

GEOGRAPHICAL DIFFERENCES IN COMPLETED SUICIDES IN 2003 BY GENDER IN TURKEY

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ABSTRACT

Objective: To determine the gender differences between in terms of the method and reason of suicide.

Methodology: The suicidal proportions in seven regions of Turkey by sexes were compared according to three different age groups. The data were evaluated by Loglinear analysis.

Results: Suicide rates were higher in women in the region East Anatolia ($P < 0.01$). It was found that suicide by hanging was the most commonly used method in all the regions ($P < 0.001$). Committing suicide by hanging ($P < 0.01$) and using firearms ($P < 0.001$) were higher in men, whereas, committing suicide by taking chemical was higher in women ($P < 0.001$).

Conclusion: Gender differences in suicidal behavior in this study clearly merit further research to generate information that can guide clinical practice and prevention strategies.

KEY WORDS: Geographical regions, Suicide, Gender differences, Suicide methods.

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INTRODUCTION

Suicide is the act of deliberately taking one's own life. Attempted suicide is 10-40 times more frequent than completed suicide, and is the strongest single predictor of subsequent suicide. Suicidal behavior is defined as any deliberate action with potentially life-threatening consequences, having tragic results, and accompanying various emotional disturbances including depression, bipolar disorder, and schizophrenia, sociological, economic, genetic, familial, religious, existentialistic, historical, occupational and cultural factors.^{1,2}

The elderly have the highest rate of suicide, but there has been a steady increase among adolescent and young persons.³ Some researchers have indicated that there was a relationship between physical illness and suicide in especially elderly people.⁴ Any negative change in one's social status increases the risk of suicide. In parallel, in those with lower socioeconomic status the risk for suicide is higher.⁵

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Postmortem studies have showed that 25-75% of those committing suicide had some kind of physical illness, suggesting a complex relationship between suicide and physical disorder.^{6,7} In addition, it has been reported that comorbide conditions, schizophrenia and substance habit, primarily affective disturbances are most frequently seen mental diseases related to suicides.⁸ Some studies have indicated that the incidence of suicides increase as economic crisis and unemployment increase, and that the opposite is also true.^{7,9}

The differences in suicide behaviour between young men and women have been known for years.¹⁰ Literature search has showed that young women have higher rates of attempted suicide, compared to young men while completed suicide rates in young men are three times higher than in young women.^{5,11} Suicidal young men were 8 times more likely than non-suicidal counterparts to be living alone, in care or hostels or without a family structure.¹²

Those who are single, divorced and separated are more likely to commit suicide when compared to those married, which probably accounts for the fact that suicide attempts by males are more likely to be completed. In addition there are many studies which show that having a child is a protective factor from suicides.^{3,13} In Turkey, when compared to the other European countries, the attempted suicide rates were lower, and the increase in the suicide rate among younger women attracted attention.^{9,14}

The suicide method can be nonviolent such as poisoning or overdose or violent such as shooting oneself. The use of violent methods as compared to non-violent methods was higher in men, which probably accounts for the fact that suicide attempts by males are more likely to be completed. Many suicides involve a firearm. This is especially true in elderly men.¹⁵

In this study, we have found that the characteristic of suicide behaviour could be related to the region's features and the society's structure. The aim was to determine the differences between the gender in terms of the method and

reason of suicide in completed suicides in different age groups in Turkey and also to call attention to the risk factors peculiar to the region, being related to the society's structure.

METHODOLOGY

Turkey is divided into seven regions: the Black Sea region, the Marmara region, the Aegean, the Mediterranean, Central Anatolia, the East and Southeast Anatolia regions. In this retrospective study, we used Annual Reports of Suicide Statistics published periodically by the Turkish State Institute of Statistics.^{16,17} We then determined demographic characteristics such as age and sex, suicide method and suicide reasons of those cases through the statistics. Lastly, the data obtained from suicide files were registered on a datum collection form prepared by the researchers. Since the comparison of the data related to those variables with the regions of Turkey was done in the year 2003, the data of the year 2003 were used.

The completed suicide proportions in seven regions of Turkey by sexes were compared according to three different age groups, namely those below age of 25, those in age groups of 25-64 and those in age of 65 and over.

Statistical Methods: The data collected were evaluated by Loglinear analysis using SPSS 11.0 packet program.

RESULTS

The distribution of the completed suicide cases in 2003 by regions, ages, and sexes is presented in Table-I. For the completed suicide cases in 2003, it revealed an important relationship between the geographical regions and age groups ($\chi^2=124.83$, $P<0.001$). The suicide rates was higher in the regions East Anatolia ($z=8.14$, $P<0.001$, 95% CI=1.71-2.79) and Southeast Anatolia ($z=7.21$, $P<0.001$, 95% CI=1.98-3.46) for those under age 25, whereas the suicide rates for those between 25 and 64 ages group were higher in the regions Marmara ($z=13.44$, $P<0.001$, 95% CI=1.53-2.06), Eagean ($z=12.67$, $P<0.001$, 95% CI=1.50;2.05), Central Anatolia ($z=10.58$, $P<0.001$, 95% CI=1.35;1.97), Mediterranean

Table-I: Distribution of the completed suicide cases in 2003 by regions, ages, and sexes

Regions	Gender	Age groups (Years)			Total(n)
		<25(n)	25-64(n)	>65(n)	
Marmara	Male	87	270	47	404
	Female	69	123	18	210
	Total	156	393	65	614
Aegean	Male	76	219	40	335
	Female	161	132	19	312
	Total	237	351	59	647
Mediterranean	Male	55	98	13	166
	Female	46	43	11	100
	Total	101	141	24	266
Central Anatolia	Male	75	180	28	283
	Female	69	74	20	163
	Total	144	254	48	446
Black Sea	Male	52	93	27	172
	Female	62	50	11	123
	Total	114	143	38	295
East Anatolia	Male	47	51	10	108
	Female	90	34	4	128
	Total	137	85	14	236
Southeast Anatolia	Male	56	44	6	106
	Female	57	37	1	95
	Total	113	81	7	201

*The standardization of suicide numbers was done according to general population.

($z=8.01$, $P<0.001$, 95% CI=1.33;2.18) and Black Sea ($z=7.25$, $P<0.001$, 95% CI=.96;1.67) than those of the other regions. In the suicide rates, there was an important connection between the regions and sexes ($c^2=50.00$, $P<0.001$). Suicide rates were higher in women in the region East Anatolia ($z=2.69$, $P<0.01$, 95% CI=.12-.78), while it were higher in men in the other regions. For the year 2003 suicides, there was an important relationship between the age groups and sexes ($c^2=118.94$, $P<0.001$). While female suicide rate under age 25 ($z=5.33$, $P<0.001$, 95% CI=-.45-.97) was higher than in men, the rates were higher in men in the age groups between 25 and 64 and 65 and over.

The distribution of the completed suicide cases in 2003 by the geographical regions, sexes and suicide reasons is presented in Table-II. It reveals that, illness ($z=3.12$, $P<0.01$, 95% CI=.88-1.77), educational failure ($z=-2.45$, $P<0.05$, 95% CI=-3.04-.34) and business failure ($z=-2.29$, $P<0.05$, 95% CI= -6.12-0.48) were

found as the most important reasons for suicides. In suicide cases, there was an important connection between geographical regions and suicidal reasons ($\chi^2=240.99$, $p<0.001$). The suicide rates were found to be higher in the Aegean region due to economic problems ($z=2.18$), due to the illness in the Mediterranean region ($z=2.50$), due to educational failure in the Central Anatolia Region ($z=4.05$) and the Black Sea Region ($z=3.84$), due to lack of family harmony in the East Anatolia and Southeast Anatolia regions ($z=-2.66$). There was an important relationship between the suicide reasons and sexes in the completed suicides in 2003 ($c^2=252.96$, $P<0.001$). It was determined that economic problems ($z=5.86$, $P<0.001$, 95% CI=.88-1.77) and business failure ($z=5.50$, $P<0.001$, 95% CI=1.18-2.49) in men were the most important reasons of suicides, and also suicide rates were higher due to lack of family harmony ($z=12.256$, $P<0.01$, 95% CI=1.5-2.08), 'emotional love' and failure to marry the loved one. ($z=-5.41$, $P<0.001$, 95% CI=.56-1.19)

The details of the completed suicide cases in 2003 and the methods used are shown in Table-III. In suicide cases, there was an important relationship between geographical regions and suicide methods ($c^2=337.29$, $P<0.001$). It was found that suicide by hanging was the most commonly used method in all the regions except the Aegean region ($z=6.43$, $P<0.001$, 95% CI=1.82-3.41). In the year 2003 suicides, there was an important connection between suicide methods and sexes ($c^2=22.86$, $P<0.001$). Committing suicide by hanging ($z=14.93$, $P<0.01$, 95% CI=1.94-2.53) and using firearms ($z=6.31$, $P<0.001$, 95% CI=.72-1.37) were higher in men, whereas committing suicide by taking chemical was higher in women ($z=12.32$, $P<0.001$, 95% CI=1.58-2.18).

DISCUSSION

In this study, in the age groups between 25-64 and 65 and over, male suicide rates were higher than in women. However, in the age group 24 and below female suicide rates were higher when compared to that of men. This is

Table-II: Distribution of the completed suicide cases in 2003 by the geographical regions, sexes and suicide reasons*

Regions	Gender	Suicidal Reasons						
		Illness(n)	Family lack of harmony *(n)	Economic Problems (n)	Business Failure (n)	'Emotional love' and 'failure tomarry with the loved one	Educational Failure (n)	Other**(n)
Marmara	Male	154	73	68	34	23	11	41
	Female	103	53	11	4	14	7	18
	Total	258	126	79	38	37	18	59
Aegean	Male	106	57	84	22	29	10	27
	Female	100	116	20	3	40	15	18
	Total	206	173	104	25	69	25	45
Mediterranean	Male	63	20	31	15	24	4	9
	Female	61	19	6	3	10	6	5
	Total	124	39	37	18	34	10	14
Central Anatolia	Male	95	40	65	25	29	29	-
	Female	83	30	9	1	24	16	-
	Total	178	70	74	26	53	45	-
Black Sea	Male	57	24	46	19	11	15	-
	Female	51	39	4	2	9	18	-
	Total	108	63	50	21	20	33	-
East Anatolia	Male	36	20	16	9	8	19	-
	Female	49	44	1	-	19	15	-
	Total	85	64	17	9	27	34	-
Southeast Anatolia	Male	34	19	20	10	12	2	9
	Female	36	26	4	-	14	2	13
	Total	70	45	24	10	26	4	21

*The relationship questions with important ones for the individual, being penalized, being angry with mother and father, being kicked, having humiliated, having limited social relationships, quarrelling with spouse, loss of a member in family. **There was no information about form of suicide.

in contrast to the earlier studies which show that suicide rates for male gender in age groups 24 and below have increased.^{11,13} Our findings that the suicide rates among young women were high is in line with the study by Cheng et al indicating that female suicides were higher in the age groups 15 and below and between 15 and 24.¹⁸

When we look at the differences between the geographical regions, the highest female suicide rates were in the regions East and South East Anatolia, while male suicide rates were in the other regions. On the other hand in the regions East and South East Anatolia, the most important reason for suicide was determined

to be lack of family harmony. The factors such as living in rural areas, destitution, unemployment, social isolation, having firearms could explain suicide behaviour in those regions in Turkey.¹⁹

In a psychological autopsy study conducted in a city in the Southeast Anatolia region of Turkey by Batman, it was determined that the most frequently completed suicide rates were seen in women.¹⁴ The reasons for this difference may be that the proportion of female illiteracy in the East and Southeast Anatolia regions is very high, girls do not go to the schools or they are not sent to the schools, migration phenomenon from rural to urban cities, mar-

Table-III: Distribution of the completed suicide cases in 2003 by the geographical regions, suicide methods and and sexes*

Regions	Gender	Suicide reasons					
		By Hanging	Taking Chemical	Throwing From a High Place	Drowning Firearms	Using	Other
Marmara	Male	224	30	34	11	91	14
	Female	108	27	37	13	19	6
	Total	332	57	71	24	110	20
Aegean	Male	151	66	21	5	69	23
	Female	71	178	21	5	15	22
	Total	222	244	42	10	34	45
Mediterranean	Male	85	15	12	3	47	4
	Female	43	30	10	4	7	6
	Total	128	45	22	7	54	10
Central Anatolia	Male	155	17	22	4	71	14
	Female	84	28	23	1	21	6
	Total	239	45	45	5	92	20
Black Sea	Male	75	12	9	3	67	6
	Female	52	27	13	5	23	3
	Total	127	39	22	8	90	9
East Anatolia	Male	46	9	8	1	38	6
	Female	63	22	2	4	34	3
	Total	109	31	10	5	72	9
Southeast Anatolia	Male	48	4	12	2	37	3
	Female	40	12	16	3	21	3
	Total	88	16	28	5	58	6

riages by Imam wedding is very widespread, girls get married in early ages, social changes are rapid, young girls do not tolerate their own realities or identities in patriarchal family structure.

Our finding are in agreement with previously conducted studies,^{3,20} which had shown that there was an important relationship between the suicide methods and sexes. Apart from the East and South East Anatolia regions, in all other regions, we determined that committing suicide by hanging and firearms were higher in men, whereas taking chemical was rather more in women. In the light of these results, we concluded that men preferred more aggressive methods. This result is also in line with the studies indicating that a higher proportion of women used pesticide to kill themselves,²¹ and that especially for female suicide by self-poisoning, agricultural chemicals were founded to be the most frequently used substances.²² In a study concerning the differences in methods,

it is a recognized fact that males use violent methods in both suicide and attempted suicide more often than females who use methods that cause less stinging sensation and less making them ugly.²³ Another study, showed women who commit suicide use less violent methods, such as drugs and carbon monoxide poisoning, than do men, who more often use violent methods such as guns and hanging.²⁴ Our study has shown that in all the regions apart from the Aegean region, the most frequently employed methods of suicide were hanging. Correspondingly, hanging was an easy and reliably lethal method that was most common in many countries.^{25,26}

According to the unemployment proportion of the year 2003 of the State Statistics Institute, the highest proportion was in the region Southeast Anatolia. An explanation for this could be that the unemployment proportion increased from 224,000 to 400,000 with a proportion of 100% in 2003, when compared to

the proportion in 2002.²⁷ In addition, although there are many studies indicating that the suicide rate in the unemployed was higher than those in the employed,³ further studies concerning the effect on suicide of unemployment are continuing.²⁸ In another study, occupational changes, decrease of socioeconomic level and non-stable job conditions were the factors affecting suicide,²⁹ which is in consistent with our study.

CONCLUSION

Female suicide rates was higher in East and Southeast Anatolia regions of Turkey, when compared to the other regions. This warrants that the means being used by woman to commit suicide must be investigated in those regions. This study is important in terms of the facts that the completed suicides in the age 24 and below in Turkey is rather high. Moreover it emphasizes the differences between the regions in the light of socioeconomic characteristics. Thus, the findings of this study highlights the need for further studies to initiate preventive strategies.

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