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Characterization of the suicide cases admitted to an emergency service in Turkey

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Abstract

Suicide attempts are multifaceted actions originating from a wide variety of socio-demographic and clinical factors. This study aimed to characterize suicide cases presented to the emergency service of a University Hospital in Turkey. This retrospective cross-sectional study was conducted by evaluating patients admitted to the emergency service. Descriptive statistics, Chi-square, and the Student's t-test were used to compare groups. A total of 507 patients were admitted to the emergency department with a suicide attempt. Among the applicants, 383 (75.5%) were due to drug poisoning, 79 (15.6%) due to self-laceration, and 45 (8.9%) due to other reasons. Among the patients with drug self-poisoning, the most frequent intoxication was with multiple medications. Most of the patients were females, aged 26-44 years, single, unemployed, living with their family, attempted at home in weekdays, and accompanied by a family member in the emergency unit. Of the patients, 74 (14.6%) had a history of at least one previous suicide attempt. The total number of discharged patients was 438 (86.3%), while the remaining 69 (13.7%) were hospitalized, of whom 39 (56.5%) were males (p=0.004). The majority of hospitalized patients were in the 17-44-age interval. There was a significant difference between hospitalized and discharged patients concerning age groups (p=0.007). Also, a positive family history of a psychiatric disease was associated with the proportions of hospitalization (positive history: 14 (28.0%) hospitalizations vs. negative history: 55 (12.0%) hospitalizations) (p=0.002). Logistic regression analysis demonstrated that suicide attempts with drugs was significantly associated with gender and accompanying alcohol use (p<0.05). In conclusion, close follow-up of the first attempters by their family physicians, psychologists, and psychiatrists, as well as the education of families or inmates could be of benefit to prevent suicide attempts. Further research is recommended to enlighten social behaviors and ideations, leading to suicide attempts.

Keywords: Suicide, attempted; emergencies; emergency outpatient unit; self-injurious behavior; observational study

Introduction

Each year, 800 000 patients die from suicide worldwide. Although it is reported that 79% of the suicides occur in underdeveloped or developing countries, this health problem affects all populations and age groups. It is the second most common cause of death between the ages of 15-29 [1]. On the other hand, approximately 70% of the cases are unsuccessful attempts, not leading to death [8, 9]. Suicides beginning in the adolescent period continue to increase during early maturity [2]. Although the attempt rate is higher in women, successful suicide is more common among men [3].

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Research shows that the most frequently applied suicide mechanism is intoxication, followed by self-injuries, such as cutting or stabbing [4,5]. The first contact with the health system in almost all suicide attempts is the emergency service [6]. The initial evaluation and treatment of these patients are done by emergency doctors. Emergency doctors provide management of the acute stage, and they also coordinate proper psychiatric care. After the first evaluation, the health team assesses the risk to finalize suicide, and accordingly, may decide to discharge the patient [7].

The most fundamental risk factor for a suicide attempt is a previous try. Thus, when the behavioral aspect of suicidal interventions is evaluated from the public health perspective, determining the triggering factors becomes crucial for emergency medicine. For this reason, it is essential to record any suicide ideas and administer assistance for prevention. Although there are worldwide geographical and cultural differences in the death ratios due to suicide, local figures describing the condition in the Aegean area are scarce [8]. Therefore, we decided to study the characteristics

of the patients admitted to a local training hospital in Izmir, with the objective of foreseeing the factors that can prevent secondary attempts. The main study question of the research was to compare admitted and discharged patients concerning suicide mechanisms.

Materials and Methods

This cross-sectional study was reported according to the Strobe Guidelines [9]. The local ethics committee at Izmir University Medical Faculty approved the research protocol (Approval number: 20-13T/4 Date: March 4, 2020).

Setting

This study was conducted between April and September 2020 in the Emergency Department (ED) of the Ege University Medical Faculty, a single-center tertiary-level referral hospital in Izmir, Turkey, having nearly annually 190 000 ED visits.

Data Collection

Using the hospital automation system, the electronic medical records of patients over 17 years old (17 exclusive), admitted to the emergency department due to suicide attempts between January 1, 2017, and December 31, 2019, and examined by emergency physicians were reviewed retrospectively. Accidental poisonings (n=22) and suicide attempts without any harmful consequences (n=14) were discarded (Figure 1).

The sample size calculation was based on the primary outcome variable 'suicide mechanism. Using the GPower 3.1 software (Heinrich Heine University, Düsseldorf, Germany), it was calculated that a sample size of 507 patients provides a power of 99% to compare admitted and discharged patients concerning the suicide mechanism (with drugs/other) with an effect size of 0.2 (small-medium).

The archive search was conducted by an experienced data analyst from the hospital's IT department using the relevant ICD codes (International Statistical Classification of Diseases and Related Health Problems) [10], which revealed a total of 507 patients.

A standard case report form was used to collect demographic and clinical information of the patients. Data were retrieved on socio-demographic characteristics (age, sex, marital status, living partners, and employment status), details of the suicide (mechanism, venue, weekday/weekend), clinical specifications (history of psychiatric illness, history of psychiatric disease in the family, previous suicide attempts, alcohol or drug use during suicide), and the accompanying person.

Also, the patients' duration of stay in the emergency service, transfer to other clinics, discharge status, transfer to the intensive care unit, and leaving without doctors consent was noted. During the analysis, two categories (admitted/discharged) were formed by merging those leaving without doctors' consent and treatment refusal under the 'discharged' group.

Age was analyzed in three groups (17-25 years, 26-44 years, and ≥45 years). Job-status was grouped as 'student', 'employed', and 'unemployed'. Retired patients were included in the unemployed group. The marital status was described as 'single' and 'married'. Divorced and widowed patients were regarded as singles.

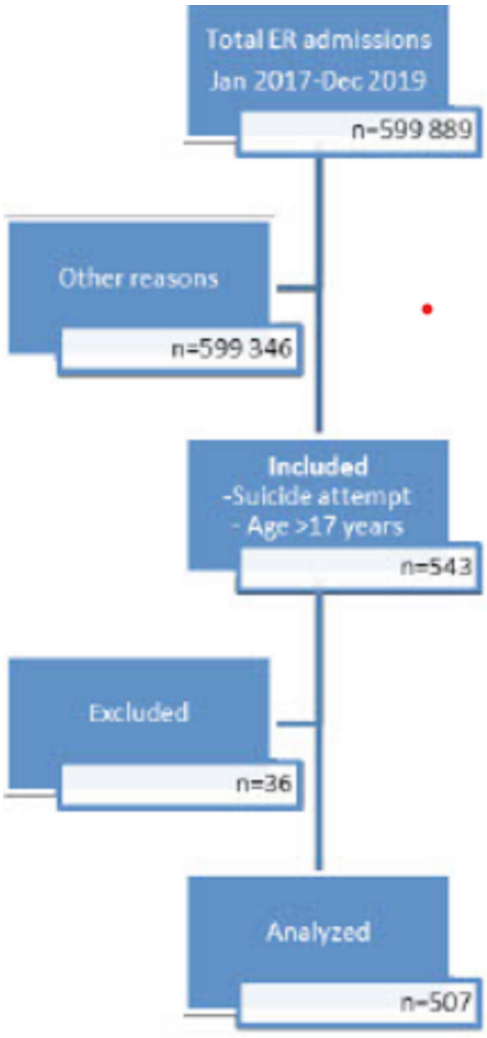

Figure 1. Participant flow diagram

Statistical Analysis

Data were recorded and analyzed using the SPSS (Statistical Package for Social Sciences, IBM inc. Armonk, New York, USA) software version 25.0 for Windows. Continuous and categorical variables were presented by mean±standard deviation (SD) and frequency/percentage, respectively. Patient characteristics and the studied variables were compared using the Pearson's Chi-square/Fisher's exact and Student's t-tests. The logistic regression analysis was used as a multivariate test to examine the effect on the categorical dependent variable suicide mechanism (suicide with drugs/other suicide mechanisms). The impact of the following variables on the dependent variable were analyzed: sex, marital status, occupation, venue of attempt, concomitant alcohol and/or drug use, previous suicide attempt, family history of suicide, known psychiatric illness, and family history of psychiatric disease. The regression analysis results were presented as odds ratios (OR) and corresponding 95% confidence intervals. The tests were regarded as significant, given that the p-value was <0.05.

Results

The total number of post-suicide admissions is 507, which is 0.08% of the total admissions. The mean age was 31.29 ± 11.64 years.

The majority of the patients were female (59.4%), between 26-44 years old (44.8%), single (71.8%), and unemployed (62.3%). Also, 75.5% of the patients attempted suicide with an overdose of drugs. During the attempts, 98 (19.3%) of the patients used alcohol, and 19 (3.7%) used narcotic drugs (Table 1).

Psychiatric consultation was performed on 488 (96.3%) patients, and 343 (67.7%) of the cases were discharged with medical advice and outpatient follow up. Three patients (0.6%) died in the emergency service, and 13 (2.6%) were transferred to the intensive care unit for further treatment. Thirty patients were hospitalized in the psychiatry department (Table 1).

Of the self-poisonings with medications, 39.2% (150 patients) were with multiple drugs, of which 66 (44.0%) used analgesic-based medicines, and 34 (22.7%) used psychiatric drugs. Among the patients with single-drug poisonings (n=233), psychiatric drugs were most frequently used (39.9%, n=93), followed by analgesic medications (24.0%, n=56). The total number of self-injury attempts was 79 (15.6%), while the remaining 45 (8.9%) was classified as others (hanging, fall from a height, fire gun injury, combined drug, and self-injury, and liquefied petroleum gas inhalation). Of the 3 patients who died, one had carotid artery trauma, one jumped from height, and one hung himself. Of the patients, 74 (14.6%) had a history of at least one suicide attempt (Table 1).

As seen in Table 2, 271 (90.0%) of the females and 167 (81.1%) of the males were discharged (p=0.004). The highest discharge rate was seen between 17and 44 (n=375, 73.9%, p=0.007). Of the drug self-poisoned patients, 353 (92.2%) were discharged (p<0.001). Fourteen (28%) of the patients having a history of psychiatric disorder in the family in contrast to 55 (12%) of those without a family history were hospitalized (p=0.002). The median (min.-max.) duration of stay in the emergency service was 6 (1-120) hours.

Of the drug self-poisoned cases, 154 (40.2%) were aged between 17-25, 169 (44.1%) between 26-44, and 60 (15.7%) were ≥45. Most of the patients attempted suicide with multiple medications (48.0%, n=184), and among the group using single drugs, psychiatric remedies were most frequently used (18.3%). The number of drug self-poisoning cases was 259 (67.6%) for females and 124 (32.4%) for males. In comparison, the number of self-harm with cutting and stabbing was 21 (26.6%) for females and 58 (73.4%) for males. On the other hand, of the self-intoxications with other modalities, 21 (46.7%) were females, while 24 (53.3%) were males.

In the multivariate logistic regression analysis, gender and concomitant alcohol abuse were the only independent significant variables affecting suicide attempts with medications (Table 3). Accordingly, women are 3.45 times more likely to commit suicide with drugs than men. The 95% confidence interval of the risk of suicide with medications for women compared to men varies between 2.18 times and 5.45 times. Also, the risk of suicide with drugs is 2.113 times for those who do not have a history of concomitant alcohol use than those who have. The 95% confidence interval of the risk of suicide with drugs varies between 1.273 times and 3.508 times compared to those who used alcohol (Table 3).

Table 1. Demographic and clinical characteristics of the participants (n=507)

Variables		n	%
Age group	17-25	205	40.4
	26-44	227	44.8
	≥44	75	14.8
Sex	Female	301	59.4
	Male	206	40.6
Marital status	Single	364	71.8
	Married	143	28.2
Residential status	Single	305	60.2
	Married	36	7.1
	Family	27	5.3
	Alone	139	27.4
Occupation	Employed	133	26.2
	Unemployed	316	62.3
	Student	58	11.4
Mechanism of attempt	Self-poisoning with drugs	383	75.5
	Self-laceration	79	15.6
	Other	45	8.9
Venue of attempt	Home	453	89.3
	Other	54	10.7
Day of attempt	Weekday	352	69.4
	Weekend	155	30.6
Season of attempt	Spring	129	25.4
	Summer	139	27.4
	Winter	135	26.6
	Autumn	104	20.5
Concomitant alcohol use	Yes	98	19.3
	No	409	81.7
Concomitant drug use	Yes	19	3.7
	No	488	96.3
Previous attempt	At least one previous attempt	74	14.6
	More than one attempt	38	7.5
Family history of suicide	Yes	18	3.6
	No	489	96.4
ED attendant of the patient	Family member	226	44.6
	Friend	35	6.9
	None	35	6.9
	Other/unknown	211	41.6
Known psychiatric illness		236	46.5
		271	53.5
Family history of psychiatric illness	Yes	50	9.9
	No	457	90.1
Patient Outcome	Discharged	343	67.7
	Transferred to the intensive care unit	13	2.6
	Transferred to the psychiatric ward	30	5.9
	Left the ED without doctor consent	52	10.3
	Exitus	3	0.6
	Treatment refusal	36	7.1
	Other	30	5.8

Table 2. Comparison of the assessed variables between discharged and admitted patients

Variables		Discharged n=438		Admitted n=69		p-value
		n	%	n	%	
Sex	Female	271	90.0	30	10.0	0.004
	Male	167	81.1	39	18.9	
Age group	17-25	189	92.2	16	7.8	0.007
	26-44	186	81.9	41	18.1	
	≥45	63	84.0	12	16.0	
Marital Status	Single	321	88.2	43	11.8	0.060
	Married	117	81.8	26	18.2	
Employment status	Employed	112	84.2	21	15.8	0.676
	Unemployed	276	87.3	40	12.7	
	Student	50	86.2	8	13.8	
Residential status	Single	30	83.3	6	16.7	0.130
	Family	256	83.9	49	16.1	
	Friend	25	92.6	2	7.4	
	Other	127	91.4	12	8.6	
Mechanism of attempt	Self-poisoning with drugs	353	92.2	30	7.8	<0.001
	Self-laceration	55	69.6	24	30.4	
	Other	30	66.7	15	33.3	
Venue of attempt	Home	391	86.3	62	13.7	0.883
	Other	47	87.0	7	13.0	
Day of attempt	Weekday	307	87.2	45	12.8	0.414
	Weekend	131	84.5	24	15.5	
Season of attempt	Spring	114	88.4	15	11.6	0.430
	Summer	122	87.8	17	12.2	
	Autumn	91	87.5	13	12.5	
	Winter	111	82.2	24	17.8	
Concomitant alcohol use	Yes	85	86.7	13	13.3	0.912
	No	353	86.3	56	13.7	
Concomitant drug use	Yes	17	89.5	2	10.5	1.000*
	No	421	86.3	67	13.7	
Previous attempt	At least one previous attempt	59	79.7	15	20.3	0.104
	More than one attempt	31	81.6	7	18.4	
Family history of suicide	Yes	12	66.7	6	33.3	0.025
	No	426	87.1	63	12.9	
Family history of psychiatric disorders	Yes	36	72.0	14	28.0	0.002
	No	402	88.0	55	12.0	
ED attendant of the patient	Family member	185	81.9	41	18.1	0.024*
	Friend	34	97.1	1	2.9	
	None	30	85.7	5	14.3	
	Other/unknown	189	89.6	22	10.4	
Known psychiatric illness	Yes	197	83.5	39	16.5	0.074
	No	241	88.9	30	11.1	

ED: Emergency department, *Fisher's Exact test.

Table 3. Multivariable logistic regression analysis showing factors associated with self-poisoning using drugs

Parameters		OR (95% CI)	p-value
Sex	Male	1	<0.001
	Female	3.45 (2.18-5.45)	
Marital status	Married	1	0.693
	Single	0.899 (0.531-1.52)	
Occupation	Student	1	0.667
	Unemployed	0.705 (0.315-1.57)	
	Employed	0.980 (0.283-1.63)	
Venue of attempt	Other	1	0.412
	Home	1.32 (0.678-2.583)	
Concomitant alcohol abuse	Yes	1	0.004
	No	2.113 (1.273-3.508)	
Concomitant drug abuse	No	1	0.060
	Yes	0.369 (0.131-1.03)	
Previous attempt	None	1	0.235
	At least one previous attempt	0.818 (0.444- 1.506)	
	More than one	0.511 (0.233 - 1.122)	
Family history of suicide	No	1	0.957
	Yes	1.03 (0.302 - 3.54)	
Known psychiatric illness	No	1	0.610
	Yes	0.885 (0.554-1.41)	
Family history of psychiatric	No	1	0.226
	Yes	0.608 (0.271-1.36)	

Discussion

One of the most common reasons for ED admissions is suicide attempts. These attempts can originate from various socio-demographic or clinical factors. It is vital to describe the profile of these attempted patients, and determine the triggering factors. Key findings of this study can be summarised as follows: women attempted more suicides compared to men, the most common suicide mechanism was with medications, and being a woman and having no associated alcohol use were the two independent factors associated with suicide attempts using drugs.

Based on our findings, self-intoxication with medications is the primary mechanism of suicide. The majority of the patients were female (male to female admission ratio is 1:1.46), generally aged 17-44 years, single, unemployed, living with their family, and attempted suicide during a weekday and at home. All these findings are coherent with the related literature [10–12]. Suicide attempts are more common in women. However, men usually complete their attempts [13]. A suicide attempt with intoxication is the most frequent mechanism in all age categories [6]. On the other hand, the most frequent intoxication mechanism is intoxications with drugs [14]. Tink et al. [15] stated in their work that undetermined and unsubscribed drug use is one of the most frequently utilized methods. Multiple drug use is an increasing concern with time [16]. In our study, the most common mechanism was self-poisoning with drugs, where the majority of cases utilized multiple medications.

Our analysis also showed that single persons had a more tendency for suicide attempts. However, the literature has conflicting results in this regard. In some work, the number of married and unmarried cases were equal [11], while in some others, married [17] or unmarried [12,18] were more prominent. Parallel to our work, another study from Turkey demonstrated a higher tendency of attempts by unmarried people [12]. Our work confirms that unemployed suicide attempts are much higher. Increased unemployment rates lead to the short-term rise of the working-age female as well as male suicides [19]. Unemployment also increases other risk factors such as lack of economic support, less socialization, and difficulty maintaining life [20]. Eighteen of our patients (3.6%) had a family history of suicide. It has been reported that the risk of suicide increases in those with a positive family history [21]. The psychiatric disease rate in this study is 46.5%, and it is known that this contributes to increased risk [22]. Among the suicide patients admitted to our emergency service, 69.4% attempted during weekdays and 30.6% during the weekends. Our results are parallel with the literature data and show the tendency for in-week casualties [23]. When we observe the emergency service application complaints, 8% of adult patients recently had the idea of suicidal tendencies, which is in accordance with the literature [24]. In our research, 22.1% of the patients had a history of a suicide attempt. Previous works suggest that suicide is seen more frequently in patients with suicide history [25].

Compared to men, being women constituted 3.5 times more risk for suicide attempts using medications. According to previous research, while females prefer self-poisoning as an attempt, males rather use more violent and deadly alternatives [26], which is confirmed by our study. Also, our analysis revealed that males tend to complete the attempt more than females. Some patients had concomitant alcohol use during the attempt. Yet, drug self-poisoning was more common in patients without concomitant alcohol use.

Furthermore, living alone is often a risk factor for suicide attempts [27]. Additionally, previous work by Duberstein et al. [28] shows that social support and protective effects of living with family members reduces the risk of suicides. This was found contradictory in our study; most of our patients (60.2%) were living with their families.

There are many ways suggested to avoid suicide. Direct conversations, detecting the possible risks, avoiding deadly tools, social support, and interference are some common approaches. People who have the opportunity to reach convenient mental health care and build healthy personal relationships are capable of overcoming problems deterring suicide [29]. Various unique strategies were presented by the 2012 National Strategy for Suicide Prevention that target to avoid suicide attempts. Reducing the doses offered in over-the-counter medications and preventing access to suicidal tools, such as toxic substances, poisons, and handguns, are among these strategies [30].

Although a prior suicide attempt, family history of suicide, and a family history of a mental disorder or substance abuse are among the known risk factors, it is possible to take effective preventative measures. As suggested by Swiss researchers, these measures

can be regular meetings arranged by professionals to talk with the suicidal person [31]. These conversations could be about the depression, as well as the plan and means of the possible attempt.

This study should be interpreted in light of some limitations. The primary limitation of our study is that it is retrospective, cross-sectional, and is conducted in a single emergency service. On the other hand, the research covered a timespan of three years, which provided a sufficient sample size. Secondly, the inclusion of the educational status could yield valuable information concerning the relationship between education and suicide. Third, patients who die at the suicide venue are not registered in the hospital electronic medical records database. Thus, this study lacks any information on these cases.

Conclusions

Carried out in a third-level health institution, this study contributes to the available scientific data on suicide attempts in Turkey by analyzing the patients admitted to the emergency service. The principal analysis was based on the patients' suicide mechanisms, demographic characteristics, psychiatric events, discharge, and hospitalizations to other departments in the hospital. On behalf of the findings in this study, we suggest that the health team caring for suicide patients should collaborate to prevent of future attempts, which carry a higher risk of success. Close follow-up of the first attempters by their family physicians, psychologist, and psychiatrists, as well as education of the families or other inmates, could be of benefit too. Future studies should aim to uncover and prevent the underlying psychosocial reasons in patients admitting suicide.

Conflict of interests
The authors declare that they have no competing interests.

Financial Disclosure
All authors declare no financial support.

Ethical approval
The local ethics committee at Ege University Medical Faculty approved the research protocol (Approval number: 20-13T/4 Date: March 4, 2020).

References

1. Organization WH. Meeting report: WHO technical consultation: nutrition-related health products and the World Health Organization model list of essential medicines–practical considerations and feasibility: Geneva, Switzerland, 20–21 September 2018. WHO. 2019.
2. Hawton K, Saunders KEA, O'Connor RC. Self-harm and suicide in adolescents. Lancet. 2012;379:2373–82.
3. Nock MK, Borges G, Bromet EJ, et al. Cross-national prevalence and risk factors for suicidal ideation, plans and attempts. Br J Psychiatry. 2008;192:98–105.
4. Spittal MJ, Pirkis J, Miller M, Studdert DM. Declines in the lethality of suicide attempts explain the decline in suicide deaths in Australia. PLoS One. 2012;7:e44565.
5. Canner JK, Giuliano K, Selvarajah S, Hammond ER, Schneider EB. Emergency department visits for attempted suicide and self harm in the USA: 2006–2013. Epidemiol Psychiatr Sci. 2018;27:94–102.
6. Lee CA, Choi SC, Jung KY, et al. Characteristics of patients who visit the emergency department with self-inflicted injury. J Korean Med Sci. 2012;27:307–12.
7. Baraff LJ, Janowicz N, Asarnow JR. Survey of California emergency departments about practices for management of suicidal patients and resources available for their care. Ann Emerg Med. 2006;48:452–8.
8. Keskin Gokcelli D, Tosun Tasar P, Akcam NO, et al. Evaluation of attempted older adults suicides admitted to a University Hospital Emergency Department: Izmir study. Asian J Psychiatr. 2017;30:196-9.
9. Von Elm E, Altman DG, Egger M, et al. The Strengthening the reporting of observational studies in epidemiology (STROBE) Statement: guidelines for reporting observational studies. Int J Surg. 2014;12:1495–9.
10. El Majzoub I, El Khuri C, Hajjar K, et al. Characteristics of patients presenting post-suicide attempt to an Academic Medical Center Emergency Department in Lebanon. Ann Gen Psychiatry. 2018;17:21.
11. Filippatos G, Karasi E. Characteristics of attempted suicide patients presenting to a greek emergency department. Heal Sci J. 2017;11:1.
12. Turhan E, Inandi T, Aslan M, et al. Epidemiology of attempted suicide in Hatay, Turkey. Neurosci. 2011;16:347-52.
13. Vos T, Abajobir AA, Abbafati C, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries for 195 countries, 1990-2016: A systematic analysis for the Global Burden of Disease Study 2016. Lancet. 2017.
14. Kvaran RB, Gunnarsdottir OS, Kristbjornsdottir A, et al. Number of visits to the emergency department and risk of suicide: a population-based case–control study. BMC Public Health. 2015;15:227.
15. Ting SA, Sullivan AF, Boudreaux, et al. Trends in US emergency department visits for attempted suicide and self-inflicted injury, 1993–2008. Gen Hosp Psychiatry. 2012;34:557–65.
16. Mowry JB, Spyker DA, Cantilena Jr LR, et al. 2013 Annual report of the American association of poison control centers' National poison data system (NPDS): 31st annual report. Clin Toxicol. 2014;52:1032–283.
17. Kawashima Y, Yonemoto N, Inagaki M, et al. Prevalence of suicide attempters in emergency departments in Japan: a systematic review and meta-analysis. J Affect Disord. 2014;163:33–9.
18. Ronquillo L, Minassian A, Vilke GM, et al. Literature-based recommendations for suicide assessment in the emergency department: a review. J Emerg Med. 2012;43:836-42.
19. Fairweather-Schmidt AK, Anstey KJ, Salim A, et al. Baseline factors predictive of serious suicidality at follow-up: findings focussing on age and gender from a community-based study. BMC Psychiatry. 2010;10:41
20. Stuckler D, Basu S, Suhrcke M, et al. The public health effect of economic crises and alternative policy responses in Europe: an empirical analysis. Lancet. 2009;374:315-23.
21. Qin P, Agerbo E, Mortensen PB. Suicide risk in relation to family history of completed suicide and psychiatric disorders: a nested case-control study based on longitudinal registers. Lancet. 2002;360:1126–30.
22. Burón P, Jimenez-Trevino L, Saiz PA, et al. Reasons for attempted suicide in Europe: prevalence, associated factors, and risk of repetition. Arch Suicide Res. 2016;20:45–58.
23. Joubert L, Petrakis M, Cementon E. Suicide attempt presentations at the emergency department: outcomes from a pilot study examining precipitating factors in deliberate self-harm and issues in primary care physician management. Soc Work Health Care. 2012;51:66-76.
24. Betz ME, Boudreaux ED. Managing suicidal patients in the emergency department. Ann Emerg Med. 2016;67:276.
25. Larkin C, Di Blasi Z, Arensman E. Risk factors for repetition of self-harm: a systematic review of prospective hospital-based studies. PLoS One. 2014;9:e84282.
26. Callanan VJ, Davis MS. Gender differences in suicide methods. Soc Psychiatry Psychiatr Epidemiol. 2012;47:857-69.
27. Conwell Y, Duberstein PR, Caine ED. Risk factors for suicide in later life. Biol Psychiatry. 2002;52:193–204.
28. Duberstein PR, Conwell Y, Conner KR, et al. Poor social integration and suicide: fact or artifact? A case-control study. Psychol Med. 2004;34:1331.
29. Simon RI. Assessing and managing suicide risk: Guidelines for clinically based risk management. American Psychiatric Pub. 2008.
30. Office of the Surgeon General (US); National action alliance for suicide prevention (us). 2012 national strategy for suicide prevention: goals and objectives for action: A report of the U.S. Surgeon General and of the National Action Alliance for Suicide . Washington (DC), USA: US Department of Health & Human Services (US); 2012.
31. World Health Organization. Preventing suicide: A resource for primary health care workers. Geneva, Switzerland: WHO. 2000.