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Türkiye'de İntihar Ölümleri: 2008-2018 Arasında Ülke Çapında Bir Araştırma
Suicide Deaths in Turkey: A Nationwide Study Between 2008 and 2018

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Özet

Amaç: Bu çalışmadaki amacımız intihar kaynaklı ölümlerin yaş grupları, medeni durum, eğitim düzeyleri, nedenleri, yöntemleri ve ikamet yerlerini cinsiyet açısından incelemektir.

Gereç ve Yöntemler: 2008-2018 yılları arasındaki verilerimizi Türkiye İstatistik Kurumu resmi internet sitesinde yer alan ve araştırma amaçlı kullanımına izin veren veri tabanından elde ettik.

Bulgular: 2008-2018 yılları arasında toplam 33800 intihar ölümü rapor edilmiştir. Bunların 24715'i (%73,1) erkek, 9085'i (%26,9) kadındı. İntihar ölüm oranı kadınlarda 15 yaş altı erkeklere göre daha yüksekti. İntihar ölümleri Kasım ayında en düşük seviyedeydi. Ateşli silah ve bıçaklama erkeklerde, kimyasal madde alımı ve yüksekten atlama kadınlarda anlamlı derecede yüksekti. Hastalık, her yıl her iki cinsiyette de intiharların en yaygın nedeniydi. Boşanmış bireylerde intihar ölüm oranı daha yüksekti. İntihar ölümü, herhangi bir okulu bitiremeyen bireyler arasında daha yaygındı. Kırsal kesimde yaşayan bireylerde intihar ölüm oranı da kentsel kesimde yaşayanlara göre daha yüksekti.

Sonuç: Sonuçlarımız, politika yapıcıların intihara bağlı ölümleri azaltmak için bu özelliklere sahip bireylere odaklanmasına yol açabilir.

Anahtar Kelimeler: İntihar ölümü, eğitim, medeni durum, intihar yöntemi, cinsiyet

Abstract

Objectives: Our aim in this study was to investigate age groups, marital status, education levels, causes, methods and residency of suicide deaths in terms of gender.

Material and Methods: We obtained our data between 2008 to 2018 from the database accessible at the official website of the Turkish Statistical Institute, which permits the use of its data for research purposes.

Results: Between 2008-2018, a total of 33800 suicide deaths were reported. Of these, 24715 (73.1%) were male and 9085 (26.9%) were female. Suicide death rate was higher in females than males under 15 years of age. Suicide deaths were lowest in November. Fire-arms and stabbing were significantly higher in males and chemical substance intake and jump from height were significantly higher in females. Illness, in each year, was the most common cause for suicides in both genders. Suicide death rate was higher in divorced individuals. Suicide death was more common among individuals who could not have completed any school. Rate of suicide death was also higher in individuals living in the rural areas than those living in urban areas.

Conclusion: Our results may lead policy-makers to focus on individuals with these characteristics to reduce mortality related to suicide.

Keywords: Suicide death, education, marital status, method of suicide, gender

Introduction:

Suicide is defined as a deliberate act of ending one's own life (1). Suicidal behaviour is a significant public health problem and the 13th leading cause of death globally. In Europe, suicide accounts for over 58,000 deaths annually (2). In reports of The World Health Organization (WHO) suicide is defined as a problem whose prevention requires the intervention of multiple disciplines and approaches. It is a complex behavior involving personal, social, psychological, biological, cultural, and environmental factors (3,4). Primary prevention from suicide deaths is only possible through the identification of risk factors associated with it. Many factors were significantly associated with suicide attempts: young age, female gender, secondary level of education, students, presence of trigger factor, family and personal history of suicide attempt and the provenance of the examination request from a physician (5). In this article, we aimed to analyse age groups, marital status, education level, reasons, residency and methods of suicide deaths in a 11-year period in Turkey and create awareness on this public health problem.

Material and Methods

We obtained our data, which cover the years 2008 to 2018, from the database accessible at the official website of the Turkish Statistical Institute. This organization allows the use of its data for research purposes. Information about age groups, gender, month, marital status, suicide method, suicide reason, education level and residency of suicide deaths were obtained and compared with number of population data. The data were evaluated by using the Statistical Package for the

Social Sciences (SPSS) 10.0 program. The chi-square test was used for statistical analysis. Data were given as numbers and percentages where available. Group comparisons between genders were carried out using the Chi-square test via Microsoft Office Excel 2016 software (Redmond, Washington, USA).

Findings at the level of $p<0.05$ were considered statistically significant.

Results

A total of 33800 individuals died due to suicide in Turkey between 2008 and 2018. Of these, 24715 (73.1%) were male and 9085 (26.9%) were female. Incidence of suicide death was observed 2.7-fold in males when compared to females.

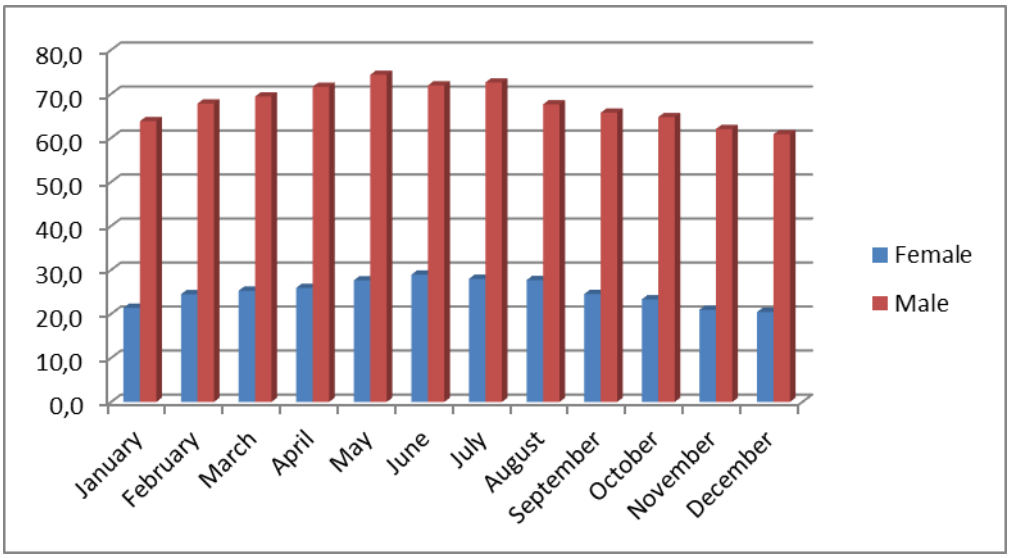
Male dominance was determined in suicide death in all age groups except for individuals under 15 years. Suicide death rate was higher in females than males under 15 years of age. The highest number of suicide rates were determined in 75+ age group. Distribution of age groups are shown in Table 1.

When monthly distribution of suicide deaths was investigated, the lowest number of deaths by suicide was observed in November in both genders (n=62/day in males, n=21/day in females). It was also determined that number of deaths by suicide tended to increase by November and became maximum in July in males (n=72.6/day) and in June in females (n=28.9/day). Any statistical significance could not be obtained when suicide deaths were compared acoording to months (p=0.99). Monthly distribution of suicide deaths is given in Figure 1.

Table 1. Fatal suicide rates according to Age Groups of Deads by Suicide Between 2008 and 2018

			Age groups (%)													
Year	Sex	Total	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+
2018	**Total**	**3.88**	**0.69**	**4.69**	**5.58**	**5.50**	**5.08**	**4.55**	**4.68**	**5.34**	**4.05**	**4.42**	**5.22**	**4.57**	**5.06**	**5.85**
	Male	**5.85**	0.66	5.11	8.31	8.66	7.79	6.79	7.01	8.95	6.27	7.01	9.03	7.56	8.64	11.17
	Female	**1.90**	0.71	4.25	2.73	2.24	2.31	2.27	2.30	1.67	1.80	1.86	1.55	1.86	2.13	2.30
2017	**Total**	**3.94**	**0.66**	**5.11**	**5.88**	**5.39**	**4.76**	**4.41**	**5.05**	**4.63**	**4.58**	**4.95**	**5.18**	**4.63**	**4.62**	**6.84**
	Male	**6.07**	0.70	5.66	8.99	8.72	7.11	7.26	7.96	7.53	7.86	8.14	9.00	7.67	8.01	12.09
	Female	**1.81**	0.62	4.53	2.64	1.95	2.35	1.51	2.09	1.65	1.28	1.77	1.52	1.92	1.82	3.33
2016	**Total**	**4.03**	**0.81**	**5.07**	**5.60**	**5.64**	**5.07**	**4.36**	**5.31**	**5.27**	**4.75**	**5.11**	**4.31**	**4.28**	**5.44**	**7.14**
	Male	**6.10**	0.82	5.57	7.66	8.76	8.16	6.74	8.96	8.46	7.79	8.22	7.23	7.08	9.06	13.70
	Female	**1.94**	0.80	4.54	3.45	2.43	1.91	1.94	1.62	1.96	1.71	2.00	1.52	1.81	2.44	2.76
2015	**Total**	**4.15**	**0.83**	**5.16**	**6.60**	**5.68**	**4.85**	**4.55**	**4.66**	**5.16**	**4.85**	**5.91**	**4.75**	**5.64**	**4.27**	**7.30**
	Male	**6.01**	0.70	5.35	9.35	8.46	7.18	6.98	7.20	7.98	7.14	10.24	7.81	8.82	6.82	12.56
	Female	**2.28**	0.96	4.96	3.73	2.82	2.47	2.07	2.11	2.24	2.56	1.58	1.83	2.87	2.18	3.79
2014	**Total**	**4.11**	**1.22**	**5.71**	**6.52**	**4.97**	**4.98**	**4.48**	**4.47**	**4.94**	**4.57**	**4.74**	**5.19**	**4.83**	**4.89**	**7.06**
	Male	**6.07**	1.14	6.89	9.37	7.76	7.33	6.77	6.91	8.18	7.60	7.84	8.22	7.57	6.84	13.02
	Female	**2.12**	1.31	4.46	3.56	2.10	2.57	2.14	2.01	1.60	1.52	1.66	2.29	2.46	3.31	3.08
2013	**Total**	**4.27**	**0.84**	**6.24**	**6.68**	**5.18**	**4.78**	**4.57**	**4.84**	**5.16**	**5.56**	**5.23**	**5.19**	**5.39**	**5.39**	**8.06**
	Male	**6.23**	0.75	6.92	9.31	7.91	7.02	6.99	7.52	8.03	8.91	8.75	7.88	8.54	9.80	14.58
	Female	**2.29**	0.94	5.52	3.95	2.36	2.50	2.10	2.10	2.23	2.18	1.75	2.65	2.64	1.81	3.70
2012	**Total**	**4.37**	**1.04**	**5.83**	**6.72**	**5.03**	**5.14**	**4.79**	**5.12**	**4.85**	**6.10**	**5.45**	**5.35**	**5.37**	**6.10**	**8.54**
	Male	**6.30**	1.02	6.07	9.27	7.41	7.61	6.84	7.53	7.96	9.85	9.29	8.80	8.22	9.38	15.22
	Female	**2.43**	1.07	5.58	4.08	2.56	2.61	2.70	2.65	1.70	2.31	1.66	2.14	2.87	3.44	4.07
2011	**Total**	**3.61**	**1.01**	**5.62**	**4.26**	**4.39**	**4.34**	**3.61**	**4.93**	**4.26**	**5.07**	**4.55**	**3.68**	**4.03**	**5.43**	**7.35**
	Male	**5.03**	0.86	5.42	5.52	5.67	6.31	5.22	7.96	6.55	8.41	7.08	5.70	6.96	9.82	13.60
	Female	**2.17**	1.16	5.83	2.94	3.07	2.33	1.98	1.79	1.95	1.67	2.07	1.82	1.44	1.89	3.14
2010	**Total**	**4.01**	**1.04**	**6.09**	**4.96**	**5.11**	**4.75**	**4.53**	**4.90**	**4.67**	**5.46**	**4.86**	**4.90**	**5.04**	**5.03**	**7.88**
	Male	**5.64**	0.91	6.30	6.40	6.93	6.87	6.87	7.71	7.43	9.12	7.48	7.52	8.48	8.20	14.15
	Female	**2.36**	1.18	5.87	3.45	3.24	2.58	2.18	1.98	1.88	1.74	2.30	2.52	2.02	2.49	3.59
2009	**Total**	**4.02**	**0.92**	**5.33**	**4.34**	**5.00**	**4.49**	**4.63**	**4.86**	**5.85**	**5.94**	**6.53**	**4.97**	**5.78**	**6.23**	**8.04**
	Male	**5.83**	0.92	5.50	5.54	7.17	6.67	7.60	7.66	9.15	9.83	10.26	8.06	9.45	10.15	15.12
	Female	**2.19**	0.91	5.16	3.09	2.77	2.25	1.63	1.98	2.52	2.02	2.86	2.18	2.61	3.06	3.16

Figure 1. Daily* Distribution of Suicide Deaths by Gender According to Months



*Suicide death of each month was calculated by dividing numbers of suicide daths to days of the month.

The most common method of suicide death was hanging in both males and females (49.2% among males and 49.7% among females). Rate of fire-arms (30.7% among males, 15.8% among females) and stabbing (1.5% among males and 0.8% among females) was higher in males when compared to females. Chemical substance intake (4.5% among males, 9.9% among females) and jump from height (8% among males, 17% among females) rate was higher in females. Fire-arms and stabbing were significantly higher in males and chemical substance intake and jump from height were significantly higher in females ($p< 0.01$). Methods of sicide deaths are presented in Table 2.

Table 2. Methods of Fatal Suicides

	Total	Hanging	Firearms*	Jumping from Height**	C**	D	S*	Burning	Gas	MVTC	Others
Total (%)	100	49.3	26.7	10.4	5.9	1.8	1.3	0.4	0.4	0.4	3.4
Male (%)	100	49.2	30.7	8.0	4.5	1.7	1.5	0.4	0.5	0.4	3.1
Female (%)	100	49.7	15.8	17.0	9.9	1.9	0.8	0.3	0.1	0.3	4.1

C: Chemicals, MVTC: Motor Vehicle or Train Crash, D: Drowning, S: Stabbing

*Significantly higher in males

** Significantly higher in females

According to data, in 48.2% of the deaths by suicide, a reason could not be determined. In suicide deaths with a certain reason, illness was the leading cause (19.3% in males and 23.6% in females) in both genders. Economical problems (11% among males, 1.8% in females) and commercial failure (2.1% in males, 0.1% in females) were more common in males than females. See Table 3 for reasons for suicide deaths.

In married individuals (4.2/100,000), particularly in married females (1.4/100,000), the prevalance of suicide deaths was lower when compared to other groups. Suicide death prevalance was higher in never married group (7.3/100,000) as well as divorced individuals (10.9/100,000) and whose partner is dead (4.3/100,000) when compared to married group. In divorced males (18.6/100,000) or whose partner is dead (16.9/100,000) particularly, suicide death prevalance was higher. Marital Status of the deads by suicide is presented in Table 4.

Table 3. Reasons for Fatal Suicides

	Total	Unknown	Illness	Family Affairs	EI	CF	Affairs with Opposite Sex	Educational Failure	Other
Total %	100	48.2	20.5	7.9	8.5	1.6	3.7	0.3	9.3
Male %	100	47.2	19.3	7.1	11	2.1	3.7	0.3	9.3
Female %	100	50.8	23.6	10	1.8	0.1	3.7	0.7	9.3

EI: Economical Issues, CF: Commercial Failure

When educational status of deads by suicide was investigated, it was determined that suicide death prevalance was lower in over high school graduates (2.2/100,000). Suicide death was more common among individuals who could not have completed any school. Educational status of the deads by suicide is summarized in Table 5.

Suicide death was also more common in individuals living in the rural areas (5.9/100,000) than those living in urban areas (3.3/100,000). Details are given in Table 6.

Table 4. Marital Status of the Deads by Suicide Between 2008 and 2018

	Total			**Never Married**			**Married**			**Wife/Husband is Dead**			**Divorced**		
	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F
Mean Number* of Fatal Suicides (2008-2018)	3071	2246	825	1150	816	334	1543	1177	365	133	75	59	205	146	59
Mean Number of Marital Status in Turkish Population (2008-2018) (×million)	57.4	28.6	28.8	15.8	9.1	6.7	36.6	18.3	18.3	3.1	0.5	2.6	1.9	0.8	1.1
Ratio (1/100000)	5.4	7.9	2.9	7.3	9	5	4.2	6.4	1.4	4.3	16.9	2.3	10.9	18.6	5.4

T: Total, M: Male, F: Female

*Mean of fatal suicides according to marital status in 11-year period

Table 5. Educational Status of the Deads by Suicide Between 2008 and 2018

	Illiterate	No School Completed	Primary Education	High School	Higher Education
Mean Number of Fatal Suicides (2008-2018)	100	260	1752	560	276
Mean Educational Status of the Population (2008-2018) (×million)	3.1	3.4	29.5	12.4	7.4
Ratio (1/100000)	3.20	7.60	5.90	4.50	2.20

Table 6. Comparison of Residencies od Deads by Suicide

	Urban	Rural
Mean Number of Fatal Suicides	2371	702
Mean number of population (×million)	72.3	12.0
1/100000	3,3	5,9

Discussion

To our knowledge, this is the most detailed research on suicide deaths in Turkey. According to our results, lonely male subjects who are over 75 years of age and those who have not completed any school are more likely to die by suicide. Additionally, the most common reason for suicide is illness and the most common method for suicide is hanging.

Suicide is a complex behavior involving personal, social, psychological, biological, cultural, and environmental factors (4). According to the WHO; 900,000 people worldwide die as a result of suicide each year (6). In a 7-year study in Spain, 5202 deaths by suicide were recorded in Spain (7). Relatively low number of suicide death obtained in our study may be linked to religious and cultural beliefs in our country that suicide is accepted as both sin and disgrace in Islamic Thought. Even if Turkey is a secular republic with the guarantee of the

law, the influence of Islamic thought on individuals is undeniable (8)

Suicide death appears to be a male phenomenon. In the European Union countries, death rates from suicide are four-to-five times higher for men than for women (9). When total number of suicides in our study is considered, a male dominance is recognized.

In a study, the numbers of suicide deaths were 3-4 times higher among males than females in all age groups. It was also repoted that the highest impact for both males and females was in the 55-64 age group (10). Men are more likely to abuse substance and use deadly methods in suicides. Additionally, women accept psychological help easier when compared to men. These facts may contribute to higher number of death by suicide in men (11)

According to data obtained from the World Bank, suicide death rate is higher in elder people (12). In a study involving the USA and the UK, death rate by suicide were more prevalent among individuals aged 70 years or more (7). Accordingly in Japan and South Korea where the highest suicide rates in the World was determined, there was a sharp increase in suicide around retirement age (13). Our study also revealed that suicide death rate was highest in 75+ age group. The higher rate of suicide death in this group may be linked to chronic illnesses or psychiatric disorders leading to feeling of loneliness and/or abandonment.

In our study, the number of suicide deaths were higher in males except for females under 15 years of age. A recent report revealed that in countries involved in Organization for Economic Cooperation and Development (OECD), as well as European countries, young female suicide death rates tend to increase. In a study from Australia, it was determined that among individuals aged 10–24 years, there was a significant increase in suicide rates for females (13). Higher rate of suicide deaths in young females may be related to psychological problems due to early puberty observed in females. Also, problems related to not getting education and early marriage of young females in rural parts of our country may lead to this consequence.

Seasonal variation in suicides has been shown in many countries, with most studies showing spring and summer peaks, contrary to the common belief that suicides peak when nights are longest (14). According to reports of The Center for Disease Control and Prevention and the National Center for Health Statistics, suicide rates in the US are lowest during the winter months and highest in the spring and summer. In a study Bridges et al. focused on seasonal effects on suicide risk, it was reported that there was a high incidence in early spring (April and May) and also a low incidence in winter of suicide rates. This study revealed a consistent pattern of suicide risk with most suicides occurring in the spring/summer and the fewest during the winter months (15). In another study on suicide deaths in Turkey, it was shown that suicide deaths increase in the spring, reaching their highest level in the summer, and then drop to their lowest levels in the autumn. While suicide deaths most often occur in the month of July, November had the least suicides (16). Accordingly, in our study, the lowest number of deaths by suicide was observed in November in both genders.

Similar results in various studies give rise to thought that decisiveness in suicides reveal a seasonal circadian rhythm. Many studies have indicated that suicide rates also peak during the spring season. In a study, it was suggested that increased light exposure in spring might cause a misalignment between the endogenous and environmental circadian rhythms. The human circadian rhythm tends to be delayed in winter because the sun rises late. In patients with depression, exposure to bright light early in the morning during the spring delays their circadian rhythm further leading to emotional instability and suicidal behaviour, consequently (17).

Our results revealed that the most common method of suicide deaths was hanging in both genders while rate of fire-arms and stabbing was higher in males and chemical substance intake and jump from height rate was higher in females (18). People tend to end their lives with the most accessible method (19). It is well-described in the literature that the most common method for suicide deaths is hanging. Method for suicide may differ according to culture and gender. For instance, while fire arm related suicide deaths are more prevalant in the US, only men use this method in Switzerland. Jumping from a height plays an important role in small, predominantly urban societies such as Hong Kong SAR, Luxembourg and Malta. It was also reported that pesticide ingestion is more common in under developed/developing countries in females. Accordingly in our study, self-poisoning by chemical substances was more prevalant among females (18). Violent and highly lethal methods such as firearm suicide and hanging are more frequent among men, whereas women often choose poisoning or drowning, which are less violent and less lethal.

In Turkey, majority of women do not participate in business life and prefer to play a role as a housewife, generally. According to data obtained from Turkish Confederation of Employers and Trade Unions, proportion of women in business life is 28.9% (20,21). Hence, men face economical problems more commonly and a feeling of responsibility to support their families may result in higher numbers of suicide deaths.

In addition, number of woman employers in Turkey is even lower. This results in a lower rate of commercial failure among women (21,22).

In a study in Turkey, when causes of suicides were investigated, approximately half of the suicide deaths have an unknown cause. In Turkey, investigation of reason for suicide death (also known as “psychiatric autopsy”) is performed only in case a criminal incident is suspected. Accordingly in our study, reason for the majority of the suicide deaths are unknown. Additionally, approximately 1/5 of all suicides are committed because of illness, making this the most common cause (23,24). In our study, accordingly, reasons for majority of the suicides were unknown. Depression is known to be a major risk factor for suicide, and women are more likely to be diagnosed, 4.0% compared to 2.7% for men. Also, the unemployed were more likely to have higher suicide deaths than their employed counterparts. Unemployment is known to associate with suicide, and men had suicide deaths that were five times greater than women. In a study, the impact of unemployment on

suicide was found to be much higher among women than among men (25). It is known that while suicide attempt is more common in females, suicide death is more common in men. One explanation is unemployed women are more likely to have higher rates of depression. Gniwa et al. also reported that reactional suicidal attempts accounted for 75% (5). In our study, illness, relationship problems and economical problems were the most common causes, respectively. This result may be directly related to participation of males in the workforce in Turkey. It is known that proportion of participation in the workforce in females in Turkey is limited to 32.5% in 2016 and 33.6% in 2017 (26).

In Portugal, having lower levels of education was reported as a risk factor for suicide deaths (27). In the UK and Wales, a lower number of deaths was determined in high education graduates when compared to population at the same age (28).

Our study revealed that suicide death was more common among individuals with low education level, in concordance with the literature. People with low educational level may experience economical problems more often and may feel social pressure heavily which may lead them to suicidal behaviour.

In a study in Germany, it was stated that number of suicide deaths in rural areas was higher than the number in urban areas (29). In concordance, suicide rate in rural areas was higher than urban areas. This finding may be related to the fact that education level in people living in rural areas is low. Also, this result may be attributed to problems of the closed society.

Conclusion:

Suicidal patients consist with 0.5% of all emergencies (5). According to WHO, suicide is a complex issue and therefore suicide prevention efforts require coordination and collaboration among multiple sectors of society, including the health sector and other sectors such as education, labour, agriculture, business, justice, law, defense, politics, and the media. There are a number of measures that can be taken at reducing access to the means of suicide (e.g. pesticides, firearms, certain medications); reporting by media in a responsible way, school-based interventions, introducing alcohol policies to reduce the harmful use of alcohol, early identification, treatment and care of people with mental and substance use disorders, chronic pain and acute emotional distress, training of non-specialized health workers in the assessment and management of suicidal behaviour, follow-up care for people who attempted suicide and provision of community support (30). Results of our study indicated that - independent from gender- authorities and policy-makers must focus particularly on single elderly individuals with low education level. Media must also avoid incentive broadcasting about suicide methods such as hanging, firearms and drug intake. Gender is not a differential factor for suicide. Additional support may be provided for ill subjects in order to keep them away from suicidal thoughts.

Limitations of the Study

This study was conducted by using data from Turkish Statistics Institute. Therefore, the data is limited with the

information given in annual suicide death reports. The data lacks the in-depth information since death reports are constituted immediately after suicide death. Hence, as mentioned above, almost half of the reasons for suicide deaths is unknown.

This study was presented as an oral presentation at 16 international anatolian forensic science congresses.

References

1. Rudy BS. Suicide by pedestrian versus motor vehicle: a case report. Am J Forensic Med Pathol. 2012; 33: 268–69
2. Freeman A, Mergl R, Kohls E, Székely A, Gusmao R, Arensman E, Koburger N, Hegerl U, Rummel-Kluge C. A cross-national study on gender differences in suicide intent. BMC Psychiatry. 2017;17(1):234.
3. World Health Organization. Public Health Action for the Prevention of Suicide: A Framework; World Health Organization: Geneva, Switzerland, 2012. Available at: http://apps.who.int/iris/bitstream/handle/10665/ 75166/?sequence=1. (cited: 6 August 2018).
4. World Health Organization. Preventing Suicide: A Global Imperative; World Health Organization: Geneva, Switzerland, 2014. Available at: https://www.who.int/mental_health/suicide-prevention/world_report_ 2014/en/. (cited: 6 August 2018).
5. Gniwa OR, Ben Soussia R, Bouali W, Sriha Belguith A, Younes S, Zarrouk L. Psychiatric emergencies: Factors associated with suicide attempts. Tunis Med. 2019;97(7):910-7.
6. World Health Organization: The Global Burden of Disease: 2004 update. Geneva: WHO Press; 2008
7. Mejías-Martín Y, Luna Del Castillo JD, Rodríguez-Mejías C, Martí-García C, Valencia-Quintero JP, García-Caro MP. Factors Associated with Suicide Attempts and Suicides in the General Population of Andalusia (Spain). Int J Environ Res Public Health. 2019;16(22):E4496.
8. Shah A, Chandia M. The relationship between suicide and Islam: a cross-national study. J Inj Violence Res. 2010;2(2):93-7.
9. OECD iLibrary. Economic, Envieronmental and social statistics. Available at: http://www.oecd-ilibrary.org/sites/factbook-2014-99-en/index.html?contentType=&itemId=%2Fcontent%2Fchapter%2Ffactbook-2014-99-en&mimeType=text%2Fhtml&containerItemId=%2Fcontent%2Fserial%2F18147364&accessItemIds=. (cited: 23 Sept 2014).
10. Sagna AO, Kemp MLS, DiNitto DM, Choi NG. Impact of suicide mortality on life expectancy in the United States, 2011 and 2015: age and sex decomposition. Public Health. 2019;179:76-83.
11. Rich CL, Ricketts JE, Fowler RC, Young D. Some differences between men and women who commit suicide. Am J Psychiatry. 1988;145(6):718-22.
12. Ritchie H, Roser M, Ortiz-Ospina E. Suicide. Available at:

https://ourworldindata.org/suicide . (cited: 1 July 2018)

13. Stefanac N, Hetrick S, Hulbert C, Spittal MJ, Witt K, Robinson J. Are young female suicides increasing? A comparison of sex-specific rates and characteristics of youth suicides in Australia over 2004-2014. BMC Public Health. 2019;19(1):1389.

14. Björkstén KS, Kripke DF, Bjerregaard P. Accentuation of suicides but not homicides with rising latitudes of Greenland in the sunny months. BMC Psychiatry. 2009;9:20.

15. Bridges FS, Yip PS, Yang KC. Seasonal changes in suicide in the United States, 1971 to 2000. Percept Mot Skills. 2005;100(3 Pt 2):920-4.

16. Enginyurt Ö, Özer E, Gümüş B, Demir EY, Çankaya S. Evaluation of suicide cases in Turkey, 2007-2012. Med Sci Monit. 2014;20:614-23.

17. Cho CH, Lee HJ. Why Do Mania and Suicide Occur Most Often in the Spring?. Psychiatry Investig. 2018;15(3):232-4.

18. Ajdacic-Gross V, Weiss MG, Ring M, et al. Methods of suicide: international suicide patterns derived from the WHO mortality database. Bull World Health Organ. 2008;86(9):726-32.

19. Erel Ö, Katkıcı U, Dirlik M, Özkök MS. Anabilim dalımız tarafından otopsileri yapılan intihar olgularının değerlendirilmesi. Adnan Menderes Üniversitesi Tıp Fakültesi Dergisi 2003;4:13-1517.

20. Türkiye İşveren Sendikaları Konfederasyonu. Mart-Nisan İşveren Dergisi. Available at: https://www.tisk.org.tr/yayin/1359523609-isveren-dergisi--mart-nisan--2019-.pdf. (cited: 1 June 2020).

21. Keskin S. Ankara-İzmir-İstanbul'da İşveren Ve Kendi Hesabına Çalışan Kadınlar (Kadın Girişimciler) Ve Swot Analizi İle Değerlendirilmesi. Yalova Sosyal Bilimler Dergisi. 2014;4(8):28.

22. Türkiye Kadın Girişimcilik Endeksi – 2019 Araştırma Raporu. Available at: https://kagider.org/docs/default-source/kagider-raporlar/kagider-t%C3%BCrk-tuborg-kad%C4%B1n_girisimcilik_endeksi_2019.pdf?sfvrsn=6, https://dergipark.org.tr/en/download/article-file/801079. (cited: 1 May 2020).

23. World Health Organization. Suicide prevention (SUPRE). Mental Health. Available at: http://www.who.int/mental_health/prevention/suicide/suicideprevent/en/index.html. (cited: 2 February 2020).

24. İntihar dosyası II: Türkiye'de intiharlar. Teyit.org. Available at: https://teyit.org/intihar-dosyasi-ii-turkiyede-intiharlar/ . (cited: 13 October 2021).

25. Kposowa AJ, Aly Ezzat D, Breault K. New Findings On Gender: The Effects Of Employment Status On Suicide. Int J Womens Health. 2019;11:569-75.

26. AB Katılım Sürecindeki Türkiye'nin Kadın İstihdamı Karnesi. İKV Değerlendirme Notu. Available at: https://www.ikv.org.tr/images/files/%C4%B0KV_Degerlendirme_Notu_AB_Kat%C4%B1l%C4%B1m_S%C3%BCrecindeki_T%C3%BCrkiyenin_Kad%C4%B1n_%C4%B0stihdam%C4%B1_Karnesi(2).pdf . (cited: 10 January 2019).

27. Rocha JVM, Nunes C. Can We Develop a Risk Map for Suicide Rates? An Ecological Study in Portugal. Community Ment Health J. 2020;56(3): 532-9.

28. Estimating suicide among higher education students, England and Wales: Experimental Statistics. Office for national statistics. England. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/estimatingsuicideamonghighereducationstudentsenglandandwalesexperimentalstatistics/2018-06-25. (cited: 9 October 2019).

29. Helbich M, Blüml V, de Jong T, Plener PL, Kwan MP, Kapusta ND. Urban-rural inequalities in suicide mortality: a comparison of urbanicity indicators. Int J Health Geogr. 2017;16(1):39.

30. World Health Organization. Suicide. Available at: https://www.who.int/news-room/fact-sheets/detail/suicide. (cited: 1 November 2019).