

## EVALUATION OF THE SUICIDAL MENTAL STATE OF PATIENTS HOSPITALIZED AT THE “SOCOLA” INSTITUTE OF PSYCHIATRY IAȘI

Speranța-Giulia Herea<sup>1</sup>, Irina Dobrin<sup>1,2</sup>, Carmen Gabriela Lupușoru<sup>1\*</sup>, C. Ștefănescu<sup>1,2</sup>

1. “Socola” Institute of Psychiatry Iasi, Romania

2. “Grigore T. Popa” University of Medicine and Pharmacy Iasi, Romania

\*Corresponding author. E-mail: silvacarme@gmail.com

EVALUATION OF THE SUICIDAL MENTAL STATE OF PATIENTS HOSPITALIZED AT THE “SOCOLA” INSTITUTE OF PSYCHIATRY IAȘI (Abstract): Suicidal ideation and attempts are the most important predictive factors for death by suicide. Accordingly, in this study we performed a retrospective analysis of cases admitted to the “Socola” Psychiatric Institute in Iași regarding suicide attempts and/or suicidal ideation throughout 8 years of pre-pandemic period. **Materials and methods:** This retrospective study was based on data collected from the electronic archive of the “Socola” Institute of Psychiatry. To search for primary and secondary diagnoses, we used the following keywords: *suicide attempts, suicidal attempt, suicidal ideation* and *autolytic ruminations*. For statistical analysis, was used *Microsoft Excel 2007*. **Results:** The search yielded 257 cases, more than a quarter of which were young people, mostly women (63%). Of the patients whose brain activity was investigated (43%), 6% presented an altered EEG. In terms of occupation, 31% were professionally active people or students, the majority being retirees and those without occupation (56.4%). Of the 37% of patients whose religious denomination was recorded, 95% were Orthodox Christians. Also, 55% of all patients consumed alcohol, 69.6% suffered from family conflict, 6.6% were in a state of mourning, 18% performed the act for demonstrative purposes, and 42% were subjected to a psych stressful context. It was observed that depression, in various forms, represented around 35% of the total disease codes associated with suicidal attempts and ideation. Hypertension was the most frequent associated organic condition. It was also observed that people in the segment with primary or secondary education had the most suicidal attempts and ideation, and more than half of the patients presented an IQ bordering on normality. **Conclusions:** The analysis found that suicidal ideation and attempts continued to have a significant incidence in hospitalized cases, while depression, alcohol, and family conflicts were the most significant triggers. The study may represent an important landmark in relation to the Covid-19 pandemic and post-pandemic period. **Keywords:** SUICIDAL IDEATION, SUICIDAL ATTEMPTS, SUICIDE METHODS, DEPRESSION, RELIGION.

### INTRODUCTION

Suicide is a global phenomenon but geographically unevenly distributed, with 77% of suicides occurring in low- and middle-income countries. Suicide occurs across the lifespan and is the fourth leading cause of

death among young people aged 15-29 years worldwide (1). It is estimated that there were 700,000 suicide deaths worldwide in 2021 (2). In addition to deaths by suicide, increased attention should be paid to non-fatal suicide ideation and attempts (3) given

that overall lifetime prevalence rates are approximately 9.2% for suicidal ideation and 2.7% for attempts (Nock *et al.*, 2008).

It is generally known that suicidal ideation and attempts are the most important predictors of death by suicide. In addition, suicide attempts are one of the main causes leading to disability, including premature death. Therefore, improved packages of preventive and therapeutic measures are needed in the medium and long term to better understand the phenomenon both globally and at the individual level, so that the insertion and judgment of each case are not absorbed by treatment models considered universally valid, but rather related to a social behavior pattern associated with an individual psychological and religious profile.

In addition, the prevention not only of suicide attempts, but also of suicidal ideation, perhaps also represents an act of moral responsibility of each member of the local community, based not only on the rationale of social responsibility towards a fellow human being in critical suffering, but also on that unconditional empathetic emotion, characteristic of human nature in general. Accordingly, Scientific investigations focused on the current scale of the phenomenon, its characteristics and proposals for improving the act of prevention must be carried out with increased frequency, being critical in relation to new social realities and the stressors associated with them in order to be able to both adjust traditional methods of therapeutic support as quickly as possible and to introduce new ones, if necessary, depending on the patient's requirements.

In this study, an analysis of cases admitted to the "Socola" Institute of Psychiatry in Iași regarding suicide attempts and/or

suicidal ideation was carried out throughout 8 years of pre-pandemic period, in order to evaluate the dimension of the phenomenon, highlight one- or two-way relationships between the data collected based on the statistical interpretation of the results, and correlation with data from the specialized literature.

## MATERIALS AND METHODS

This retrospective study was based on data collected from the electronic archive of the "Socola" Institute of Psychiatry. To search for primary and secondary diagnoses, we used the following keywords: *suicide attempts*, *suicidal attempt*, *suicidal ideation* and *autolytic ruminations*. For statistical analysis, was used *Microsoft Excel 2007*.

## RESULTS

Following the analysis, 257 cases were found, the majority of them women (63%), the casuistry being approximately equally divided (48% having rural origin) in terms of the environment of origin. On average, patients were hospitalized 11.3 ( $\pm 12.3$ ) times during the analyzed period, the number of days per year and per patient being 16.5 ( $\pm 15.2$ ). The average age of the patients was 43.8 ( $\pm 14.8$ ) years, 26.5% being young patients aged  $\leq 35$  years. Of the patients whose brain activity was investigated (43%), 6% presented an altered EEG. In addition, 27% of the patients were brought to the hospital by ambulance or police, and 11% were referred by the UPU service. In terms of occupation, only 31% were professionally active people or students, the majority being pensioners and those without employment (56.4%).

**Age of patients.** Regarding the age of patients, more than a quarter of them were

## Evaluation of the suicidal mental state of patients hospitalized at the "Socola" Institute of Psychiatry Iași

young people. It is known that the incidence of suicidal ideation increases during adolescence (5). An explanation offered by some theoretical models (6), would be that some interpersonal conflicts as well as socialization difficulties would be predictors (7) and ultimately factors of suicide in adolescents. The death of a loved one has also been linked to suicidality in adolescents (5, 7). In addition, experiencing the suicide of a family member may constitute a behavioral model for already vulnerable young people (7, 8) or it could simply be viewed by a young person as a solution to a personal problem (8).

It is also interesting in this study that almost all the people in this study, with two exceptions, are younger than 65 years old. Basically, even though the study shows that almost 40% of the patients analyzed in this study are retired, they have been retired for a short time. Therefore, it is possible that the shock of not adapting to the new social condition may constitute a cause for the emergence of a suicidal state.

Risk factors for suicidal ideation and behavior among middle-aged and older adults (50-65+ years) include psychiatric disorders (especially depression), alcohol and drug use disorders, impaired physical health, chronic pain, weak social support/connection, loneliness, family problems, depression, financial problems, perceived burden, and a history of suicide attempts (9). On the other hand, protective factors against suicide include marriage, mental coping strategies, family connection, and religiosity (participation in religious activities, giving importance to religious beliefs, and activation of religious and moral objections to suicide) (9).

**Religion.** Regarding religion, given that it was only recorded in 37% of cases, the

statistical analysis would suffer from precision. However, it is observed that Orthodox Christians had more hospitalizations (95%) than those belonging to other religious denominations, including in relation to their share in the general population. This can be explained not necessarily by a different, more efficient doctrine or set of religious rules, but especially by better psychosocial mechanisms of integration and cohesion between members of minority religious denominations who, conditioned precisely by the fact that they are a minority, in the existential desire to preserve their religious identity in a "sea" of Orthodox Christianity (representing almost 90% at the national level), develop better interpersonal social community relationships, including religious ones, with increased integrative potential, so that they manage to maintain psychological support, and not only, for the entire community, at least in times of crisis for its members.

Regardless of the religious denomination of the person, religion is generally seen as a protective factor against suicide. Some individuals with suicidal behavior have reported that developing a stronger relationship with God (10) has aided their recovery, while others have found that religion has prevented them from committing suicidal acts (11, 12). However, spirituality/religion has not always been discussed as a means of recovery (6).

**Alcohol consumption and family conflicts.** More than half of the patients consumed alcohol before the suicide attempt or are chronic alcohol consumers. Alcohol consumption before committing the suicide act is a known fact in the case of suicides. In the case of this study, 179 family conflicts were recorded, but it cannot be specified whether these were also based on the

patients' alcohol-related problems or whether alcohol consumption became chronic as a result of family problems.

Considering that in the case of almost 50% of the patients a psycho-stressful context was recorded, including the state of mourning, it is possible that family support was completely precarious and, moreover, the family itself was among the primary stressors that led to the suicide attempt. This can be verified and to some extent validated by the fact that almost 20% of the patients acted for demonstrative purposes, without having the intention of committing a complete suicide, but only to warn the family about their condition.

In particular, 16.3% of them were assessed by CEML or CEMRCM. As a rule, these cases committed a lethal or extremely serious aggression, based on a lethal intent, on a person in the family or outside the family, as a result of which they attempted suicide.

Impulsive temperament can lead to suicide rather than a calm one that leads to depression. From the psychological analyses included in the observation sheets it appears that impulsivity occupies an important place alongside anxiety for potentially suicidal patients. The Hamilton Depression Scale is relevant in the case of patients at risk or even attempted suicide, but the HAMA anxiety scale and the WM (Woodworth-Mathens) personality tests should not be ignored.

**Frequency of mental and organic disorders associated with suicidal attempts and ideation.** The study also analyzed the frequency of mental disorders associated with suicidal attempts and ideation. These disorders were considered main disorders. 127 such disease codes were found, which were used 803 times. The 20 most frequent

codes (representing 15.7% of the 127 codes) had a frequency of use of 66.5%.

It is observed that recurrent depressive disorder, severe current episode with or without psychotic symptoms has the highest frequency (22% - of the total disease codes). Overall, depression, in various forms, represented around 35% of the total disease codes associated with suicidal attempts and ideation. On average, approximately 63 mental illness codes were used for each patient with suicidal attempts and ideation.

The frequency of organic diseases associated with suicidal attempts and ideation was also analyzed. These diseases were considered secondary diseases. 634 such disease codes were found, which were used 2256 times. The 20 most common codes (representing 3.15% of the 634 codes) had a frequency of use of 26.6%.

It is observed that arterial hypertension, in both its forms, presents the highest frequency (4.3% - of the total disease codes). In addition, spondylosis together with osteoporosis form 4.25% of the total disease codes. The three diseases therefore form 8.55% of the total of 634 secondary diseases associated with suicidal attempts and ideation. On average, approximately 8.8 organic disease codes were used for each patient with suicidal attempts and ideation.

**Level of education.** The analyses performed show an apparently lower incidence of suicidality in uneducated people (2.6%), in those with post-secondary education (1.3%) and in those with higher education (6%). In contrast, apparently, people with primary or secondary education, as well as those with secondary education, were more prone to suicidal attempts.

However, in order to obtain a correct

## Evaluation of the suicidal mental state of patients hospitalized at the “Socola” Institute of Psychiatry Iași

picture of the relationship between the level of education of the patients and their suicidal state, the data obtained must be compared with the percentages of the educational levels of Romanian citizens at national level. The comparison clearly shows that only in the case of people with primary or secondary education this remains true, the percentage of people in the analyzed population characterized by a suicidal state being double compared to their share at national level. In other words, people in the segment with primary or secondary education had the most suicidal attempts and ideation. At the opposite end, people with higher education are the least likely to commit suicide attempts or have suicidal ideation.

**Period of hospitalization.** According to the data obtained in this study, the seasons of the year can influence the suicidal state. The graph describing the dependence of the number of days of hospitalization on the months in which the hospitalization took place has an oscillatory profile (Fig. 1),

presenting more pronounced maxima in the months of January-February (winter) and October-November (autumn-winter) and a less intense maximum in the period of May-June (spring-summer). The absolute minimum is found in the month of August (summer). This is interesting because in the specialized literature there are studies that show a seasonal distribution of the suicidal phenomenon (13, 14, 15), this being more accentuated in spring and autumn (16), i.e. overlapping only partially with the periods of hospitalization in the hospital of the patients characterized by suicidal states analyzed in this study. Therefore, the suicidal state (suicidal thoughts and/or attempts, more or less demonstrative) is, on average, approximately constant throughout the year, with the exception of summer. During the year, however, there are “explosions” in the suicidal state materialized in the complete commission of suicide. Probably only the desire to die is greater in spring and autumn, but it is present as a background state throughout the year.

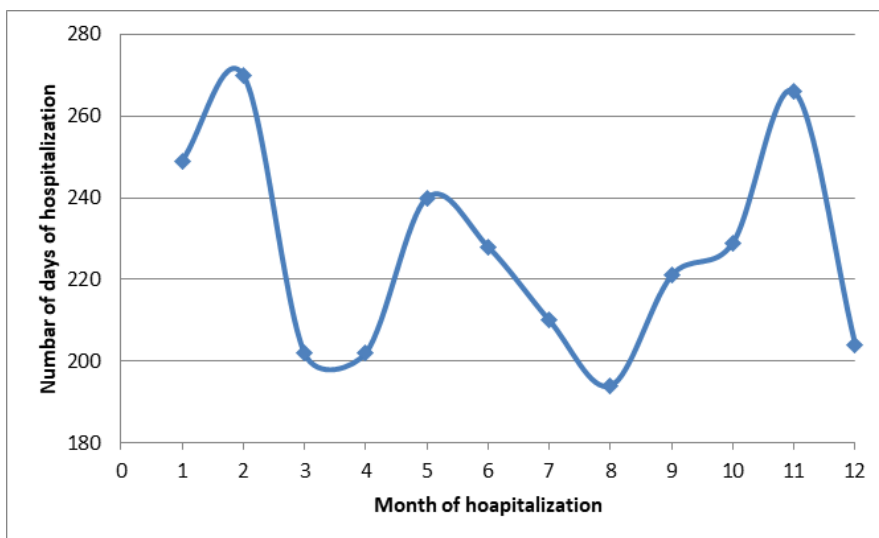


Fig. 1. Dependence of the number of days of hospitalization on the hospitalization period.

### Marital status

The study of cases according to marital status is valuable, including for verifying reports that assert the positive influence of the family environment. The family status of the patients was recorded for 101 people out of the 257 investigated. Thus, 48 people were married, 29 unmarried, 15 divorced, 7 widowed, while 2 cases were cohabiting as a consensual union/cohabitation. Apparently, immediately after married people, unmarried people had the highest frequency of hospitalization. However, it is observed that, in relation to the share in the general population, unmarried people had the lowest hospitalization rate among all categories. With the exception of unmarried people and people living in cohabitation, both married people and divorced and widowed people presented higher hospitalization rates.

### Methods used in suicide attempts

The main methods used in suicide attempts were intoxication, as the most common method (46.5%), followed by hanging (17.6%), chemical ingestion (8.8%) and self-mutilation (8.1%), with other methods accounting for 19% of all

cases.

Drug intoxication correlates with the higher number of female hospitalizations, given that this method is one of the most common methods used by women to commit suicide. Drug intoxication allows for a longer rescue time than other more brutal methods that are usually chosen by men. Hence the higher success rate in saving female individuals, in line with their higher number of hospitalizations. The 257 patients accumulated 499 multiple suicide attempts and 159 single attempts throughout their numerous hospitalizations. Suicidal ideation was also recorded in 667 cases, and autolytic ruminations in 40 cases.

### MMSE and GAFS evaluation

The MMSE (Mini Mental State Examination) is a test used to assess cognitive impairment in adults, with a maximum score of 30, with lower scores indicating more or less severe cognitive problems. The MMSE score that defines cognitive function as “normal” is usually set at 24 (17). Of the 170 people who took the MMSE, only 7.6% showed no cognitive impairment (fig. 2). However, the majority, 65.3%, were borderline normal.

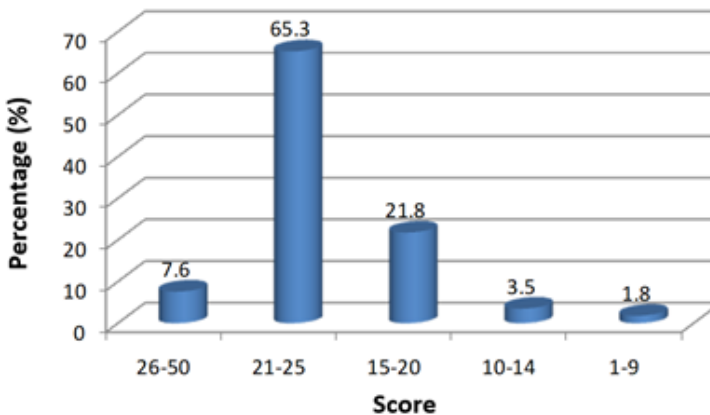
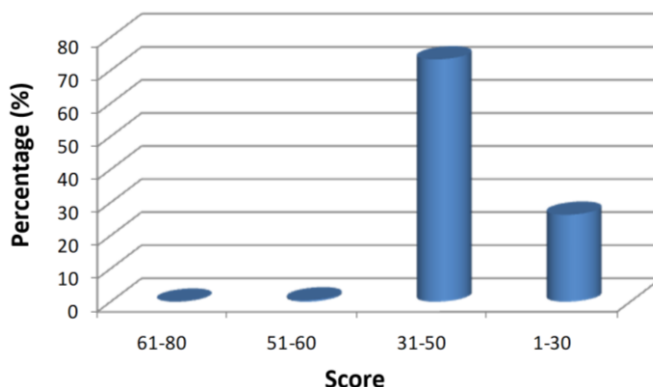


Fig. 2. Score obtained by patients in the MMSE test

**Evaluation of the suicidal mental state of patients hospitalized at the “Socola” Institute of Psychiatry Iași**

The GAFS (Global Assessment of Functioning Scale) test was performed on 251 patients and shows that practically all patients presented serious symptoms rang-

ing from severe, obsessive suicidal thoughts, communication deficits, psychosis, to delusions and hallucinations (fig. 3).

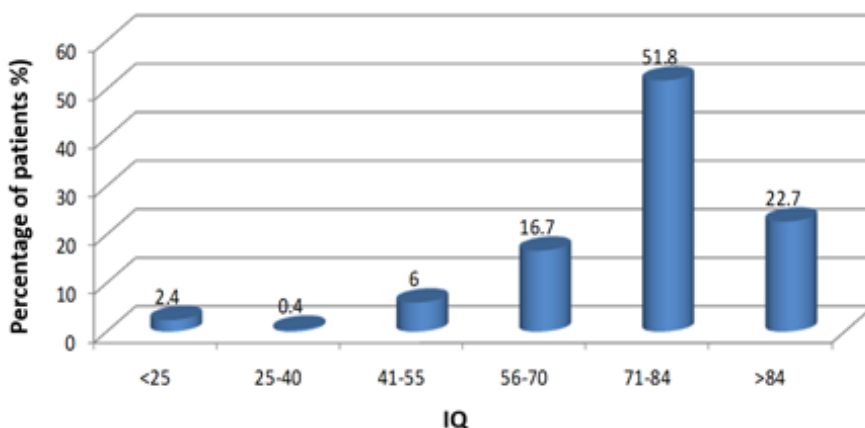


**Fig. 3.** Score obtained by patients in the GAFS test

**Intelligence Quotient (IQ)**

Only about 23% of the patients investigated had normal intellectual functioning (fig. 4). However, more than half of the

patients had an IQ bordering on normality. The mean IQ was 74.85 (S.D. ± 17.26), placing them in the borderline intellectual functioning range.



**Fig. 4.** The score obtained by the patients in the intelligence test

The relationship between IQ and suicidality, including suicide attempts or completed suicide, is controversial. A number of authors argue that the degree of intelligence also plays a role in the suicidal act.

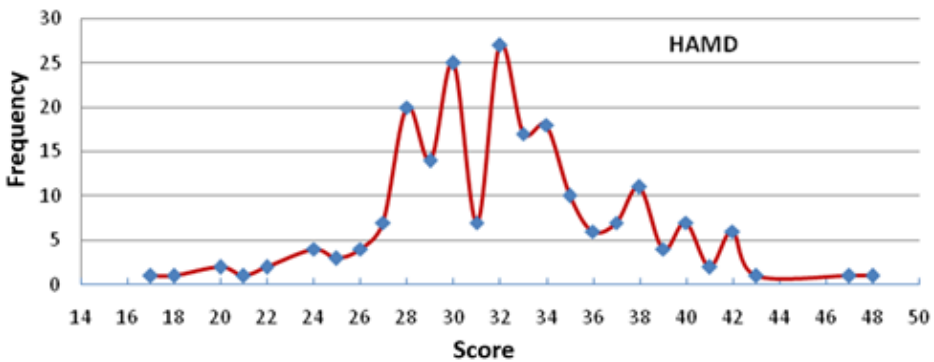
According to a 2004 study (18), people with high intelligence may be, overall, less adapted to different general life situations and may become more susceptible to suicide.

Also, another study from 2018 shows that poor academic performance in school, at age 16, was a robust predictor of suicide attempt in adulthood and appeared to account for the association between lower childhood IQ and suicide attempt (19).

On the other hand, another study from 2005 showed that there were no significant differences in IQ types between suicidal and non-suicidal inpatients, with logistic regression showing no evidence of an association between IQ and suicide (20).

**Assessment of depression degree.** In the study, the state of depression was assessed using the 21-item Hamilton Depression Rating Scale (HAM-D) which was completed and recorded for 209 patients (81.3%). The Hamilton Depression Rating Scale is used to assess the severity of depressive symptoms in patients diag-

nosed with a depressive disorder. The HAM-D17 contains 17 items that reflect: depressive mood, but also feelings of guilt, suicidal ideation and/or behavior, insomnia, difficulties in professional functioning, psychomotor inhibition, agitation, mental and somatic anxiety, gastrointestinal symptoms, general somatic symptoms, hypochondria, weight loss (21). Compared to the HAM-D17, the HAM-D21 contains 4 additional items: diurnal variation of mood, derealization, paranoid ideas and obsessive ideas. These items do not assess the intensity of depression and are rarely encountered in depressive syndrome, the HAM-D21 being therefore used mainly in research (21). 96.7% of the patients in the current study had severe depression and only 3.3% had moderate depression (fig. 5).



**Fig. 5.** The score obtained by patients in the HAM-D test and its associated frequency.

From the data obtained, an association was observed between severe depression and essential hypertension for patients with suicidal ideation and behavior. Given that primary hypertension is the result of long-term psycho-organic processes, this connection can be explained by the state of stress, of inner tension that has been

grinding the minds of patients for a longer period of time, generated by an increasingly accentuated depressive background. Therefore, in the case of the current study, hypertension can be considered a potential non-specific marker associated with suicidal ideation. In other words, an initially unidirectional dependency relationship



## Evaluation of the suicidal mental state of patients hospitalized at the “Socola” Institute of Psychiatry Iași

could be built between persistent stress - increased primary blood pressure - moderate/severe depression that culminates in suicidal ideation and attempt. Once built, however, the causal relationship becomes non-specific, multidirectional through persistence. Thus, the continuous presence or increased frequency of suicidal ideation can induce a state of considerable stress, leading to depression and even to the maintenance and exacerbation of cardiovascular pathology. The parameters of the relationship become interchangeable, even if their participation, influence or hierarchy present different levels in the etiology of the disease.

**Medication.** In this study, we also wanted to carry out a brief evaluation of the treatment addressed to both psychiatric and somatic conditions administered to patients with suicidal ideation and state. Thus, during the analyzed period, over 200 commercial names of drugs were used with a more or less high frequency, belonging to different drug classes. The top 5 used drugs were Carbamazepine, Cipralext, Rivotril, Halo-peridol, and Coaxil. Given that each patient with suicidal ideation and attempts was administered on average more than 14

different drugs, in random combinations, the evaluation of drug interaction should be a priority.

### CONCLUSIONS

In this study, we performed a retrospective study, including the cases hospitalized over eight years with suicidal ideation and attempts. We have found that the depression, along with alcohol, and family conflicts were the most significant triggers of their suicide-driven ideation. Given the endurance and consistency of the suicidal ideation and attempts, we consider that increasing and diversifying the screening methods for identifying people at risk and risk factors such as depression or substance abuse, could represent one of the most direct and successful alternatives for reducing suicidal acts. The study may represent an important landmark in relation to the COVID-19 pandemic and post-pandemic period.

### CONFLICT OF INTEREST AND FUNDING

The authors declare that there is no conflict of interest, and they received no specific funding.

### REFERENCES

1. WHO. *Suicide prevention*. [https://www.who.int/health-topics/suicide#tab=tab\\_2](https://www.who.int/health-topics/suicide#tab=tab_2), 2023
2. WHO. *Key facts*. <https://www.who.int/news-room/fact-sheets/detail/suicide>, 2023
3. Klonsky DE, May AM, Saffer BY. Suicide, Suicide Attempts, and Suicidal Ideation. *Annu Rev Clin Psychol* 2016; 12: 14.1-14.24
4. Nock MK, Borges G, Bromet EJ, *et al*. Cross-national prevalence and risk factors for suicidal ideation, plans and attempts. *Br J Psychiatry* 2008; 192: 98-105.
5. O'Connor RC, Nock MK. The psychology of suicidal behavior. *Lancet Psychiatry* 2014; 1(1):73-85.
6. Grimmond J, Kornhaber R, Visentin D, *et al*. A qualitative systematic review of experiences and perceptions of youth suicide. *PLoS ONE* 2019; 14(6): e0217568.

7. Hawton K, Saunders K, O'Connor RC. Self-harm and suicide in adolescents. *Lancet* 2012; 379(9834): 2373-2382.
8. O'Connor RC, Kirtley OJ. The integrated motivational-volitional model of suicidal behavior. *Philos Trans R Soc Lond B Biol Sci* 2018; 373(1754): 20170268.
9. Choi NG, DiNitto DM, C. Marti N. Middle-aged and older adults who had serious suicidal thoughts: who made suicide plans and nonfatal suicide attempts? *International Psychogeriatrics* 2015; 27(3): 491-500.
10. Bostik KE, Everall RD. Healing from suicide: Adolescent perceptions of attachment relationships. *British Journal of Guidance & Counselling* 2007; 35(1): 79-96.
11. Jo KH, An GJ, Sohn KC. Qualitative content analysis of suicidal ideation in Korean college students. *Collegian* 2011; 18(2): 87-92.
12. Herrera A, Dahlblom K, Dahlgren L, *et al.* Pathways to suicidal behavior among adolescent girls in Nicaragua. *Soc Sci Med.* 2006; 62(4): 805-814.
13. Cosman D, Coman H. Sezonalitatea sinuciderilor în Transilvania, *Buletin de psihiatrie integrativă*, 2005; X(1)1 (24): 315-319.
14. Rocchi MBL, Sisti D, Cascio MT, *et al.* Seasonality and Suicide in Italy: Amplitude is Positively Related to Suicide Rates, *Journal of Affective Disorders* 2007; 100: 129-136.
15. Minovici NS. *Studiu asupra spânzurării*, ediție îngrijită de prof. Dr. Lazăr Cârjan. București: Editura Curtea Veche, 2007, 40.
16. Christodoulou C, Douzenis A, Papadopoulos FC, *et al.* Suicide and seasonality. *Acta Psychiatr Scand* 2012; 125(2): 127-146.
17. Creavin ST, Wisniewski S, Noel-Storr AH, *et al.* Mini-Mental State Examination (MMSE) for the detection of dementia in clinically unevaluated people aged 65 and over in community and primary care populations. *Cochrane Database of Systematic Reviews* 2016; 1: CD011145.
18. Voracek M. National Intelligence and Suicide Rate: An Ecological Study of 85 Countries, *Personality and Individual Differences* 2004; 37: 543-553.
19. Wallin AS, Zeebari Z, Lager A, *et al.* Suicide attempt predicted by academic performance and childhood IQ: a cohort study of 26 000 children, *Acta Psychiatrica Scandinavica* 2018; 137(4): 277-286.
20. Park S-J, Kikyong Y, Joon DL, *et al.* There Is No Difference in IQ between Suicide and Non-Suicide Psychiatric Patients: A Retrospective Case-Control Study, *Psychiatry Investig* 2015; 12(3): 330-334.
21. Prelipceanu D. *Psihiatrie Clinica*, București: Editura Medicală, 2013, 810.