Depression prevalence in medical students: a scoping review

Prevalência de depressão em estudantes de medicina: uma revisão de escopo

Alice Lucindo de Souza¹, Fernanda Venturini de Castro¹, Karine Ferron¹,
Ana Letícia Zanon Chagas Rodrigues¹, Ana Carolina Cau¹,
Marcos Sampaio Meireles¹, Marcela Souza Lima Paulo¹


ABSTRACT: Introduction: Depression is a common mental disorder that affects 322 million people worldwide. It is estimated that 15% to 25% of university students have some psychiatric disorder, depression and anxiety being the most recurrent. Among those affected, medical students can be mentioned as a group that frequently presents depressive symptoms. Objective: Knowing the scientific evidence about the prevalence of depression in medical students. Methods: Scoping Review with guiding question “What is the prevalence of depression in medical students?” to search for original articles, clinical cases, meta-analyses and guidelines published from 2010 to 2020. Searches were carried out in PubMed and in the Virtual Health Library (VHL), through searching terms such as “depression disorder” AND “students, medical” AND “schools, medical” AND “prevalence”. Results: The 12 articles found showed, for the most part, a prevalence of depression in medical students of approximately 30%. Higher prevalence values were found in female students, first year graduates, students who had doubts about the academic activities that will interfere with the choice of specialization and their professional future, those who gave up their leisure time, those who used legal and illegal drugs, students who lived alone, who did not practice physical activity and students who had a previous psychiatric diagnosis. Conclusion: The medical school is an environment that has a high prevalence of students with depression, which suggests that the medical course demands a great psychological, economic, disciplinary and social demand from the students.

Keywords: Prevalence; Depression; Medical students.

RESUMO: Introdução: Depressão é um transtorno mental comum que acomete 322 milhões de pessoas no mundo. Estimava-se que 15% a 25% dos estudantes universitários apresentam algum transtorno psiquiátrico, sendo a depressão e ansiedade os mais recorrentes. Dentre os afetados, pode-se citar os estudantes de medicina como um grupo que frequentemente apresenta os sintomas depressivos. Objetivo: Conhecer as evidências científicas acerca da prevalência de depressão em estudantes de medicina. Método: Scoping Review que utilizou a pergunta norteadora “Qual a prevalência de depressão em estudantes de medicina?” para pesquisar artigos originais, casos clínicos, metanálises e guias publicados de 2010 a 2020. As buscas foram realizadas no PubMed e na Biblioteca Virtual em Saúde (BVS) através da combinação dos descritores “depression disorder” AND “students, medical” AND “schools, medical” AND “prevalence”. Resultados: Os 12 artigos encontrados mostraram, em sua maioria, uma prevalência de depressão em estudantes de medicina de, aproximadamente, 30%. Valores maiores de prevalência foram encontrados nos estudantes do sexo feminino, graduandos do primeiro ano, estudantes que apresentavam dúvidas em relação às atividades acadêmicas que irão interferir na escolha da especialização e no seu futuro profissional, alunos que abdicaram do seu tempo de lazer, acadêmicos que faziam uso de drogas lícitas e ilícitas, estudantes que moravam sozinhos, que não praticavam atividade física e estudantes que apresentavam um diagnóstico psiquiátrico prévio. Conclusão: A faculdade de medicina é um ambiente que apresenta uma elevada prevalência de estudantes com depressão, o que sugere que o curso médico exige uma demanda psíquica, econômica, disciplinar e social grande dos discentes.

Palavras-chave: Prevalência; Depressão; Estudantes de medicina.
INTRODUCTION

Depression is a common mental disorder that affects 322 million people worldwide\(^1\). It is characterized by persistent sadness and loss of interest in previously pleasurable activities accompanied by loss of energy, changes in appetite, increased or decreased sleep, anxiety, loss of concentration and even suicidal thoughts\(^2\).

Higher education students are constantly exposed to stressful situations that can result in depressive conditions. It is estimated that 15% to 25% of university students have some psychiatric disorder\(^3\), with depression and anxiety being the most recurrent\(^4\). Among those affected, medical students can be mentioned as a group that frequently presents depressive symptoms\(^5\).\(^6\).\(^7\).

Medical school education is demanding in order to train knowledgeable, skilled, and mentally healthy physicians in order to meet the physical and psychological health needs of their patients with empathy and professionalism. However, students in the initial phase of medical school already show a decline in mental health and a tendency to maintain this state throughout their academic training. The reasons for the anguish are multiple and include great academic pressure, excessive workload, financial difficulties and deprivation of sleep and leisure\(^8\).

In recent years, literature reviews\(^9\),\(^10\),\(^11\) have been published with the aim of evaluating the prevalence of depression in medical students. However, most of them limited the research to a single country, which may lead to a misunderstanding of the global value of the prevalence of depression. Therefore, this study aimed to analyze articles published in North and South America, Asia, Europe and Africa in order to know the scientific evidence about the prevalence of depression in medical students.

METHODS

This review was prepared according to the methodology of a scoping review recommended by the Joanna Briggs Institute (JBI)\(^12\). The scope study aims to map the main concepts that support a certain area of knowledge, examine the extent, scope and nature of the investigation, summarize and disseminate the investigation data and identify existing research gaps\(^12\).

Scoping reviews differ from systematic reviews in that they do not aim to assess the quality of available evidence, but rather aim to quickly map the main concepts that support an area of research\(^13\). On the other hand, they differ from a traditional literature review in that they involve a more systematic procedure\(^4\).

To construct the research’s guiding question, the Population, Concept and Context (PCC)\(^12\) strategy was used. The following were defined: P - medical students, C - prevalence of depression in medical students and C - medical school, and the established question was: “What is the prevalence of depression in medical students?”.

In this sense, the data survey was carried out in PUBMED and in the Virtual Health Library (VHL) from May to July 2020 through the combination of the descriptors depression disorder AND students, medical AND schools, medical AND prevalence, defined by the Medical Subject Headings. The criteria for inclusion in this study were original articles involving medical students with depressive symptoms, clinical cases, meta-analyses and guidelines published between 2010 and 2020. Literature reviews, studies which full texts were not available in the databases, were excluded, and articles with students from other courses. The articles obtained were tabulated in Excel spreadsheet version 2010 and analyzed to compose the database of this research. By reading the title and abstract, studies that escaped the topic were excluded. The remaining articles were read in full and selected for their relevance and contribution to the topic.

RESULTADOS

A total of 185 articles were found, 131 from PUBMED and 54 from VHL (49 from MEDLINE, four from LILACS and one from Index Psychology). Next, three duplicates were identified and excluded, leaving 182 articles. Of these, after reading the title and abstract, 166 were excluded for not presenting elements that met the objective of this review. After reading the full text, four articles were excluded for not having the full text available for reading, totaling a sample of 12 articles.

The search and selection process of the studies in this review is presented in the flowchart (Figure 1), according to the JBI recommendations, according to a checklist adapted from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)\(^12\).

Of the 12 publications included in this review, for the analysis of the full text, two (15.4%) were published in Brazil and one (7.7%) in each of the following countries: South Korea, United States, China, Ethiopia, Portugal, Nepal, Cameroon, Lebanon, Bosnia and Herzegovina and Italy (Chart 1).

The studies selected to compose the database of this research used the Beck Depression Inventory (BDI)\(^17\), Patient Health Questionnaire (PHQ)\(^24\), Mini International Neuropsychiatric interview (MINI-PR)\(^29\), Self-Report Questionnaire (SRQ-20)\(^30\) or the General Health Questionnaire (QSG-12)\(^13\) to check the prevalence of depression.

Five studies used the BDI to analyze the prevalence of depression in medical students. The IDB and its main results are presented in Chart 2.
Figure 1: Flow diagram of article selection adapted from PRISMA.

Chart 1: Studies included in the scoping review classified according to title, reference, year of publication and country of study.

<table>
<thead>
<tr>
<th>Study</th>
<th>Title</th>
<th>Authorship</th>
<th>Year</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The prevalence and impact of depression among medical students: a nationwide cross-sectional study in South Korea.</td>
<td>Roh MS, et al.</td>
<td>2010</td>
<td>South Korea</td>
</tr>
<tr>
<td>2</td>
<td>Assessing student mental health at the Vanderbilt University School of Medicine.</td>
<td>Ghodasara SL, et al.</td>
<td>2011</td>
<td>United States</td>
</tr>
<tr>
<td>3</td>
<td>Prevalence and factors associated with depression in medical students.</td>
<td>Paula JA, et al.</td>
<td>2014</td>
<td>Brazil</td>
</tr>
<tr>
<td>9</td>
<td>Examining burnout, depression, and attitudes regarding drug use among lebanese medical students during the 4 years of medical school.</td>
<td>Talih F, et al.</td>
<td>2018</td>
<td>Lebanon</td>
</tr>
<tr>
<td>10</td>
<td>Depressive symptoms among Sarajevo University students: prevalence and socio-demographic correlations.</td>
<td>Džubur A, et al.</td>
<td>2018</td>
<td>Bôsniya e Herzegovina</td>
</tr>
<tr>
<td>11</td>
<td>Stressors, psychological distress, and mental health problems amongst Brazilian medical students.</td>
<td>Castaldelli-Maia JM, et al.</td>
<td>2019</td>
<td>Brazil</td>
</tr>
</tbody>
</table>
Chart 2: Studies that used the BDI as a tool to analyze the prevalence of depression and its main results.

<table>
<thead>
<tr>
<th>Study</th>
<th>Main Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>The prevalence of depression was 25%, with 11.6% being mild, 9% moderate, and 3% severe. 32% of participants were in the first year of graduation, 31% in the second and 37% in the third. Women were the majority (51%) in the sample and were more likely to become depressed. 23% of students did not engage in any physical activity and those who exercised one to three times a week were less likely to be severely depressed.</td>
</tr>
<tr>
<td>3</td>
<td>The prevalence of depression was 28.8%, with 20.7% being mild, 16.6% moderate, and 10.9% severe. The study sample consisted mainly of females (58.9%) and students from the first to fourth period of undergraduate medicine (44.3%). Among students in the first two years of graduation, the prevalence of depression was 31.1%, in the two intermediate years it was 27.8% and in the last two it was 25%. Students who were uncertain about their professional future were 2.97 times more likely to experience depression compared to those who were not uncertain about their future.</td>
</tr>
<tr>
<td>6</td>
<td>The prevalence of depression was 7.9%, with 6.1% mild, 3.1% moderate, and 0.7% severe. Women were the majority (66.7%) in the sample and were more susceptible to depression. 47.2% had low-medium economic status and 37% had some psychiatric family history, depression being greater in these groups.</td>
</tr>
</tbody>
</table>

Four studies used the PHQ to analyze the prevalence of depression in medical students and its main results are shown in Table 3.

Table 3: Studies that used the PHQ as a tool to analyze the prevalence of depression and its main results.

<table>
<thead>
<tr>
<th>Study</th>
<th>Main Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Prevalence of depression was 33.3%, with 35.1% being no and minimal depression, 51.4% mild, and 13% moderate-severe. There were no significant differences between graduation levels in the depression score.</td>
</tr>
<tr>
<td>7</td>
<td>The prevalence of depression was 29.2%, with mild depression being 35.9%, moderate 17.5%, moderate-severe 5.2% and severe 6.1%. The sample consisted mainly of males (51%); however, the prevalence of depression was significantly higher in females. 63.8% are first- and second-year students and the prevalence of depression was higher at the beginning of graduation.</td>
</tr>
<tr>
<td>8</td>
<td>The prevalence of depression was 30.6%, with mild depression 53.1%, moderate 40.4%, moderate-severe 5.2% and severe 1.3%. The majority of study participants consisted of men (53.7%); however, the prevalence of depression was significantly higher in women. 6.8% of the participants had a chronic disease and 14.2% regretted studying medicine, the prevalence being higher in these groups.</td>
</tr>
<tr>
<td>9</td>
<td>The prevalence of depression was 23.8%. Of the participants, 22.6% were from the first year, 17.4% from the second, 31.4% from the third and 28.4% from the fourth and the prevalence was, respectively, 28.2%, 26.7%, 22.2% and 20.4%. The sample consisted mainly of males (51%); however, the prevalence of depression was significantly higher in females (34.5%).</td>
</tr>
</tbody>
</table>

The remaining three studies used different instruments to analyze the prevalence of depression in medical students as shown in Table 4.

Table 4: Studies that used the MINI-PR, SRQ-20 or QSG-12 as a tool to analyze the prevalence of depression and its main results.

<table>
<thead>
<tr>
<th>Study</th>
<th>Instruments</th>
<th>Main Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MINI-PR</td>
<td>The prevalence of depression was 2.9%. Females (3.6%) were more affected than males (2.6%). Low class, living alone and financial difficulties were reported as the groups most frequently affected by depression.</td>
</tr>
<tr>
<td>5</td>
<td>SRQ-20</td>
<td>The prevalence of depression was 30%. The sample consisted mainly of men (74.2%) and students from the first two years of graduation (37.9%).</td>
</tr>
<tr>
<td>11</td>
<td>QSG-12</td>
<td>The prevalence of depression was 8.5%. The sample consisted mainly of females (76.7%) and third-year undergraduate students.</td>
</tr>
</tbody>
</table>
DISCUSSION

Among the studies selected in this review, it was possible to verify that the majority had a prevalence of depression in medical students of approximately 30%. In Brazil, the prevalence in the two studies analyzed was 28.8% and 10.9%. In Portugal, South Korea, Lebanon, United States, Nepal, Italy, Ethiopia, Bosnia and Herzegovina, Cameroon and China, prevalence rates of depression were reported, respectively 6.1%, 6.5%, 23.8%, 25%, 29.2%, 29.5%, 30%, 30.1%, 30.6% and 33.3%.

This study identified that mild depression had a higher prevalence when compared to severe and moderate classifications. It was also observed that female students had a significantly higher prevalence of depression than male students. In the study carried out in Portugal, 7.9% of women were diagnosed with depression against 2.6% of men. This variation in depressive state may be a reflection of the greatest challenges that women face as a result of gender inequality and its consequences, such as moral abuse, sexist comments and greater career obstacles when compared to men.

Another fact frequently cited in the articles selected for this review was that the rate of depression is high during the first year, followed by a gradual decline in the last years of medical school. At the Federal University of Cariri and at the Estácio de Juazeiro do Norte Medical School, the prevalence of depression found in the first two years of college was 31.1%; in the two intermediate years, 27.8%; and in the last two years, 25%. This fact may be related to the change in the routine of students who have just entered the medical course, who now receive a great deal of information, an increase in study hours and a drastic change in the teaching method.

The study above performed a correlation of depressive aspects with the degree of doubt of the undergraduate in relation to academic activities that will interfere in the choice of specialization and in their professional future. Students who experience such doubts were 2.97 times more likely to have depression, when compared to those who had no uncertainties. This fact may be based on the justification that insecurity can generate anxiety and fear. During graduation, students are required to make choices that will tell them about their future and, the greater the degree of uncertainty, the greater the possibility of developing a depressive condition.

Drug use was associated as a consequence of depressive symptoms. Consumption was higher in medical students who had depression. It is reported that 68% of students used alcohol occasionally, 16.6% illicit drugs and 11.1% psychoactive drugs. It is believed that factors such as loss due to depressive symptoms during drug use, frustration with academic performance and the search for increased concentration can influence the occurrence of the drugs in question.

Absence of leisure was reported for being associated with depressive disorder. Students who abdicate their free-time activities, largely privileging tasks related to studies, were associated with a higher prevalence of depression. This association may be related to the fact that the absence of a pleasurable activity contributes to a constant experience of stress in academic life, which causes depressive events to develop. Thus, it emphasizes the need to clarify students about the benefits of good use of leisure periods as an escape mechanism from the pressures experienced in the academic environment.

Increased prevalence of depression was found in academics who left their hometown to study and live alone. This increase may be related to new responsibilities assumed by the student that were previously shared with their family members. In this new context, they have to be able to take over domestic activities, manage the payment of household bills and, in addition, there is a decrease in emotional support from family members, which is essential in times of difficulty during graduation.

Regarding physical activity, it was observed that its absence can interfere with the development and worsening of depressive conditions. It is known that exercise causes an increase in the release of substances responsible for well-being and has other mechanisms that support the prevention and reduction of depressive symptoms. Therefore, the absence of regular exercise can favor the development of depression in certain cases.

Academics entering medical school with a diagnosis of anxiety disorder were also scored as a group with the highest prevalence of depression in their undergraduate course. Evidence suggests that such disorders share neurochemical and genetic alterations, which may favor their coexistence. In addition, these disorders not only have risk factors in common, but one also serves as a risk factor for the emergence and severity of the other. Common non-genetic risk factors associated with the development of anxiety and depression include previous adversities, trauma or neglect, parenteral style and exposure to stress.

In short, it is noteworthy that in all the articles studied, the prevalence of depression in medical students outweighed the depression values of the general population. An example of this statement is provided in a study carried out in Brazil, in which the prevalence found of depressive symptoms in medical students was 28.8%, while in the general population it was 7%.

An aggravating factor in this context is the frequency of underdiagnosis existing in this environment. Psychic illnesses are still viewed with prejudice in the academic community and it is believed that many students fear that the diagnosis of depression and, consequently, its treatment, will put their medical career at risk. Furthermore, symptoms of depression in medical students can be difficult to distinguish from the effects of stress inherent
in the student’s life. Students often see their feelings of discouragement as their own, and even expected, emotional response to the academic environment.

Based on this, one asks what would be the reasons that would lead the medical course to be a risk factor for depression. One can cite, as contributors, high workload, large volume of materials, greater contact with patients with various diseases and prognoses, insecurity in relation to entering the labor market, demands from society and the educational institution, in addition to self-demanding typical of the medical course. In addition, there is also the lack of empathy in the teacher-student relationship, the quality of teaching, inadequate assessment systems for the students’ learning process and excessive responsibility for human life.

The need for change in this scenario is evident. Vanderbilt University School of Medicine, USA, created a rewards program in which students earned points for exercising, developing a new hobby, connecting with friends and avoiding harmful habits. This program resulted in a lower rate of depression in this group. Mirroring this strategy, it is suggested that medical schools implement student welfare programs to promote and provide resources for healthy living, especially in the first year and recycle them during graduation.

As program suggestions, curricular changes are included that aim to reduce the workload, making more free time available to students so that they can use the surplus between studies and leisure activities. Added to this are the distribution of content equitably in relation to the periods, promotion of physical exercise on fixed days of the week, psychological support for students, mindfulness programs and access to general health services.

It is believed that if there is a balance between medical education and the student’s mental health, there will be a decrease in the prevalence of depression and, consequently, a better use of the course. During this scoping review, there was a large number of observational research in this area, which demonstrates a good understanding and results of the association between depression and medical students. It is understood that changes in the academic environment, even if minimal, are being implemented and undergraduates, in turn, are demanding improvements and looking for help. Such events may be starting the creation of a new scenario in the medical school environment, but, even so, there is a need for improvements so that the prevalence of depression and its complications are minimized among medical students.

CONCLUSION

Through this scoping review, it can be concluded that the medical school is an environment that has a high prevalence of students with depression. This data is due to the fact that the medical course requires a great psychic, economic, disciplinary and social demand from students. However, even though it is a lethal disease, there are several ways to control and reverse this condition, with the faculties being the fundamental components in this process.

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REFERÊNCIAS


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