

## Suicidality in Depressive Patients

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### Abstract

**Aim:** The aim of this research was to examine the incidence of suicides in patients with depressive disorders who were hospitalized at the Psychiatric Clinic of the Clinical Hospital Centre Osijek during 2015 and 2016, and to determine the relationship between suicidality and parameters measured in this research.

**Methods:** This research included 325 depressive patients hospitalized in the Psychiatric Clinic of the Clinical Hospital Centre Osijek during 2015 and 2016. Data were collected from medical records of patients diagnosed with depressive disorders. To collect data, the authors used a questionnaire drafted for the purposes of this research requiring the following information to be filled in: age, gender, employment status, marital status, qualifications, number of children, the existence of suicide attempts or repeated suicide attempts, the way in which suicide was attempted, number of hospitalizations and treatment duration in years, number of suicide attempts, motivation for attempted suicide, psychiatric heredity, comorbidity.

**Results:** Of the total number of respondents (n=325), 119 (36.6%) patients had suicidal behavior pattern in the past, significantly more in 2015 (Fisher's exact test,  $P < 0.001$ ), at present the suicidal behavior pattern had 134 patients, significantly more in 2015 (Fisher's exact test,  $P = 0.04$ ). Eighty (24.6%) respondents had attempted suicide. Thirty-three (41.3%) out of the 80 (24.6%) respondents who had attempted suicide were men and 47 (58.8%) were women. The existence of psychiatric heredity or attempted suicide in the family does not affect the suicide attempt of the respondents.

**Conclusion:** Suicidal behavior patterns in depressive patients hospitalized in the Psychiatric Clinic of the Clinical Hospital Centre Osijek during 2015 and 2016. are common.

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## Introduction

According to available data from the registers of the Croatian Institute of Public Health, one can see that in 2013 there were more than forty thousand hospitalizations associated with mental disorders registered, while depressive disorders were the cause of more than 13% of hospitalizations and the cause of 11% of day hospital treatments used due to mental disorders. (1). According to the Criminal Code of the Republic of Croatia, suicide as a criminal act is prosecuted in the case when the suicide is encouraged by another person. The criminal processing is conducted exclusively on a person who encouraged another person to the attempts to commit suicide. (2) A number of risk factors that can lead to suicide and attempts to commit suicide have been identified, and affective disorders or personality disorders are mostly addressed (3). There is a specific sequence of behavior which occurs before attempting suicide, i.e. the pre-suicidal behavior syndrome and appeal-phenomenon which are often neglected and are often ignored (4). Ringel defined the phenomena of parasuicidal and pre-suicidal behavior, and thus gave an insight into the events of psychopathological changes that lead up to suicide attempts. The first phase, which Ringel termed "insufficiency and narrowing", is the period in which fear and sadness arise and are present to an extent which limits the individual in performing everyday activities. From such feelings, the second phase is developed, a phase of aggression, when an individual directs aggression towards him/herself because of isolation from the environment. Fantasy about suicide or the escape phase constitutes the third phase, which develops from a relief mechanism into concrete ideas by which the suicidal person seeks to escape to a better world. At that stage, he/she considers the techniques and methods of committing suicide and increasingly thinks of oneself as the late one. The fourth phase, the phase of mental anesthesia, is the period in which dissociation of the individual's personality is noticed. One person performs the tasks of daily life, and the other is preparing for suicide (5). The rate of committing suicide in the general

population is 20 : 1, while in clinical cases, in individuals with depressive episodes, the rate is much higher, ranging from 5-10 : 1(6). Risk factors for committing suicide that most commonly occur in individuals suffering from depressive disorder are most commonly associated with symptoms of the disease or with specific situations, features of personality, the specifics of family medical history and similar. The groups affected by these disorders are melancholic depressive individuals with a high level of self-criticism and low level of self-esteem, as well as adolescents and older adults (7). In the Republic of Croatia, in the period from 2000 to 2014, the suicide rate dropped from 20.9 to 16.3 per 100000 of citizens, but then the suicide rate grew to 722 (17 committed suicides per 100000 persons) in 2015. The ratio of men and women in the observed period ranges from 2.2 - 3.7 : 1. The rate of suicide in the general population grows with age, with the highest rates being found in the population older than 65. The most common way of committing suicide in both sexes within the general population is hanging (8). Beside the risk factors, that there are also protective factors that reduce the possibility of suicide. This includes family and social support, pregnancy, postpartum period, a larger number of children in the family and strong religious beliefs. More protective factors are the care for health and regular physical check-ups, regular application of therapies and optimal physical activity (9). The aim of the present study is examine the incidence of suicides in patients with depressive disorders who were hospitalized at the Psychiatric Clinic of the Clinical Hospital Centre Osijek during 2015 and 2016, and to determine the relationship between sociality and parameters measured in this research.

## Methods

This research included 325 depressive patients hospitalized in the Psychiatric Clinic of the Clinical Hospital Centre Osijek during 2015 and 2016. Data were collected from the medical records of patients diagnosed with depressive disorders. To collect data the authors used a questionnaire made for the purpose of this research with the following information: age,

gender, employment status, marital status, qualifications, number of children, the existence of suicide attempts or repeated suicide attempts, motivation for attempted suicide, whether they live alone or with their families, psychiatric heredity, comorbidity. All data were collected from 15 January 2017 to 1 May 2017 and recorded so as not to reveal the identity of the patient. attempts, the way in which the suicide was attempted, number of hospitalizations and treatment duration in years, number of suicide.

### Statistical analysis

Categorical data are presented with absolute and relative frequencies. Numerical data are described by the median and the boundaries of the Interquartile range. The differences in categorical variables were tested by the chi-squared test and, if necessary, by Fisher's exact test. The normality of distribution of numerical variables was tested by the Shapiro-Wilk test.

The differences between the numerical variables between the two independent groups were tested by Mann-Whitney in the test (23,24). All P values are two-sided. The significance level (MedCalc Software bvba, Ostend, Belgium; <http://www.medcalc.org>; 2014) was used is set to Alpha = 0.05. For statistical analysis, the MEDCALC statistical software version 14.12.0.

## Results

Out of the total number of respondents (n=325), 119 (36.6%) patients exhibited a suicidal behavior pattern in the past, significantly more in 2015 than in 2016 (Fisher's exact test,  $P < 0.001$ ), at present the suicidal behavior was present at 134 patients, significantly more in 2015 than in 2016 (Fisher's exact test,  $P = 0.04$ ). Eighty (24.6%) respondents had attempted suicide. From 80 (24.6%) respondents who had attempted suicide, 33 (41.3%) were men and 47 (58.8%) were women (Table 1).

**Table 1. Suicidal behavior pattern in the past and in the present, suicide attempt according to the sex of respondents**

	Number (%) of respondents			P*
	2015	2016	Total	
Suicidal behavior pattern in the past				
Yes	71 (47.3)	48 (27.4)	119 (36.6)	<b>&lt; 0.001</b>
No	79 (52.7)	127 (72.6)	206 (63.4)	
Suicidal behavior pattern in the present				
Yes	71 (47.3)	63 (36)	134 (41.2)	<b>0.04</b>
No	79 (52.7)	112 (64)	191 (58.8)	
Suicide attempt				
Yes	38 (25.3)	42 (24)	80 (24.6)	0.79
No	112 (74.7)	133 (76)	245 (75.4)	
Total	150 (100)	175 (100)	325 (100)	
Suicide attempt according to sex				
Male	17 (44.7)	16 (38.1)	33 (41.3)	0.65
Female	21 (55.3)	26 (61.9)	47 (58.8)	
Total	38 (100)	42 (100)	80 (100)	

\* Fisher's exact test

There were no significant differences in 2015 and 2016 in terms of the number of suicide attempts (Table 2).

**Table 2. Number of suicide attempts in years 2015 and 2016**

Number of suicide attempts	Number (%) of respondents			P*
	2015	2016	Total	
One	23 (60.5)	30 (71.4)	53 (66.3)	0.82
Two	9 (23.7)	7 (16.7)	16 (20)	
Three	1 (2.6)	1 (2.4)	2 (2.5)	
Four	0 (0)	1 (2.4)	1 (1.3)	
Five	1 (2.6)	1 (2.4)	2 (2.5)	
>five	4 (10.5)	2 (4.8)	6 (7.5)	
<b>Total</b>	<b>38 (100)</b>	<b>42 (100)</b>	<b>80 (100)</b>	

\* Fisher's exact test

Place of residence, marital status, the basic diagnosis and treatment duration do not seem to be connected with the respondent's attempted suicide. In terms of number of suicide attempts, there was a statistically significant difference between subjects who had had suicidal ideas in

the past or who presently had such ideas on the one side and those who never had such ideas on the other, with the former subjects being the ones who attempted suicide more often (Fisher's exact test,  $P < 0.001$ ) (Table 3).

**Table 3. Respondents according to the basic diagnosis, suicidal behavior pattern and suicide attempt**

	Number (%) of respondents according to suicide attempts			P*
	No	Yes	Total	
<b>Location</b>				0.89
Rural	128 (52.2)	43 (53.8)	171 (52.6)	
Urban	117 (47.8)	37 (46.3)	154 (47.4)	
<b>Marital status</b>				0.39
Married	159 (64.9)	48 (60)	207 (63.7)	
Single	42 (17.1)	11 (13.8)	53 (16.3)	
Divorced	40 (16.3)	19 (23.8)	59 (18.2)	
In a relationship	4 (1.6)	2 (2.5)	6 (1.8)	
<b>The basic diagnosis</b>				0.41
Depressive episode (F32)	75 (30.6)	29 (36.3)	104 (32)	
Recurrent depressive disorder (F33)	170 (69.4)	51 (63.8)	221 (68)	
<b>Treatment duration</b>				0.66
1 year	32 (13.1)	11 (13.8)	43 (13.2)	
2 years	13 (5.3)	4 (5)	17 (5.2)	
3 years	9 (3.7)	6 (7.5)	15 (4.6)	
4 years	5 (2)	0	5 (1.5)	
5 years	9 (3.7)	3 (3.8)	12 (3.7)	
>5 years	177 (72.2)	56 (70)	233 (71.7)	
<b>Suicidal ideas in the past</b>				< 0.001
Yes	51 (20.8)	68 (85)	119 (36.6)	
No	194 (79.2)	12 (15)	206 (63.4)	
<b>Suicidal ideas in the present</b>				< 0.001
Yes	74 (30.2)	60 (75)	134 (41.2)	
No	171 (69.8)	20 (25)	191 (58.8)	
<b>Total</b>	<b>245 (100)</b>	<b>80 (100)</b>	<b>325 (100)</b>	

\* Fisher's exact test

The median age of the respondents who tried to commit suicide was 53 years of age (interquartile range from 43 to 60 years). The age of

respondents was from 17 to 76 years, similar to those who have not tried suicide (Table 4).

**Table 4. Age of the respondents according to suicide attempt**

	The median age (interquartile range) of the respondents who tried to commit suicide			P*
	No	Yes	Total	
Age of the respondents [years]	55 (49 - 62)	53 (43 - 60)	54 (46 - 61)	0.05

\*Mann Whitney U test

The median age of respondents with one single attempted suicide was 54 (interquartile range from 45 to 60 years old), while the median of respondents with more than one attempt was 51

(interquartile range from 37 to 62 years) without statistically significant differences between those two groups (Table 5).

**Table 5. Age of the respondents with one single attempted suicide and respondents with more than one attempt**

	The median age (interquartile range) of the respondents according to the number of suicide attempts			P*
	One single attempted suicide	More than one attempt	Total	
Age of the respondents [years]	54 (45 - 60)	51 (37 - 62)	54 (46 - 61)	0.28

\*Mann Whitney U test

For 38 (11.7%) respondents, family problems were the motive to attempt suicide, interpersonal problems motivated 33 (10.2%) of the respondents, and there were 7 (2.2%) of the respondents without a clear motive. The existence of psychiatric heredity was present in

94 (28.9%) of the respondents, significantly more among respondents who attempt suicide in the 2015 than in 2016 (Fisher's exact test,  $P < 0.001$ ), and 20 (6.2%) of the respondents had had experience with attempted suicide in their families (Table 6).

**Table 6. Motive to attempt suicide, psychiatric heredity and attempted suicide in families in years 2015 and 2016**

	Number (%) of respondents			P*
	2015	2016	Total	
<b>Motive to attempt suicide</b>				
Family problems	17 (11.3)	21 (12)	38 (11.7)	0.87
Interpersonal problems	19 (12.7)	14 (8)	33 (10.2)	0.20
Without a clear motive	2 (1.3)	5 (2.9)	7 (2.2)	0.46
<b>Psychiatric heredity</b>				
Yes	59 (39.3)	35 (20)	94 (28.9)	<b>&lt;0.001</b>
No	84 (56)	138 (78.9)	222 (68.3)	
Unknown	7 (4.7)	2 (1.1)	9 (2.8)	
Total	150 (100)	175 (100)	325 (100)	
<b>Attempted suicide in family</b>				
Yes	11 (7.4)	9 (5.1)	20 (6.2)	0.49
No	137 (92.6)	166 (94.9)	303 (93.8)	
Total	148 (100)	175 (100)	323 (100)	

\* Fisher's exact test

The existence of psychiatric heredity or suicide attempts in their families does not affect the suicide attempts of the respondents themselves. The number of respondents who

attempted suicide and who had positive psychiatric heredity was 53 (66.3%), while 169 (69%) of the respondents did not have any experience with attempting suicide in their families or positive psychiatric heredity (Table 7).

**Table 7. Respondents according to psychiatric heredity and attempted suicide in the family**

	Number (%) of respondents according to suicide attempts			P*
	No	Yes	Total	
<b>Psychiatric heredity</b>				
Yes	68 (27.8)	26 (32.5)	94 (28.9)	0.55
No	169 (69)	53 (66.3)	222 (68.3)	
Unknown	8 (3.3)	1 (1.3)	9 (2.8)	
Total	245 (100)	80 (100)	325 (100)	
<b>Attempted suicide in the family</b>				
Yes	16 (6.6)	4 (5.1)	20 (6.2)	0.79
No	228 (93.4)	75 (94.9)	303 (93.8)	
Total	244 (100)	79 (100)	323 (100)	

\* Fisher's exact test

## Discussion

As the authors stated at the very beginning, affective diseases are most common among persons who commit suicide. The lifetime risk of suicide in patients with depression is 15% (10). It should be emphasized that in patients suffering from depressive disorders, the risk of suicide is twenty times higher than in the general population (11, 12). In present study, 9.2% of respondents indicated deliberate self-harm and suicide attempts as the reasons for their last hospitalization. On the other hand, data from literature show that, out of the total number of respondents, a quarter of them had attempted suicide either recently or in the past, without statistically significant differences according to the sex of the respondents. Suicide is three times more common in men, which was not found within our selected patient population. The

authors can see from the results that there are no statistically significant differences regarding sex of the person who committed suicide (13). In addition, from the literature authors could see that the ratio of suicide attempts in men and women varied based on sociodemographic characteristics, which indicates that in countries with a higher standard of living there is a higher frequency of suicide attempts in males, while the frequency of suicide attempts among women shows a higher percentage in countries of medium and low living standards (14). In present study, however, there was no statistically significant relationship found between the place of living, so we can conclude that, in the case of present population, the living standard according to the place of living did not have any influence on whether the respondent attempted suicide or not. The lowest rate of attempted suicides was found in married people

and that single life increases the risk by 2 times. The same applies to divorced and widowed persons, whose risk is also twice as high as the risk found in singles (13). On the other hand, in present study there was no statistically significant relationship between the marital status of the patients or whether they lived alone or in a young society in his /her own family and the intention for committing suicide. Published studies show that people suffering from depression with the intent to commit suicide are of the average age of 55 (15). In present population, the average age of respondents who had attempted suicide was 53 years of age, with no significant differences in relation to those who had not attempted suicide, which coincides with data from the literature and is included in their interquartile age range. In present study, we hypothesized that the number of hospitalizations is connected with the attempts of suicide, however, this was not shown to be statistically significant and corresponds to the data from literature, which indicates that the number of psychiatric consultations did not correlate with increased risk of suicide in depressed patients (16). The most common motives that we can find in literature are interpersonal relationships, lack of love in the family, and loss of control over their disease (17). Present research has shown that the most common motives for suicidal behavior are family problems and interpersonal reasons. For example, Kieholz's scheme of judgement and determination of suicidal tendencies has shown that the presence of suicide(s) in the patient's immediate family or among other close relatives increases the risk of suicide possibility (18). We can notice how this scheme can be applied to our study because people with suicidal ideas in the past or those with suicidal ideas at the present time attempted suicide more often. Numerous studies, including family studies, studies of twins and adoptive researches, associate family communication and the possibility of inheritance of suicidal behavior (reviewed by 19). It is mentioned that the risk for a depressive episode is an independently inherited factor (20). In present research, based on the selected population, the existence of psychiatric heredity or suicide attempts in the

family did not affect the attempted suicide of the respondents. In the actual attempted suicide, the most common method of execution of the act involves deliberate self-harm by using drugs/intoxication, which is also the most persistent in the form of suicide attempts, with deliberately intoxication and the effects of alcohol being found much more often in 2015. Deliberate self-harm by hanging, strangulation, and asphyxiation showed no significant differences during monitoring period. Data from the World Health Organization show that the methods of attempted suicides are different in certain parts of the world. The authors can distinguish three most common methods of attempted suicides in the world: hanging, poisoning with organophosphates and pesticides, and suicides by firearms. Given the fact that Croatia is a part of Europe, we have compared the obtained data with the rest of Europe, where it has been shown that the most common methods of suicide attempts, in the respondents in this study, were deliberate self-harm by using drugs and suicide attempt with a firearm, which coincides with the results obtained in present study (21).

Summary of the findings of present study are: a) Recurrent depressive disorder (F33) was more common in 2016, while depressive episode (F32) was more common in 2015 (out of the total number of patients suffering from a depressive disorder); b) The most common comorbidity diagnoses of the respondents were in the area of mental disorders and disorders of behavior, secondly there were diagnoses in the fields of circulatory system diseases, while the least comorbidity was found in the area of skin and subcutaneous tissue diseases; c) Suicidal forms of behavior in terms of suicidal ideas in the past and suicidal ideas in the present were significantly more present in 2015; d) There were no significant statistical differences with regard to gender and age of the respondents in relation to their attempted suicides, e) Place of residence, marital status, the basic diagnosis and treatment duration were not found to be connected with whether the respondent attempted suicide or not; e) Subjects with suicidal ideas in the past or in the present

attempted suicide more frequently, to a statistically significant degree, f) The most common motives of suicidal behavior patterns were family problems and interpersonal considerations; g) The existence of psychiatric heredity or attempts of suicide in the family were not found to be connected with suicide attempts of the respondents; h) The number of psychiatric hospitalizations was not found to be connected with suicide attempts of depressed patients.

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**Competing interests.** None to declare.

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