



Original Article

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## ***An Evaluation of Case of Suicide Attempt Application to Emergency Services: A Prospective Study***

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### **ABSTRACT**

*Suicide is an important public health issue. In this study, we aimed to review suicide attempt cases by applying a 20-item survey to cases where suicide was attempted and a 15-item survey to the individuals in the control group. After obtaining the required approvals, 200 attempted suicide cases were admitted to the ER between 14.12.2015 and 31.07.2016, and a control group consisting of 198 people was included in the study. Data obtained from the surveys were analyzed using the SPSS program. 132 (66%) of the cases that had attempted suicide were female and 68 (34%) male. The most common age group among those who had attempted suicide was the 12-24 age group with 108 cases (54%). The monthly income, education level, and parental education level of those who had attempted suicide were lower than those in the control group. Approximately two-thirds of the cases were not economically independent, approximately 60% were unmarried, 22% had a fragmented or unstable family environment, more than half smoked or drank alcohol, one-quarter had a history of repeated suicide attempts, 27% had been diagnosed with a psychiatric disease, 32% were using psychiatric drugs and 18% (36 people) had a family history of suicide attempts. Family issues were the reasons most commonly adduced for attempted suicide. The most commonly preferred suicide method (86.5% - 173 individuals) was medication overdose. Psycho-sociodemographic profile, reasons for the attempted suicide, and risk factors for suicide have been set out in this study.*

**Key words:** *Suicide attempt, Emergency service, Forensic science, Drug overdose*

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### **INTRODUCTION**

The World Health Organization (WHO) defines suicide as “the act of harming oneself to various degrees, consciously and to die” [1]. According to the WHO, about 800.000 people end their lives by suicide each year [2]. The American Psychiatric Association has defined suicide as the act of intentionally causing one’s death, and attempted suicide as a self-harming act that does not result in death, but where there was an intention to die or evidence to that effect [3].

The phenomenon of suicide, as old as human history itself, presents in many different ways in almost all societies. Bridging, as it does, life and death, the idea of suicide has always had an aura of both mystery and appeal, with interpretations of that appeal often differing markedly depending on the culture and religious beliefs of any given society and the period of history in question [4].

It is estimated that many factors such as family and socioeconomic problems, increases in stress, isolation, and age increase the risk of suicide [5]. In addition to these psycho-socioeconomic factors, psychiatric and organic

diseases may also play a role in the etiology of suicide [6].

Suicide is an important cause of death in the young worldwide and has emerged as an important public health problem [7]. Since the increasing number of suicides started to become an important issue for societies, September 10 was declared “World Suicide Prevention” day by the WHO to raise awareness about suicide [8].

This study, it was aimed to determine the psycho-sociodemographic profile of cases of attempted suicide, the causes of such attempts, as well as the etiological and risk factors for suicide.

## MATERIALS AND METHODS

After obtaining approval from the Gaziantep University Clinical Trials Ethics Committee (dated 14.12.2015 no. 352, and dated 30.05.2016 no.166) and the Gaziantep General Secretariat of Public Hospitals (no. 82370929/774.99) for the study, 200 cases of attempted suicide, who were admitted to public hospitals in Gaziantep city center and the Medical Faculty Hospital between December 14, 2015, and July 31, 2016, and who had volunteered to participate in the study along with 198 control subjects, were included in the study.

Once written and verbal consent was received from the individuals admitted to participating in the study, a 20-item survey was applied including age, gender, educational status, occupation, monthly income, marital status, household, educational and marital status of the parents, substance use, whether the person was a foster child, reason for and method of attempted suicide, whether the person had attempted suicide before and if so, the method employed, whether the person had a psychiatric illness and if so, the diagnosis and psychiatric medication prescribed, and lastly whether there was a history of suicide or attempted suicide in the family. Individuals are aged 12 and above, who had attempted suicide were included in the study.

A 15-item survey was applied to the control group consisting of 198 people. This survey covered age, gender, educational status, occupation, monthly income, marital status, household, educational and marital status of the parents, substance use, whether the person had been fostered, whether the person had a psychiatric illness and if so, the diagnosis and medication prescribed. Specific criteria were checked while setting up the control group: Balance with the case group in terms of age and gender was ensured. Members of the control group were also selected based on their not having previously attempted suicide or have had a family member who had committed suicide.

### Statistical methods

The Student t-test was used to compare numeric data between the two groups, and the Chi-square test was used to analyze categorical variables. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp 2013. was used in the statistical analysis.

## RESULTS AND DISCUSSION

**Table 1.** Distribution of Age Group and Professions in Suicide Attempts.

AGE GROUP	Number (N)	Percent (%)
12-24	108	54
25-40	70	35
41-	22	11
<b>Total</b>	<b>200</b>	<b>100</b>
PROFESSION		
Unemployed*	24	12
Housewife	57	28.5
Student	56	28
Teacher	4	2
Health Employee	3	1.5
Officer	2	1
Artisan	18	9
Worker	33	16.5
Retired	3	1.5

Total	200	100
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\*p<0.005

During the clinical follow-ups in the ER, it was seen that 132 (66%) of the 200 cases that had attempted suicide were female and 68 (34%) were male. In the control group of 198 people, 131 (66.2%) were female and 67 (33.8%) were male (**Table 1**). There was no statistically significant difference between the groups in terms of gender. (p = 0.973).

The mean age of the case group was 26.09, similarly, the mean age of the control group was 26.18. The most common age range in the case group was 25-40 with 70 cases (35%), and the least common was the group aged 40 and above with 22 cases (11%) (**Table 1**). Case and control groups were determined to be balanced (p=0.999) in terms of age.

When groups were evaluated in terms of educational status, it was seen that the educational status of the individuals that had attempted suicide was lower than that in the control group. In the case group of 200 participants, 8 (4%) had never gone to school, 104 (52%) had attended only elementary school, 72 (36%) high school, and just 16 (8%) were university graduates/undergraduates. On the other hand, in the control group of 198 people, 4 (2%) had never gone to school, 55 (27.8%) had attended elementary school, 60 (30.3%) high school, and 79 (39.9%) were university graduates/undergraduates. The difference in university graduate/undergraduate level between the groups was found to be statistically significant (p=0.001).

In terms of the participants' occupation and monthly income, the most numerous group of individuals to have attempted suicide were housewives with 57 people (28.5%). They were followed by students (56 people - 28%) and laborers (33 people - 16.5%) (**Table 1**). In the control group, it was determined that 11 people (5.6%) were unemployed, and the difference in unemployment between the case and control groups was found to be statistically significant (p=0.038).

It was seen that approximately two-thirds of those cases, who had attempted suicide, were not economically independent (housewives, students, and unemployed individuals). When case and control groups were compared in terms of monthly income, it was observed that 86% of the case group had an income of 0 – 2,000 Turkish Lira (TL) and 14% had an income of 2,000TL and above, whereas 70.7% and 29.3% of the control group had a monthly income of 0 - 2,000TL and 2,000TL and above, respectively. The monthly income level (above and below 2,000TL) between the groups was found to be statistically significant (p=0.001).

When the marital status of groups was examined, it was seen that the case group consisted of 102 single (51.0%), 83 married (41.5%), and 15 divorced (7.5%) individuals, whereas the control group included 117 single (59.1%), 80 (40.4%) married and 1 (0.5%) divorced individual. Widowers were regarded as the single for the study. The number of divorced individuals in the case group was found to be higher than that in the control group at a statistically significant level (p=0.001).

When the case group was asked about their living arrangements, the majority (181 individuals - 90.5%) stated that they lived with their family. The second most common answer after that was that they lived alone (7 individuals - 3.5%).

In the evaluation of the educational status of the parents of the groups, in the case group, it was seen that the mothers of 82 participants (41%) had never gone to school and that 108 (54%) had only attended elementary school. In contrast, in the control group of 198, the mothers of 58 participants (29.3%) had never gone to school and 103 (52%) had only attended elementary school. Concerning the educational status of the fathers, in the case group, 29 (14.5%) had never gone to school and 140 (70%) had only attended elementary school, while the fathers of 17 (8.6%) participants in the control group had never gone to school and 119 (60.1%) had only ever attended elementary school. The educational status of parents of those individuals who had attempted suicide was lower than that of those in the control group, which was found to be statistically significant (difference in mothers' educational status p=0.001; the difference in fathers' educational status p=0.009).

In the evaluation of parents' relationship status in the case group, it was determined that the parents of 121 people (78.1%) were living together and happy, the parents of 29 (18.7%) lived separately, and the parents of 5 (3.2%) were together, but had problems. Concerning the control group, the parents of 151 participants (92.6%) were together and happy, 10 (6.1%) lived separately and 2 (1.2%) were together but had problems. Broken family units or unstable family environments were more prevalent in the group that had attempted suicide, which was found to be statistically significant (p=0.001). 45 individuals in the case group and 35 individuals in the control group had lost one or both of their parents. Only 1 person in the case group stated that they had been fostered. When the groups were evaluated in terms of smoking and the use of alcohol and drugs/stimulants, it was found that 110

(55%) from the case group and 37 (18.7%) out of 198 from the control group smoked. It was also seen that 41 (20.5%) in the case group and 9 (4.5%) in the control group drank alcohol and that 18 (9.0%) in the case group used drugs/stimulants, while no one in the control group used drugs/stimulants. The incidence of smoking and the use of alcohol and drugs/stimulants was higher in the case group compared to that within the control group. No significant difference was found between the groups for these substances (for smoking  $p=0.001$ , for alcohol  $p=0.001$ , and drugs/stimulants  $p=0.001$ ). In the case group, 13 people (6.5%) both smoke, drank alcohol, and used drugs/stimulants.

**Table 2.** Distribution of Suicide Reasons and Methods in Suicide Attempts

REASON OF SUICIDE	Number (N)	Percent (%)
Family Problems	116	58
Emotional Problems	27	13.5
BoredomFrom Life	25	12.5
Financial Problems	18	9
Illness	5	2.5
Age	3	1.5
Other*	12	6
Unknown	12	6
<b>SUICIDE METHOD</b>		
Drug Intoxication	173	86.5
Insecticide/Mouse Poison	6	3
Drug Intoxication And Stab	5	2.5
Hanging	4	2
Corrosive Substance	4	2
Stab	3	1.5
Firearm	1	0.5
Jumping from Height	1	0.5
Drug Intoxication and Jumping from Height	1	0.5
Drug Intoxication and Corrosive Substance	1	0.5
Staband Corrosive Substance	1	0.5
<b>Total</b>	<b>200</b>	<b>100</b>

\* failure at school, deprivation of substance, psychiatric pressure

When respondents were asked why they had attempted suicide, the principal reason given was family issues (116 people, 58%), followed by emotional problems, (27 people, 13.5%). The number of reasons given for attempted suicide exceeded 200, as some people gave more than one answer (**Table 2**).

When the case group was evaluated based on their methods of suicide, of 200 people, 192 had attempted suicide using a single suicide method, while 8 had tried two different suicide methods. The most commonly preferred suicide method was a drug overdose, at 86.5% (173 individuals). The second most commonly used method was insecticide/rat poison, at 3% (6 individuals) (**Table 2**).

When the case group was asked whether they had attempted suicide before, it was seen that 49 (24.5%) had attempted suicide before and 151 (75.5%) had never attempted suicide previously. In the case of 49 people, who had attempted suicide on a previous occasion, the most common method was a drug overdose, at 77.5% (38 individuals).

Based on an evaluation of the presence of psychiatric illnesses in the groups, 54 people (27%) in the case group and 3 people (1.5%) in the control group were found to have a psychiatric illness. The rate of psychiatric illness in the case group was found to be higher compared to that in the control group at a statistically significant level ( $p=0.001$ ).

When psychiatric illnesses were examined in detail, the most common diagnosis in the case group was depression with 20 people, followed by bipolar disorder with 9 people and mood disorder in the case of 5. Fourteen (14)

people said that they had a psychiatric illness, but did not know the diagnosis. Among 3 people in the control group, 1 had depression, 1 had an unspecified illness, and 1 had psychopathology with an unknown diagnosis. When a detailed statistical review was performed between the groups for each psychiatric illness, a statistically significant difference was found for depression, bipolar disorder, and mood disorder (for depression,  $p=0.001$ ; for bipolar disorder,  $p=0.001$ ; and for a mood disorder,  $p=0.025$ ). The number of psychiatric illnesses exceeded 54 since some individuals in the case group had more than one psychopathology.

When groups were evaluated based on whether they had used psychiatric medication, 64 of 200 people (32%) in the case group and 8 of 198 people (4%) in the control group stated that they used psychiatric medication. In our study, it was found that some people used psychiatric medication even though they did not have a diagnosed psychiatric illness. The use of psychiatric medication was much higher in the case group compared to that in the control group. The difference was found to be statistically significant ( $p=0.001$ ). When the case group was asked "Are you thinking of attempting suicide again?", 49 (24.5%) said "yes", and 151 (75.5%) said "no", or "I don't know."

In the case group, a history of suicide was found in the family (immediate or extended) of 36 people (18%). Of these 36, a history of suicide was seen in the immediate family of 13, in the extended family of 21, and both the immediate and extended family of 2. Immediate family refers to mother, father, and siblings; extended family refers to uncles, aunts, cousins, grandparents, etc.

As a subject of research, experts have sought to explain suicide through the use of many different approaches [9]. According to the data of the Turkish Statistical Institute (TUIK), on average, 72.6% of those who attempt suicide annually are women and 27.4% are men [10], with similar results obtained in our study. We would argue that a lack of real autonomy in women's lives, increasing levels of violence against women, and the fact that women have not attained sufficient levels of economic independence or in most cases been unable to secure some form of a viable alternative, have all been contributory factors. Furthermore, for those forced to live alone, particularly in developing societies such as ours, the additional stressors can prove both considerable and contributory.

In a study conducted by Sengül *et al.*, they reported that 233 (55%) of 432 suicide attempt cases were in the 15-24 age group [11]. Our study of the same age group and concerning mean age returned similar results to studies conducted in the field. In light of the available data, we would contend that in the case of young people, increased employment opportunities, and a reappraisal and restructuring of the education system to enhance levels of motivation would be beneficial. Any such revision should look to promote a love of learning and a greater appreciation of what life has to offer in contrast to the current rather narrow curricula and limited teaching methodologies, approaches, which, in the main, would appear to heighten levels of anxiety and increase the risk of attempted suicide.

In studies conducted in this country and internationally, it was shown that there was a significant link between low educational achievement and suicide [11-13]. In our study, it was seen that educational status was low in the case group compared to the control group at a statistically significant level. It could be conjectured that where education levels are low, people find it more difficult to identify meaningful or viable solutions when confronted by a range of persistent life problems and that in the apparent absence of any alternatives, view suicide as a possible release.

One of the most important indicators of socioeconomic status is income. In a study conducted by Beden *et al.*, they found that the income of 53.2% of the 109 cases admitted was either very insufficient or insufficient [14]. In the case group, it was seen that there was an absence of economic independence, the unemployment rate among participants was high, and income levels were low. In light of these results, economic problems would seem to be a consistent contributory factor to an increase in the risk of suicide. Furthermore, these results would also appear to indicate once again the importance of regular employment in terms of both the economic and psychological well-being of individuals.

In evaluating both our study and literature data in parallel [12, 15, 16], we have seen that suicide attempts are most commonly seen in single people. Additionally, rates in divorced individuals are also important, with the rate of divorce significantly higher in the case group in our study. We think that in our society, the attachment of too much importance to the concept of the family unit, the significant burden imposed on the parents of children, and the child's desire to play a role in the planning of their future are significant stressors. The sharing of problems between spouses and the provision of support to each other in such contexts can prove ameliorative from a psychotherapeutic standpoint and create a 'protective effect' in terms of suicide prevention.

Mittendorfer-Rutz *et al.* reported in their study that suicide risk increased significantly in individuals with mothers who had only attended high school compared to individuals whose mothers had attended university or graduate

school [17]. Similar findings were seen in our study. Given that the educational status of both the individuals in our case group and their parents were not closely correlated, we think that a higher level of education somehow distances the individual from more serious contemplation of the idea of suicide. This may be due to their enhanced capacity to evaluate problems within the bounds of a more balanced framework of reasonable alternatives their higher levels of income (offsetting the likelihood of economic difficulties), and the attendant status and respect within society that economic robustness usually confers.

In more wide-ranging literature reviews, it was seen that suicide risk increases significantly in broken or single-parent families [16, 18]. Similar findings were obtained in our study. We think that the ability to overcome problems decreases in individuals growing up in such family structures, due to the constant absence of supportive family members and the lack of suitable role models. In such instances, suicide can often be regarded as a solution to problems.

In studies conducted on the correlation between substance abuse and suicide, it was found that alcohol addiction in particular confers a significant risk for suicide. Suicidal behaviors are observed in about 15% of alcoholics, and 40% of these people had attempted suicide previously [18, 19]. Additionally, suicide rates were reported to be higher in individuals using drugs. For instance, in research reviewing some 14,000 cases in the USA, it was seen that suicide attempt rates increased in cocaine users [20]. In our study, it was observed that substance use was significantly higher in the case group compared to that in the control group. We believe that abuse of alcohol and drugs/stimulants in particular results in social exclusion and likely paves the way for suicide due to resultant loneliness, pathoclinical results, and the withdrawal symptoms associated with drug abuse.

“Family and emotional issues” are prominent in almost all studies as a reason for suicide attempts [11, 15]. Contrary to other studies, economic reasons ranked third with a rate of 9% in our study. We think that this factor was driven by the fact that the study was conducted in Gaziantep, the largest industrial and construction province in the region, where the number of low-income laborers is particularly high. Yet, the fact that the socioeconomic level of the case group in our study was found to be low at a statistically significant level compared to the control group is a result that supports our theories.

In the studies conducted by Beden *et al.* [14] and Şengül *et al.* [11], 98 (89.9%) of 109 suicide attempt cases and 412 (95.4%) of 432 cases, respectively, attempted suicide by an overdose of medication. It was seen that 9 of 10 people who had attempted suicide in both our study and other studies looked to do so by overdosing on medication. The most common method used in completed suicides has been hanging, with an average of 50% [10]. We think that easy access to medication, the desire to die in a more relaxed and calm manner, a lack of certainty concerning their decision and the subconscious desire to be saved all play a role in the individual’s selection of this method, and account for the numbers reported. On the other hand, the individual’s desire to attract attention to his/her condition and to alleviate their suffering underpin many suicide attempts.

In a study conducted by Yiğit *et al.*, a history of suicide attempts was reported in 15 (17%) of 87 cases [21]. Sengül *et al.* also reported that 75 (17.8%) individuals from a cohort of 432 had attempted suicide previously [11]. Similar findings were obtained in our study in terms of the presence of a history of suicide. Given that the risk of further attempts only increases, follow-up and treatment of the individual should be regularly conducted. If tangible reasons can be identified for the attempt, an understanding of the individual’s social circumstances is critical, as is the need to remove the root cause. Otherwise, the risk of a further attempt is remarkably high.

In a study by Nakagawa *et al.*, they reported a history of suicide in a family of 70 people (14.9%) among 469 suicide attempts [22]. Furthermore, in our study; an increase was observed in the suicide risk of individuals with a history of suicide in the family. The presence of a history of suicide in the family can be seen as an important risk factor, as the individual can tend to normalize such behavior, identify with the apparent practicability of it, internalize it, and subconsciously regard the parent as a role model. Another reason is that when an individual can attract attention by using this method and solve his/her problems, others may come to regard it as a viable solution.

## CONCLUSION

From a judicial standpoint and from that of both forensic science and medicine, cases of suicide can often seem routine and pedestrian, however, the importance of appropriate and thorough research concerning such cases should not be overlooked. As part of our study, cases that were admitted to the ER following a suicide attempt were selected, their sociodemographic profiles reviewed, and attempts made to determine the risk factors that played a role in the attempt.

An accurate and thorough approach to cases of attempted suicide is of marked importance and should include the

provision of effective treatment, the facilitation of both good mental and physical health, a determination of risk factors and the motives for suicide via detailed review, and a sound deliberation as to how maximum preventative measures can be effected to prevent any repeat attempts.

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