

Analysis of Patients with a Suicide Attempt Presenting to the Emergency Department of two Hospitals in Van, Turkey

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ABSTRACT

Suicide is a serious problem affecting public health all over the world. Suicide-related mortality and morbidities requiring lifetime care have economic, social and psychological repercussions. Considering that reasons for suicide vary by geography, we aimed to investigate the demographic characteristics of patients presenting to the emergency department in a province in eastern Turkey following a suicide attempt.

After obtaining ethical approval, the records of two hospitals where the study was conducted were screened and 4,096 patients who had attempted suicide were identified using the international diagnostic codes X44, F19, T14.9, X80, Y24, W16, Y17, Y26, Y20 and Y85. Of these patients, 2,456 with incomplete records were excluded, and the data of the remaining 1,640 were analyzed with the Kolmogorov-Smirnov test using SPSS.

Seventy percent of the patients included in the study were women, and 43.3% were married. The incidence of suicide showed a generally increasing trend over the years. The rate of suicide rate was higher in summer. Women most frequently attempted suicide due to family problems and men due to psychiatric reasons. The most commonly used method in both genders was the ingestion of drugs or toxic substances.

We consider that after a detailed examination by mental health professionals in the emergency department, the rate of future admissions due to attempted suicide will decrease, especially through the solution of family problems and treatment of psychiatric conditions.

Keywords: Emergency, suicide, psychiatric emergency, suicide attempt

Introduction

Suicide is a complex condition caused by genetic, biological and environmental risk factors (1). It is a preventable health problem that has serious effects on individuals and society (2,3). Suicide is reported to result in a cost of more than \$93 billion each year in the United States of America (4). It is also among the leading causes of death among young people (3).

It is stated that suicide causes the death of more than 1 million people in the world every year, and according to the World Health Organization, 1 out of every 100 deaths occurs due to suicide (3,5,6). According to the data of the Turkish Statistical Institute, approximately four per 100,000 people end their lives by committing suicide⁷. However, the number of suicide attempts

is much higher than completed suicides (8). Approximately 70% of suicide attempts are reported to be unsuccessful⁹. Globally, only one of every 20-40 suicide attempts is successful (10,11).

Suicide attempts are one of the most common reasons for psychiatric presentations to the emergency department (12). It is observed that the number of suicide-related presentations to the emergency department has increased gradually since 2004 (13). Patients with suicidal ideation and have attempted suicide often present to the emergency department, in which necessary interventions are performed and appropriate referrals are made (14). Therefore, emergency physicians are the first to evaluate these patients and analyze risk factors (9). It is extremely important for emergency department physicians to

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identify people at high risk of attempting suicide (15).

In the literature, there are many studies reporting that demographic studies, risk factors, and methods used in suicide attempts show regional differences (4,10,16). Although there are regional differences, we consider that being aware of the factors leading to suicide attempts in patients presenting to the emergency department is important to determine the regional demographic characteristics of these patients and prevent future suicide attempts. Therefore, in this study, we aimed to examine the demographic characteristics of patients who presented to the emergency department of the two largest hospitals of a big city located in eastern Turkey after a suicide attempt.

Materials and Method

This study was initiated with a multicenter design after receiving approval from the local ethics committee of a tertiary university hospital. Patients aged over 18 years, who presented to the emergency departments of the university and the education and research hospital following a suicide attempt between January 2009 and March 2020 were included in the study. Patient data were retrospectively screened from the hospital automation systems using the International Classification of Diseases (ICD) diagnostic codes and accessing the notes of the psychologists working in the hospital and the consultation notes of the psychiatrists. The following ICD codes were used: X44 (general poisoning), F19 (drug toxicity), T14.9 (sharp object injury), X80 (jumping from a high place), Y24 (firearm injury), W16 (jumping into water), Y17 (bottled gas poisoning), Y26 (burning), Y20 (hanging), and Y85 (running in front of a vehicle). Of the total of 4,096 patients identified, 2,456 with incomplete records concerning the reason for and means of suicide were excluded from the study.

The age, gender, marriage and employment status of the cases who attempted suicide were recorded. Applications are grouped by months and years. The causes of suicide attempts and the methods used in suicide attempts were determined and recorded. In addition, the causes and methods of suicide attempts were divided into two groups on the basis of gender. All data were collected and processed by 1 specialist doctor

Statistical Method: As descriptive statistics, mean, standard deviation, median minimum, maximum, frequency and percentage values were

used. The distribution of variables was analyzed with the Kolmogorov-Smirnov test. SPSS v. 27.0 was used in statistical analyses.

Results

Of the 1,640 patients included in the study, 493 (30.1%) were male and 1,147 (69.9%) were female. The mean age was 27.7 ± 9.1 (min-max: 18-83) years. In our study, 43.3% of those who attempted suicide were married. The demographic characteristics of the patients are shown in Table 1.

The most common reason for suicide attempts is family problems, and the most used method is drug-toxic substance intake (Table-2).

The suicide rate by month increases slightly in the summer months but decreases in the fall months (Graphic-1). The highest number of applications by years was in 2016 (Graphic-2). According to both genders, drug-toxic substance intake is at the forefront in the methods used in suicide attempts. However, the use of sharp injuries is higher in men than in women (Figure-1). While the most common cause of suicide attempt is family problems in women, psychiatric diseases in men (Figure-2).

Discussion

It is important for emergency services to determine the causes of suicide attempts, in which regional differences are prominent, and to take precautions accordingly. A suicide attempt can be caused by social, psychological and physiological factors (17). The emergency department of a hospital is usually the place where a person having attempted suicide first presents. Therefore, this department plays important roles in understanding the reasons for suicide attempts, undertaking necessary interventions, and preventing future attempts (18). Unless these patients are asked whether they have suicidal thoughts, they usually do not give any information; therefore, they should be specifically questioned (18,19).

Although it has been reported in many sources that suicide attempts are more common in women, it is known that completed suicides are more common in men (1,7,9). However, data may vary depending on the region where the study is conducted. In Eastern Bloc countries, such as China and India, it has been reported that men attempt suicide more (17). Different rates are reported in different regions of Canada (10,12). In our study, approximately 70% of the patients who

Table 1. Demographic Characteristics

	N	%
Marital status		
Married	710	43.3
Single	255	15.5
Widow	68	4.1
Divorced	16	1.0
Unspecified	591	36
Employment status		
Employed	740	45.1
Unemployed	184	11.2
Housewife	17	1.0
Student	16	1.0
Unspecified	683	41.6

had attempted suicide were female. In line with our findings, other studies conducted in regions with similar cultural and social characteristics also reported high rates of suicide attempts in women. Traditional family relations, oppressive attitudes, patriarchal structure, low socioeconomic level, domestic violence, and migration may be important factors in female suicide attempts (20,21). This is supported by familial reasons being the most frequent reason for suicide attempts among the female patients in our study. More comprehensive research at the level of regional and cultural characteristics can provide a better understanding of the relationship between gender and suicide.

In a study conducted in Ankara, Turkey, it was found that suicide presentations had seasonal variations and increased from January to June⁷. In the current study, we observed that suicide attempts showed seasonal characteristics, and the most frequent presentation was in July and August⁹. We think that suicide attempts are more common in men due to the land disputes that are common in this region. When suicide attempts were evaluated on a yearly basis, an increasing trend was observed until 2016. We think that suicide attempts increased due to the political and social crises experienced in Turkey in 2016. In the following years, the number of applications remained constant at a certain rate, which may be related to the political and economic situation of Turkey.

The mean age of individuals attempting suicide varies according to inclusion criteria in the study population. Considering all age groups, suicide is more common in young people aged 15-40 years (10,12,22,23). In completed suicides, the mean age

of women is 49.8 years while that of men is 40.3 years (2). Suicide is in the top five causes of death in adolescence and early adulthood. Depending on the data of different countries, early youth is accepted as a risk factor (2,23). Suicidal thoughts are increasing in the growing elderly population, but unfortunately there is only limited information on this subject (7,14,17). In our study, the mean age of the whole sample was found to be 27 years, and suicide attempts were most common in the age range of 20-30 years. In line with regional traditions, the elderly usually are cared for by their families. Therefore, the number of presentations over the age of 65 years was lower than other age groups. Although the mean age of our sample was consistent with the literature, it should be noted that only cases over the age of 18 years were evaluated.

The relationship status of individuals affects their social and psychological lives (7). Living alone, problems with partners, and familial problems can lead to suicidal tendencies (2,8). According to different studies in the literature, a good marriage is considered to be a protective factor (7,9,12). A striking finding is that individual presenting to the emergency department after suicide attempts or cases of completed suicides have problematic relationships or they are single (7,10,23). In our study, 43.3% of the attempted suicide cases were married and 15.5% were single. In the region where we conducted the study, it is known that unhappy marriages continue for various reasons, such as the high rate of religious (clergyman) marriages, disapproval of divorce due to the socio-cultural structure, and poor social and economic support in case of divorce, which all lead to constant family problems. We consider

Table 2. Means of and Reasons For Suicide Attempts

	n	%
Means of suicide		
Drug-toxic substance ingestion	1345	82.0
Sharp object injury	116	7.1
Jumping from a high place	33	2.0
Hanging	23	1.4
Firearm injury	5	0.3
Running in front of a vehicle	4	0.2
Burning	3	0.2
Jumping into water	2	0.1
Bottled gas-natural gas poisoning	2	0.1
Other	110	6.7
Not known	7	0.4
Reasons for suicide		
Family problems	435	26.5
Psychiatric disorders	319	19.5
Partner problems	142	8.7
Rape	39	2.4
Domestic violence	28	1.7
Marriage problems	25	1.5
Communication problems	24	1.5
Disease	19	1.2
Alcohol and substance use	17	1.0
Financial problems	15	0.9
Test anxiety	11	0.7
Ongoing disease	9	0.5
School problems	7	0.4
Loneliness	7	0.4
Problems related to children	6	0.4
Parental conflicts	6	0.4
Death/loss	6	0.4
Work problems	5	0.3
Abuse	2	0.1
Sexual problems	2	0.1
Other	544	33.2

that the high level of suicide attempts among married individuals warrant further evaluations at the regional level based on socio-cultural, religious and economic characteristics. In addition, the high rate of individuals with an unknown marital status is one limitation of our study and may affect the generalizability of our results.

There is a relationship between low economic level and unemployment and suicide attempts (7,9,10). It has been reported that economic crises experienced in a country increase the risk of suicide by approximately five times (2). According

to a study by Kodik et al., 73% of the patients that attempted suicide were not employed (9). In our study, we got data on the employment status of approximately 60% of the patients with suicide attempts and determined that only about 15% were actively employed. The occupational group that most attempts suicide is workers. Due to the direct effect of economic freedom on individual and family psychology, the tendency to suicide increases with the increasing thought of hopelessness. We consider that increasing job

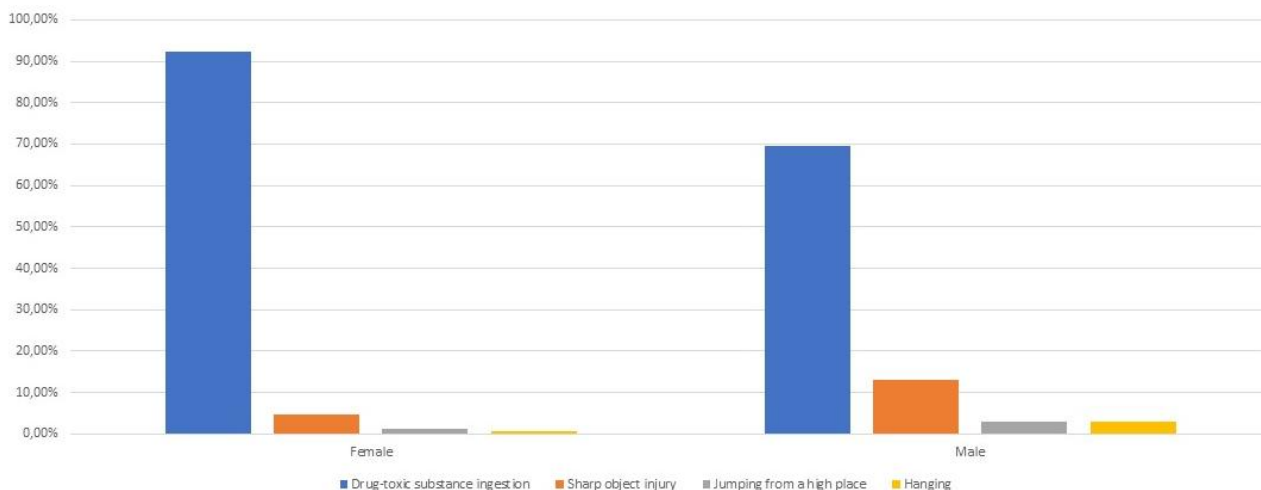


Fig 1. Distribution of the means of suicide attempts by gender

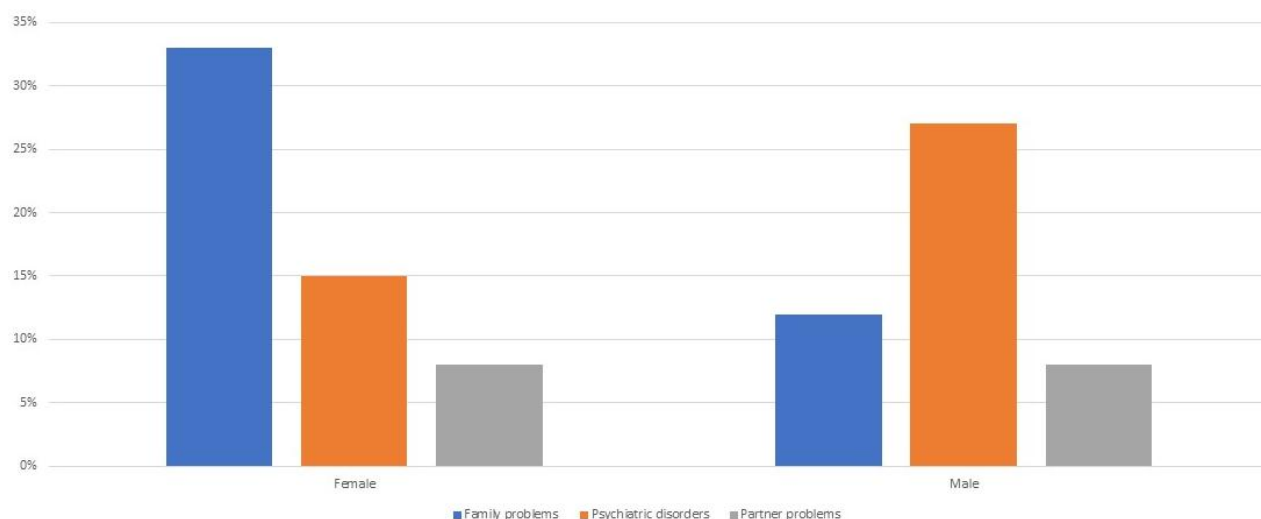
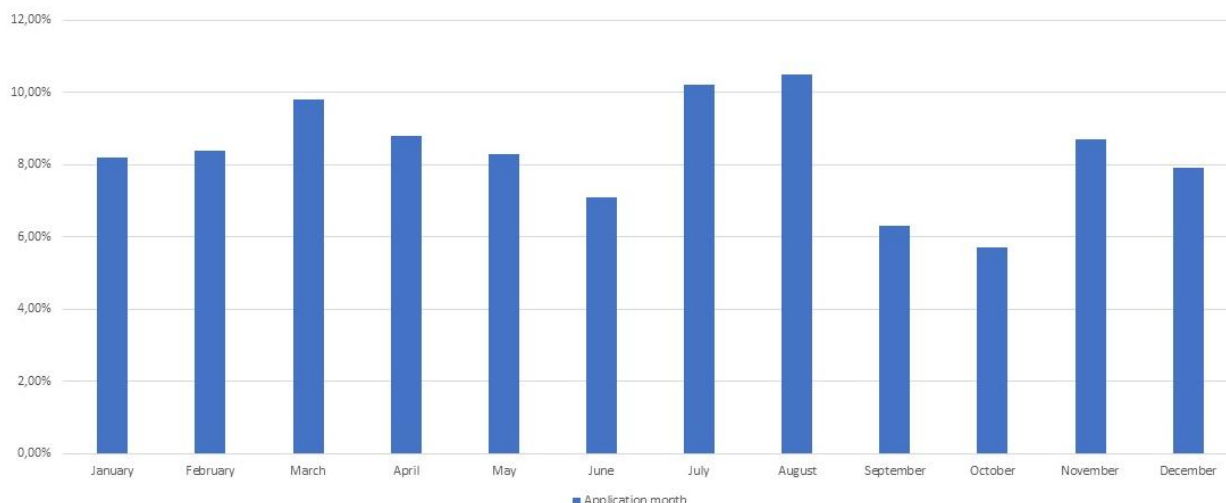


Fig 2. Distribution of the reasons for suicide attempts by gender

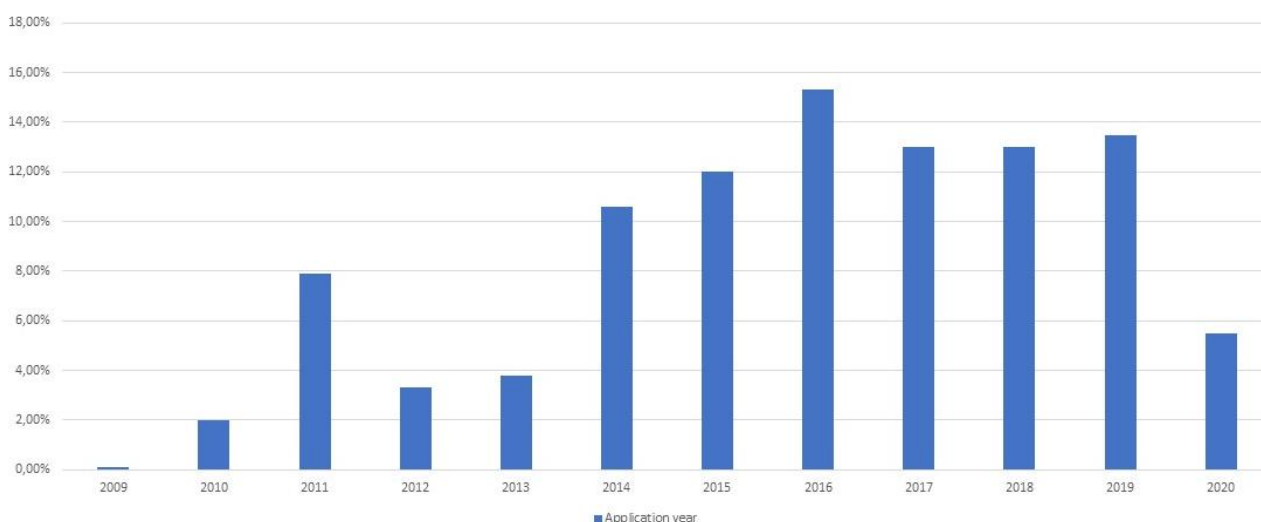
opportunities, better income level and improved work conditions can reduce suicide attempts.

Suicide methods differ between those with successful and failed attempts, as well as according to gender (3). Although the rates of methods used in suicide attempts vary, the most frequently used method is intoxication (7,9). Among toxic substances, drugs are the most preferred (23). In a study by Kodik et al., it was stated that 39.2% of the patients attempted suicide by taking multiple drugs (9). In another study conducted in Turkey, the most commonly used drugs belonged to the group of anti-inflammatory and muscle relaxants, but in the presence of a psychiatric disease, the person usually attempted suicide using his/her own medication (5). In the study of Kurhan et al., the rate of alcohol and substance use was reported as 24.6%, and all of this rate was seen in men (24). The mortality rate is lower in intoxications than in

other methods of suicide (2). Although attempting suicide with firearms is the least used method, it is one of the most frequently used methods in completed suicides (2,3,7). Another suicide method, hanging, has been reported to have the highest rate in completed suicides in studies conducted in Turkey (2,25). Since death in completed suicides occurs at the scene, most cases are transferred to the forensic medicine institution without being referred to the emergency department. Therefore, our rate of completed suicides does not reflect the situation in the general population. As shown in Figure-2, toxic substance use was the most frequently used method in suicide attempts in both genders, but it was more common in women. In this study, approximately 82% of individuals who attempted suicide took toxic substances or drugs for this purpose. Toxic substances include accessible medication and corrosive substances. This was



Graphic 1: Presents the distribution of the patients presenting to the emergency department with a suicide attempt by month



Graphic 2: Presents the distribution of the patients presenting to the emergency department with a suicide attempt by year

followed by sharp object injuries at 7.1%. It was seen that the rates of hanging and firearm use were very low. Penetrating/sharp object injuries, jumping from a high place, and hanging were more common in males (Figure-1). A person with suicidal thoughts may attempt suicide with the most available chemical substance. We consider that the tighter inspection of institutions that sell and inspect drugs and other toxic substances will reduce suicide rates.

There can be many reasons for a suicide attempt; for example, a person may have an excessively sudden reaction to events, while other causes can be severe mental pathologies, social environment, and economic factors (7,8). Factors such as mood disorder, substance use, asocial relationship, family distress, and social instability increase the

risk of suicide, especially in children and youth (15,26). Although the reason for attempting suicide differs according to the study population, the most common factor in general is problems experienced within the family (7,23). Some studies have reported that divorce, mental illnesses, abuse, economic situation and violence are more prominent reasons among women (1,16,27). Problems with social environment also pose a great risk for suicide². Living with their family or partner does not necessarily mean that an individual receives sufficient support. Social environment and family communication are extremely important (2,17). Psychiatric disorders most commonly associated with suicide risk are depression, bipolar disorder, schizophrenia, and post-traumatic stress disorder (16,28).

In our study, in approximately 50% of the patients, the reasons for suicide were family problems, problems with social environment, and psychiatric disorders. Establishing appropriate communication in family and social environment and treatment of existing mental disorders can prevent most suicides. Our results revealed that the most common reason for suicide was family problems in women, while mental problems were more common in men (Figure-2). Men's avoidance of asking for professional support in the face of a problem also creates a basis for suicide.

One of the most effective ways to prevent suicide is that an algorithm should be created on how to guide people with suicidal ideation in the emergency department (3). Currently, there is no such algorithm (12). However, we can still analyze the person based on certain risk factors, such as age, gender, low socio-economic level, living alone, psychiatric illness, stressful life, familial and genetic problems, physical diseases, childhood trauma, negative cognitive structures, and easy access to weapons (7). The most important risk factor for suicide is a previous suicide attempt (9). Most young people who have attempted suicide have a treatable underlying psychiatric condition (e.g., schizophrenia, bipolar disorder, depression, and anxiety disorder) (8). It is considered that suicide-related deaths will decrease if the reasons leading people to attempt suicide are determined and necessary medical, psychological and social support is provided⁷. The reasons for the intervention of the patients who applied to the emergency should be determined, if necessary, accompanied by a psychologist. We think that if the underlying cause is resolved, the suicide attempt rates will decrease.

There are many different parameters that affect the lifestyle of countries and societies. Therefore, the reason for suicide may vary according to the region where an individual lives. This should be taken into account when establishing suicide prevention programs. Emergency physicians usually do not have sufficient time to examine in detail the reasons for suicide attempts due to the overcrowded nature of the emergency department. Therefore, we consider that there is a need for a mental health professional to be present in the emergency department to determine the causes of suicide cases. Furthermore, most suicide attempts can be prevented by improving relationships within family and social environment, treating the existing psychiatric disorders of the person, and tightening controls on access to prescribed and over-the-counter drugs.

Limitation: This study had certain limitations. There was a considerable percentage of unknown parameters for the sample due to the inadequacy of record-keeping. This poses an important problem in terms of epidemiological evaluation and once again emphasizes the importance of and need for keeping complete medical records. Similarly, a larger number of patients were not included in the study due to the lack of data that can be accessed from the registration system.

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