



Sociodemographic Pattern of Suicide and Attempted Suicide Cases in Ardahan Province in 2013-2016

Ardahan İli 2013-2016 Yılları İntihar ve İntihar Girişimi Olgularının Sosyodemografik Paterni

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ABSTRACT

Aim: The aim of this study was to investigate the sociodemographic factors of individuals who attempted or committed suicide in Ardahan province.

Material and Method: All official records of suicide attempt and completed suicide cases were included in this record-based cross-sectional study carried out in the province of Ardahan between 01.01.2013 and 31.12.2016. Suicide attempt data were obtained from hospitals' "Emergency Service Unit Attempted Suicide Registration Forms," and completed suicide data from Ardahan Police Department and Provincial Gendarmerie Command records. Data collection was performed between February and April 2018.

Results: The number of completed suicides in the four-year period was 31, and that of attempted suicides was 105. Overall provincial suicide rates between 2013 and 2016 were 6.8, 5.9, 9.1 and 9.1, while suicide attempt rates were 35.0, 33.7, 9.1 and 26.4 per 100,000 people, respectively. Suicide rates were higher in men in all years, while suicide attempt rates were higher in the 25–34 age group, single individuals, and urban areas. Hanging was the most commonly employed method in suicides, and drug-toxic substance use the most commonly employed method in attempted suicides. Family problems, mental illness and boyfriend/girlfriend problem were the most common causes of attempted suicides.

Conclusion: Preventive measures aimed at groups with high suicide and suicide attempt rates, early diagnosis of patients with warning signs related to suicide, active monitoring of family members and in-depth interviews with individuals who have attempted suicide in order to accurately determine the causes are among the priority actions requiring implementation.

Key words: attempted suicide; demographic factors; suicide

ÖZET

Amaç: Bu çalışmada Ardahan ilinde intihar teşebbüsünde bulunmuş ve intihar etmiş bireylerin sosyodemografik faktörler açısından incelenmesi amaçlanmıştır.

Materyal ve Metot: Kayıt temelli kesitsel tipteki bu araştırmaya 01.01.2013 ile 31.12.2016 tarihleri arasında Ardahan ilinde resmi kayıtlara geçmiş tüm intihar teşebbüsü ve tamamlanmış intihar olguları dâhil edildi. İntihar girişimi verileri hastanelerin "Acil Servis Ünitesi İntihar Girişimi Kayıt Formları"ndan; intihar verileri ise İl Emniyet Müdürlüğü ve İl Jandarma Komutanlığı kayıtlarından elde edildi. Veri toplama işlemi Şubat ve Nisan 2018 tarihleri arasında gerçekleştirildi.

Bulgular: Tamamlanmış intihar sayısı 31, intihar girişimi sayısı ise 105 idi. 2013–2016 yılları arasında il geneli intihar hızları sırasıyla yüz binde 6,8; 5,9; 9,1 ve 9,1; intihar girişim hızları ise 35,0; 33,7; 9,1 ve 26,4 bulundu. İntihar hızları tüm yıllarda erkeklerde; intihar girişim hızları ise tüm yıllarda 25–34 yaş aralığında, bekâr veya ayrı yaşayanlarda ve kentsel yerleşim alanlarında ikamet edenlerde daha yüksek bulundu. İntiharlarda kendini asma yönteminin, intihar girişimlerinde ise ilaç-toksik madde kullanımının en sık kullanılan yöntem olduğu; intihar girişimi olgularında en sık sebeplerin ailevi problemler, ruhsal hastalık ve karşı cinsle sorunlar olarak kaydedildiği görüldü.

Sonuç: İntihar ve intihar girişim hızı yüksek olan gruplara yönelik önleyici çalışmaların yapılması, intihara ilişkin uyarı belirtilerini taşıyan kişilerin erken tanısı, aile bireylerinin de sürece dâhil edilmesi, intihar teşebbüsünde bulunan bireylerle derinlemesine görüşmeler yapılarak sebeplerin tam olarak belirlenmesi öncelikle yapılması gereken eylemler arasında yer almaktadır.

Anahtar kelimeler: demografik faktör; intihar; intihar teşebbüsü

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Introduction

Suicide is defined as the act of deliberate self-killing. If the act results in death, this is known as ‘completed suicide’, and otherwise as ‘suicide attempted’¹. Suicide and attempted suicide is an important global health problem. More than 800,000 people are estimated to die through suicide every year, while the number of attempted suicides is 20 times higher². Suicides represented 1.4% of all deaths worldwide in 2015 and were the 17th most common cause of death³. Suicide is the third most common cause of death worldwide in the 15–44 age groups and the second most common in the 15–29 age groups⁴.

According to the Turkish Statistical Institute (TUIK) figures for 2017, the province of Ardahan in the Northeast Anatolia Region of Turkey has the country’s third-lowest population, at 97.096⁵. Ardahan occupied second place among all Turkish provinces in 2013, 2015, and 2016, with suicide rates of 8.6, 8.0, and 9.1 per 100.000, respectively, and 12th place in 2014, with a rate of 5.9 per 100.000⁶.

Since suicide is regarded as a preventable public health problem, it is essential to reduce suicide-related deaths through preventive measures. Due to this high rate of suicides, the purpose of this study was to examine the sociodemographic factors of completed or attempted suicides in the province of Ardahan.

Material and Method

All officially recorded cases of completed or attempted suicide in the province of Ardahan between 1 January 2013, and 31 December 2016, were included in this record-based cross-sectional study. Three bodies keep all official records concerning suicides across the province: 1) the Ardahan Provincial Health Directorate in which all hospitals’ ‘Emergency Department Attempted Suicide Registration Forms’ are held, 2) the Ardahan Security Directorate in which records of completed suicides in urban areas are held, and 3) the Ardahan Provincial Gendarmerie Command in which records for completed suicides in rural areas are held. Ethical approval for this research was first obtained from the Ondokuz Mayıs University Clinical Research Ethical Committee (No. 2017/360), after which written permission to access the databases was obtained from all three institutions. National suicide data were obtained from TUIK and the Ministry of Health records. Following receipt of ethical approval and

institutional permissions, data were collected between February and April 2018. Confidentiality of personal data was maintained while corresponding with institutions and during data collection.

The study data were transferred to a computer and analyzed using SPSS (Version 15 for Windows, SPSS Inc., Chicago, IL, USA) software. Continuous variables were expressed as median values (minimum, maximum), and discrete variables as number and percentage. The binomial test, Pearson’s chi-square goodness-of-fit test, and chi-square tests were applied in statistical analysis. The statistical significance level was accepted as $p < 0.05$ for all tests.

Results

Thirty-one completed suicides and 105 attempted suicides occurred during the four-year study period. Analysis of these cases in terms of the sociodemographic characteristics shown in Table 1 revealed a significant elevation in cases of attempted suicide in individuals living in urban areas, in the 25–49 age group, and the female gender. Significant elevation was observed in the male gender and employed individuals in cases of completed suicide ($p < 0.05$, Table 1).

Suicide attempt rates were higher in non-working individuals (39%), and completed suicides were higher among working individuals (54.8%) ($p < 0.05$). Analysis of completed suicides in terms of occupation in working subgroup revealed that these were most common among farmers (47.1%), followed by the self-employed (29.4%).

Suicide attempt rates in 2013–2016 in this study were 35.0, 33.7, 9.1, and 26.4 per 100,000, while suicide rates were 6.8, 5.9, 9.1, and 9.1 per 100,000, respectively. Suicide attempt rates during the study period were higher in all years among the 25–34 age groups, single or in separate living, and in individuals living in urban areas, and completed suicide rates were higher in men in all years (Table 2, Figure 1).

The most common method among attempted suicides was drug/toxic substance use (90.6), and the most common method among completed suicides was hanging (87.1%) (Table 3).

The most common causes among the attempted suicides in the scope of this study were familial problems (23.3%), mental illness (17.4%), and problems with the opposite sex (14.0%) (Table 4).

Table 1. Distribution of attempted and completed suicides by sociodemographic characteristics

Sociodemographic characteristics	Suicide attempted			Completed suicide			P [§]
	N	%	P [°]	N	%	P [°]	
Gender							
Male	33	31.4	<0.001	24	77.4	0.003	<0.001
Female	72	68.6		7	22.6		
Age group							
14–24	4	3.8	<0.001	8	25.8	0.368	<0.001
25–49	85	81.0		14	45.2		
50 and over	16	15.2		9	29.0		
Marital status							
Married	41	40.2	0.059	18	58.1	0.473	0.079
Single or separated	61	59.8		13	41.9		
Education level							
Middle school or below	43	44.3	0.310	23	74.2	0.076	0.004
High school or above	54	55.7		8	25.8		
Working status							
Working	21	35.6	0.414	17	54.8	0.027	0.208
Not working / Housewife	23	39.0		9	29.0		
Student	15	25.4		5	16.1		
Place of residence							
Rural	37	38.1	0.025	18	58.1	0.473	0.051
Urban	60	61.9		13	41.9		
Season of event							
Winter	30	29.4	0.021	11	35.5	0.593	0.585
Spring	34	33.3		7	22.6		
Summer	25	24.5		7	22.6		
Spring	13	12.7		6	19.3		

[°] Attempted and completed suicides were analyzed among themselves. The Binomial test was used for two-level data, and Pearson's chi-square goodness-of-fit test for data of three levels or more.

[§] Attempted and completed suicides were compared with one another.

Due to incomplete data, the column totals do not express the totals in all variables.

Percentage levels in missing data were calculated from the valid data.

Thirteen (12.4%) of the 105 individuals who attempted suicide had attempted it previously, yielding a median value of 1 (range 1 to 10). Twenty-one (20%) of the attempted suicides had a previous psychiatric diagnosis, and 14 (13.3%) had undergone psychiatric examination within the previous six months.

Discussion

Since using specific rates to examine the true burden of attempted and completed suicides and the related risk factors in a population will elicit more accurate

results than examining the proportional distribution of attempted and completed suicides, this discussion generally focuses on specific rates.

While 31 suicide cases were retrieved from the provincial records during the four-year study period, 32 cases appear in the TUIK data, since the numbers and rates of suicides in 2013 and 2015 were not in exact agreement⁶. This may be attributed to the suicide statistics for 2000–2011 prepared by the TUIK being based on information obtained by the Security General Directorate and the Gendarmerie General Command, while from 2012 on, the scope of the figures was expanded with the addition of suicide events occurring in institutional locations and TUIK cause of death data.

Several studies have shown that, both in Turkey and worldwide, attempted suicides are higher among women and completed suicides among men^{7–10}. Deaths from suicide are three times higher in men than in women in countries with high-income levels, decreasing to 1.5 times higher in low- and moderate-income countries⁴. In agreement with the literature, during the period of the present study, suicide rates were higher among men in all years, and suicide attempt rates were higher among women, except for 2015. A rapid decrease was observed in the suicide attempt rate in Ardahan province in 2015, but no parallel decrease was observed in the completed suicide rate. On the contrary, the rate increased. The most likely explanation for this is that data for attempted suicides were not all recorded in 2015. There are several theories concerning the higher rates of attempted suicide among women, including the greater prevalence of mental illnesses, particularly depressive disorders, the weak social status of women in undeveloped and developing countries, in particular, attempted suicide being carried out as 'help-seeking' behavior, and a combination of psychosocial and hormonal factors. The higher death rates among men, despite their fewer attempted suicides, compared to women may be linked to the use of more fatal methods¹¹. In the present study, relatively less fatal methods, such as drug-toxic substance use, were more common among women, while men made greater use of more fatal methods such as hanging.

The highest rate of attempted suicide in the province as a whole was determined in the 25–34 age group. However, studies from Turkey and abroad have described 15–19 and 15–24 as the ages with the highest attempted suicide rates^{12,13}. Analysis of suicide by rates by years in this study revealed that the highest

Table 2. Suicide attempt and suicide rates by sociodemographic characteristics

Sociodemographic characteristics	Suicide attempt rate (per 100.000)				Suicide rate (per 100.000)			
	2013	2014	2015	2016	2013	2014	2015	2016
Gender								
Male	22.7	7.7	9.8	23.6	9.4	7.7	13.7	15.7
Female	48.1	61.4	8.3	29.5	4.0	4.1	4.1	2.1
Age groups								
14 and under	0.0	0.0	0.0	0.0	4.0	0.0	0.0	4.5
15–24	5.3	16.4	0.0	0.0	0.0	11.0	16.6	5.6
25–34	125.5	137.9	35.4	100.6	6.6	0.0	21.2	14.4
35–49	59.8	49.8	5.7	33.5	5.4	11.1	17.0	11.2
50–64	35.8	14.1	21.2	41.6	14.3	14.1	0.0	13.9
65 and over	0.0	0.0	0.0	0.0	17.3	0.0	0.0	8.3
Marital status								
Married	26.7	27.1	4.2	27.6	6.2	8.3	12.7	4.2
Single or separated	79.5	66.1	24.3	41.7	3.5	6.9	10.4	10.4
Place of residence								
Rural	19.5	14.0	8.0	16.6	6.0	7.8	9.6	5.0
Urban	46.9	65.6	10.9	39.3	8.3	2.7	8.2	15.7
Districts								
Central	53.8	51.3	4.8	38.1	4.9	9.8	14.5	9.5
Göle	7.1	22.1	26.7	27.2	0.0	3.7	3.8	7.8
Çıldır	0.0	9.9	0.0	0.0	9.5	0.0	10.2	0.0
Hanak	10.2	0.0	0.0	11.1	30.6	10.5	0.0	0.0
Damal	33.9	0.0	0.0	18.6	16.9	0.0	0.0	55.9
Posof	0.0	0.0	0.0	0.0	0.0	0.0	14.3	0.0
Provincial total	35.0	33.7	9.1	26.4	6.8	5.9	9.1	9.1

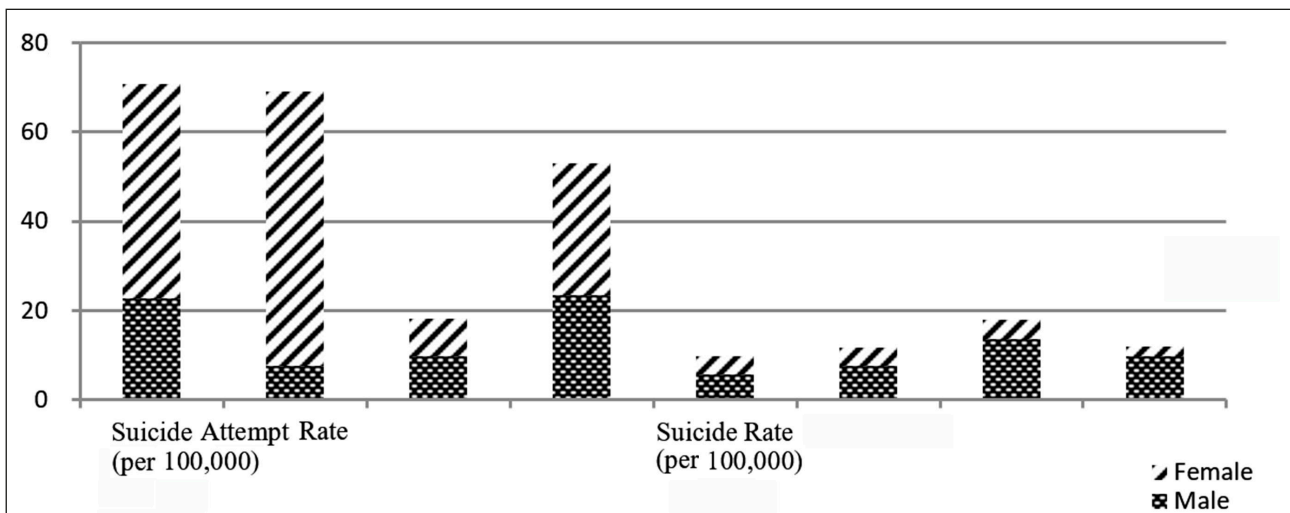
**Figure 1.** Distribution of suicide attempt and suicide rates in the province of Ardahan by year and sex.

Table 3. Distribution of attempted and completed suicides by method employed

Method employed	Suicide attempted		Completed suicide	
	n	%	n	%
Drug-toxic substance	87	90.6	0	0.0
Sharp-bladed instrument	4	4.2	0	0.0
Jumping from a height	1	1.0	0	0.0
Hanging	1	1.0	27	87.1
Self-immolation	2	2.1	1	3.2
Jumping from a moving vehicle	1	1.0	0	0.0
Firearm	0	0.0	3	9.7

Due to incomplete data, the column totals do not express the totals in all variables. Percentage levels in missing data were calculated from the valid data.

Table 4. Distribution of attempted suicides by causes

Cause	n*	%
Family	20	23.3
Mental illness	15	17.4
Problems with the opposite sex	12	14.0
Intrafamilial violence	7	8.1
Loneliness	6	7.0
School	5	5.8
Exam anxiety	4	4.7
Communication problems	4	4.7
Chronic disease	4	4.7
Sexual problems	3	3.4
Economic	3	3.4
Parental conflicts	1	1.2
Work	1	1.2
Alcohol and substance dependence	1	1.2

* Calculated from 86 individuals with recorded reasons for attempted suicide.

rate was in the population aged 65 and over in 2013, in the 50–64 age group in 2014, and the 25–34 age groups in 2015 and 2016. However, TUIK reported that the highest suicide rate in all years investigated in the present study was in the population aged 75 and over⁶. Considering that 61% of the population in the province of Ardahan lives in rural areas, the social and psychological support enjoyed by the elderly population as a result of living together with their families in consequence of the diffuse nature of the traditional extended family may explain the relatively low suicide rate in the elderly population in our study.

The rate of attempted suicide in this study was higher among single or separated individuals in all years. A study from Izmir in Turkey also reported a higher rate of attempted suicide in single or separated individuals based on figures for 2013¹². Higher comparable levels of suicide attempt also appear in the unmarried group in studies from Turkey^{8,10,14}. The suicide rate was also higher in Turkey in general among single or separated individuals in all years, including the study period⁶. International studies have also reported that being married protects against completed suicide^{9,15}. Being divorced or widowed increases the risk of suicide five-fold, and can be an even more effective factor when combined with age¹⁶. The findings from the present study differ from those of the literature in that the suicide rate was higher among married and cohabiting individuals except for in 2016. Being married is known not to be a completely protective factor in terms of completed suicides in developing societies¹⁷.

Several studies have shown that suicide rates in Turkey and abroad are higher in rural areas, while suicide attempt rates are higher in urban areas^{6,18}. Similarly to previous studies, the suicide attempt rates in the province of Ardahan were higher in urban settlement areas in all years, while the suicide rates were higher in urban settlement areas in 2013 and 2016 and rural areas in the other years. This may perhaps be attributed to the relatively small population examined in this study, and to the sociodemographic structure of the province not being as sharply differentiated as the urban-rural divide seen in many settlement areas.

Suicide attempts among the cases in this study were proportionally higher in individuals with an education level of high school or above, while completed suicides were higher among individuals educated middle school level or below. Since different proportional distributions of suicide attempts have been reported depending on education levels, it seems unlikely that education level is a determining factor for attempted suicides^{7,8,10,14,19}. This may be associated with the general education level of the population. However, in terms of completed suicides, the majority of studies from Turkey and abroad have shown, in agreement with the present study, that the risk factor increases as education levels decrease^{15,20}. One cohort study from Sweden showed that a low intelligence test score was associated with an increased risk of suicide²¹. The most likely explanation for this is that effects on neurological development during childhood may lead to mental illness and, therefore, to increased susceptibility for suicide.

Attempted suicides were proportionally highest in the non-working group in this study, although no statistically significant difference was determined. This finding is compatible with previous studies^{10,14,19,22}. As discussed earlier, attempted suicides are more common among women, and the higher suicide attempt rate among non-working individuals may, therefore, be associated with gender, since women contribute less to the labor force, or have poorer social status caused by a lack of employment or profession, as a trigger factor in terms of mental illness¹¹. In contrast, completed suicides were higher in the working group, although studies have shown that unemployment is a risk factor for completed suicide¹⁵. Considering that the risk of suicide increases due to the adverse effects of economic difficulty on mental health, farmers and self-employed individuals represented 77% of the cases of completed suicide in the working subgroup, and this is noteworthy in terms of the inconsistent finding from the present study. Working individuals also assume primary responsibility for the livelihood of the family, and this may also be a triggering factor in terms of suicides.

One study from Turkey reported that suicide attempts were more common in summer⁹, and in this study, suicide attempts were higher in the spring. This finding is compatible with a study conducted in Bursa¹⁰. Sunlight and the seasons are known to affect mental state through various neurochemicals. One study from Canada assessing seasonal variation in serotonin transporter binding in the human brain using PET reported significantly greater binding in fall and winter compared to spring and summer²³. In terms of completed suicides, this study was not in agreement with the previous literature. Although there was no significant difference in the study years, suicide was most common in winter in Ardahan. Studies show that the highest numbers of completed suicides worldwide are seen in spring²⁴. TUIK data also show that the highest number of completed suicides in Turkey takes place in months corresponding to spring⁶.

The most commonly employed method in attempted suicides in Turkey and worldwide is the use of drugs or toxic substances^{7,8,10,13,14}. Similarly, a significant proportion of attempted suicides in Ardahan used the drug-toxic substance method. This may be attributed to the easy availability of drugs-toxic substances, their being relatively less fatal than other methods, and to their being preferred in 'help-seeking' attempted suicides. In agreement with TUIK figures for Turkey as a whole,

the most common method employed in completed suicides in this study was hanging, followed by firearm use⁶. The method employed can vary depending on the countries' sociocultural structure and accessibility. The most commonly used methods in completed suicides were reported as firearm use in the USA and hanging in Canada in countrywide studies^{9,18}.

The most commonly stated reasons for attempted suicides in the province of Ardahan were the family, followed by mental disease, and problems with the opposite sex, respectively, similar to previous studies from Hatay, Bursa, and Sivas in Turkey^{7,10,19}. The three most common reasons in other studies from Turkey concerning attempted suicides vary, although strikingly family problems were the most commonly cited cause in all^{8,14,22}. This shows how effective the family, the basic building block of society, is in terms of coping with psychological problems, and interventions directed toward families are therefore required in order to prevent causes of suicide.

Twenty percent of the individuals who attempted suicide in this study had a previous psychiatric diagnosis. This figure ranges between 17% and 40% in previous similar studies^{7,8,10,14,22}. The rate of psychiatric examination within the previous six months among attempted suicides in Ardahan was 13.3%, compared to 12.5% and 28.5% in similar previous studies in Turkey^{14,19}. Considering that psychiatric follow-up and treatment play a major role in the prevention of suicide²⁵, this rate in Ardahan and other provinces is quite low. From that perspective, it is therefore of very great importance for family members, close friends, and primary health care workers to know the signs of suicide and to ensure that the individual is placed under observation.

In conclusion, women, the 25–34 age group, single or separated individuals, and people living in urban areas in Ardahan are at risk of attempted suicide, while men and individuals employed in any kind of work are at risk of completed suicide. The most common reason for attempted suicides was identified as familial problems. Suicides cannot be prevented only by the initiatives of health professionals since the individual's mental state is affected by various social, economic, and demographic factors. Intervention studies directed toward the at-risk population, in particular, warning signs of suicide being known by all health professionals, and evaluating individuals exhibiting these signs in terms of psychiatric support, all individuals with mental diseases being diagnosed and actively followed-up,

family members also being included in the resolution of problems, and accurate identification of causes through in-depth interviews with all individuals attempting suicide, are among the short-term actions needing to be taken.

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