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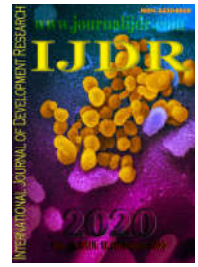
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PREVALENCE OF DEPRESSION SYMPTOMS IN STUDENTS FROM 1ST TO 6TH YEAR OF MEDICINE FROM A FACULTY OF TOCANTINS, BRAZIL

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ABSTRACT

Mood disorders are persistent emotions that influence a person's behavior. They are an important category of psychiatric illnesses, the most prevalent of them is depressed mood disorder, which causes great psychological distress and impairs academic and social performance. This study aims to assess the prevalence of symptoms of depression in medical students from different periods, from the 1st to the 6th year of graduation, through the application of self-administered and anonymous questionnaires to the research participants, including a socio-demographic questionnaire and Beck's Depression Inventory (BDI). Results have shown that the prevalence found in the studied population was 46.1%, and the 1st year of the basic cycle showed a greater chance of developing depressive symptoms. As factors that increase the risk of developing the condition, relevant differences were found between the participants who do not practice regular physical activity and those who had to change their residence, mainly from another state, to start their medical degree.

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INTRODUCTION

Depression is considered a mood disorder. The disease has become a public health problem, with high levels of prevalence and growth in the world population. According to data published by the World Health Organization (2017) it is estimated that in 2020 the disorder will become the second most prevalent disease in the world, behind only cardiovascular diseases. Some of the clinical symptoms include depressed mood, sadness, loss of interest, insomnia or hypersomnia, fatigue, feelings of worthlessness or excessive guilt, difficulty concentrating and recurring thoughts of death. The prevalence of depressive disorders in the general population is around 4.4%, while those of depressive symptoms are around 12% throughout life, according to estimates published by the World Health Organization (2017).

The concern with the quality of life of medical students has been the subject of several studies in several countries, such as the United States, Germany, England, among others, since results have shown that the prevalence of depressive symptoms and anxiety in this group population is significantly higher when compared to the general population. Andrade, Sampaio and Farias (2014) cite as predisposing factors premature contact with death, fierce competitiveness among students, demand from teachers, deprivation of leisure, exhausting hours, technical insecurity and uncertainties in the labor market, which are inserted within the context of medical training during graduation. A meta-analysis of more than 200 studies, involving 130,000 medical students in 43 countries, showed that depression rates are increasingly higher among medical students worldwide. The numbers are worrying and, worst of all, only a small portion seeks help. The results of the

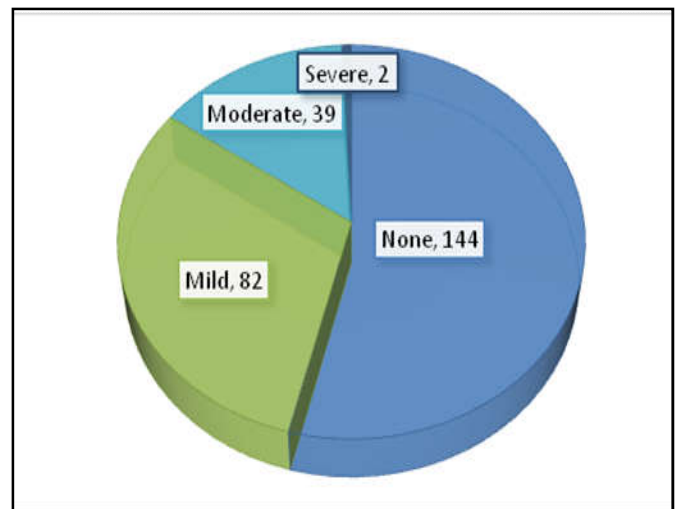
study showed that the prevalence of depression or depressive symptoms was 27.2%. However, the percentage of students seeking psychiatric treatment was only 15.7%. (ROTENSTEIN *et al.*, 2016). Therefore, the object of this study is to estimate the prevalence of depression in medical students at a college in the North of Brazil, in Porto Nacional, Tocantins.

MATERIALS AND METHODS

This is a qualitative and quantitative analysis with a cross-sectional design, carried out from September to November 2020, whose population was made up of medical students from a private institution in the state of Tocantins - ITPAC - Porto Nacional, where a survey was carried out of data through the application of a sociodemographic questionnaire and filling in the Beck Depression Inventory (BDI) to academics participating in the research from the 1st to the 6th year of Medicine at ITPAC, regularly enrolled during the second semester of 2020. The population of medical students at the institution totals 720 individuals. Knowing the impossibility and improbability of adherence of all students to the research, a sample calculation was performed, which corresponds to 95% reliability, with a margin of error of 5% and, using the pre-determined numbers of critical values associated with the confidence in the sample, the participation of at least 251 (two hundred and fifty-one) students of the course was determined. The BDI-II consists of a group of 21 self-administered statements ranging from zero to three, with a minimum score of zero and a maximum of 63. The test is considered normal if the score is less than 11 points, and constitutes depression if the score exceeds this cutoff point. The variable depression was adopted as a dependent, analyzed from binomial comparisons with independent variables, including gender, year of study, marital status, ethnicity, religion, with whom you live, physical activity, change of residence / state. The available data were used for the elaboration of a database, which was inserted in the Excel and BioEstat 5.0 programs, where analysis of variance of non-normal distributions were made, using Fisher's exact test methodologies and binomial tests.

RESULTS AND DISCUSSION

Response rates were higher among students from the 1st to the 4th year (228 - 85.39%) when compared to the participation of students at the internship (39 - 14.61%). The distribution of responses according to sex was 68.5% female (183) and 31.5% male (84). The average age of the participants was 24 years, with a variance of 19 years, with a minimum age of 17 years and a maximum age of 43 years. Of the 267 participants, 144 (53.9%) scored from 0 to 11 on the Beck Questionnaire, being classified as neutral or minimum intensity of depression. 82 participants (30.7%) had scores from 11 to 19, considered "mild depression", 39 (14.6%) had scores from 20 to 35, "moderate", and, finally, 2 participants (0.7%) scored more than 36 points in the test, being classified as "severe depression". In general, 46.1% (123) of the students presented some degree of alteration according to Beck's questionnaire. When the gender variable was analyzed, 88 (71.5%) of the participants who presented some degree of depression are women, while 35 (28.5%) are men. Under a descriptive analysis of the prevalences found, there was a preference for females in all



Source: chart prepared by the authors.

Graph 1. Classification of participants according to the score achieved in the Beck questionnaire

levels of depression, and among the participants with mild depression a prevalence of 32.9% (27) was found in men and 67.1% (55) in women. Moderate depression in 79.5% (31) of women and 20.5% (8) of men. About 100% (2) of the participants with severe depression are female.

However, the binomial analysis using the BioEstat 5.0 software found that there was no proportional difference between genders, whose p-value was higher than 0.05 ($p > 0.05$) in the evaluated sample. Therefore, in the present study, there was no significant variance in prevalence between genders regarding to depression. Under the application of the same biostatistical analysis among the variables marital status, religion, who the student lives with and ethnicity, there was no significant difference between the samples ($p > 0.05$). Among the 123 students with some degree of depression, 87% (107) had to change residence when they started their medical degree, in which 75% (88) came from another state. Still, of the 107 academics who changed residence due to graduation and have some degree of depression, 58 (54.2%) live alone, 24 (22.4%) live with family members, 21 (19.6%) live with others students.

In view of the analysis of the participants who presented moderate to severe degree of depression according to the questionnaire, 100% (38) of the students changed their residence to start the undergraduate medical course, 78.9% (30) coming from another state, and 21.1% (8) from another city in the state of Tocantins. The significant difference between the samples was confirmed by binomial calculation with a p-value of 0.03. Of those with some degree of depression, 70 (56.9%) say they practice physical activity at least once a week, while 53 (43.1%) do not exercise at all. Of the participants who do not have any degree of depression, 80.5% (116) practice physical activity regularly at least once a week, and 19.5% (28) do not practice it. The binomial calculation between the samples was $p = 0.0001$.

Among the academics who presented some degree of depression according to BDI (mild, moderate or severe), only 33 (26.8%), claim to perform psychological / psychiatric monitoring. Of those who undergo psychological / psychiatric follow-up, 72.7% (24) regularly use drugs with a psychiatrist's prescription. Among the participants who have some degree of

Table 1. Descriptive analysis of the prevalence of depression according to the year of the course in relation to the total number of participants (267 students)

Year	None/ minimal	Mild	Moderate	Severe	% with depression
1st	15 (5,6%)	11 (4,1%)	8 (3%)	1 (0,4%)	20 (7,4%)
2nd	15 (5,6%)	7 (2,6%)	1 (0,4%)	0	8 (3%)
3rd	24 (9%)	16 (6%)	12 (4,5%)	1 (0,4%)	29 (10,8%)
4th	50 (18,7%)	43 (16,1%)	13 (4,8%)	0	56 (21%)
5th	19 (7,1%)	5 (1,87%)	3 (1,1%)	0	8 (3%)
6th	10 (3,7%)	2 (0,7%)	0	0	2 (0,7%)

Source: table prepared by the authors.

Table 2: Descriptive analysis of the prevalence of depression according to the year of the course in relation to the number of participants according to the year of the course in progress

Year	None/neutral	Mild	Moderate	Severe	% with depression
1st	15 (42,8%)	11 (31,4%)	8 (22,9%)	1 (2,9%)	20 (57,2%)
2nd	15 (65,2%)	7 (30,4%)	1 (4,4%)	0	8 (34,8%)
3rd	24 (45,3%)	16 (30,3%)	12 (22,6%)	1 (1,89%)	29 (54,7%)
4th	50 (47,1%)	43 (40,6%)	13 (12,3%)	0	56 (52,9%)
5th	19 (70,4%)	5 (18,5%)	3 (11,1%)	0	8 (29,6%)
6th	10 (83,3%)	2 (16,7%)	0	0	2 (16,7%)

Source: table prepared by the authors.

Table 3. Distribution of the 267 participants according to sociodemographic characteristics

Demographic variables	Categories	None/neutral	Depression
Sex	Feminine	59	88
	Male	49	35
Ethnicity	White	54	59
	Brown	77	55
	Black	12	9
Marital status	Single	126	110
	Married/Stable relationship	11	9
	Divorced	3	0
Religion	Catholic	21	15
	Protestant	6	4
	Spiritist	0	2
	None, and I don't believe in God	3	2
Who do you live with	None, but I believe in God	16	10
	With family	44	38
	With other students	39	21
Changed state (residency) to start graduation	Alone	57	59
	Yes	113	107
Regular physical activity	No	31	16
	Yes	116	70
	No	28	53

Source: table prepared by the authors

depression and do not undergo psychological / psychiatric monitoring, 89% (81) say they believe they would benefit from this professional assistance. The quality of life of medical students has been studied over the years and, like the results of this study, the prevalence of depressive symptoms in this population group is significant. Previous studies that used BDI in a similar way to that applied in this study showed a prevalence of depression with values between 13.9 and 48.2%, and among the most affected undergraduate period is the basic cycle when compared to internship. The respective studied found 46.1% prevalence of depression, with 30.7% presenting mild symptoms, 14.6% presenting moderate symptoms and 0.7%, severe symptoms. The prevalence found is within the expected variance and in accordance with the literature, as in the study by Moutinho *et al.* (2017) and Pacheco *et al.* (2017). In line with other studies, the present study also showed a higher prevalence in the first year of the basic cycle when compared to internship. This data would be related to the new routine of students who enter graduation and start to experience an increase in the number of hours required for studies, changes in study methods and a huge range of new information, as explained by Paula *et al.* (2014). Another period of high prevalence of depressive symptoms found was the fourth year. As the authors Melo-Carrilho, Van Oudenhoove and Lopez-Avila (2012) affirm, such an increase may be

associated with anxieties and insecurities in the beginning of the internship period. In disagreement with previous studies, such as that by Costa *et al.* (2012), 25% (10) of internship students showed depressive symptoms, while other surveys suggest a prevalence of at least 40%. This statistically significant difference may have been due to the limited sample size of participants attending the internship, given that the current pandemic scenario, during which data collection was carried out, significantly reduced the adherence and access of those students. The data in the present study also found different data when analyzing the gender variable, which, despite the appearance of female prevalence when a descriptive analysis of the data collected, when performing proportional and comparative binomial analysis between the female and male genders, no significant variance was found. ($p > 0.05$), therefore, it cannot be said that there is a prevalence of one sex to the detriment of another in the present study, thus disagreeing with authors such as Andrade, Sampaio and Farias (2014) and Vasconcelos *et al.* (2015). Religion, marital status, who the student lives with and ethnicity did not show relevance when compared to the increase or decrease in depressive symptoms ($p > 0.05$), as also shown by Paula *et al.* (2014). The analysis of the change of residence / state variable showed that the prevalence of depressive symptoms is significantly higher among students who had the need to move

from another state to start graduation, with a percentage of 87% (107) among the 123 students who have some degree of depression. The study by Vasconcelos *et al.* (2015), found that medical students who had the need to move away from the place of origin and their family environment were more exposed to stressors that trigger depressive symptoms. The same work also revealed that university students who were isolated and distanced from their family environment and who come from places far from their educational institution, are at greater risk of developing depression. Another article of the same theme, developed by Gaviria, Rodriguez and Alvarez (2002), relating the quality of family relationships with depression in medical students in Medellín, showed that the increased risk of depression is inversely proportional to the quality of these students' family relationships. In other words, the link found about the quality of family relationships and depressive symptoms suggests that family ties act as a significant protective agent when we come to the merit of increasing the risk of depression in medical students. In short, it is clear that these variables are closely related to the depressive symptoms identified in these students. Therefore, it was found that the prevalence of depressive symptoms in medical students is higher than the prevalence in the general population. However, even after diagnosis, a minority of students seek professional help. Regarding academics who presented some degree of depression, only 26.8% (33) said they had psychological / psychiatric follow-up. According to Millan and Arruda (2008), some factors are related to this low demand for psychological / psychiatric assistance, such as great prejudice when it comes to psychiatric diseases, which makes students feel ashamed and stop looking for care, and even within universities they are rated as "crazy" by their own colleagues, further decreasing the chance of seeking specialized help.

CONCLUSION

In conclusion, it is evident that in the Porto Nacional - Tocantins region, the prevalence of depressive symptoms in medical students was 46.1%. No differences were found between sex within this population, however, regular physical activity was considered a protective factor regarding the risk of developing depressive symptoms, and the need to change residence, especially from a different state, to start graduation was associated with greater chance of developing depression. A more effective role of higher education institutions with regard to the mental health of medical students and interventions that collaborate to minimize the stress factors that trigger depressive symptoms and / or decrease their well-being, since admission and its process from training to graduating as a professional are measures that can minimize the effects of the course on students' mental health. These actions should be treated with emphasis on welcoming these students who present depressive symptoms after a drastic change in their social context, family distance and, in addition, are exposed to demands regarding the process of their training as a health professional, pressure for good results in the academic environment and with an intense physical and psychological overload arising from this set of factors.

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