Ten-year Epidemiological Study on Suicide Attempts in Skopje, Republic of Macedonia

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The aim of our study was to provide basic epidemiological data on suicide attempts that resulted in admission to the University Clinic of Toxicology and Emergency Medicine in Skopje during a 10-year-period (1999-2008). There is a lack of published information regarding suicide attempts in the Republic of Macedonia. Methods: Participants were 1683 patients from the territory of Skopje, who attempted suicides and who were hospitalized in the University Clinic of Toxicology and Emergency Medicine in School of Medicine, Skopje during the period of ten years (1999-2008). The following variables were included in the analysis: age, gender, religion, method of suicide attempt and admission date. The results were analyzed with the Statistic for Windows program, release 7.0. Results: A significantly higher number of suicide attempts were registered in females than in males from the territory of Skopje during the period of 1999-2008. Men who attempted suicide were older than women. Women of Christian religion affiliation attempted suicide more frequently than women of Muslim religion. The greatest number of attempts was during the summer season. The most common method of suicide attempt was intoxication with medications. Conclusions: Our study has shown that attempted suicide rate has had a stable trend over the last decade. It has also shown female predominance of suicide attempts with a greater number of attempts during the summer months. There is a need for intervening strategies to be targeted at younger females. Key words: suicide attempt, epidemiology, prevention.

1. INTRODUCTION
Suicide is a complex phenomenon with psychological, social, biological, cultural and environmental factors involved (1, 2, 3, 4, 5, 6, 7, 8, 9, 10).
Every year almost one million people die from suicide; a global mortality rate of 16 per 100,000, or one death every 40 seconds (11, 12, 13, 14, 15).
In the last 45 years suicide rates have increased by 60% worldwide. Suicide is among the three leading causes of death among people aged 15–44 years in some countries, and the second leading cause of death in the 10–24 years age group (1).
These figures do not include suicide attempts which are up to 20 times more frequent than completed suicide (16,17,18,19, 20). Although traditionally suicide rates have been highest among the male elderly, rates among young people have been increasing to such an extent that they are now the group at highest risk in one third of all countries, both developed and developing.
Mental disorders (particularly depression and substance and alcohol abuse disorders) are a major risk factor for suicide in Europe and North America (21, 22). Attempted suicide is both one of the strongest risk factors for completed suicide and an important indicator of extreme emotional distress (7).
In the Republic of Macedonia, available data show that the rate of committed suicides and the number of attempted suicides was 2.7 per 100,000 for suicide in 1957; 3.12 per 100,000 for suicide in 1970, and 29 attempted suicides in 1970; 4.55 per 100,000 for suicide in 1980 and 148 suicide attempts in 1980; 154 committed suicides and around 1100 attempted suicides in 2005. In 2008 there were 167 completed suicides and around 900 attempted suicides (Statistical review, 2008).
Unfortunately, currently there is no official registry (statistical and registration) database of all attempted suicides that ask for medical help in the Republic of Macedonia. There is also a lack of published information regarding this issue. One of the aims of this study was to suggest the need of continuous surveillance of suicide and attempted suicide by a national sentinel network of general practitioners as it is
done in most western countries (5, 21).

This paper presents findings obtained from an epidemiological study of suicide attempts from the territory of Skopje, R. Macedonia, that resulted in admission to the University Clinic of Toxicology and Urgent Medicine during a 10-year period (from 1999 to 2008).

More generally, the aim of this study was to provide an overview of time trends in suicide attempts from the territory of Skopje, that resulted in admission to the University Clinic of Toxicology and Emergency Medicine during the last decade (1999-2008) and to suggest measures of suicide prevention.

Specific aims of this study were to describe time trends in overall rates of admission for attempted suicide cases from the territory of Skopje during the last decade (1999-2008); to examine age, gender, season, and religious differences in time trends in suicide attempt admission and to explore methods used for attempted suicide.

2. METHODS

Participants of the study are included as consecutive series of 1683 individuals admitted to the University Clinic of Toxicology and Emergency Medicine for attempted suicide from the territory of Skopje during a 10-year period. Skopje has a population of approximately 668,000 (2006), which is one third of the overall population in the Republic of Macedonia. The University Clinic of Toxicology and Emergency Medicine is almost the sole entry point for individuals who have attempted suicide in the region of Skopje. Additionally, individuals from the University ORL Clinic who attempted suicide with hanging, poisoning or gas were referred to the University Clinic of Toxicology and Emergency Medicine.

Parameters for creating the database of the study - the following parameters were obtained at each admission of individuals presented with suicide attempts: date of admission, date of birth and place of residence, gender, religion, and method used for suicide attempt. The method of suicide attempt was classified according to ICD -10.

Statistical methods – Data were analyzed with the Statistic, release 7.0 software package. The chi-square method was used for the analysis of category variables and the Student’s t-test and one-way ANOVA for the continuous ones. A p value of ≤ 0.05 for two-tailed test was considered significant. Dynamics of the changes in attempted suicides was determined by creating seasonal index, rate of increase and decrease, and trend.

3. RESULTS

In the period of 1999-2008 in the city of Skopje, a total of 1683 cases of attempted suicide were registered, of which 463 (27.51%) were males and 1220 (72.49%) females (Table 1).

Table 1 shows data that refer to distribution of patients according to the examined variables: gender, age, religion and method used for attempted suicide. The age of male patients varied in the range of 40.25 ± 14.87 years, ±95.0% confidence interval 38.89–41.61, the youngest patient being 14 years old and the oldest 94 years. In women, the age ranged 38.04 ± 15.62 years, ±95.0% confidence interval 37.16–38.91; the youngest patient being 14 years old and the oldest 95 years. For t=2.64 and

<table>
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<tr>
<th>Parameters</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
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<td>Intoxication with medications</td>
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<tr>
<td>Drowning</td>
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Table 1. Distribution of patients with attempted suicide according to examined parameters

Table 2. Seasonal index of attempted suicides in Skopje, during ten year period 1999-2008

<table>
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<tr>
<th>Month</th>
<th>1999</th>
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<td>174</td>
<td>131</td>
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<td>149</td>
<td>153</td>
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Table 2. Monthly average rate for the period of 1999-2008: x=14.03
Concerning the distribution of patients by gender and religious affiliation, there was no difference among men: Christians – 250 (14.85%), Muslims – 213 (12.66%). However, more women with Christian denomination (43.91%) than those with Muslim denomination – 481 (28.58%) attempted suicide, yielding a significant difference, for $\chi^2 = 5.99$ and $p = 0.01$. The number of men with different religious affiliation who attempted suicide was almost equal contrary to the number of women. Of the total of 463 men with suicide attempts, 54.3% were Christians and 45.7% Muslims. Of the total of 1220 women with suicide attempts, 60.6% were Christians and 39.4% Muslims.

Distribution according to gender and method used for attempted suicide is given in Table 1. It is evident that in both men and women, the most common method of attempted suicide was intoxication with medications (80.33%), followed by intoxication with caustic agents (15.98%), pesticides (3.39%), gases (0.12%), hanging (0.12%) and drowning (0.06%). The presented distribution has shown a significant difference, for $\chi^2 = 22.49$ and $p < 0.001$ ($p = 0.0004$).

Values for the seasonal index in the attempted suicides on the territory of the city of Skopje for the period of 1999-2009 are given Table 2. The mean monthly index in the attempted suicides was $x = 14.03$. Seasonal index had the biggest values in July (127%) and December (117%), whereas the lowest values were registered in November (80%) and June (86%).

Monitoring the dynamics in the changes for attempted suicides, the biggest increase in the number of attempts was registered in 2007 (compared to 2006) and the increase rate was 68.87% (Graph 1). The biggest decrease in the number of attempts was registered in 2004 (compared to 2003) and in 2006 (compared to 2005), and the decrease rate was 23.98%.

The findings of gender prevalence in attempted suicide point out to a significantly higher prevalence in women (72.49%) than in men (27.51%) and these findings are in agreement with the majority of studies performed in other countries (7, 11) . The mode of manifestation of self-harm was in close correlation with gender. In women, the attempt was more often in the function of appeal phenomenon and consequently the methods of attempts were more benign: less aggressive and destructive. However, each attempt must be seriously taken and adequately treated.

4.2. Age

In our study the age of the patients who attempted suicides ranged from 14 years for both sexes up to 95 years for men and 96 years for women. The largest number of patients who attempted suicide (45%) was found in the age group of adolescents (below 24 years of age) particularly in females. These findings are consistent with the general observation reported in the literature that the groups at highest risk for attempted suicides are adolescents, predominantly of female gender and males older than 60 years (3, 10, 9).

4.3. Religion

There was no statistically significant difference in percentage frequency of men of Christian and men of Muslim affiliation in the total number of attempted suicides in the city of Skopje during the period of 1999-2008, who were hospitalized at the University Clinic of Toxicology and Urgent Medicine. On the other hand, a substantially higher percentage of Christian women attempted suicides than did Muslim women. In literature, there has been a long-term prevailing attitude that religion has a protective role and a reducing effect on the rate of suicides in differ-
ent countries, in spite of many controversial data presented in various studies on this topic.

Data related to religious beliefs in our study are of a demographic character and they do not emphasize the impact of the religion on attempted suicides. According to our results, distribution by gender and religion may indicate weaker religious views in Muslim men than in Muslim women. Attempted suicides in men more frequently result in completed suicides, which goes in favor of their stronger and more determined self-harm as well as in their choice of methods used for suicide that are more fatal ones. In our view, the statistically significant difference in the number of attempted suicides in Christian women as compared to Muslim women is socially and culturally conditioned by the transitional changes in the society and family, with increasing of the stress-related risk factors. Our results urge the need for further additional investigations about the influence of religion and mode of its practicing by the individuals of both major religious traditions in our country (Christians and Muslims). Also the influence of several other socio-cultural factors, unemployment, abuse of alcohol and other psychoactive substances, disintegration of the traditional family in the countries of transition, should be taken into account when inferring on the prevalence of the attempted suicides and the rate of suicides in the Republic of Macedonia.

4.4. Seasonal index

The increased number of attempted suicides in the summer months, especially in July, coincided with the results of the study of Asif and coworkers, (2005) (8), but it was different from that found in many other countries. These data advocate the need of increased monitoring of the risk groups in the critical months and greater availability of the institutions for help in crisis situations in our country.

4.5. Method used for attempted suicides

The most frequent method of attempted suicide was intoxication with medications, in 59.95% of women and 20.38% of men (3 vs. 1), followed by intoxication with corrosive agents, 10.40% of women against 5.59% of men (2 vs. 1).

In our opinion, the easy access of medications and caustic agents, particularly the free market medications, requires commitment to prevention with strict control of drug prescription.

The stable trend, more generally with a mild overall reduction of cases of attempted suicides over the last decade of transition in the Republic of Macedonia that we detected could speak in favor of increased antidepressant prescription in the treatment of depression and anxious disorders, which is in agreement with studies performed in several western countries (12). However, the data from 2008 show an increase in the number of admissions of attempted suicides in the Clinic of Toxicology. This fact might be a result of a higher registration discipline of the involved Institutions, as well as of the influence of other uninvestigated factors.

One of the limitations of the study is the small number of investigated parameters which restrict us from more general conclusions regarding the epimology of attempted suicide. Never the less, in a situation in which published information on this matter in our country is lacking, our data could give basic information for further investigation and cross-cultural comparison of the socioeconomic and cultural factors that influence the prevalence of attempted suicides in the Republic of Macedonia as well as in other countries in the region.

5. CONCLUSIONS

Our study has shown that attempted suicide rate has had a stable trend over the last decade. It has also shown a female predominance of suicide attempts with a greater number of attempts during summer months. There is a need for intervening strategies to be targeted at younger females. In support of the prevention of attempted suicides and committed suicides, it is necessary to focus on preventive programs for recognizing and treatment of crisis situations and depressive disorders, and comprehensive preventive measures for preservation and enhancement of mental health.

REFERENCES


