



A Survey of the Suicidal Attempt Risk Factors in Adolescents in Southern Iran

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Abstract

Background: Nowadays, suicidal attempts of adolescents, which are done with different methods, have caused a great concern in communities. Thus, this study aimed at surveying the reasons of suicidal attempts leading to hospitalization.

Methods: This was a case-control study conducted on 300 adolescents during 1 year. In this study, 150 adolescents younger than 18 years, who were hospitalized due to suicidal attempt and referred to Nemazi hospital, were selected. After the primary measures were done and the patients gained consciousness, they were asked to fill out a questionnaire on the factors affecting suicidal attempt. Another questionnaire containing similar questions was filled out by 150 age-matched adolescents, as the control group, who referred to Nemazi hospital for problems other than suicide. The patients with chronic or advanced disease were excluded. Data were analyzed in SPSS, Version 17, using t test, chi-square, and logistic regression tests. In this study, the role of religion and beliefs in suicidal attempts was investigated.

Results: Comparison of the 2 groups revealed a significant relationship between suicidal attempt and factors such as sex (P value < 0.001), educational level (P value < 0.001), fathers' addiction (P value < 0.001), and history of imprisonment (P value < 0.001), history of suicide in the friends and relatives (P value < 0.001), maternal marital status (P value < 0.02), religious beliefs (P value < 0.001), depression in parents (P value < 0.01) and in adolescents (< 0.001), place of living (P value < 0.001), and neonatal diseases (P value < 0.017). Odds ratio of factors with significant P values were as follows: Male gender: 4.7, history of imprisonment of the father: 2.86, history of addiction in the father and mother: 1.27 and 1.26, history of neonatal disease: 1.99, remarriage of the father and mother: 2.7 and 4.35, history of depression: 2.52, place of living: 2.02, and lack of belief in Islam decree about suicide: 1.85, and lack of religious belief: 3.18.

Conclusions: According to the results, special attention should be paid to family grounds. In this respect, the role of parents and instructors is highly important. Moreover, the preventive role of religion, especially Islam, in preventing suicide is essential.

Keywords: Suicide, Adolescent, Religious Belief

1. Background

Suicide is an indecent behavior reprobed in different cultures, but it is common. In Islam, considering the value of life, suicide is forbidden and unforgiveable. In Islamic view, God is the owner of all creatures including humans and only God governs all the world and human beings.

Based on evidence, about 1 million people in the world die due to suicide. This figure is 10 times less than the real statistics reported from all around the world due to difficulty in recording and reporting suicide cases (1). On the other hand, it is reported that with one case of suicide there are usually 10 to 20 cases of suicidal attempts. The

numbers of suicide cases vary in different countries. For example, the most cases of suicide occur in Eastern Europe, ie, Litvani, Estonia, Billaross, and Russia yearly (45 cases per 100 000 people), while the least cases of suicide has been reported in Islamic countries and Iran (4.4 per 100 000 people). However, suicide in adolescents and middle aged individuals has contributed to loss of 40% of potential years of life in these age groups even in Islamic countries (2).

In Iran, suicide is ranked the fifth cause of loss of life, and self-burning is the third cause of death among women, followed by earthquake and breast cancer. The prevalence of suicide is 6.42 per 100 000 individuals yearly in Iran.

The data obtained about suicide in 2003 revealed that of a total of 4267 suicidal cases in Iran, about 34.2% were due to hanging, 27% self-burning, 18.8% poisoning with drugs or poisons, 4.6% drug abuse and addiction, 3.4% shooting, 0.7% drowning, 0.3% falls, and 10.9% other methods. According to authorities, self-burning is the most preventable attempt in Iran (3).

In a study on the risk factors of suicide in 500 randomly selected Karaji women, using Supre-Miss WHO questionnaire, the researcher reported 14%, 6.6%, and 4.1% for suicidal thoughts, suicide planning, and suicidal attempts, respectively. The participants were mostly suffering physical and mental disabilities and consumed tobacco (4).

In Iran, the number of suicide is lower than European countries but higher than other Middle East countries (5). Iran is ranked the 58th in suicide worldwide and Ilam, Kermanshah, and Hamedan show the highest reports (6).

Death due to suicide committed in 15 and 19 year olds is referred to as adolescence suicide. Nowadays, one of the issues that has caused a great concern in all groups of the society is the adolescents' suicide with different methods. Family pressures, parents' divorce, failures, adolescent loves, and even dependence on friends with the same sex are all factors playing a role. About 50% of suicidal attempts lead to death. Adolescents do not actually mean to kill themselves, rather they do this as a threat to attract the relatives' attention (1-6).

Many studies have been conducted on the reasons of suicide and considered inheritance, family, social, mental, and psychiatric factors. Most of the researchers have indicated that family disintegration, lack of a family, lack of understanding between parents, rejection by mother, lack of paternal relationship with children, orphanism, lack of father's good state and efficacy, etc. are among the definite factors, which account for suicide (1-6). The present study aimed at surveying the suicidal attempts leading to hospitalization and its reasons.

2. Methods

This was a case-control study conducted on 300 adolescents in Nemazi hospital. The cases consisted of 150 adolescents younger than 18 years referring to Nemazi hospital due to suicidal attempts using drugs, poisons, etc. A total of 150 age-matched patients referring to Nemazi hospital due to acute viral diseases or usual outpatient visits, excluding those hospitalized due to chronic or advanced diseases, were selected as the control group using simple method. After primary interventions and the patients' complete consciousness, they were asked to fill out a questionnaire, which was done through an interview with the patients in a quiet and private place. The questionnaire

contained complete information about the patient and was prepared according to pediatric psychiatrist's views on influential factors about adolescent suicide. In both groups the following factors were considered: age, sex, living place, number of family members, the patient and his/her parents' education, mental disorders in the patient and his/her parents, history of suicide in the patient or his/her parents, religious beliefs in the family, the patient's views about Islam, more specifically suicide, and history of disease during infancy. However, in the case group, in addition to the above-mentioned factors, the type and number of drugs used for suicide, reason of suicide, previous tendency, and persistent tendency toward suicide were surveyed.

Then, the role of influential factors in adolescents' suicide and its risk factors were determined and compared in both groups using statistical tests. In this study, there was also an attempt to find the role of religion and beliefs in suicidal attempts. For data analysis, we used chi-square test and logistic regression in SPSS.

3. Results

A total of 300 adolescents with the age range of 18 years participated in this study. The mean age in the case and control groups was 15.4 ± 1.47 and 14.7 ± 2.1 , respectively. Of 150 participants in the case group, 31 (21.7%) were male and 119 (79.3%) female. In the control group, 84 (56%) were male and 66 (44%) female.

In comparison, the differences in education level, living place, and history of parents' depression, history of suicide in the family members and relatives, marital status of the parents, second marriage, and history of imprisonment of the fathers were statistically significant between the 2 groups (Table 1). However, there were no significant differences between the 2 groups in parents' education level, number of family members, father's job, parents' addiction, relatives and friends' addiction, mother's history of imprisonment, effect of mass media, and history of infantile diseases (Table 1).

Odds ratio of factors with significant P values were as follows: male gender: 4.7, history of imprisonment of the father: 2.86, history of addiction in the father and mother: 1.27 and 1.26, history of neonatal disease: 1.99, remarriage of the father and mother: 2.7 and 4.35, history of depression: 2.52, place of living: 2.02, and lack of belief in Islam decree about suicide: 1.85, and lack religious belief: 3.18 (Table 2).

Comparison of both groups' wishes revealed a significant difference between the 2 groups in all factors except economic condition, appropriate job, and continuing education (Table 1). Considering the type of suicidal

Table 2. Factors with Significant P Values

Factor with Significant P Value	Exp (B)	95% C.I. for EXP (B)	
		Lower	Upper
Sex	4.34	2.33	8.13
Remarriage of mother	4.353	0.372	50.977
Imprisonment of father	2.86	0.073	11.23
Addiction of father	1.27	0.51	3.18
Addiction of mother	1.261	0.61	24.008
Place of living	2.02	0.67	4.73
Neonatal diseases	1.998	0.812	4.914
Lack of belief in Islam sentence about suicide	1.98	1.08	3.62
Depression	2.529	1.192	5.366
Lack of bounding to religious belief	3.18	4.54	2.22

attempts, 147 cases used drugs, 2 poison, and 1 hanging. The drugs used were benzodiazepines, nonsteroidal anti-inflammation drug, narcotic drugs, and cardiac drugs (Table 3). Regarding the preparation of drugs, 111 were available at home, in 16 cases the drug was purchased from a pharmacy, 16 from illegal centers, 6 from friends, and 1 from a laboratory.

Table 3. Medication Used for Suicide by the Patients in the Case Group

Drug	Number of Patients
Benzodiazepine	44
NSAID	35
Opioids	25
Cardiac disease medication	14
Antibiotics	10
Antidepressants	10
Antihistamines	8
Gastrointestinal medications	7
SSRIs	7
Oral hypoglycemic agents	6
Anticonvulsants	4
Complementary medications	3
Antipsychotics	2
Lipid lowering agents	2
Steroids	1
Energy medications	1
Acetone	1

Factors such as preplans (recently, in the past, both)

and persistent intention, and type of suicidal attempt as well as regret were surveyed in the patient group. The results revealed that 30 patients had preplanned for it; among them, 21 did it recently, 8 in the past, and 1 did both of them.

Regarding the persistent tendency toward suicide and its type, 22 were to commit suicide again; of them, 14 cases wished to do it through drugs, 2 by phlebotomizing, 1 by hanging, 1 by self-burning, 3 by any method, and 1 by stronger methods. In addition, 107 cases did not intend to commit suicide and 21 were undecided. About 103 cases were regretful, 43 were not ashamed, and 4 did not respond to this question. The reasons for suicide are shown in Table 4. About 28 (18.7%) cases showed the history of drug consumption for other medical diseases. Of the patients, 21 cases had already committed suicide once, 5 cases twice, 1 case thrice, and 1 for the fifth time (29 cases). The methods used were drugs (17), phlebotomizing (9), and other ways (3). Table 1 demonstrates the results of religious issues, beliefs and religious bias, familiarity with Islamic views, parents' beliefs, and familiarity with Islamic views about suicide.

4. Discussion

In the present study, a significant relationship was observed among age, sex, patient's education, father's addiction, father's history of imprisonment, parent's depression, history of suicide by the mother, friends and relatives, parents' marital status and history of second marriage, patient's religious beliefs, and familiarity with Islam, and religious beliefs. With respect to the reason for suicide, the most cases were related to parents' arguments

Table 4. Causes of Suicide Stated by the Patients in the Case Group

Cause	Number	Percentage
Lack of mutual understanding with parents	49	32.7
Problems related to friendships with opposite sex	34	22.7
Nihilism	16	10.7
Parental argument	10	6.7
Educational problem	10	6.7
Peer imitation	7	4.7
Argument with others	5	3.3
Poor economic state	5	3.3
Parental death	3	2
Parental indifference about essential needs	3	2
Disagreement with peers	2	1.3
Addiction	2	1.3
Lack of belief in God	1	0.7
Drug abuse	1	0.7
Chronic disease	1	0.7
Preoccupation about beauty and body image	1	0.7
Total	150	100

and lack of mutual understanding, followed by problems related to friendships with the opposite sex, nihilism, and purposelessness, and finally generation gaps. It was concluded in a study conducted by Lee et al. that family integration and adolescent's understanding about suicide were important factors (7). According to this study, previous suicidal attempts, alcoholism, and drug abuse, depression, schizophrenia, lack of employment, repeated change of place of living, hostility, and loneliness were the factors influencing suicide attempts (8). Another study indicated the increased risk of suicide in the handicapped youths, adolescents who were imprisoned, illiteracy, and lack of occupational training (9).

No significant difference was found between the 2 groups in parents' education, parents' job, the number of family members, mothers' addiction, mothers' imprisonment history, father's suicide history, watching movies about suicide, history of friends and relatives' addiction, and infantile diseases.

Despite the existence of some specific risk factors, no specific test can identify a person's intention to commit suicide. Yet, clinicians should cautiously interpret the risk factors, as they are common although suicide itself is rare (10).

The older age group had attempted suicide more than

the younger ones, and as they aged and approached adolescence, there was more risk of suicide, showing the unusual arousals of this age group, which has been confirmed in other studies (1-3).

Regarding sex, it was observed that males had the most referrals to the emergency ward due to suicidal attempts. Although there are more tendencies among females toward suicide, there are fewer cases of suicidal attempts among males; however, this has resulted in higher mortality. This has also been indicated in other studies (1-3).

Most of the patients in the case group were city dwellers, and this is because of their further access to drugs, disintegration of families, drug abuse, and lack of monitoring the offspring in cities. However, in villages, the number of referrals seemed to be lower, and this seems to be due to family integration and cultural and traditional context in villages. Other studies in Iran have revealed controversial results as to living in cities or villages (2-11).

Comparison of the patients and their parents in both groups revealed that mostly those adolescents in guidance school and high school had attempted suicide. This can be due to their feeling of independence, which had been ignored by the parents. Also, the parents' education level had no relationship with the offspring's suicide. In Agrebo's study, the low education of the patients had influenced the attempts to commit suicide, but the parents' education had no relationship in this regard (12).

The parents' job showed no significant relationship in our study, but those whose fathers were self-employed had more suicidal attempts. However, adolescents with mothers who were housewives showed more cases of suicide. There was no explanation for this.

The comparison of parents and/or relatives' suicide in both groups revealed that the above-mentioned history in mothers and relatives was significantly different, and so peers imitation should be considered as a risk factor in the suicide in adolescents. Still, there is a controversy as to whether exposure to suicidal deaths in a community can be a risk factor or not (13). Similar to the present study, in Fergusson, et al. (14) and Leib et al.'s (15) studies there were significant differences between the history of suicide in families and suicidal attempts.

Comparison of addiction in parents and relatives in the 2 case and control groups revealed that addiction was more frequent in the case group; as to father's addiction, the difference was significant. One of the parents' death and their separation and remarriage were observed more in the case group compared to the control group, and this shows the role of family in adolescent's suicide. This finding is in the same line with that of Larosa et al.'s study (16). There was no significant relationship between suicide and addiction in friends and relatives in either group, and they

were approximately the same in this regard.

Regarding the parents' imprisonment and history of delinquency, it was revealed that fathers' history of criminal behavior was significantly related to the adolescent's suicide, but that of mothers was not. Given the important role of the mothers in home management, this result was unexpected.

The history of depression in both groups had a significant positive effect on the adolescents' suicidal attempts, as shown in many studies such as that of King et al. (17).

Watching movies or documentaries on suicidal attempts showed no significant relationship between the 2 groups, but the important point is that more than half of the study population had watched such movies. There is a need for more attention on this issue. Media exposure to suicide seems to be more risky in adolescents compared to adults, and they are more likely to imitate such actions. Cluster suicides might result from media coverage of a young person's suicide, leading to more deaths in proportion to the magnitude of the media coverage (10). However, a study conducted in Texas revealed that exposure to suicidal behavior in the media and friends had a protective effect on nearly lethal attempts at suicide (18).

Despair, hopelessness, and nihilism were significantly more prevalent among those in the case group and they wished for improvement in family status, treatment of their disease, and the chance to marry more than those in the control group.

Regarding the method of suicide, drug use was more prevalent and among them benzodiazepine, NSAIDs, and opioids were used more, respectively, followed by poisons. This is in the same line with the findings of a study conducted in the USA; however, other methods, such as hanging, which leads to death, do not need clinical intervention and hospital admission (19). In Sarah's study, the most cases of suicide were committed through weapons followed by drug overdose (20).

Also, most of the drugs had been accessible at home. Even, some of the participants intended to commit suicide again by using drugs; families should be aware of it and take measures to prevent such events. Access should be restricted to suicide methods that are highly lethal. In one study, it was found that restricting access to barbiturates, dextropropoxyphen, domestic gas, and car exhaust with high amounts of carbon monoxide had beneficial effects (8). As to previous intention for suicide, the most frequent observation was sudden suicide attempt (80%), and about 14.7% had persistent intention to attempt suicide. Most of them (68.7%) were regretful about their behavior. Perhaps by suicide screening, especially in adolescents who are at more risk due to psychiatric issues, suicide attempts can be prevented (21).

In a 10-year follow-up period in a study in Denmark on those who attempted suicide by poisoning, it was found that the risk of suicide was 30 times more than the general population (8). In Howton et al.'s study, the risk of committing suicide again increased with time, while in our study only 14.6% of the participants intended to attempt suicide again (22). In a systematic review by Nowton, it was revealed that after 1.5 to 2 years, there was still the risk of suicide although suicidal intention was reduced (23).

In another study by Johnson, it was indicated that incompatible parents and misbehavior toward children during their childhood resulted in interpersonal problems during maturation period and suicidal attempts during adolescence (24).

In a study in Norway, the authors reported that relational conflict (50.2%) was the mostly observed factor persuading the adolescents to commit suicide. Dysfunctional family situation (43.6%) as well as mental health disorders accounted for this relational conflict (22.8%) (25). It seems that the risk of suicide can decrease through discussing the problems with family members, friends, and health care providers (26).

Finally, the strong point in our study was the survey of the Islamic approach to suicide. In this study, there was a significant difference between the 2 groups in religion and familiarity with Islam's approach toward suicide. This held true with parents' religious beliefs and family's prejudice toward religion. In our survey, it was revealed that the control group had more religious beliefs, while in the case group the highest percentage belonged to the lack of belief in Islam and God's commands, showing the importance of spirituality in the family. Moreover, familiarity with Islamic views toward suicide was more observed in the control group compared with the cases, indicating that this factor is influential in preventing suicide.

Based on the results obtained, more attention should be paid to family grounds. In this respect, parents, teachers, and the media have great roles. Religious beliefs and religion in general, especially Islam, is a key factor in suicide prevention.

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Table 1. Comparison of Factors of Suicide in the Case and Control Groups

Risk Factors		Case, No. (%)	Control, No. (%)	P Value
Mother				
Education	Illiterate	15 (10%)	25 (14.7%)	0.32
	8 grades	61 (40.7%)	48 (32%)	
	More than 8 grades	33 (11%)	27 (18%)	
	Diploma	25 (16.7%)	32 (21.3%)	
	Higher education	16 (10.7%)	21 (14%)	
Occupation	House keeper	126 (84%)	128 (85.3%)	0.60
	Self-employed	5 (3.3%)	5 (3.3%)	
	Worker	4 (2.7%)	1 (0.7%)	
	Employee	15 (10%)	16 (10.7%)	
Re-marriage	Yes	12 (8%)	1 (0.7%)	0.02
	No	138 (92%)	149 (99.3%)	
Addiction	Yes	4 (2.7%)	1 (0.7%)	0.17
	No	146 (97.3%)	149 (99.3%)	
Imprisonment	Yes	3 (2%)	0 (0%)	0.08
	No	147 (98%)	150 (100%)	
History of suicide	Yes	3 (2%)	0 (0%)	0.08
	No	147 (98%)	150 (100%)	
Father				
Education	Illiterate	15 (10%)	22 (16.7%)	0.43
	8 grades	51 (34%)	61 (40.7%)	
	More than 8 grades	38 (25.3%)	25 (16.7%)	
	Diploma	32 (21.3%)	22 (14.7%)	
	Higher education	14 (9.3%)	17 (11.3%)	
Occupation	Jobless	126 (84%)	7 (40.7%)	0.58
	Self-employed	5 (3.3%)	64 (42.7%)	
	Worker	4 (2.7%)	42 (28%)	
	Employee	15 (10%)	37 (24.7%)	
Re-marriage	Yes	2 (1.3%)	0 (0%)	0.15
	No	148 (98.7%)	150 (100%)	
Addiction	Yes	38 (25.3%)	15 (10%)	< 0.001
	No	112 (74.7%)	135 (90%)	
Imprisonment	Yes	21 (14%)	129 (86%)	< 0.001
	No	5 (3.3%)	145 (96.6%)	
History of suicide	Yes	5 (3.3%)	0 (0%)	0.02
	No	145 (96.6%)	150 (100%)	
Family				
Place of living	Urban	135 (90%)	116 (77.3%)	< 0.001

	Village	15 (10%)	34 (22.7%)	
Family size (members)	Less than 5	115 (76.7%)	102 (68%)	0.09
	More than 6	35 (23.3%)	48 (32%)	
Family structure	Normal	117 (78%)	143 (95.3%)	< 0.001
	Divorced parent	18 (12%)	1 (0.7%)	
	Dead parent	15 (10%)	6 (4%)	
Sex of adolescents	Male	31 (20.7%)	4 (56%)	< 0.001
	Female	119 (79.3%)	66 (44%)	
Education	Illiterate	0 (0%)	4 (2.7%)	< 0.001
	Elementary school	2 (1.3%)	36 (24%)	
	Guidance school	51 (34%)	44 (29.3%)	
	High school	97 (64.7%)	66 (44%)	
Addiction	Yes	50 (33.3%)	100 (66.6%)	0.7
	No	47 (31.3%)	103 (68.7%)	
History of suicide	Yes	43 (28.7%)	14 (9.3%)	< 0.001
	No	107 (71.3%)	136 (90.7%)	
Parents	Yes	17 (11.3%)	6 (4%)	0.01
	No	133 (88.7%)	144 (96%)	
Adolescents	Yes	46 (30.7%)	20 (13.3%)	< 0.001
	No	104 (69.3%)	130 (86.7%)	
Neonatal diseases	Yes	16 (10.7%)	24 (16%)	0.017
	No	134 (89.3%)	126 (84%)	
Exposure to suicide in media	Yes	78 (52%)	86 (57.3%)	0.38
	No	72 (48%)	64 (42.7%)	
Religious beliefs	Not Believing	48 (32%)	131 (87.3%)	< 0.001
	Believing	40 (26.7%)	1 (0.7%)	
	To some extent	62 (41.3%)	18 (12%)	
Belief in Islam sentence about suicide	No	75 (50%)	98 (65.3%)	< 0.001
	Yes	75 (50%)	52 (34.7%)	
Wishes	Well-being after current admission	26 (24.1%)	82 (75.9%)	< 0.001
	Economic well-off	6 (4%)	6 (4%)	1
	Relief of family problems	29 (19.3%)	3 (2%)	< 0.001
	Chance of marriage	16 (10.7%)	1 (0.7%)	< 0.001
	Proper occupation	10 (6.7%)	16 (10.7%)	0.23
	Continuing education	10 (6.7%)	11 (7.3%)	0.82