

# Suicide Attempts Evaluated in the Emergency Department

## Acil Serviste Değerlendirilen Özkıyım Girişimleri

Hasan İdil, Necmiye Yalçın Ocak, Didem Avcı Dönmez

University of Health Sciences Turkey, İzmir Tepecik Education and Research Hospital, Clinic of Emergency Medicine, İzmir, Turkey

**Cite as:** İdil H, Yalçın Ocak N, Avcı Dönmez D. Suicide Attempts Evaluated in the Emergency Department. Anatol J Gen Med Res. 2024;34(2):166-70

### Abstract

**Objective:** Suicide attempts and related processes are a serious problem worldwide. Initial evaluation of patients who have attempted suicide is usually performed in the emergency department (ED). In this study, we examined the characteristic features of these cases.

**Methods:** The study was conducted with patients aged 18 years who were evaluated for suicide attempt over a one-year period in the ED of a comprehensive urban hospital. The data of the cases were retrospectively scanned through the electronic medical record system. The data obtained for each patient were systematically recorded in report forms and analyzed at the end of the study.

**Results:** In the study, 241 suicide attempt cases with a mean age of 30 (interquartile range: 22-37) were examined, and 167 (69.3%) of them were women. Of the patients, 170 (70.5%) were between the ages of 18 and 35, and 113 (46.9%) had primary education. Of the suicide attempts, 81.7% were self-poisoning with multiple drug ingestion. It was determined that 41.5% of the applications were made between 18:00 and 00:00. Of the patients, 142 (58.9%) were discharged after ED follow-up. ED follow-up could not be completed for 67 (27.8%) patients who refused treatment. Of the remaining patients, 15 (6.2%) were transferred to the intensive care unit and 14 (5.8%) to the inpatient service. A total of 3 (1.3%) patients who died after a suicide attempt were male and used the hanging method.

**Conclusion:** Most patients who attempted suicide were young women who were primary school graduates and poisoned by ingesting multiple drugs. Most suicide attempts are unsuccessful, but mortality is quite high in those who use the hanging method. Because patients who attempt suicide tend to leave the ED before their follow-up is completed, precautions should be taken.

**Keywords:** Emergency department, suicide, self-poisoning, hanging

### Öz

**Amaç:** Özkıyım girişi ve ilişkili süreçler dünya genelinde önemli bir sorundur. Özkıyım girişi olan hastaların ilk değerlendirmesi genellikle acil servislere yapılmaktadır. Çalışmada, bu olguların karakteristik özelliklerinin incelenmesi amaçlandı.

**Yöntem:** Araştırma kapsamlı kentsel bir hastanesinin acil servisinde bir yıllık bir periyotta özkıyım girişi sebebiyle değerlendirilen 18 yaş ve üstündeki hastalar ile gerçekleştirildi. Olgulara ait veriler hastane elektronik medikal kayıt sistemi üzerinden geriye dönük olarak tarandı. Her bir hasta hakkında elde edilen veriler olgu rapor formlarına sistematik olarak kaydedildi ve çalışma sonunda analiz edildi.

**Bulgular:** Araştırmada yaş ortalaması 30 (çeyrekler arası aralık: 22-37) olan toplam 241 intihar girişi olgusu incelendi ve bunların 167'si (%69,3) kadındı. Hastalardan 170'i (%70,5) 18-35 yaş aralığındaydı ve 113'ünün (%46,9) ilköğretim düzeyinde eğitimi vardı. İntihar girişimlerinin %81,7'si aşırı dozda çoklu ilaç kullanımı şeklinde kendini zehirlenme idi. Başvuruların 100'ünün (%41,5) 18:00 ile 00:00 saatleri arasında yapıldığı tespit edildi. Hastalardan 142'si (%58,9) acil servis izlemi sonrasında taburcu edildi. Önerilen tedavileri reddeden 67 (%27,8) hastanın acil servis takibi tamamlanamadı. Geriye kalan hastalardan 15'i (%6,2) yoğun bakıma ve 14'ü (%5,8) yataklı servise nakledildi. Özkıyım girişi sonrası hayatını kaybeden (özkıyım eylemi gerçekleşen) toplam 3 (%1,3) hasta aşı yöntemini kullanan erkek hastalar idi.



**Address for Correspondence/Yazışma Adresi:** Assoc. Prof. Hasan İdil, University of Health Sciences Turkey, İzmir Tepecik Education and Research Hospital, Clinic of Emergency Medicine, İzmir, Turkey  
**Phone:** +90 232 244 44 44 **E-mail:** hsnidil@gmail.com  
**ORCID ID:** orcid.org/0000-0001-5828-3224

**Received/Geliş tarihi:** 09.09.2023  
**Accepted/Kabul tarihi:** 07.12.2023



Copyright© 2024 The Author. Published by Galenos Publishing House on behalf of University of Health Sciences Turkey, İzmir Tepecik Education and Research Hospital. This is an open access article under the Creative Commons AttributionNonCommercial 4.0 International (CC BY-NC 4.0) License.

## Öz

**Sonuç:** Özkiyım girişiminde bulunan hastaların çoğunluğunu yüksek dozda ilaç içen ilköğretim mezunu genç kadınlar oluşturmaktadır. İntihar girişimlerinin çoğu başarısız olmakta ancak aşı yöntemini kullananlarda mortalite oldukça yüksektir. Özkiyım girişiminde bulunan hastalar takipleri tamamlanmadan acil servisi terk etme eğiliminde olduklarından buna yönelik önlemler alınmalıdır.

**Anahtar Kelimeler:** Acil servis, özkiyım, kendini zehirleme, aşı

## Introduction

The World Health Organization (WHO) defined suicide in 1974 as the act of self-harm with varying degrees of lethal purpose, conscious of one's purpose<sup>(1)</sup>. In recent years, the WHO has classified suicide into two groups: Suicidal acts and suicide attempts. The act of suicide results in death. Suicide attempt, on the other hand, includes all voluntary attempts of the patients to destroy, harm, or poison themselves, which do not result in death<sup>(2)</sup>. Suicide is a serious public health problem, and what needs to be done to prevent it is a prioritized global problem. Globally, more than 700,000 people die every year. There are many more suicide attempts for every suicide act<sup>(1)</sup>.

According to the Turkish Statistical Institute (TÜİK) data, the number of people who committed suicide in 2019 was 3406, of whom 2626 were men and 780 were women. According to the TÜİK data, the number of suicides has increased gradually since 2009. When the average age-specific suicide rates from 2009 to 2019 are compared, the highest age with a range of 6.84 is 75 years and over, followed by 20-24 and 15-19 age groups, respectively. The age group 0-15 had the lowest mean suicide rate. In addition, the average suicide rate of all age groups except this age group is above Turkey's average<sup>(3)</sup>. These data show that the suicide problem is increasing in our country and has reached levels that will affect public health.

The first WHO World Suicide Report published in 2014 "Preventing Suicide: A Global Mandatory" aims to raise awareness of the public health importance of suicide and its initiatives and to make suicide prevention a high priority on the global public health agenda. It also encourages and support countries in developing or strengthening comprehensive suicide prevention strategies in a multisectoral public health approach<sup>(1)</sup>. To define, develop, and implement the required measures to prevent suicide attempts, it is necessary to understand the socio-demographic characteristics of the individuals in the risk group and the factors that lead them to commit suicide. The first examination of patients who attempt suicide is usually performed in the emergency department

(ED). Therefore, our study aimed to retrospectively examine the socio-demographic characteristics and clinical results of patients who applied to the ED of our hospital with a suicide attempt over a one-year period.

## Materials and Methods

This cross-sectional observational study was conducted in an education and research hospital with approximately 180,000 ED admissions annually. Comprehensive health service is provided 24 h a day in the ED of this hospital, which is located in the city center. Ethics committee approval was obtained before starting the study. Ethical approval for this study was obtained from the Ethics Committee of University of Health Sciences Turkey, İzmir Tepecik Education and Research Hospital, İzmir, Turkey (decision no: 2021/06-16, date: 15.06.2021) and all study procedures were performed in accordance with the Declaration of Helsinki. The data of patients aged 18 years who applied to the ED due to a suicide attempt between January 1 and December 31, 2019, were retrospectively scanned through the hospital's electronic medical record system. Patients with missing data were excluded from the study.

Age, gender, marital status, educational status, history of psychiatric illness, and whether or not they had similar attempts before were recorded in the case report forms of the patients included in the evaluation. In addition, the methods used in the suicide attempt, the time of day the attempts were made, the units where patients were followed, and the clinical outcomes of the cases were also questioned. The data obtained were classified at the end of the study and evaluated statistically.

## Statistical Analysis

All analyses were performed using IBM® SPSS 22.0 (SPSS Inc., Chicago, Illinois, USA). Whether the data were normally distributed or not was evaluated with the Kolmogorov-Smirnov test. Qualitative variables are expressed as the number of observations and percentage. The median and interquartile range (IQR) are given with their minimum

and maximum values for quantitative data. Pearson’s chi-square test was used for analyzing nominal variables, and the Mann-Whitney U test was used for ordinal variables. Analyses were performed at 95% confidence intervals (95% confidence interval). A p-value of 0.05 was set as significant.

### Results

After excluding four patients because of missing data, the study was conducted with 241 patients. Patients who attempted suicide were 0.14% of patients admitted to the ED within one year. The median age of our study patients was 30 (IQR: 22-37, min: 18, max: 87), and 167 (69.3%) were female (p<0.05). There was no significant difference between the median ages according to the gender of the patients. The median age of male patients was 30 (IQR: 23-39, min: 18, max: 87), whereas that of females was 29 (IQR: 22-36, min: 18, max: 71). Patients of 170 (70.5%) who attempted suicide were between the ages of 18 and 35 (p<0.05). Patients of 113 (46.9%) had primary education. In addition, 75 (31.1%) of the patients had a known psychiatric disease diagnosis, and 38 (15.8%) patients had similar attempts before (Table 1).

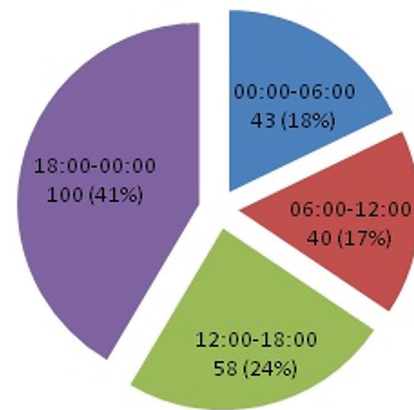
Parameter	Sub parameters	n	%
Gender	Male	74	30.7
	Female	167	69.3
Age	18-35	170	70.5
	36-50	57	23.7
	51-65	8	3.3
	>65	6	2.5
Marital status	Married	102	42.3
	Single	124	51.5
	Divorced	8	3.3
	Widowed	3	1.3
	Not specified	4	1,6
Educational status	Illiterate	8	3.3
	Literate	15	6.2
	Primary school graduate	113	46.9
	High school graduate	62	25.7
	University graduate	25	10.4
History of psychiatric illness	Yes	75	31.1
	No	166	68.9
Previous suicide attempt	Yes	38	15.8
	No	203	84.2

Suicide attempts of 197 (81.7%) were self-poisoning with multiple drug ingestion (Table 2). It was determined that 100 (41.5%) suicide attempts were made between 18:00 and 00:00 (Figure 1). Patients 142 (58.9%) were discharged after ED follow-up, and 67 (27.8%) could not complete ED follow-up (32 of them signed a record of refusing the recommended treatment, and 35 left the ED without permission). Of the remaining patients, 15 (6.2%) were taken to the intensive care unit, and 14 (5.8%) were followed up in the inpatient service. Of the patients, 3 (1.3%) admitted to the ED after the suicide attempt with the hanging method, who were all male and aged 27, 28, and 30 years, died in the early period. All other patients were discharged without sequelae at the end of the follow-up period.

### Discussion

Since suicide attempts are a serious cause of mortality and morbidity, they are frequently the subject of research worldwide. The main purpose of these studies is to identify the current situation and its potential reasons and to make suggestions accordingly, thus preventing new attempts. We

Method	n	%
Self-poisoning with multiple drug ingestion	197	81.7
Self-poisoning with street drugs	30	12.4
Drinking corrosive substances	4	1.7
Taking rat poison	4	1.7
Hanging	3	1.3
Jumping from a high place	2	0.8
Try to burn his/herself	1	0.4
Total	241	100



**Figure 1.** Time intervals of the suicide attempts

believe that our research results will contribute to improving and performing social protection programs for individuals in risk groups.

When suicides were analyzed according to provinces in TÜİK data, 196 suicides were committed in İzmir, among the first three provinces with the highest number of cases, and 157 (80%) were men<sup>(3)</sup>. In the literature review, Canpolat et al.<sup>(4)</sup> found that 69.5%, Sahin et al.<sup>(5)</sup> 63.3%, and Atli et al.<sup>(6)</sup> 78%, found that women frequently attempted suicide. Similarly, in the studies conducted by Akar et al.<sup>(7)</sup> and Mert et al.<sup>(8)</sup>, it was stated that the frequency of attempted suicide was higher in women and that the frequency of death due to suicide was higher in men. In our study, consistent with these results, 74 (30.7%) of the 241 patients who attempted suicide were male, 167 (69.3%) were female, and all death cases were male. This result shows that female patients are more likely to attempt suicide, whereas males commit suicide more frequently.

In their studies, Canpolat et al.<sup>(4)</sup> (44.3%) and similarly, Atli et al.<sup>(6)</sup> 57% found the most common suicide attempt age range to be 15-24 years. In these studies, patients who attempted suicide were married at a rate of 50% and 51%, respectively<sup>(4,6)</sup>. According to the suicide data of our country, the most common suicide attempt is in the 19-35 age group<sup>(3)</sup>, which is similar to the age group of the patients in our study. According to TÜİK data, while 48.1% of the patients who committed suicide in our country were married, 48.5% of the patients who attempted suicide in our study were married<sup>(3)</sup>.

In a meta-analysis examining the suicide methods preferred by suicide cases who applied to the ED, it was stated that self-poisoning with multiple drug ingestion was frequently used as the suicide method with a rate of 52%<sup>(9)</sup>. In the study of Canpolat et al.<sup>(4)</sup>, 93.6% of suicide attempts were found to be drug and toxic substance intake. In the study by Atli et al.<sup>(6)</sup>, the most common suicide method was self-poisoning with multiple drug ingestion at a rate of 93.4%. Similar to these studies, 87.1% of our patient population attempted suicide by self-poisoning with multiple drug ingestion. We believe that this is because patients have easier access to drugs. According to TÜİK data<sup>(3)</sup>, consistent with our study, the most common method of suicide resulting in death was hanging.

According to TÜİK suicide data, 35% of the suicide cases between 2000 and 2019 were carried out by primary school graduates<sup>(3)</sup>. Consistent with this, in the literature review, suicide attempts were frequently performed by

primary school graduates<sup>(4-6,10)</sup>. These data were found to be compatible with the results of our study. This result can be interpreted as people with higher education levels having more knowledge about asking for help, seeking help, and finding solutions.

In our study, the rate of patients who attempted suicide for the first time was 84.2%, which is consistent with similar studies in the literature<sup>(4-6)</sup>. In the study by Sahin et al.<sup>(5)</sup>, 33% of the patients were receiving psychiatric treatment in the last 6 months, whereas 31.1% of the patients in our study had a history of psychiatric illness. In the study of Atli et al.<sup>(6)</sup>, suicide attempt was found most frequently between 16:00 and 24:00 with 49.8%, while in our study, it was found most frequently between 18:00 and 24:00 with 41%.

In the study of Sahin et al.<sup>(5)</sup>, it was determined that 47.5% of the patients left the hospital with treatment refusal or without permission, and 27.8% of the patients in our study left the hospital before the end of their treatment and follow-up periods. These results indicate that patients who attempt suicide tend to leave the hospital before completing their observation period or before their treatment is completed. It would be beneficial for the patients to be asked for psychiatric consultation in the early period and thus psychiatric evaluations of the suicide patients before they leave the hospital.

### Study Limitations

The limitations of our study include the retrospective design and the fact that a single-center study with data from one ED may not be representative of the whole country. In addition, in patients with ingestion of multiple drugs, it is unclear which substance was mainly responsible for the clinical manifestations. Furthermore, comorbidities that may affect the prognosis of the patients were excluded from the evaluation.

### Conclusion

The majority of patients who attempt suicide are young women who are primary school graduates and poisoned by multiple drugs. Suicide attempts, especially by women, are mostly unsuccessful, but the risk of mortality in individuals who use the hanging method is quite high. Because patients who attempt suicide tend to leave the ED before their follow-up and treatment are completed, precautions should be taken.

## Ethics

**Ethics Committee Approval:** Ethical approval for this study was obtained from the Ethics Committee of University of Health Sciences Turkey, İzmir Tepecik Education and Research Hospital, İzmir, Turkey (decision no: 2021/06-16, date: 15.06.2021) and all study procedures were performed in accordance with the Declaration of Helsinki.

**Informed Consent:** Retrospective study.

## Authorship Contributions

Concept: H.İ., N.Y.O., D.A.D., Design: H.İ., N.Y.O., D.A.D., Data Collection or Processing: N.Y.O., D.A.D., Analysis or Interpretation: H.İ., Literature Search: H.İ., N.Y.O., D.A.D., Writing: H.İ., N.Y.O.

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study received no financial support.

## References

1. World Health Organization (WHO). Suicide (2019). Available from: <https://www.who.int/news-room/fact-sheets/detail/suicide> (Accessed on 25 August 2021).
2. Harmancı P. "Dünyadaki ve Türkiye'deki intihar vakalarının sosyodemografik özellikler açısından incelenmesi." Hacettepe University Faculty of Health Sciences Journal. 1st National Health Sciences Congress Book (2015).
3. Türkiye istatistik kurumu (TÜİK). İstatistik veri portalı 2023. Erişim adresi: <https://data.tuik.gov.tr/Kategori/GetKategori?p=nufus-ve-demografi-109&dil=1> (Erişim tarihi: 25 Ağustos 2021).
4. Canpolat Ö, Yıldırım İ, Kafadar H, Demir M. Evaluation Of Suicide Cases Applied To Emergency Service. *Acta Oncol Tur.* 2020;53:281-7.
5. Sahin T, Koç N, Türkön O, Tüle H, Ceylan A, Bilgili MA. Retrospective Analysis of Poisoning Cases Admitted to Kayseri City Hospital Adult Emergency Department as a Result of Suicidal Attempt by Drug Ingestion. *Van Tıp Derg.* 2021;28:100-10.
6. Atli A, Uysal C, Kaya MC, et al. Assessment of admission to the emergency department due to suicide attempt: Sanliurfa sample. *Journal of Mood Disorders.* 2014;4:110-4.
7. Akar T, Derinöz O, Demirel B. Drug intoxications and hospital costs. *Türk Pediatri Arşivi.* 2007; 42:103-6.
8. Mert E, Toros F, Bilgin NG, Çamdeviren H. Acil polikliniğine zehirlenme nedeni ile gelen olguların sosyodemografik ve psikososyal açıdan değerlendirilmesi. *Anadolu Psikiyatri Dergisi.* 2007;8:121-5.
9. Kawashima Y, Yonemoto N, Inagaki M, Yamada M. Prevalence of suicide attempters in emergency departments in Japan: a systematic review and meta-analysis. *J Affect Disord.* 2014;163:33-9.
10. Ercan S, Aksoy M, Yalçın A, Şimşek AÇ, Acar RS, Erçin Şahin T. Ankara'da acil servislere başvuran intihar girişim olgularının sosyodemografik ve klinik özellikleri. *JCBPR.* 2016;1:5-12.