on healing the matter could not be denied.[7]

Although past family history or patients' relying physical illnesses are suggested as two possible leading factors for suicide, our study results suggest them as only predisposing factors, but not direct etiology. Furthermore, the rate of both physical and psychological disorders is higher in suicide case comparing to other normal society. In Iran, there has been several reports of suicide in patients with a past history or present physical or psychological disorder.[8] International studies also report high prevalence of mood and psychotic disorders in suicide cases.[13] Furthermore, 10% of suicide attempts may lead to death in their next trials.[9]

Since each study is a result of researchers' scientific awareness as well as logistic efforts and economical investigations, our study imperfections are also the results of those mentioned defects. Some of these limitations including the absence of social experts' consultation and the impossibility to exert this, invalidity of patients' answers due to physical and psychological instability of our target population and potential insufficiency of our study sample size are necessary to mention. To fulfill all the emptiness for a comprehensive insight, designing a qualitative study on patients' mental and physical status, the quality of their suicidal thoughts and details of their social belongings as was formerly explained, is highly recommended.

AUTHORS' CONTRIBUTION

All authors have contributed in design, experiments, manuscript preparation and final proofreading.

REFERENCES

1. Hawton K, van Heeringen K. Suicide. Lancet 2009;373:1372-81.

2. Voracek M, Loibl LM. Genetics of suicide: A systematic review of twin studies. Wien Klin Wochenschr 2007;119:463-75.
3. Wilcox HC, Kuramoto SJ, Brent D, Runeson B. The interaction of parental history of suicidal behavior and exposure to adoptive parents' psychiatric disorders on adoptee suicide attempt hospitalizations. Am J Psychiatry 2012;169:309-15.
4. Joiner TE Jr, Sachs-Ericsson NJ, Wingate LR, Brown JS, Anestis MD, Selby EA. Childhood physical and sexual abuse and lifetime number of suicide attempts: A persistent and theoretically important relationship. Behav Res Ther 2007;45:539-47.
5. Jokinen J, Forslund K, Ahnemark E, Gustavsson JP, Nordström P, Asberg M. Karolinska interpersonal violence scale predicts suicide in suicide attempters. J Clin Psychiatry 2010;71:1025-32.
6. Tang J, Yu Y, Wu Y, Du Y, Ma Y, Zhu H, *et al*. Association between non-suicidal self-injuries and suicide attempts in Chinese adolescents and college students: A cross-section study. PLoS One 2011;6:e17977.
7. Conner KR, Conwell Y, Duberstein PR. The validity of proxy-based data in suicide research: A study of patients 50 years of age and older who attempted suicide. II. Life events, social support and suicidal behavior. Acta Psychiatr Scand 2001;104:452-7.
8. Hanwella R, Senanayake SM, de Silva VA. Geographical variation in admissions due to poisoning in Sri Lanka: A time series analysis. Ceylon Med J 2012;57:152-8.
9. Rezaeian M. Suicide/homicide ratios in countries of the Eastern Mediterranean Region. East Mediterr Health J 2008;14:1459-65.
10. Eizadi-Mood N, Akuchekian S, Sabzghabaee AM, Farzad G, Hessami N. General health status in a cohort of Iranian patients with intentional self-poisoning: A preventive approach. Int J Prev Med 2012;3:36-41.
11. Masoumi G, Eizadi-Mood N, Akabri M, Sohrabi A, Khalili Y. Pattern of poisoning in Isfahan. J Isfahan Med Sch 2012;29:2003-10 [Persian].
12. Borges G, Loera CR. Alcohol and drug use in suicidal behaviour. Curr Opin Psychiatry 2010;23:195-204.
13. Pritchard C, Amanullah S. An analysis of suicide and undetermined deaths in 17 predominantly Islamic countries contrasted with the UK. Psychol Med 2007;37:421-30.

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