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Socioeconomic Status and Psychological Factors Involved in Suicide

Marius MOGA[1] , Victoria BURTEA[2], Petru IFTENI[3]

Abstract

The high number of suicides drew attention to medical professionals. In Europe suicide is one of the leading cause of death caused by intentional and unintentional injuries. We tried to evaluate the suicide rates and methods of suicide during a 3 years period. There were collected all the date provided by the archives of forensic services of Brasov county between 2011 and 2013 regarding age, sex, marital status, occupation, socio-economic status, methods of suicide and alcohol consumption before suicide. The statistics included 545 subjects included in the study, 293 were male (53.8%), and 252 were female (46.2%) who were admitted at the ER of Brasov County Emergency Hospital during study period. Of 545 patients with suicide attempt, 355 (65.15%) survived and were referred to the Psychiatry and Neurology Hospital for psychiatric treatment and psychological counseling. The number of male who died after a suicide attempt was significantly higher than in female cases (134 vs.56, $p<0.001$). Previous suicide attempts, depression, alcohol abuse and unemployment are strong factors for fatal suicide. Poor economic status and life events may contribute to suicide attempt in those individuals.

Keywords: suicide; socio-economic status; risk factors; psychological intervention.

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Introduction

Suicide has always been a phenomenon with different meaning for philosophers, doctors, sociologists, psychologists, religions or for ordinary people. Some have accepted suicide as a form of liberation from the burden of human life or the manifestation of the spirit of freedom, while others were condemned and blamed the person who resorts to such an extreme act (Achté *et al*., 1996). Suicide rates vary from country to country. The oldest data on suicide rates from the eighteenth century and was established by two Nordic countries, Sweden and Finland respectively. In determining the statistics are taken into account especially the gender and age. The highest rates are those reported by the countries of Eastern Europe (WHO, 2002): Lithuania - 51.6, Russian Federation - 43.1, Belarus - 41.5, Estonia - 37.9 to 100,000 by inhabitants. The lowest rates seem to be in Latin America: Colombia - 4.5, Paraguay - 4.2 per 100,000 inhabitants, and in some Asian countries: Thailand - 5.6 Philippines - 2.1 per 100,000. In North America and other European countries, rates fall between these extremes: for example, Finland - 28.4 Belgium - 24.0 Switzerland - 22.5 France - 20.0 Germany - 14, 3, Canada - 15.0 U.S. - 13.9 per 100,000 inhabitants. Since data from the WHO, it is observed. From the study implemented by the National Action Plan for Youth we know that in the four years period juvenile suicide remains relatively constant with slow decline of 1.2% with highest number of suicides in 2003. Of all youth suicides 47.3% were in the age group 25-29 years, 35.4 % in the category of 20-24 years and 18.3% in 15 -19 years group (Mcintosh, 2009).

Regarding methods of suicide, in 2003, Romanians preferred hanging (70 %), precipitation (throwing from a height or in front of the train or car - 9%), poisoning (ingestion of lethal substances, or poisoning with monoxide carbon or natural gas - 8%), drowning (4%). Suicide rates in Romania follow the trend of the phenomenon of other European countries: the suicide rate is significantly higher in men than in women. Here, the female suicide rate is almost constant from 1990 to 2002. As it concerns men, the suicide rate has soared from 1990 to 1995, while still retaining up to 2002 an increasing trend, but easy. The suicide rate in the country, after a higher growth between 1990 and 1995, and it is placed on the same trend until 2002, but not significantly (Kőlves *et al.*, 2013).

Methods

The aims of the study were to evaluate de suicide in Brasov County during a three years period. We tried to determine the number of cases who previous to their death were admitted to the ER for suicide attempts or in psychiatric departments. The retrospective study was based on existing documents in the archive of forensic services Brasov, Brasov County Emergency Hospital and Psychiatry and

Neurology Hospital Brasov and included all cases of suicide attempt and suicide recorded between 2011 and 2013. Data were collected regarding year of death, age, sex, marital status, economic status, psychiatric diseases, suicide methods and BAC (blood alcohol concentration).

Statistical analyses were performed using SPSS version SPSS 15.0. The differences between the two groups were compared using Student's t test. The chi-squared and Fisher's exact tests were used to assess categorical variables. Age adjusted odd ratio (OR) and 95% confidence interval (CI) were calculated by multivariate analysis using multiple, unconditional, logistic regression. P values less than 0.05 were considered to be statistically significant.

Results

Of the socio-demographic characteristics analyzed, suicide attempts and fatal suicide were associated with age, gender, and residence area, education, occupation, socio-economic status and psychiatric diseases (*Table 1*).

Table 1. *Descriptive statistics*

Characteristic	Subjects N=545	Subjects with suicide attempt		Subjects with fatal suicide		*P* value
		N=355	%	N=190	%	
Age groups (years)						
18-30	140	92	25.9	48	25.3	NS
31-40	110	73	20.5	37	19.5	NS
41-50	182	121	34.2	61	32.1	NS
51-60	70	44	12.4	26	13.6	NS
61-70	34	20	5.6	14	7.4	NS
>70	9	5	1.4	4	2.1	NS
Gender						
Male	293	159	44.8	134	70.5	**0.01**
Female	252	196	55.2	56	29.5	**0.01**
Residence area						
Urban	332	201	56.6	131	68.9	**0.05**
Rural	213	154	43.4	59	31.1	**0.05**
Educational level						
1 to 8 years	158	89	25.1	69	36.3	**0.05**
9-12 years	281	211	59.4	70	36.8	**0.01**
>12 years	106	55	15.5	51	26.9	**0.05**

Occupation						
without job	201	126	35.5	75	39.5	NS
employed	118	96	27.1	22	11.6	**0.01**
students/scholars	84	49	13.8	35	18.5	NS
retired due to illness	72	47	13.2	25	13.1	NS
retired	43	25	7.1	18	9.5	NS
unemployed	15	5	1.4	10	5.3	**0.05**
others	12	7	1.9	5	2.5	NS
Socio-economic status						
Low	316	196	55.2	120	63.1	*NS*
Medium	214	149	41.9	65	34.2	*NS*
High	15	10	2.9	5	6.7	*NS*
Psychiatric diseases						
Depression	150	96	27.1	54	28.4	NS
Schizophrenia	46	31	8.7	15	7.9	NS
Adjustment disorder	20	17	4.8	3	1.5	**0.05**
Alcoholism	235	145	40.9	90	47.3	NS

Age groups

The mean age for male was 45.95 years (11.5 SD) and 44.75 years (10.4 SD) for female, range 18-92 years. The age was significantly lower in cases with alcohol abuse in fatal suicide group (40.1 vs. 45.5 $p<0.05$). The vast majority of patients who survived after a suicide attempt was in 41-50 years old age group. In the studied period there was a variable distribution of the number of suicides by age group. It is noted a steady increase in suicide with age once touching a peak in the 6th decade of life. We noticed 2 cases with suicide attempt at age of 90 and 92.

Gender

Of the 545 subjects included in the study, 293 were male (53.8%), and 252 were female (46.2%) who were admitted at the ER of Brasov County Emergency Hospital during study period. Of 545 patients with suicide attempt, 355 (65.15%) survived and were referred to the Psychiatry and Neurology Hospital for psychiatric treatment and psychological counseling. The number of male who died after a suicide attempt was significantly higher than in female cases (134 vs.56, $p<0.001$).

Educational level

Of 355 patient with suicide attempt, 211 (59.5%) presented a medium level of education. There were no significant differencies between male and female. The number of patient with high level of education was 51 (26.9%).

Occupation

126 (35.5%) patients with suicide attempt were without a job and not medical assured. In fatal attempts, 75 (39.5%) of cases were without a job. There were statisticaly significant differencies between ,,without job,, category and all athers ($p<0.05$).

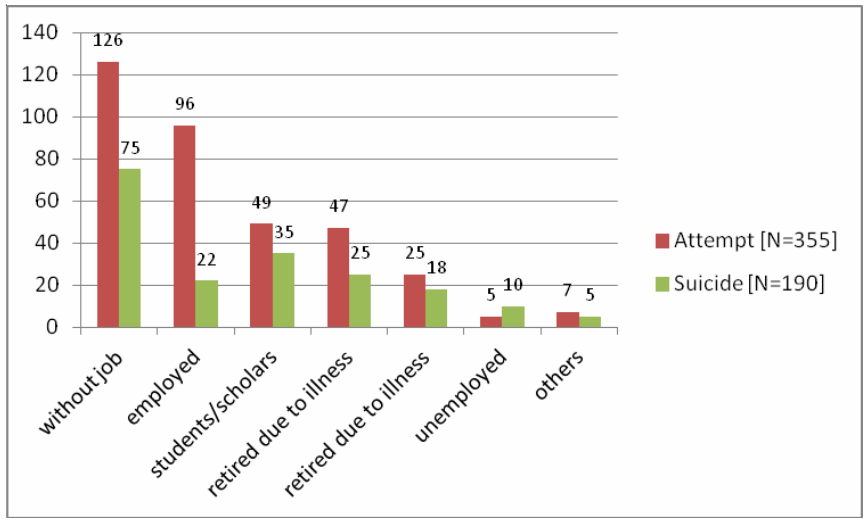

Figure 1. The professional status of patients

Socio-economic status

The socio-economic status were evaluated based on the annual income of each case. The source were information provided by the patients or theyr family or relatives. The majority of cases from suicide attempt group 196 (55.2%) belongs to the low economic status. The number was even higher in the fatal suicide group 120 (63.1%). The patients without job or unimployed were considered as a part of low socio-economic status.

Suicide methods

Hanging was the most common method of suicide attempt with 184 (33.8%) and was fatal in 82 (23.2%) cases. The mean age of the subjects were 43.2 (range 18-92). This method was followed by drug overdose in 91 (25.6%) cases, fatal in 33 (17.4%). In the studied period there was a variable distribution of the number of suicides by age group. Other ways chosen to commit suicide was by poisoning with pesticide, cutting wrist, self-immolation, drowning, firearms and disposal in front of train (*figure 2*).

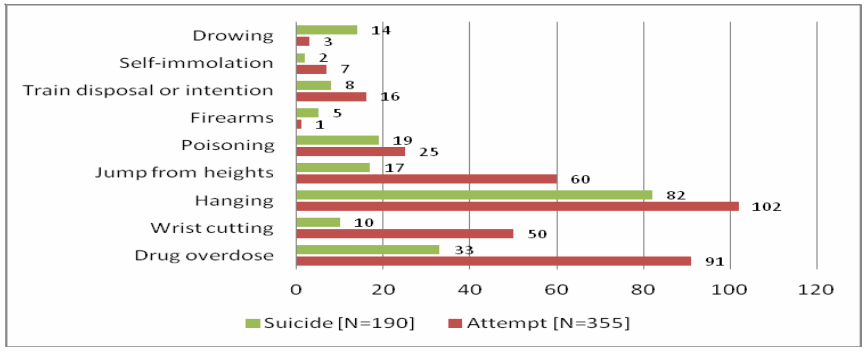

Figure 2. Suicide methods

Psychiatric diseases

There were an important number of patient with symptoms or psychiatric diagnostics at the time of suicide attempt. The most frequent condition was alcohol abuse identified in 145 (40.1%) cases with suicide attempt and in 90 (47.36%) in fatal cases (*Figure 3*). Male patients were more often under the alcohol influence than female (80 vs. 65, p=0.67). The mean age of individuals were significantly lower (40.00 years vs. 47.02 years) in cases with BAC above 2.00g/dL compared with those with BAC lower than 1.00 g/dL ($p<0.005$). Depression was associated with suicide attempt in 96 cases (27.1%) and in 54 fatal cases (28.5%).

There were more than one previous attempt in many cases 380 (70%) as it is presented in figure 4. Off 355 patients, 152 (42.8%) were at their second attempt. Unfortunately, a high number of individuals died at first atempt 79 (41.5%).

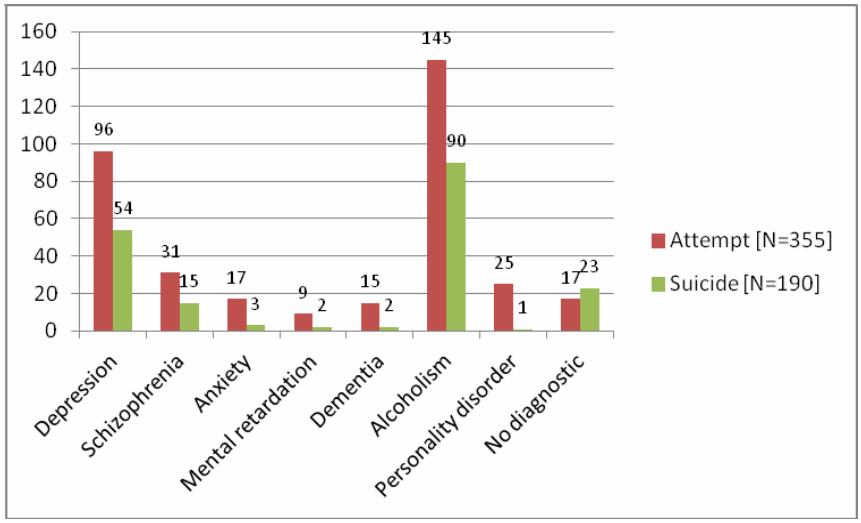

Figure 3. Psychiatric diseases

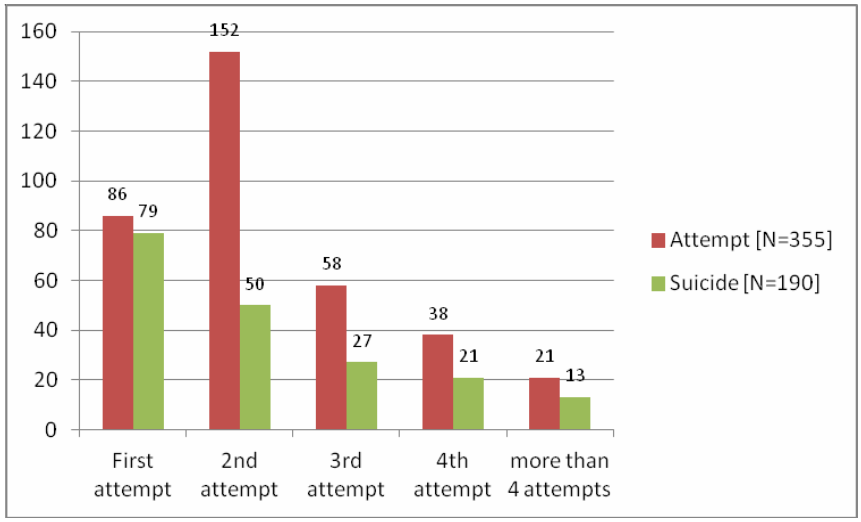

Figure 4. Previous suicide attempts

Discussions

The work is one of the first studies on the suicide rate among the population of Brasov is heterogeneous as ethnicity, including Romanians, Hungarians and Germans. The main finding is that suicide risk factors were presented at a significant proportion of cases with nonfatal and fatal suicide attempt. In most of cases (70.5%) suicide individuals were males which confirm studies of other authors (Värnik *et al.., 2008*). The main method of suicide was hanging. Individuals who chose to kill themselves by jumping from heights had the lowest rate of alcohol use which demonstrates readiness to die. It is well known that alcohol is linked with poor response to bad social stimuli and with decrease serotonin levels (Pompili *et al*., 2010). This approach allows the demonstration that a significant number of adults who commited suicide showed in months or years, preceding their death signs or symptoms of psychiatric disorders such as major depression or bipolar disorder (Vyssoki *et al*., 2011; Wenzel *et al*., 2011; Bellivier *et al*., 2011**)**. Depression seems to have a major role in suicide and it is estimated that it is responsible for about 65 % to 90 % of suicides with psychiatric pathologies. Schizophrenia, anxiety and behavioral disorders, impulsivity and alcohol abuse are other major factors (Skodlar *et al*., 2008; Neuner *et al*., 2008). Our results showed that 451 patients presented symptoms or had psychiatric diagnostic which confirms those data.

Previous suicide attempt is still the most important predictor of subsequent fatal suicidal behaviour (Hakansson *et al*., 2010). The risk is greatest in the first year and especially during the first six months of the attempt. In 1994 Gunnell and Frankel stated that the risk in these individuals is 20-30 times higher than in the general population, which is confirmed by other studies. The existence of a previous suicide attempts increases the risk. Our study showed that 269 person (75%) presented at least one previous suicide attempt and 79 (41.5%) died at first attempt, which confirms other studies (Isometsä *et al*., 1988). Some events in individual's life may become a precipitator factors regarding suicide. Among them, the most studied in terms of correlation with suicide were: bereavement, interpersonal conflict, a broken relationship or a strained relationship, and problems with authorities or professional order (Ganzini *et al*., 2013**).** The loss of a loved one, divorce, separation or death can trigger a deep depression, especially if the person was lost spouse or close person. Results of a Finnish study on 16 000 cases published in 1999 reported an increased prevalence of those who were victims of fights in school and not those who were the authors bouts (Kerkhof , 1999).

A study done in US showed that those teenagers who had been victims of sexual violence exhibited significantly more suicidal behavior than their peers, and other emotional and behavioral problems (Blosnich *et al.*, 2012). A stable

marital relationship with strong responsibility of raising children may be protective factors against suicide. Studies on the relationship between family status and suicide have demonstrated high rates of suicide in single persons who were never married, widowed, separated or divorced people in Western cultures, especially in men, in the first months of the separation or loss partner (Burrows *et al*., 2011). The limitations of this study include its small sample size and the fact that patients were recruited from a single emergency hospital and the fact that in some cases the information about patient who died was restricted or the family refused to provide details.

Conclusions

In general, research in this field has allowed revealing several important environmental and social factors related to suicide. Unemployment status, low economic situation, alcohol abuse, loosing social position or a beloved person are key factors in person's decision to think about suicide or action upon. Despite the reduction of number of suicides in the last 3 years compared with previous period, the use of alcohol is strongly linked with suicide, especially when individuals exhibit high levels of blood alcohol concentration. This problem which has however shown an improving trend in the last years still poses a serious burden to the society. Restrictive access to firearms and pesticides are necessary and relatively easy methods in order to reduce suicide in Romania.

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