Summary. Suicide is one of the most significant problems of mental health in the modern world. The strategy of World Health Organization (WHO) for the 21st century requires considerable effort for the purpose of decreasing suicide incidence. The aim of the survey is to assess the knowledge and attitudes of the students enrolled in the 6th year of studies of University of Niš, Faculty of Medicine related to suicide issues. A survey has been made of all 150 students of the last year of studies (62 males, 88 females). Students of both sexes, without any significant differences, statistically analyzed declare that suicide is not about death, but about the end of suffering (67.74% males, 69.32% females). They say that suicide is one of leading causes of death among the young in developed countries (62.29% m., 56.82% f.). They also assert that attempted suicide is a form of Russian roulette (70.49% m., 71.59% f.). It is also said that people who talk about suicidal intentions should be considered seriously as a risk group (77.42% m., 78.41% f.). There is a correlation between suicide and addictive substances (87.10% m., 93.18% f.), as well as depression episodes (90.32% m., 93.18% f.). Loss of loving persons has a direct connection with suicidal behaviour (87.10% m., 69.32% f.). There are some opportunities for those people to be helped by close friends (86.88% m., 93.18% f.) and SOS services (86.88% m., 90.90% f.). In a statistically more significant manner, correct answers are more frequently registered in female students who state that attempted suicide is more common in females ($\chi^2 = 4.28, p < 0.05$). It can be concluded that medical students in Niš display a substantial knowledge of suicide-related themes, which could make them successful participants in educational programmes for provision of better living skills aimed at more successful response to stressful living situations.

Key words: Suicide, risk factors, attitudes, medical students

Introduction

Suicide, most commonly defined as "an act of self-destruction, initiated and committed by a person fully aware of the fatal outcome", represents one of the greatest problems today, not only in the field of mental health but public health as well.

International classification of diseases, injuries and causes of death (ICD-10) puts suicide on the E-list (1). According to the American Psychiatric Association, suicide is classified under symptoms or signs of the episode of great depression (2).

On the basis of the results of studies on suicide in our country and worldwide, it can be concluded that suicide is faced with numerous issues such as legal, social, ethical and many others (3,4).

The 2001 Report by WHO (5), which includes 53 countries with valid statistical data available, points out that the standardised rate of mortality from suicide in 1996 was 15.1 per 100,000 inhabitants (24.0 in males per 100,000 inhabitants and 6.8 in females per 100,000 inhabitants).
factors responsible for the suicidal act, which is of immense importance for the models of preventive activities.

1. The most widely accepted attitude by psychiatrists is that suicide should be treated as a result of mental health disorder, associated in the first place with schizophrenia, alcoholism and depression. As early as 1929 and 1947, Milovanović (10,11) suggests that for the successful interpretation of the causes and mechanisms of suicide a good knowledge of psychology and psychopathology is a necessity.

2. Durkheim’s model of suicide (12), presented in his major work 'Suicide', recommends the categorisation into four types: anomic, altruistic, egoistic, and fatalistic. According to the author, suicide is a result of the upset social balance and disturbed relationship between the individual and social institutions.

3. The humane-ecological model explains suicide as the ultimate step in a series of several correlated factors (socio-cultural, physical surrounding, and others). In 1878, Tomash Massaryk (13), at the time the upcoming president of the Czechoslovakian Republic, gives rise to this approach, according to which suicide is a product of modern civilisation and decline of overall religious impact.

Genetic studies suggest family-related tendencies to suicides: Murphy (14) discovers a family history of suicidal behaviour in 6-8% of those who committed suicide. Maris (6) describes that 11% of suicide commiters in Chicago had a first line family history of suicide.

Given the current significance of suicide-related issues, WHO, under the slogan 'Health for all by the year 2000' within the Aim N° 12, emphasises duties and obligations toward reduction of mental disorders and suicide (15).

The strategy of WHO for the 21st century and the Aim N° 6 suggest that suicide rate should be reduced by at least one third, and that most significant results should be accomplished in the countries and populations with high suicidal rates (16).

Bearing in mind that our society went through an extremely difficult socio-economic crisis and war devastation, which favoured the increase of aggression and self-destruction, particularly among young people, medical doctors are given a priority task to acquaint themselves with suicide risk factors, to identify vulnerable groups and to undertake adequate (possible) early interventions.

The aim

The aim of the study is to assess the knowledge about suicide and attitudes toward it among sixth-year students of the University of Nis, Faculty of Medicine. This category of students has already gained some knowledge on suicide-related themes within the course of Psychiatry and taken the exam in the subject. Students were expected to exhibit a fair knowledge, which upon graduation may allow for engagement in basic programmes of education in the observed field on the level of primary health care.

Method

The questionnaire for the assessment of the level of knowledge about suicide risk factors was used. All 150 students of the last year of studies were included in the survey, of whom 62 (41.33%) were males and 88 (58.67%) females.

Results and discussion

The questionnaire comprised statements that were used for the evaluation of students’ knowledge about suicide-related issues. The answers were classified in Table 1, on the basis of the ‘agree’ or ‘disagree’ model. Differences in the structure of the obtained answers by sex were tested using the \( \chi^2 \) test and Fisher's Test of Exact Probability. The latter was used in cases when the \( \chi^2 \) could not be employed due to the structure of the obtained answers.

The statement: **Suicide is not about death but about the end of suffering** was confirmed by 67.74% male students and 69.32% female ones. Suicide-related literature also underlines that by this act a person chooses eternal death over daily dying and thus ‘ends the deal with oneself instead of with life’ (17). A difference in the structure of answers by sex is not statistically significant.

Is it true that the majority of suicides occurs among young people with great life expectations?

The most frequent answer is ‘disagree’ (63.3%). There is no statistically significant difference in the structure of answers by sex in spite of a higher percentage of affirmative answers by female students. The available literature describes significant differences with respect to age, social and educational background and other characteristics of those who commit suicide (18,19).

The recent data by WHO and the British and Irish authors O’ Connor and Sheehy (20) and McCrea (21) suggest a permanent increase in the number of suicide at younger age.

The majority of the students (59) estimates as correct the statement that **Suicide is one of the leading causes of death among adolescents and young adults in developed countries**. More positive answers are registered in female students, although the difference is not statistically significant. At the end of the twentieth century and the beginning of the twenty-first, WHO indices about mental health of the worldwide population are supportive of this statement. As an illustration of severity of mental problems and behavioural disorders, WHO (4) reveals that in 1998 suicide is one of the ten leading causes of death in all age groups and in a majority of countries with reliable statistical data. In addition, suicide is one of the leading causes of death in young adult population (aged 15-34), ranked as first or second in both sexes, which is a substantial social loss.
of productive population. In Northern America and Europe, 4-5% young people over the age of 15 attempt suicide each year.

In the aforementioned literature on suicide there is a constant assertion that attempted suicide is more frequent among females. Our survey shows that there is an insufficient knowledge of this fact, as the correct answer was recorded in 56.66% of all student population. Affirmative, statistically significant, answers were more frequent in female students ($\chi^2=4.28, p<0.05$). The study by Maris (6,7) in the USA shows that the male-female ratio in white suicide population is 4:1 (more frequent among males). However, attempted suicide is three times more frequent in females.

People who talk about suicidal intentions rarely complete them, so they should be considered a low-risk group. This statement was marked as correct by 22% students. Female students statistically more often warn that suicidal intentions must be regarded as a risk with respect to the possibility of fatal outcome. In connection with this, 92.67% of all answers suggest that the first suicidal attempt should be regarded as a warning about possible future attempts. Nowadays, standardised scales for the evaluation and anticipation of suicide are used that include different factors: depression, hopelessness, ideas and likelihood of suicide, as well as reasons for living (22).

Do people who claim they are going to commit suicide only seek attention? The majority of all students in our survey (54.67%), and females more often, estimates this assertion as correct. Recent literature in the field emphasize that the act of turning to the people in the immediate surroundings is the act of asking for help. If the problem has already become evident by declaration of suicidal intentions, it is most important to assess the potential for suicide; however, it often remains unknown how much of the available information can be of practical assistance.

After the first suicidal attempt there is less chance that the act itself will repeat. According to the

<table>
<thead>
<tr>
<th>No.</th>
<th>Questions</th>
<th>Sex</th>
<th>Answered</th>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Suicide is not about death but about the end of suffering</td>
<td>M</td>
<td>62</td>
<td>42</td>
<td>67.74</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>88</td>
<td>61</td>
<td>69.32</td>
</tr>
<tr>
<td>2</td>
<td>Suicide is one of the leading causes of death among the young in developed countries</td>
<td>M</td>
<td>61</td>
<td>38</td>
<td>62.29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>88</td>
<td>50</td>
<td>56.82</td>
</tr>
<tr>
<td>3</td>
<td>Majority of suicides happen among the young, highly gifted people with great life expectations</td>
<td>M</td>
<td>62</td>
<td>22</td>
<td>34.48</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>88</td>
<td>33</td>
<td>37.50</td>
</tr>
<tr>
<td>4</td>
<td>Attempted suicide is more frequent in females</td>
<td>M</td>
<td>60</td>
<td>19</td>
<td>31.67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>86</td>
<td>42</td>
<td>48.84</td>
</tr>
<tr>
<td>5</td>
<td>People who talk about suicidal intentions rarely complete them, so they should be considered a low-risk group</td>
<td>M</td>
<td>62</td>
<td>14</td>
<td>22.58</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>88</td>
<td>19</td>
<td>21.59</td>
</tr>
<tr>
<td>6</td>
<td>Those who talk about suicide only seek attention</td>
<td>M</td>
<td>62</td>
<td>29</td>
<td>46.77</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>88</td>
<td>53</td>
<td>60.23</td>
</tr>
<tr>
<td>7</td>
<td>The first attempted suicide diminishes the risk of any other</td>
<td>M</td>
<td>62</td>
<td>5</td>
<td>8.06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>88</td>
<td>6</td>
<td>6.82</td>
</tr>
<tr>
<td>8</td>
<td>Attempted suicide is a form of Russian soulette as an expression of lack of confidence about the attitude to life</td>
<td>M</td>
<td>61</td>
<td>43</td>
<td>70.49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>88</td>
<td>63</td>
<td>71.59</td>
</tr>
<tr>
<td>9</td>
<td>There is no correlation between suicide and addictive substances</td>
<td>M</td>
<td>62</td>
<td>8</td>
<td>12.90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>88</td>
<td>6</td>
<td>6.82</td>
</tr>
<tr>
<td>10</td>
<td>Alcoholics rarely commit suicide because they resort to other modes of problem-solving</td>
<td>M</td>
<td>61</td>
<td>30</td>
<td>48.39</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>87</td>
<td>53</td>
<td>60.92</td>
</tr>
<tr>
<td>11</td>
<td>It can be presumed that attempted suicide is committed by those suffering from certain chronic mental illnesses</td>
<td>M</td>
<td>61</td>
<td>30</td>
<td>48.39</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>88</td>
<td>53</td>
<td>60.92</td>
</tr>
<tr>
<td>12</td>
<td>Positive change in the mood after a phase of depression eliminates further danger of suicidal behaviour</td>
<td>M</td>
<td>62</td>
<td>6</td>
<td>9.68</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>88</td>
<td>6</td>
<td>6.82</td>
</tr>
<tr>
<td>13</td>
<td>Improvement in mental structure after attempted suicide means no risk of repeating the attempt</td>
<td>M</td>
<td>61</td>
<td>13</td>
<td>21.31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>88</td>
<td>17</td>
<td>19.32</td>
</tr>
<tr>
<td>14</td>
<td>Experience of personal loss has no direct connection with suicidal behaviour</td>
<td>M</td>
<td>62</td>
<td>8</td>
<td>12.90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>88</td>
<td>27</td>
<td>30.68</td>
</tr>
<tr>
<td>15</td>
<td>Majority of suicides happen with no prior recognisable warning signs</td>
<td>M</td>
<td>62</td>
<td>27</td>
<td>43.55</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>88</td>
<td>33</td>
<td>37.50</td>
</tr>
<tr>
<td>16</td>
<td>Nothing can be done to prevent suicide if there is a firm decision</td>
<td>M</td>
<td>62</td>
<td>15</td>
<td>24.19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>88</td>
<td>16</td>
<td>18.18</td>
</tr>
<tr>
<td>17</td>
<td>In suicidal crisis only experts can help, not friends</td>
<td>M</td>
<td>61</td>
<td>8</td>
<td>13.11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>88</td>
<td>6</td>
<td>6.82</td>
</tr>
<tr>
<td>18</td>
<td>S.O.S. services have a positive role in deterring people from attempting suicide</td>
<td>M</td>
<td>61</td>
<td>53</td>
<td>86.88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>88</td>
<td>80</td>
<td>90.90</td>
</tr>
</tbody>
</table>

* $\chi^2$ test=4.28, p = 0.038 (p < 0.05), ** Fisher Exact test doesn't show statistically significant differences
early research by Stengel (23), from 1958 to 1964, nine out of ten of those who attempt suicide never attempt it again, and the remaining one attempts once or several times. Attempted suicide is a most important event in life, which brings forth numerous changes, particularly in the interaction with the environment (23). O'Connor (21) reveals that the percentage of previously attempted suicides is about 30%, and submits the data from the study references that 10-15% population attempt a non-fatal suicide during their lifetime. In our survey, every eleven student holds that suicidal tendencies can be repeated.

The statement that attempted suicide often represents a form of 'Russian roulette', which means that a person attempting suicide is basically insecure about their relation to life, was marked as 'agree' by 74.14% students (more frequently females).

Suicide-related literature highlights a correlation between attempted suicide and consuming addiction-causing substances such as alcohol and drugs (24). The students give an overall affirmative answer with regard to alcohol as a suicidal factor (90.67%); female students more frequently agree (93.18%), although the difference is not statistically significant. In our literature alcohol is considered as risk factor on the scale from 8.6% (10) to 33.4% (3,36). Roy (25) holds that alcoholism is a predictive cause of suicide, with an estimate of 18% alcoholics prone to suicide. The risk of alcohol abuse is remarkably high if it coincides with depression, up to 70-80%. According to Moscicki (26) alcohol is ten times more frequently correlated with suicide than are other substances; according to his research 50% of those who committed suicide were intoxicated at the time of death. James (27) attributes twentyfold greater risk of suicide to drugs, above all to heroin. Besides alcohol as a risk factor, Lester discusses the influence of addiction-developing substances in 13 of his studies till 1999, and confirms the importance of cocaine and heroin abuse (34).

To the question: do you think that alcoholics rarely commit suicide, considering they resort to alcohol as an alternative to their problem-solving, male students replied more frequently with affirmative answers (60.92 %), whilst negative answers were more numerous in female students (51.61%). The result confirms to a great extent the knowledge that alcoholism is a kind of a delayed, chronic or partial suicide.

The correlation between suicide and some of the chronic mental illnesses has been found in many studies (28,29). Meltzer and Fatemi (30) estimate that 9-13% schizophrenic patients will commit suicide (30). WHO has published data, analysed for 5,412 hospitalised patients, that the risk of suicide was between 11 and 67 times as higher among those suffering from acute schizophrenia, temporary insanity, neurotic disorders, and personality disorders. Moscicki (26) proves that over 90% adults who committed suicide were at least once diagnosed for DSM-IV. In 2001, the American Association of the Study of Suicide warned about other suicidal factors belonging to the group of mental disorders and illnesses, such as: sleep disorder, bipolar temporary insanity disorder, schizophrenia, sociopathologic personality disorder in the young, etc. The answers in our survey show that female students generally agree with the statement in the questionnaire, whilst males do not interpret mental disorders as dominant suicide factors; The obtained difference remains within the boundaries which are not statistically significant.

Does the danger of suicide attempt disappear in those who have come out of the depressive phase? The agreement to this question was registered in 92% of the students.

It is a widely accepted standpoint that over 90% suicides in the USA and Europe are associated with mental disorders at the time of death, in particular with depression. The WHO publication entitled 'Primary prevention of mental, neurological and psychosocial disorders' (4) reveals the information that depression was diagnosed in 60-80% attempted suicides. Maris establishes a correlation between depression and suicide in 15% of hospitalised patients with lengthy depression episodes, who attempted or committed suicide. Beck (31) and Binstock (32) consider depression a dominant risk factor in the old age. The role of this risk factor can be considered in terms of possibilities for reducing mortality with help of the adequate treatment of the affected. In Hungary, which is one of the leading countries in suicide rates, in the period 1982-1997 the suicide rate was decreased from 43.5 to 31.6 per 100,000 inhabitants by administration of increased daily doses of anti-depressants (33).

In conditions of improved mental structure in those who attempted suicide, a question is raised as to whether those persons are definitely freed from correlating problems and whether they stopped being under the risk of suicide. A vast majority of the students (79.87%) did not agree with this assertion, more frequently females.

Is personal loss correlated with suicidal behaviour? Affirmative answers were given by 76.67% students. Lester emphasises that personal loss, above all that of parents, represents an important risk factor, especially if it occurs in the period of growing up, that is, between the age of 6-14 (34). On the scale of suicide risk estimation the loss of father by the age of 18 ranks as 18 among a total of 23 risk factors. Maris (35) notices that 50% of those who commit suicide in Chicago have no close friends (35), whilst McIntosh (29) emphasises a high portion of singles with no social support among those who commit suicide.

To the statement that a majority of suicides occur with no previous warning, 60% replied with 'disagree', thus suggesting a fair knowledge of this suicide-related facet. IASP (International Association for Suicide Prevention) describes psychological and psychopathological events that proceed days and weeks prior to the very act of suicide (fear, depression, impoverishment of interpersonal relationships, denial of reality, diverting
aggression toward oneself). O'Connor, (21) in a comprehensive study on suicide in Great Britain, states that 38% of those who plan to commit suicide leave messages or notes about their intentions, whilst 36% declare to people in their surroundings their wish die. However, all these events cannot be identified in all future suicide attempters. Maris (7) warns that in the life of a suicidal subject risk factors tend to mutually interact and intensify in their mutual effects. Prior to the very act of suicide, the level of adaptation of an individual to the risk factors has been dramatically lowered.

‘If somebody really attempts to commit suicide, nothing can be done to prevent it’ is the assertion that was answered to as ‘disagree’ by 79.3% students. However, 90.32% male students and 93.18% female students deem that despite suicidal tendencies there is still room for preventive action. The ‘room is more spacious’ provided the capacity of the following factors gets more significance: being young, of female sex, having healthy social relationships, receiving effective treatment in case of disease, good sleep, regular meals, physical activity, going to church etc.

What is the significance of the S.O.S. services in deterring people from suicide attempts? The positive role of these services was stressed in 89.26% students’ replies. Surveys by various public mental health institutions, who treat people undergoing suicidal crises, suggest success in reducing the rate of suicide as early as three decades ago (36). The modes of their activities vary today, irrespective of whether professional neuropsychiatrists or volunteering amateurs are engaged. In any case, preventive strategies are, above all, based on the identification of specific variables, that is, possible risk factors including sex, age, social status, health condition, belonging to certain minor groups, cultural patterns etc.

Conclusion

1. The surveyed category of the medical students in Niš has displayed a high level of knowledge of suicide risk factors, namely: depression, alcohol and other addictive substances abuse, mental illnesses, personal loss.

2. Questionnaire replies suggest a considerable knowledge of suicidal behaviour and the significance of individuals and institutions may have by their preventative role in reducing suicide incidence.

3. The observed structure of the obtained replies of both male and female students give uniform replies, with the exception of knowledge of sex composition of those who attempt suicide. Female students give statistically more significant correct answers.

4. The obtained information point to the conclusion that the final-year medical students in Niš exhibit a considerable knowledge in the area of suicide-related issues, which could allow for their involvement in educational programmes for providing better living skills. This could also help them better respond to stressful life situations and to make right choices. These programmes could be a good response to the demand of WHO for the twenty-first century aimed at reducing suicide rates.

References


SAZNANJA I STAVOVI STUDENATA MEDICINE NA UNIVERZITETU U NIŠU O SUICIDU

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Kratak sadržaj: Samoubistvo je jedan od najznačajnijih problema mentalnog zdravlja savremenog sveta. Strategija Svetske Zdravstvene organizacije za 21. vek zahteva značajne napore u cilju opadanja incidence suicida. Cilj istraživanja je da oceni znanje i stavove studenata VI godine Medicinskog fakulteta Univerziteta u Nišu o problematici suicida. Istraživanje je obavljeno na svih 150 studenata završne godine studija (62 muškog i 88 ženskog pola). Studenti oba pola se, bez statistički značajnih razlika u odgovorima slažu sa tvrđanjom, da se u suicidu ne radi o smrti, već o kraju patnji (67,74%m., 69,32% ž.). Oni znaju, da je suicid jedan od vodećih uzroka smrti među mladima u razvijenim zemljama (62,29% m., 56,82 ž.). Takođe, oni izjavljuju da je pokušaj samoubistva vrsta Ruskog ruleta (70,49%m., 71,59%ž.). Ljude, koji govore o samoubilačkim intencijama, treba shvatiti ozbiljno kao rizičnu grupu (77,42% m., 78,41%ž.). Postoje korelacije između suicida i adiktivnih supstanci (87,10% m., 93,18%ž.), kao i sa depresivnim epizodama (90,32% m., 93,18%ž.). Gubitak dragih osoba je direktno povezan sa suicidalnim ponašanjem (87,1%m., 93,18%ž.). Postoje mogućnosti za pomoć od strane bliskih prijatelja (86,88% m., 93,18%ž.) i SOS-službi (86,88% m., 90,90%ž.). U statistički značajnijem stepenu registruje se razlika u odgovoru sudenata i studentkinja prema poznavanju učestalosti pokušaja suicida prema polu ($\chi^2 = 4,28$, p < 0,05). Zaključuje se, da studenti završne godine Medicinskog fakulteta u Nišu raspolažu osnovnim znanjem o činjenicama, koje se tiču suicida, što će im omogućiti da se uspešno mogu uključiti u edukativne programe za promociju zdravih životnih veština, kako bi se uspešno odgovorilo na stresne životne situacije.

Ključne reči: Suicid, faktori rizika, stavovi, studenti medicine