DEPRESSIVE SYMPTOMS IN MEDICAL STUDENTS

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ABSTRACT

Mental disorders represent a growing problem in the student population. There has been a recent increase in the prevalence of depressive symptoms among medical students. The objective of this study was to determine the frequency of depressive symptoms in medical students to provide insight into this problem in our country. In total, 131 fourth-year medical students were included in the study. To determine rates of depressive symptoms in the student population, we used the BDI IA. Symptoms of depression were found in 26.7% of students. The most common levels of depression were mild and moderate. The mean value of the BDI scores was 7.51±7.62. The high level of depressive symptoms found in medical students highlights the need for more comprehensive insight and follow up of this problem in the student population.

Key words: medical students, depressive symptoms, mental health

INTRODUCTION

Previous studies have shown that mental disorders represent a growing problem in the student population (1-3). Medical education is often considered to be very stressful due to its duration and the nature of the topic studied (4). The frequency of depression in medical students is greater compared to that in the general population and varies from 10-25% according to various studies (5-10). The epresence of depression in medical students is associated with a greater risk of suicide (11,12), increased use of benzodiazepines (13) and a poorer quality of life (14). The Incidence Depression among students is accompanied by a decrease in academic performance, i.e., a lower average grades (15). Depressed medical students, especially those with a higher depression score, find that their opinion is less respected than the opinions of others and that they are viewed as less capable when compared to other students (12). Unrecognised and untreated depression during medical studies seems to have subsequent consequences, as indicated by a higher rate of depression and suicide among doctors compared to other professionals (16).

Despite the increased frequency and obvious consequences of various psychological problems, medical students are generally unwilling to seek adequate professional help. They would much rather seek self-treatment or ask for help from family members and friends (17,18). The reason for this behavior is that mental illness is regarded as a form of weakness and is associated with a potential negative influence on future career development (19). As a consequence, often neither mental healthcare providers nor members of the public have proper insight into the fre-
quency of mental problems in students. In this study, we aimed to establish the frequency of depression in medical students in our country.

PATIENTS AND METHODS

Patients
This research was conducted as an observational cross-sectional study from May to June 2010. A total of 131 fourth-year students, representing more than half of all students (response rate = 54%) at the Medical Faculty in Kragujevac participated in the study. Students participated in the research voluntarily and anonymously.

Methods
To measure depression, we used Beck’s Depression Inventory (BDI), a 21-item self-report questionnaire. The BDI is a well-known scale used for the self-assessment of depression in clinical and non-clinical populations (20). Currently, the BDI-II is most widely employed, but we used the BDI-IA. We did this because the results presented in this paper are a part of a larger study that, began at a time during which the BDI-II version was not widely used and because this version is free. The BDI-II version was validated in 2011 on a Serbian student sample. A study showed that the psychometric characteristics of this version were in agreement with the literature (internal consistency was 0.87) (21). The cut-off points for the BDI were as follows: 0-9, no depression; 10-15, mild depression; 16-19, mild to moderate depression; 20-29, moderate to severe depression; and 30-63, severe depression (22). The various symptoms of depression can be grouped into a limited number of clusters. The structure of BDI consists of several factors (23,24,25). Some of these factors were established in the BDI-I. The first factor, the affective cluster (the sum of scores on items 1, 4, 10, 11, and 12 from the BDI), represents the core elements of depression and are represented by the following symptoms: 1, sadness; 4, dissatisfaction; 10, crying episodes; 11, irritability; and 12, social withdrawal. The second factor, the cognitive cluster (items 2, 3, 5, 6, 7, 8, 9, 13, 14, and 20), addresses the following cognitive symptoms: 2, pessimism; 3, sense of failure; 5, guilt; 6, expectation of punishment; 7, self-dislike; 8, self-accusation; 9, suicidal ideation; 13, indecisiveness; 14, change in body image; and 20, somatic preoccupation. The third factor, the somatic cluster (items 15, 16, 17, 18, 19, and 21), assesses the presence of the following symptoms: 15, slowness; 16, insomnia; 17, fatigue; 18, change in appetite; 19, loss of weight; and 21, loss of sexual interest (25).

Statistical methods
The data are expressed as the mean±standard deviation and percentage (%). To establish the difference in the frequency of depression with respect to gender, the Chi-squared test was used. The Mann-Whitney test was used to determine differences in levels of depression between male and female students (the scores for the various items are not normally distributed in these groups). Analyses were performed with the Statistical Package for the Social Sciences (SPSS), version 13.0. P-values ≤ 0.05 were considered statistically significant.

RESULTS

In the examined student sample, 47.3% (62) of participants were male.

Symptoms of some type of depression were found in 26.7% (35) of the students (Table 1). Of the males, 25.8% (16) were depressed, and of the females, 27.5% (19) were depressed. The mean BDI score was 7.51±7.62 (Table 2). There was no statistically significant difference in the frequency (p=0.823) and level (p=0.921) of depression among male and female students.

<table>
<thead>
<tr>
<th>Depression level (BDI)</th>
<th>% (N*)</th>
</tr>
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<tbody>
<tr>
<td>No depression (0-9)</td>
<td>73.3% (96)</td>
</tr>
<tr>
<td>Mild depression (10-15)</td>
<td>14.5% (19)</td>
</tr>
<tr>
<td>Mild to moderate depression (16-19)</td>
<td>3% (4)</td>
</tr>
<tr>
<td>Moderate to severe depression (20-29)</td>
<td>7.6% (10)</td>
</tr>
<tr>
<td>Severe depression (30-63)</td>
<td>1.5% (2)</td>
</tr>
</tbody>
</table>

Table 1: Number of examinees by category on the BDI scale (*number of examinees)

<table>
<thead>
<tr>
<th>BDI</th>
<th>Mean ± Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>8.16±9.17</td>
</tr>
<tr>
<td>Women</td>
<td>6.93±5.90</td>
</tr>
<tr>
<td>Total</td>
<td>7.51±7.62</td>
</tr>
</tbody>
</table>

Table 2: Mean scores on the BDI scale

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affective</td>
<td>2.56±2.67</td>
</tr>
<tr>
<td>Cognitive</td>
<td>2.66±3.46</td>
</tr>
<tr>
<td>Somatic</td>
<td>2.28±2.86</td>
</tr>
<tr>
<td>BDI total</td>
<td>7.51±7.62</td>
</tr>
</tbody>
</table>

Table 3: Cluster analysis of depressive symptoms

DISCUSSION

In our sample, the depression was identified in 26.7% of participating students who participated in the sample. This frequency is 2-3 times greater than that noted for the general population (26). Studies in which the BDI was used to report determine the prevalence of depression have reported a wide range of results (Table 3). In addition- Additionally, our findings were similar to the results of many studies in which the BDI or similar diagnostic in-
strinstruments were used (5, 9, 10, 13, 27−31), including studies that have been carried out in the same region. A study of medical students in the Republic of Macedonia indicated that 10.4% of students had a BDI score greater than 17 (13). Twelve per cent of students in the present study had a BDI score greater than 16. In a study conducted in adolescents in Croatia, 9.7% of adolescents fulfilled the criteria for a moderate or severe depressive episode (32). In our sample, the prevalence was 9.1% of students.

<table>
<thead>
<tr>
<th>Study</th>
<th>Cut-off</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoccolillo et al. (5)</td>
<td>BDI &gt; 9</td>
<td>22%</td>
</tr>
<tr>
<td>Mancevska et al. (13)</td>
<td>BDI ≥ 17</td>
<td>10.4%</td>
</tr>
<tr>
<td>Tija et al. (9)</td>
<td>BDI ≥ 8</td>
<td>15.2%</td>
</tr>
<tr>
<td>Clark et al. (10)</td>
<td>BDI &gt; 14</td>
<td>25%</td>
</tr>
<tr>
<td>Givens et al. (33)</td>
<td>BDI &gt; 8</td>
<td>24%</td>
</tr>
<tr>
<td>Hendryx et al (34)</td>
<td>BDI &gt; 9</td>
<td>19%</td>
</tr>
<tr>
<td>Leão PB (35)</td>
<td>BDI ≥ 11</td>
<td>20%</td>
</tr>
</tbody>
</table>

Table 4: Findings of several studies examining depression in medical students using the 21-item BDI

The mean BDI score in this sample of medical students was similar to that noted in studies on medical students in Macedonia (8.3±7.4) (13) and heterogeneous student groups from Novi Sad, Serbia (32).

Regarding factor analysis of the scale, the scoring structure is variable among both different samples and similar samples. The affective, cognitive and somatic components are evident in various combinations in most studies (36). The cluster analysis in our study showed that every factor contributed equally to the BDI score. A study that used the same cluster model in a population of medical student in Sao Paolo showed similar results. The authors collected BDI scores during the students’ basic, intermediate and internship periods and found that the total BDI scores were highest during the internship period (11.7) and lowest during the intermediate period (7.0). The principal cluster responsible for the BDI score was the affective cluster (25). We analysed students in their fourth year, a year that represents the intermediate period of medical education. Analysing the characteristics of depressive symptoms among medical students is particularly relevant for assisting medical professionals in addressing the different patterns of depression noted in this population and developing specific coping strategies.

No difference in the frequency or intensity of depression with regard to gender was established in this study sample. This finding is surprising in light of the fact that the frequency of depression in the general population is greater in women (37) and that similar results have been found in other studies involving medical students (3, 12, 38). However, gender differences appear during adolescence (39), and at that time, the differences are not yet occurrence fixed, as they are later in life (40). Thus, we could also interpret our findings in that manner. Another implication of our finding is that the causes of depression in medical students are of such a nature that both men and women are equally sensitive to them. This has Similar results have already been reported for medical students in other studies (9).

The limitations of our study include having the following: self-assessment scales were used for establishing the frequency of depression and suicidal risk, the investigated sample was relatively small, and the number of measured variables was also small. Future research in a similar population that includes a larger number of variables should be conducted to replicate our results, especially particularly the absence of a significant difference in scores between genders.

**CONCLUSION**

With a 26.7% prevalence of depression, which is more than twice as high as that in the general population, medical student represent a population that is vulnerable to developing depressive mood disorders. The results of our study emphasise the need to develop programs to support and assist students in their health environment, with the objective identifying depression early to prevent future consequences.

**LITERATURE**


