

Common mental disorders in medical students: prevalence and associated factors

Transtornos mentais comuns em estudantes de medicina: prevalência e fatores associados

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ABSTRACT

Objectives: This study aimed to estimate the prevalence of Common Mental Disorders (CMD) among medical students and identify the factors associated with this disorder.

Methods: A cross-sectional study was conducted with all medical students, enrolled from the 1st to the 8th semesters in a public university, in the state of Bahia, Brazil. We used a self-administered questionnaire that included SRQ-20 (Self-Reporting Questionnaire), IPAQ (International Physical Activity Questionnaire - long form) and sociodemographic, school, occupational and health variables. The multivariate analysis was performed using COX Regression for cross-sectional studies.

Results: We evaluated 556 students (289 women and 267 men), representing 90.2% of the target population. The overall prevalence of CMD found was 53.3%, 78.8% of students reported feeling nervous, 56.8% experienced poor sleep quality, and 6.5% had suicidal thoughts. After the multivariate analysis, the following factors maintained their association with a higher prevalence of CMD: having no previous undergraduate degree (PR=1.49), having an unfavorable self-perception of health (PR=1.53), not having failed disciplines (PR=1.20), and being a smoker (PR=1.19). Physical activity did not have a protective effect on CMD in this study.

Conclusions: The prevalence of CMD among medical students was high and mainly associated with an unfavorable self-perception of health. The results highlight the need for strengthening institutional policies aimed at preventing psychological distress among students.

Keywords: Mental disorders; medical students; mental health; physical exercise; cross-sectional studies.

RESUMO

Objetivo: Este estudo teve como objetivo estimar a prevalência de transtornos mentais comuns (TMC) entre estudantes de Medicina e os fatores associados a esse agravo.

Método: Trata-se de um estudo de corte transversal, do tipo censo, realizado com estudantes de Medicina, do primeiro ao oitavo semestre, de uma universidade pública na Bahia. Utilizou-se um questionário autoaplicável contendo Self-Reporting Questionnaire (SRQ-20), International Physical Activity Questionnaire (IPAQ – forma longa) e variáveis sociodemográficas, escolares, ocupacionais e de saúde. A análise multivariada foi efetuada usando a regressão de Cox para estudos transversais.

Resultado: Avaliaram-se 556 estudantes (289 mulheres e 267 homens), o que representa 90,2% da população-alvo. A prevalência geral de TMC encontrada foi de 53,3%, 78,8% dos estudantes afirmaram que se sentem nervosos, 56,8% mencionaram que dormem mal, e 6,5% apontaram que têm ideias de acabar com a própria vida. Após análise multivariada, os seguintes fatores mantiveram associação com maior prevalência de TMC: não possuir graduação prévia (49% a mais de TMC), ter uma autopercepção de saúde desfavorável (53%), não ser dessemestralizado (20%) e fazer uso de tabaco (19%). Neste estudo, atividade física não teve efeito protetor para os TMC.

Conclusão: A prevalência de TMC entre os estudantes de Medicina mostrou-se elevada e se associou principalmente à autopercepção de saúde desfavorável. Os resultados obtidos demonstram a necessidade de que as políticas institucionais voltadas à saúde mental e à diminuição do sofrimento psíquico dos estudantes sejam mantidas e ampliadas.

Palavras-chave: Transtornos Mentais; Estudantes de Medicina; Saúde Mental; Exercício Físico; Estudos Transversais.

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INTRODUCTION

Graduating from medical school has been referred to as an experience that may be associated with psychological distress. Studies have shown that medical students have a higher prevalence of anxiety and depression¹, and worse psychological status², when compared to the general population.

These effects are certainly due to a set of factors that imply in high demand or high-level requirements, among which, some possible ones are the high workload to be met during the course³, the high competitiveness –beginning at the selection process–, the high volume of course content, the contact with sick patients or with death – which they may not be prepared to deal with⁴.

Common Mental Disorders (CMD) encompass mild psychiatric issues that may not necessarily meet the criteria for a formal diagnosis of depression or anxiety, yet still exert a significant impact on those experiencing them⁵. The symptoms commonly associated with CMD include: insomnia, fatigue, irritability, forgetfulness, difficulty concentrating, and somatic complaints⁶.

The prevalence of CMD can be assessed using the Self-Reporting Questionnaire (SRQ-20). This is a questionnaire developed from other instruments aimed at screening psychological morbidities⁷, initially used for the screening of psychiatric disorders, in Primary Health Care. Later, the instrument was validated for use in Brazil, with a sensitivity of 89% and specificity of 81%⁵.

The SRQ-20 is a highly sensitive instrument used for the screening of CMD. It effectively captures both minor psychiatric conditions⁵ that have not yet reached the diagnostic threshold and do not necessarily require immediate psychiatric intervention⁸, as well as more severe cases that demand specialized assistance. All of these may generate considerable impact on the affected person's life and eventually may develop into more severe mental disorders⁸.

In Brazil, studies on the prevalence of CMD among medical students have shown a range of 19.31% to 51.5%⁸⁻¹³. In universities located in the Northeast Region - where the present study was conducted - the prevalence of CMD varied from 26.1% to 40%¹⁴⁻¹⁷. Among students from other health care areas (other than medicine), the prevalence ranged from 9.5% to 34.1%^{18,19}. Although there is a wide variation in the findings, they show a relevant prevalence, which deserves attention and can have a negative impact on the students' life and academic performance, especially in medical school.

In view of the above and based on the expansion of the concept of health, understood as a state of complete physical, mental and social well-being and not only the absence of disease²⁰, it is necessary to have an expanded assessment of the

mental health of this population. Faced with the hypothesis of an increase in the psychological suffering of medical students over the years, this study was carried out, which aimed to estimate the prevalence of CMD and identify factors associated with this condition among medical students from a public university located in the state of Bahia, Brazil.

METHODS

Study Population

This is a cross-sectional study carried out with medical students enrolled in a public university in the state of Bahia, Brazil. The target population comprised all students attending the 1st to the 8th semesters of the course, which included both the basic and clinical cycles. The total number of students in the target population was 616, according to the official list offered by the course Collegiate in 2018. Students that were attending the period of clinical rotations in teaching hospitals (9th through 12th semesters) were excluded from the census. These students were no longer in the context of college classrooms, but rather in diverse fields of practice and in different learning settings.

The collection instrument used was a self-administered questionnaire which contained the following sections: (a) SRQ-20, to assess common mental disorders; (b) IPAQ –long form–, to investigate the practice of physical activity (PA) and its domains; and sections related to sociodemographic, schooling and occupational variables. The IPAQ long form was validated in Brazil by Matsudo²¹.

Data collection took place between July and October 2018, and was carried out by three medical students who were part of the research group. To this end, these researchers were trained in conduct standardization and were instructed on how to clarify possible doubts of students regarding the questionnaire – even though it was self-administered. The entire process was supervised by the project leader.

The study was submitted to the Research Ethics Committee of School of Medicine of Bahia and was approved under resolution number 2508648. All participating students were provided with thorough instructions and signed the Informed Consent Form as required. Throughout the study, strict measures were implemented to ensure data confidentiality. The questionnaire itself did not contain any identifying information, such as the participant's name. Instead, control codes were utilized during the data processing phase to maintain anonymity and protect privacy.

Dependent variable

The dependent variable in this study is Common Mental Disorders (CMD), which was measured using the Self Report Questionnaire-20 (SRQ-20). This is a questionnaire designed to

screen psychiatric disorders in primary health care, validated in Brazil⁵ and recommended by the World Health Organization (WHO). The questionnaire consists of 20 questions, each with dichotomous answers (YES/NO). For each affirmative answer, a point is added, resulting in a final score that ranges from 0 to 20. To identify cases of CMD, different cutoff points were used for males and females, based on previous research. Specifically, a score of 6 or higher for men and 8 or higher for women was considered indicative of CMD⁷. A study conducted with the objective of identifying the dimensions of the SRQ-20 showed that the questions are structured into four groups of symptoms, which investigate: 1) depressive-anxious mood; 2) somatic symptoms; 3) decreasing of vital energy; and 4) depressive thoughts²².

Independent variables

The independent variables analyzed were: age, gender, ethnicity/skin color, marital status, number of offspring, self-reported weight and height, having a previous undergraduate degree, current academic semester and being or not being in sync with the class of origin (taking subjects from more than one semester at the same time), academic performance coefficient (IR = total grade point average weighted by the workload of each subject), paid job status, health perception, tobacco use, alcoholic beverage use, and binge drinking (or “drinking heavily on one occasion”), which classified as excessive alcohol use by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and is quantified as four drinks for women and five drinks for men on a given occasion.

Physical activity (PA) level was measured using the International Physical Activity Questionnaire (IPAQ) long form, which measures frequency and intensity in four different domains: work, active transportation (walking or cycling for at least 10 min continuously), household activities, and leisure.

Statistical approach to data

Initially, a descriptive analysis was conducted, which involved calculating simple and relative frequencies to summarize the obtained variables. This provided a data overview. Subsequently, in the initial and univariate analytical stage, the prevalence and prevalence ratios (PR) of the dependent variable were calculated in relation to the independent variables. This allowed an examination of the association between the variables of interest. Factors associated with the outcome were identified based on the PR. The selection of independent variables was guided by their biological and theoretical plausibility, supported by the most consistent evidence found in the literature.

In the next step, a multivariate analysis was performed using Cox Regression²³. For most variables, the strata of

exposed factors was based on the prevalence obtained in the univariate step, i.e., the stratum with the highest prevalence was considered the risk or exposure stratum. For ethnicity and physical activity, the definition of stratum of exposed factor was based on the consolidated literature. All the variables obtained in the study were entered into the initial model, and only the variables that showed an increase or decrease in prevalence greater than or equal to 10% remained in the final model. The only exception was the PA variable, considered of fundamental interest to the study and, therefore, kept in the final model.

Since the study population was not probabilistically selected, we avoided the inadequate, although usual, use of the inferential approach (with presentation of p-value and/or confidence intervals). In this study, descriptive and analytical statistical approaches to epidemiological data were used, with procedures compatible with the non-random nature of the investigated population. Thus, the multivariate analysis presents the variables with their respective measures of association (prevalence ratios) that characterize the analytical study. All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS), version 23.

RESULTS

A total of 616 students were eligible for the survey. The total number of responses was 556, representing 90.2% of the target population.

Table 1 describes the four dimensions in which the SRQ-20 items are grouped. Among all the items that make up the SRQ-20, the high prevalence (78.8%) of positivity related to the item “feels nervous, tense or worried” stood out. The item constitutes the dimension “depressive-anxious mood”. In addition, 61.7% of the students feel “tired all the time”. Thus, the dimension “Decreasing of vital energy” assumes importance. In third place, in the dimension “Somatic symptoms”, 56.8% of the students said they slept poorly. It is noteworthy that 36 students (6.5%) answered “yes” to the item “Have you had thoughts of ending your life?”, which is part of the “Depressive Thoughts” dimension. Table 1 displays the proportion of positive responses to each questionnaire item among the general population and by gender.

Still regarding the dimensions that make up the SRQ-20, the differences between men and women regarding some symptoms deserve attention. In the group that makes up the “depressive-anxious mood” dimension, women showed a prevalence of 38.8% of positive answers to the item “is easily startled”, while men had a prevalence of 17.6%. Additionally, 32.5% of the women reported “crying more than usual” compared to 13.5% of men in the same dimension.

Table 1. Prevalence of positive answers according to Self-Reporting Questionnaire (SRQ-20) items, considering four symptom dimensions.

Questions	Positive answers			
	n	(%)	% Women	% Men
<i>Depressive-anxious mood</i>				
Do you feel nervous, tense or worried?	438	78.8	83.7	73.4
Are you easily startled?	159	28.6	38.8	17.6
Have you cried more than usual?	130	23.4	32.5	13.5
Have you felt sad lately?	250	45.0	49.5	40.1
<i>Somatic symptoms</i>				
Do you have frequent headaches?	180	32.4	40.5	23.6
Lack of appetite?	83	14.9	17.3	12.4
Do you sleep poorly?	316	56.8	57.1	56.6
Do you have hand tremors?	104	18.7	17.0	20.0
Do you have poor digestion?	160	28.8	33.6	23.6
Do you have unpleasant sensations in your stomach?	211	37.9	43.9	31.5
<i>Decrease of vital energy</i>				
Do you have difficulty thinking clearly?	187	33.6	36.7	30.3
Do you find it difficult to carry out your daily activities with satisfaction?	310	55.8	56.4	55.1
Do you have difficulties to make decisions?	267	48.0	52.9	42.7
Do you feel tired all the time?	343	61.7	69.9	52.8
Do you get tired easily?	313	56.3	64.7	47.2
Do you have difficulties at work?	188	33.8	34.9	32.6
<i>Depressive thoughts</i>				
Are you unable to play a useful role in your life?	74	13.3	13.5	13.1
Have you lost interest in things?	201	36.2	37.4	34.8
Do you feel like a useless, worthless person?	94	16.9	18.0	15.7
Have you had thoughts of ending your life?	36	6.5	7.3	5.6

In the “somatic symptoms” dimension, 40.5% of the women reported experiencing frequent headaches, 33.6% had poor digestion, and 43.9% felt unpleasant sensations in their stomach. Among men, the corresponding prevalence of responses was 23.6%, 23.6%, and 31.5%, respectively. Notably, in the “Decreasing of vital energy” dimension, the item “gets tired easily” also revealed differences between the sexes. The prevalence of positive responses among women was 64.7%, compared to 47.2% among men.

While the other items on the questionnaire exhibited comparable response rates between genders, women demonstrated a higher prevalence of positive responses to 19 of the 20 items analyzed in the SRQ-20.

When assessing the presence of Common Mental Disorders, of the 556 students, 296 were classified as positive, representing an overall prevalence of 53.3%. Of these, 156 were women (54%) who scored 8 or more in the SRQ-20; while 140 were men (52.4%), with 6 or more positive responses. Table 2

shows the prevalence of CMD analyzed according to various strata. A higher prevalence of CMD was found among individuals of black/indigenous ethnicity (57.1%), those without a paid job (54.7%), and those who have no previous degree (56.4%). Furthermore, there was a high prevalence of CMD among individuals who had an unfavorable self-perception of health (regular or poor), of 76.5%.

In the adjusted model, the prevalence of CMD was higher in female students (12% higher), in 7th semester – the beginning of the fourth year of the course – (17% higher) and having no previous degree (49% higher). On the other hand, younger students, aged ≤ 23 years, had less CMD (10%) than those aged > 23 years. As for the BMI classification, there were no significant differences between the strata. As for the prevalence of CMD according to ethnicity/skin color, it was 15% higher among black/indigenous people, and 5% higher among brown people, when compared to white/yellow people. The prevalence of CMD among those

who judged their health unfavorably was 53% higher than among those who judged their health favorably. Finally, students who used tobacco had a 19% higher prevalence of CMD (Table 2).

Table 2. Prevalence of CMD according to sociodemographic, schooling, occupational, and health variables.

Variables	n	%	Common Mental Disorder (present)		
			(%)	Raw RP	Adjusted RP
<i>Gender</i>					
Female	289	51.8	54.0	1.03	1.12
Male	267	48.1	52.4	1	1
<i>Age</i>					
≤23 years	288	52.5	53.1	1.01	0.90
>23 years	261	47.5	52.5	1	1
<i>Ethnicity/Skin Color</i>					
Black/Indigenous	77	13.8	57.1	1.06	1.15
Brown	292	52.7	51.7	0.96	1.05
White/yellow	185	33.4	54.1	1	1
<i>Previous Degree</i>					
No	381	69.3	56.4	1.24	1.49
Yes	169	30.7	45.6	1	1
<i>Semester</i>					
1 st to 5 th	335	60.3	53.1	1.07	1.12
7 th	75	13.5	60.8	1.23	1.17
6 th and 8 th	144	25.9	49.3	1	1
<i>Failing grades</i>					
Yes	42	7.6	52.4	1	1
No	513	92.4	53.4	1.02	1.20
<i>Self-reported health</i>					
Favorable	424	76.3	46.0	1	1
Unfavorable	132	23.7	76.5	1.66	1.53
<i>Physical activity by domain</i>					
<i>At work</i>					
Active	102	19.5	63.7	1	1
Irregularly active	422	80.5	51.9	0.81	0.83
<i>Going to work</i>					
Active	170	33.4	54.7	1	1
Irregularly active	339	66.6	53.1	0.97	1.02
<i>Household chores</i>					
Active	144	28.0	57.6	1	1
Irregularly active	371	72.0	52.3	0.90	0.89
<i>Leisure time</i>					
Active	267	50.8	52.8	1	1
Irregularly active	259	49.2	54.1	1.02	1.02
<i>Tobacco Use</i>					
Yes	27	4.9	66.7	1.27	1.19
No	527	95.1	52.3	1	1

(Abbreviation: RP: prevalence ratio; CMD: Common Mental Disorder).

DISCUSSION

The findings of this study indicate a high prevalence of Common Mental Disorder among medical students. Analyzing each dimension of the instrument used allowed us to gain a comprehensive understanding of the magnitude of the problem in the studied population.

As far as the SRQ-20 questionnaire is concerned, the question about feeling nervous, tense or worried, which is part of the “depressive-anxious mood” dimension, had the highest positive response rate, with 78.8%. This was also the question with the highest positivity in a study conducted in the south region of the country, with percentages of 71.6% and 78.4% of affirmative answers, at the beginning and end of the semester, respectively¹². Moreover, 56.8% of students indicated that they slept poorly in response to the SRQ-20, which raises concerns, since sleep problems have been associated with a greater predisposition to the development of CMD^{11,12,18}, worsening in academic performance^{19,24} in addition to higher levels of anxiety and depression²⁵.

Still regarding the answers to the SRQ-20, 36 students (6.5%, 21 females and 15 males) answered affirmatively to the question “have you had thoughts of ending your life”. Although the assessment of suicidal ideation (SI) needs more specific and targeted questionnaires on the topic, the observed result raises an alert to the magnitude of the psychological suffering faced by the target population. It is worth noting that the prevalence of SI among medical students is considerable; a 2016 systematic review of 24 studies in 15 countries estimated the overall average prevalence of suicidal ideation among medical students at 11.1%²⁶; in São Paulo, the estimated SI among 475 students was 7.2%²⁷, and both studies showed results consistent with those found in the present research.

The prevalence of Common Mental Disorder found was 53.3%. Brazilian studies with medical students, using SRQ-20, with the same cutoff point adopted in this research, showed lower prevalence. The numbers found in the present study were more compatible with results obtained in a public university in the south region of Brazil (51.5%)¹².

However, the overall prevalence was higher than that found in studies from the southeast region of the country, 37.1%, 44.7% and 44.9%⁹⁻¹¹, in the northeast region 33.6% and 40%^{14,15} and in the south region, 19.3% and 22.81%^{13,28}. Other studies, with different cutoff points, also found lower prevalence of CMD; 26.1% in a university in Vale do Paraíba¹⁶, and 32.2% in Universidade Estadual do Sudoeste da Bahia¹⁷.

Since this is a study on mental health, making comparisons between the results obtained herein and those observed in other studies is a challenging task, given the complexity of this psychological illness and the multiple characteristics

of each population, which must be considered. There are several factors that may influence the occurrence of CMD, ranging from individual predispositions⁹, diagnosis of previous mental illness¹⁴ or psychiatric treatment⁹, to changes in sleep patterns^{8,13} and internal factors of the course organization^{9,29}. Moreover, the prevalence of CMD may be influenced by the moment of the course in which the studies were carried out. A study with 134 medical students showed a 15.7% difference in the prevalence of CMD between the beginning and the end of the academic semester (35.8%–51.5%)¹², which reinforces the relationship between the academic period and CMD.

The prevalence of CMD found in this study remains significant even when compared to results obtained in other courses. In a research carried out with 378 college students from several areas, the overall prevalence of CMD was lower, 39.9%¹⁸. In an investigation with 220 students attending the biology, physical education, nursing, pharmacy, nutrition and dentistry courses, the prevalence of CMD ranged from 9.5% to 24.2%¹⁹, with the upper limit corresponding to less than half of the value that was found in this study. In another study, also with a population attending health care courses, the overall prevalence of CMD was 34.1%, and the medical course exceeded the general average, with 42.6% of psychological disorders²⁴. These findings suggest the significant prevalence of distress found among medical undergraduate students, in this and other studies.

Previously, other studies have used the SRQ-20 to assess the prevalence of CMD in the university where the present study was conducted. In 2005, a study assessed the prevalence of CMD among medical students in the 2nd, 4th, 6th, and 8th semesters and during the period of clinical rotations in teaching hospitals (9th through 12th semesters). It adopted the same cut-off points as the present study. A total of 223 students participated in that study, with an overall prevalence of CMD of 29.6%⁸. In 2014, a study of 402 medical students, with a randomized, stratified sample, found a prevalence of CMD of 37.8%²⁵. However, that study did not encompass all semesters, with no representation from 5th or 8th semesters in the sample. In addition, it used 7 as cutoff point for the SRQ-20 questionnaire, without differences between genders, which differs from what is recommended in the validation study⁵ and from what was adopted in the present study.

Although the results of the aforementioned studies are closer to those of the present study – which allows interesting comparisons –, the adoption of different cutoff points, the use of distinct populations and different study designs and possible biases result in difficulties to establish more reliable comparisons. Therefore, as a way to improve the analysis of the prevalence of CMD, this study aimed to encompass the totality

of semesters before the period of clinical rotations, aiming to create a clear temporal sequence. In addition, different cutoff points were used between genders, in accordance with the validity studies of the SRQ-20, which recommend different cutoff points for men and women⁵.

Thus, the increase in the prevalence of CMD observed in this medical school over the years, 29.6% in 2005⁸ to 53.3% in 2018, is a significant finding. However, it should be viewed with caution because it may not necessarily reflect a sustained increase in mental distress of this magnitude. This is because mental distress is an event that may be transient and undergo changes over time. Nonetheless, this difference in prevalence should be carefully considered, since even a conservative approach cannot completely rule out an increase in its prevalence, especially when using the same instrument and cutoff points in defining the outcome. One question that emerges from this discussion, and that should be addressed in future studies, is whether there has been a change in the students' ability to cope with stressors, which could potentially explain the increased prevalence of CMD.

The implementation of student support groups may be a measure of individualization of mental health care and attention. Several studies have independently associated lack of sufficient emotional support with higher prevalence of CMD^{9,11,14-16}. Research with 295 medical students, showed that despite the fact that the educational institution offered a support network with different types of programs, 69.1% of students were not aware of any of them and, of the total respondents, only 13.2% sought some help¹⁶. These data bring up possible discussions about the low visibility of these student aid networks, reinforcing the need for their expansion of dissemination, as well as the possible resistance of students to seek help.

A 12% higher prevalence of developing CMD among female students was observed. However, the association between CMD and gender in medical students remains a topic of debate. While some studies have reported a positive association between women and CMD^{1,16,30,31}, other studies have not observed this relationship^{8,10,12-15}.

In the present study, there was a marked difference in the prevalence of positive responses between genders to the items that make up the SRQ-20. Our analysis revealed that women had a higher prevalence of responses in 19 of the 20 items analyzed by the questionnaire. This observation is noteworthy and may suggest that women experience more psychological distress or are more likely to externalize their symptoms compared to men. It supports the idea that different cutoff points or thresholds may be necessary between genders, as the proportion of positive responses tends to be lower among men. However, despite these differences in

response rates, the overall prevalence of CMD between sexes did not show a significant difference. This suggests that while there may be variations in the way symptoms are expressed or reported, the overall prevalence of CMD is relatively similar between men and women.

In the adjusted Cox Regression model, the stratum consisting of black and indigenous people showed 15% more CMD when compared to the stratum of white and yellow individuals. A higher degree of psychological distress in this stratum was expected, because besides the structural racism, observed and established in the Brazilian society, discrimination by skin color has already been associated with a four-time higher prevalence of CMD in Brazilian college students³¹. This reinforces the need to support black and indigenous students, coming from different sociocultural contexts, both when they enter the university – by maintaining and strengthening the racial quotas policy – and during undergraduate school, through permanence policies, with the aim of maintaining a diverse public university environment, as it should be.

In the analysis of the frequency of Common Mental Disorder by semester of the course, it was observed that students in the 7th semester (beginning of the 4th year of the course) had more CMD (60.8%), representing 20% more than students in the 6th and 8th semesters of the course. However, there is no consensus regarding in which semester a student is more prone to developing CMD^{13,14}.

In this study, 76.3% of the students had a favorable health perception (they considered their health excellent, very good, or good). This number is higher than the proportion found in the 2013 National Health Survey, which found a prevalence of 55.5% among adults in the state of Bahia³². On the other hand, students whose self-perception of health was unfavorable (regular or bad) had 57% higher prevalence of CMD. This finding is an indication that students are somehow aware that their health (physical and/or mental) is not in accordance with their own expectations or with what they consider to be healthy.

Although there is a beneficial association between health and PA, already evidenced in the medical literature, including mental health benefits^{19,33}, in this study, the results obtained were not completely in accordance with what has been mentioned. Being physically active was not a protective factor for CMD in this population. When exploring the overall level of physical activity, being irregularly active represented a protection for the occurrence of CMD (data explored in the analysis step, but not shown, given the choice of presenting the four domains). In the end, only leisure-time physical activity and active transportation represented protection, although small (2%).

However, when physical activity is broken down by domain, the known beneficial association is not always

maintained. A meta-analysis with a sample of 648.726 individuals, which also analyzed physical activity by domains, showed that PA during leisure time and during transportation were beneficial to mental health, while physical activity at work was associated with increased mental distress and physical activity at home had no association, either positive or negative³⁴.

The protection for mental health seen in PA in the leisure domain may be due to the fact that this activity, in the student's free time, is considered more pleasurable when compared to the other domains. It is worth noting that PA in the home environment is historically assigned to women, who in general showed greater externalization of mental distress, evidenced by the responses to the SRQ-20.

While students' alcohol use and binge drinking were not associated with CMD, tobacco use resulted in a 19% higher prevalence of CMD. However, the overall prevalence for smoking was low, with only 4.8% were tobacco users. This result may reflect the success of public policies to reduce smoking in the Brazilian population.

One of the limitations of the present study is the cross-sectional design, which makes it difficult to determine the temporal relationship between the independent variables and the outcome. Future studies using longitudinal designs, where cause and effect can be analyzed, may bring new evidence. The strengths of the study include the high response rate that allowed the analysis of data of 556 university students. The face-to-face collection of data, conducted by the researchers themselves, who were available to solve doubts during the participants' self-completion of the questionnaire, was able to ensure privacy and independence when obtaining the answers, without interference from third parties. Furthermore, we admit that the use of validated instruments contributed to the methodological quality of the study, in addition to the procedures aimed to prevent selection and information bias. In addition, the multivariate analysis resulted in adjusted prevalence ratios for associated factors.

The prevalence of Common Mental Disorder observed was significant, suggesting a high degree of psychological distress to which medical students are subjected. Besides discussing the mental health indicators of these students, it is necessary to search for protective factors that have applicability within the routine of an undergraduate course, such as medicine. The involvement of University and College managers, as well as of the faculty is necessary for a broader understanding of the problem. Certainly, the discussion about the degree of cognitive and psychological demands throughout the course will allow the identification of inadequacies in the teaching-learning process. The students and their representatives have a crucial role in exercising vigilance of this disorder and, especially, in the construction of the viability of

protective policies that imply changes in the political-pedagogical project of the course. It is necessary to strengthen the programs already established in the institution, aimed at supporting the students, in addition to the creation of new and innovative help and support initiatives, with the active and qualified listening of the students and their protagonism.

The findings of this study provide valuable insights that contribute to the ongoing debate surrounding the mental health of medical students. They offer a foundation for developing new prevention and protective measures aimed at supporting students throughout their journey, starting from their entry into the university and extending to their transition into the labor market.

AUTHORS' CONTRIBUTION

Carolina Martinho Cunha: Data collection and analysis, writing of the primary draft and final version, final review. Daniel Albuquerque Fortes and João Pedro Resende Scapim: Study design, data collection and analysis, writing of final version. Kionna Oliveira Bernardes Santos: writing of final version, final review. Rita de Cássia Pereira Fernandes: writing of final version, final review and project coordinator.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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