Suicide Cases in a Province (Samsun) of Blacksea Region of Turkey Between 1999-2003 Years

Türkiye'de Karadeniz Bölgesi'ndeki Bir İlde (Samsun) 1999-2003 Yıllarındaki İntihar Olguları

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ABSTRACT Objective: Age, gender, race, cultural and ethnic structure are important factors in suicide epidemiology. Factors effecting suicide behaviour are important to establish effective prevention programs, so it is important to evaluate them in detail. The aim of this study was to determine the regional differences and to get detailed data for guiding the suicide prevention programs by reviewing all suicides in Samsun. **Material and Methods:** The judicial files of all suicides were evaluated that occurred in Samsun, between 1999-2003. Some information such as age, gender, marital status, occupation status, suicide place and time and, suicide methods used by the cases were obtained. In addition, the probable risk factors for suicide from the official statements of the parents in the judicial files were determined. **Results:** In five years period, 169 people committed suicide in Samsun. Most of them were at the age of 10-29 years and 58.6% of were males. They most commonly used a firearm (28.4%) as the suicide method, self poisoning (27.8%) and hanging (26.0%) were following it. While most of the males committed suicide by firearm, females preferred self poisoning. Leading risk factors were unemployment and economic problems followed by family problems, diagnosed psychiatric illnesses, alcohol abuse, emotional problems and undiagnosed psychiatric illnesses. **Conclusion:** Suicide is a multi-faceted problem that needs both social and individual approaches. This study shows that higher ratio of firearm suicides needs more attention, and detailed studies especially for determination risk groups for prevention programs are necessary.

Key Words: Suicide; death; forensic medicine; demography

ÖZET Amaç: Yaş, cinsiyet, ırk, kültürel ve etnik yapı intihar epidemiyolojisinde önemli faktörlerdir. Etkili önleme programları için intihar davranışlarını etkileyen faktörler ve bunların ayrıntıları önemlidir. Bu çalışmanın amacı, Samsun ilindeki intiharları değerlendirerek, bölgesel farklılıkları belirlemek ve intiharı önleme programlarına rehberlik etmek üzere ayrıntılı veri elde etmektir. **Gereç ve Yöntemler:** Samsun'da 1999-2003 yılları arasında gerçekleşen tüm intiharların adli dosyaları incelenmiştir. Olguların yaş, cinsiyet, medeni durum, çalışma durumu, intihar yeri ve zamanı, kullanılan intihar yöntemi gibi özellikleri elde edilmiştir. Olguların yakınları tarafından bildirilen ve adli dosyalarda yer alan intihar nedeni olabilecek risk faktörleri belirlenmiştir. **Bulgular:** Samsun'da beş yıllık sürede 169 kişi intihar etmiştir. Olguların %58.6'sı erkektir ve en fazla olgu 10-29 yaş grubundadır. İntihar yöntemi olarak olgular en sık ateşli silah (%28.4) kullanırken, bunu zehirlenme (%27.8) ve ası (%26.0) izlemektedir. Erkeklerin çoğu ateşli silahla intihar ederken, kadınlar kendini zehirlemeyi tercih etmiştir. En önemli risk faktörü işsizlik ve ekonomik sorunlar olup, bunu aile sorunları, tanısı konmuş psikiyatrik hastalık, alkol kötüye kullanımı, duygusal sorunlar ile tanısı konmamış psikiyatrik hastalık takip etmektedir. **Sonuç:** İntihar hem sosyal hem de bireysel yaklaşımlar gerektiren çok yönlü bir sorundur. Bu çalışmada ateşli silahla intiharların oranının yüksek olması, daha fazla dikkate ve özellikle önleme programları için risk gruplarının belirlenmesinde ayrıntılı çalışmalara gereksinim olduğunu göstermektedir.

Anahtar Kelimeler: İntihar; ölüm; adli tıp; demografi

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According to World Health Organization (WHO) data, total number of suicides were expected as 815.000 all over the world in 2000.[1] Suicides statistics obtained from "form of suicide statistic" filled by police or gendarme, were published by Turkish Statistical Institute (TURKSTAT) beginning from 1962. According to these statistics, crude suicide rates for the years 1999-2003 were 2.79, 2.67, 3.78, 3.32, and 3.85 in 100.000, respectively. Suicides in general peaked among 15-24 year olds and generally much more seen in males. Females usually committed suicide below the age of 24 years while males above the age of 24 years. Hanging was the most common used method followed by firearm wounding and self poisoning.[2] Risk factors for suicides vary in age groups and genders, and show differences in each suicide according to time of suicide, and the region of the case.

Samsun is the biggest province in Black Sea region and its economy is dependent on agriculture. Because social demographic characteristics and risk factors of suicide cases may show differences from region to region, we evaluated the suicide cases in our province in five-years period. The aim was to get detailed data for guiding for suicide prevention programs.

MATERIAL AND METHODS

In this descriptive study, we examined all the judicial files in five years period of 1999-2003 in Samsun, and we classified all the suicide cases. We obtained the information like age, gender, marital status, occupation status, suicide place and time, and suicide methods from the judicial files. We also examined the autopsy reports of the physicians, if performed. In addition, we tried to find out the probable risk factors expressed by parents in their official statements in the judicial files.

For statistical analysis we used a statistical software program and comparisons of the groups were done by χ^2 test, p-value less than 0.05 was accepted as statistically significant.

RESULTS

In the 5-year period between 1999-2003, 169 (8.3%) of 2027 postmortem examined forensic deaths were determined as suicide in origin in Samsun.

Of the suicide cases 58.6% (n=99) were males while 41.4% (n=70) were females. Mean age of the cases was 34.13±17.29 (range between 11-88 years of age) and 50.9% were in 10-29 years age group. Females' ratio among suicide cases aged 19 and less were higher than those aged 20 and over ($p< 0.001$) (Table 1).

Of the cases, 46.7% (n= 79) were married while 43.8% (n= 74) were single, and others were widowed, divorced or separated. Unemployment ratio for males was 31.3% (n= 31) and for females was 94.3% (n= 66).

Cases commonly committed suicide in summer (33.1%), in August (12.4%), and on Mondays (20.1%).

Most of the suicides were committed at home and related places (95.7% and 70.7%, for females and males, respectively). Previous suicide attempt was reported in 10.7% of the cases and 11.8% left suicide notes behind.

Distributions of risk factors that could facilitate the suicides stated by the relatives and reported in the judicial file were listed in Table 2. While more than one risk factor was determined in 22 cases, no risk factor information was determined in 41 cases.

Of the cases, 28.4% (n= 48) had firearm wounding, and this followed by self poisoning (27.8%, n= 47), and hanging (26.0%, n= 44) (Figure 1).

TABLE 1: Distribution of the suicide cases according to age group and gender (n=169).

Age Groups	Males		Females		Total	
(years)	n	%	n	%	n	%
10-19	12	27.3	32	72.7	44	100.0
20-29	29	69.0	13	31.0	42	100.0
30-39	18	66.7	9	33.3	27	100.0
40-49	19	86.4	3	13.6	22	100.0
50-59	10	66.7	5	33.3	15	100.0
60+	11	57.9	8	42.1	19	100.0
Total	99	58.6	70	41.4	169	100.0

χ^2: 27.81 $p<0.001$

TABLE 2: Distribution of the risk factors that can facilitate the suicides (n=128).

Risk Factors	n	%
Unemployment and economic problems	28	21.9
Family problems	22	17.2
Diagnosed of psychiatric illness	21	16.4
Alcohol abuse	14	10.9
Emotional problems	14	10.9
Undiagnosed psychiatric illness*	13	10.2
Physical illness	11	8.6
Serious illness or death their relatives	11	8.6
School problems	10	7.8
Loneliness	7	5.5
Others**	3	2.3

* Undiagnosed of psychiatric illness: definitive diagnosis in not known but there are some clues related to illness showing impairment of an individual's personal or social behaviour like cutting him/herself with razor blade, and affective or emotional instability realized by family members, friends.

** Two cases murdered others and then committed suicide, one case was a prisoner.

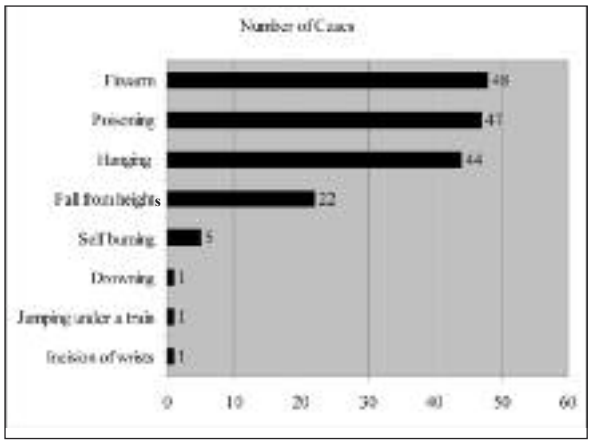

FIGURE 1: Distribution of suicide methods.

There was not a statistically significant association between age groups and suicide methods ($p > 0.05$). There was a statistically significant difference in suicide methods according to gender ($p < 0.01$) (Table 3). Most of the males (36.4%) committed suicide by firearm while females used self poisoning (37.2%).

Scene investigation reports with drawings were found in 56.2% of cases, and the ratio for photographs of the scene or the cases was 41.4%. Postmortem examinations were done at the scene of death in six cases, while all others were autopsied in a health institution.

The autopsy was performed in 71.0% of the cases and there was a statistically significant association between suicide methods and autopsy performance status ($p<0.001$) (Table 4). Autopsy performance was higher in firearm wounding and hanging groups when compared with self poisoning and other methods. In 49.1% (n=83) of the cases, samples for toxicological analysis were taken while performing autopsy.

Among 48 firearm suicide cases 72.9% used short-barreled while 27.1% used long-barreled weapons. Most of the entrance locations for both long-barreled and the short-barreled were head and neck region.

Thirty two (72.7%) cases who preferred hanging method for suicide used rope while five used electrical-TV cable and sheet for each, one used tie and one used gauze dressing as hanging material.

Among 47 self poisoning cases, 35 (74.5%) cases committed suicide with agricultural chemicals, while five used drugs, four used hydrochloric acid, one used mouse poison, one used drug and butane gas, and one used drug and alcohol together.

DISCUSSION

The factors important in suicide epidemiology can be listed as age, gender, race, and cultural and ethnic structure. Demographic characteristics show differences between different countries and even different regions of the same country.[1,3,4]

As in the studies in other countries, and the common data from Turkey, our study also showed

TABLE 3: Distribution of suicide methods according to gender (n= 169).

Suicide Methods	Males		Females		Total	
	n	%	n	%	n	%
Firearm	36	36.4	12	17.1	48	28.4
Poisoning	21	21.2	26	37.2	47	27.8
Hanging	30	30.3	14	20.0	44	26.0
Others *	12	12.1	18	25.7	30	17.8
Total	99	100.0	70	100.0	169	100.0

χ^2: 15.02; $p<0.01$**

* Fall from height, self burning, drowning, jumping under a train and incision of wrists were joined under others.

** For statistical analysis, suicide methods were grouped in four classes, "firearm", "poisoning", "hanging" and "others".

TABLE 4: Distribution of suicide methods according to autopsy performance (n=169).

Suicide Methods	Autopsy performed		Autopsy not performed		Total	
	n	%	n	%	n	%
Firearm	42	87.5	6	12.5	48	100.0
Poisoning	25	53.2	22	46.8	47	100.0
Hanging	37	84.1	7	15.9	44	100.0
Others *	16	53.3	14	46.7	30	100.0
Total	120	71.0	49	29.0	169	100.0

χ^2: 21.80; p< 0.001**

* Fall from height, self burning, drowning, jumping under a train and incision of wrists were joined under others.

** For statistical analysis, suicide methods were grouped in four classes, "firearm", "poisoning", "hanging" and "others".

male predominance.[2,5-11] According to TURKSTAT data, suicides peaked at the age group of 15-24 years, and decreased with ageing.[2] In our study, we found that suicides most commonly committed by younger people as it was also found in Turkey and in Israel.[2,9] On the other hand, there are studies from different countries showing male and older age dominance in suicides.[12-16] Also in a study in Batman, a province in Turkey, reported that suicides were committed more commonly by young females.[17]

The ratio of suicide was less in married people when compared to single, widowed or divorced ones.[18] In this study, we found that 53.3% of the cases were single, widowed, divorced or separated.

In addition to marriage, having a job is commonly a preventive factor for suicide.[18] It was found that 31.3% of males were unemployed and 94.3% of females were housewifes without any job.

Although there is a slight increase in spring and autumn, no association was found between suicide and seasons.[18] Most of the suicides in Samsun were committed in summer, in August and on Mondays. Balci in Eskişehir showed suicides committed mostly in August, in summer and on Fridays and Saturdays.[19] Kalediene et al. in Lithuania reported in July and in summer.[7] Osuna et al. showed in May and in spring. Azmak, in Thrace region, reported in winter months mostly.[15,20]

The information about the people committing suicide is mostly eathered from the judicial files. However, it is a complicated issue to decide about the situation of the person just before death. Risk factors related to suicides are various and show differences in every case. One of the most important risk factors is social status. Unemployment and economical problems, job-related problems, loss of social status, complicated family environment and tendency towards aggressiveness, broken up families, violence within family, problems of family relationships, physical illnesses, physical dependency on others, mood disorders, presence of other psychiatric diseases, family history of psychiatric disease or suicide, alcohol or drug abuse, death of a relative, being divorced, living alone, having problem with a girl/boy friend, school problems, feeling of desperation are all risk factors for committing suicide.[5,12,18,21,22] In this study, economical problems and unemployment were found the most probable risk factors for suicide as in the studies from Japan (Kobe), South Africa, New Zeland and Italy.[5,21,23,24] Fushimi et al. showed that major cause of suicides in the age group of 40-59 years was economical problems in Japan(Akita).[12] Shen et al. similarly reported mental illness as a risk factor in 47% of the cases whose risk factors could be determined, alcohol abuse in 12%, substance abuse in 6%, both alcohol and substance abuse in 8%, mental illness and alcohol/substance abuse in 12% in Indiana.[22] Psychological factors, diagnosed and undiagnosed psychiatric illness, and alcohol abuse also had a great impact on suicide, and these were totally responsible for 37.5% of suicides in our study.

There are different methods used for committing suicide. They show differences in age groups, gender, social and cultural conditions, but the cases usually select the method that they can reach easily and rapidly. Agricultural chemicals known as fatal are used for suicidal purposes especially in agricultural regions where they are easily reached.

However in countries and regions where firearm accessibility is easy, the suicides are frequently committed by firearms.[3,4,14,25-28] Due to our geographic location and historical past, interest of firearms is high in our country. Especially in some regions like Black Sea region, firearm passion and owning is very high. In Black Sea region, there are some ateliers where firearms manufactured illegally, so easy and cheap access is possible. Nevertheless, in contrary to developed countries, most of the firearm owners do not behave sensitively in hiding them so that firearms that are kept at home are easily reachable.[29] In this study carried out in Samsun, that is in Black Sea region with an agricultural economics dominantly, most of the cases committed suicide using a firearm and this is followed by self poisoning. The most common methods used for suicides, reported by the studies from other countries and also by studies from Turkey were hanging followed by firearm wounding, self poisoning or fall from heights.[2,5,7-10,12,13,16,21] The most common used suicides method was hanging in the studies of Balci in Eskişehir and of Altindag et al. in Batman.[17,19] Azmak reported that most frequently used method was hanging in Thrace region and firearm wounding and self poisoning were following it.[20] In a study, Cutright and Fernquist compared the suicide methods used in West and South regions of American States, and showed that the firearm wounding was the leading method of suicide in both of regions.[25] In contrary, Atilgan et al. (Antalya), Dulger et al. (İzmir), Islam and Islam (Bangladesh) reported self poisoning as the most common method used.[6,30,31] While males preferred using firearms, hanging and fall from heights, females preferred self poisoning for comitting suicide. However it is emphasized that the number of females committing suicide by firearm is increasing.[11,18,21,30] Ojima et al. determined hanging in Japan and firearm in United States as the most common methods preferred both by males and females.[14] Perret et al. found that males less than 25 years of age committed suicide by firearm while females by fall from heights in Geneva.[32] On the other hand Shen et al. determined that males preferred firearm while females preferred self poisoning for committing suicide as we found in Samsun.[22]

Like other studies, most of the suicides were committed at home or home-related places in our study.[12,15,19,22,32,33]

Similar to the studies from Antalya, Eskişehir and Diyarbakır, firearm wounding cases in this study mostly used short-barreled weapons, and entrance wound locations were in the head and neck region.[19,30,34] Suicide cases of hanging mostly used a rope as the hanging material like in other studies.[35-37] Most of the cases of self poisoning, like in İzmir, used agricultural chemicals.[31]

In death cases it is important to determine the origin. No opinion must be reported without scene investigation, postmortem examination and evaluation of autopsy findings and other evidences. Presence of previous suicide attempts, suicide notes left behind and evidences indicating suicide are important in determining of the origin.[18,26] In our study 11.8% of the cases left suicide notes behind and 10.7% had a history of previous attempt; 71.0% had an autopsy, and autopsy ratio was found higher in firearm and hanging methods. In similar studies, it was reported that 13.0-38.0% of the cases left suicide notes behind.[12,19,21,22] Previous suicide attempt ratio reported by Fushimi et al. was 8.7% while this rate was reported as 17.2% by Osuna et al.[12,15]

Suicide is a multi-faceted problem that needs both social and individual approaches. This study shows that the high ratio of firearm suicides needs more attention, and detailed studies especially for determination of risk groups for prevention programs are necessary. Psychiatric illnesses and alcohol/substance abuse mostly need individual or small group approach from medical and social workers. Economical problems and unemployment are important risk factors for suicide and community and government must be aware of this problem. Prevention programs can aim either of them according to the regional risk factors.

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