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ASSESSMENT OF SLEEP QUALITY BEFORE AND DURING THE TEST PERIOD IN MEDICAL STUDENTS

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ABSTRACT

Introduction: During sleep, essential physiological changes occur in memory consolidation, energy restoration, thermoregulation, normalization of endocrine functions, learning and restoration of brain energy metabolism. The sleep quality of medical students attracted the interest of the scientific community in the search for answers about the possible causes of sleep disorders that occur during medical graduation. Objective: To evaluate the sleep quality of medical students before and during the test period Methods: Quantitative, descriptive and cross-sectional study. The sample consisted of 61 medical students, of both sexes, aged between 18 and 30 years and who were attending the basic cycle (1st to 4th period). Sleep quality was assessed using the "Pittsburgh Sleep Quality Index, Brazilian Portuguese version (PSQI-BR)" questionnaire. Excessive daytime sleepiness and its indicators were assessed using the "Epworth Sleepiness Scale, Brazilian Portuguese version (ESS-BR)". The evaluations took place in two moments, the first being 15 days before the beginning of the tests and the second on the 4th and 5th day of the test period. Results: The comparison between the periods evaluated showed a statistical difference in relation to excessive daytime sleepiness, present in 39.3% (n=24) of the students before and 60.6% (n=37) during the tests. In the PSQI evaluation, a statistical difference was found in the perception of sleep quality, in sleep duration and latency and in daytime sleepiness and enthusiasm for performing daily tasks. Conclusion: We can infer that medical students have sleep disorders, with a reduction in sleep quality and greater excessive daytime sleepiness during the test period.

KEYWORDS: Medical education; Sleep quality; Medical students.

INTRODUCTION

During sleep, essential physiological changes occur in memory consolidation, energy restoration, thermoregulation, normalization of endocrine functions, learning and restoration of brain energy metabolism.[1-3]

University students subject to high workload and great pressure tend to change their sleep-wake patterns to meet academic demands.[1] Medical students are strong candidates for developing sleep disorders due to course requirements related to the full curriculum load, high demand for study time, extracurricular tasks and high performance requirements.[4]

The sleep quality of Medicine students is poor, 64.7% (n=90) compared to Law students, 60.3% (n=47) and Civil Engineering, 44.6% (n=41)), which was evidenced by the application of the Pittsburgh-PSQI questionnaire.[5] Using the same method, this and other studies also discussed sleep deprivation rates and showed that academics sleep on average less than 7 hours a night and take about 30 minutes to fall asleep, taking into account that a healthy adult has a basal sleep requirement of 7 to 9 hours per night.[3,6,7]

In a recent study, the PSQI questionnaire was used, which identified some of the main factors that affected the sleep period of students, namely: 33.12% (n=52) had bad dreams or nightmares at least once a week, 45.86 % (n=72) reported waking up in the middle of the night or very early in the morning one or more times a week and 49.04% (n=77) reported taking more than 30 minutes to fall asleep[3] Some studies also indicated difficulty falling asleep, resulting from the constant exposure of students to bright spaces and blue-violet light emitted by digital

devices, capable of altering the natural release of melatonin, a hormone related to the sleep-wake cycle.[4]

In the quest to circumvent these constraints, the use of sleep-inducing drugs was identified in relevant percentages among medical students in different studies.[3,5] The average use of these substances was identified as being higher than the prevalence shown by similar studies in the general population of Brazil and the United States, in which the authors had already pointed out the rates as high.[5] In addition, the need to reserve part of the working time sleep for academic activities compromises the quality of rest and leads to high consumption of psychostimulant drugs.[8]

Long periods without sleep or fragmented sleep can cause excessive daytime sleepiness, characterized by the desire to sleep without short periods of rest guaranteeing proper rest.[5] In this sense, an association was found between excessive daytime sleepiness and poor sleep quality among medical students, with a rate of 32.4% (n=36/181), a value that interferes with student well-being.[7]

These data are worrisome, as they can lead to impairments in memory retention, decreased alertness, bad mood, worsening academic performance, difficulty concentrating, decreased psychomotor ability, increased error rate, negative impact on performing tests. tasks, problems in the interpretation of exams, among other conditions that greatly influence the development of the medical professional.[1,5,9,10]

Such impairments are related to the lack of REM sleep, considered essential in memory retention. Allied to this, there is an association of increased cortisol levels in individuals with sleep disorders. This hormone is linked to stress and has a sensitive effect on depression of the immune system.[3,11] It is noticeable, therefore, the negative consequences experienced by those who deprive themselves of sleep during the academic training period.

Therefore, the objective of the present study is to evaluate the sleep quality of medical students before and during the exam period.

METHODS

Quantitative, descriptive and cross-sectional study. The sample consisted of 61 medical students, of both sexes, aged between 18 and 30 years and who were attending the basic cycle (1st to 4th period).

Sleep quality was assessed using the questionnaire "Pittsburgh Sleep Quality Index, Brazilian Portuguese version (PSQI-BR)". Excessive daytime sleepiness and its indicators were assessed using the "Epworth Sleepiness Scale, Brazilian Portuguese version (ESS-BR)".

The group of students participating in the research answered the questionnaires in two moments. The first evaluation took place 10 days before the beginning of the tests and the second evaluation took place on the 4th and 5th day of the beginning of the evaluations.

The collected data were organized in an Excel spreadsheet and later submitted to statistical analysis. Descriptive statistics were used to describe the sample and to compare the results obtained at different times of the research, the T test of paired samples was used, considering a P value < 0.05.

The present study was approved by the Research Ethics Committee under the CAAE number: 88066018.7.0000.5246.

DISCUSSION

Toxocara canis can cause severe blindness in children and adults worldwide, which makes toxocariasis a major public health problem. In the epidemiological history, the report of close contact with domestic dogs significantly increases the chance of toxocariasis. In addition, contact with the ground (parks, squares and the use of sandboxes in schools) is an important risk factor for infection.[3,15,18,19-21]

Recent studies show a higher risk of seropositivity for Toxocara in rural regions, where basic sanitation is precarious and the load of stray animals is high.[4,5,8,11,18] The patients in the report were from rural areas, lived in the same household, lived with domestic animals and had direct contact with the soil, which corroborates the hypothesis of toxocariasis. Therefore, a detailed anamnesis is essential to compose the clinical history and guide diagnostic hypotheses.

The clinical symptoms of OT vary according to the degree of ocular involvement and the time of diagnosis, being characterized by chorioretinal granuloma, retinochoroiditis, vitroretinal traction, papillitis, endophthalmitis and keratoconjunctivitis.[6,9,14,22-24]

The present report presents two patients living in the same household with typical clinical and epidemiological conditions, characterized by the presence of fibrotic beams of the optic disc towards the macula, with areas of chorioretinal atrophy in the first case and presence of a granuloma in the posterior pole with traction vitreo-macular in the second case, both being unilateral involvement as the most found in the literature.

The diagnosis consists of the combination of clinical and epidemiological data and complementary exams, both laboratory and imaging, since there may be no specific clinical symptoms of OT.[5.22-25]

In some cases, with the typical granuloma seen at indirect ophthalmoscopy, the diagnosis is not difficult. However, in other cases with leukocoria, media opacities

and vitreous inflammation, the use of ultrasonography as a complementary exam is indispensable, an exam that, due to the transparency of the media of the patients in the report, was not necessary.[6,13,18-22]

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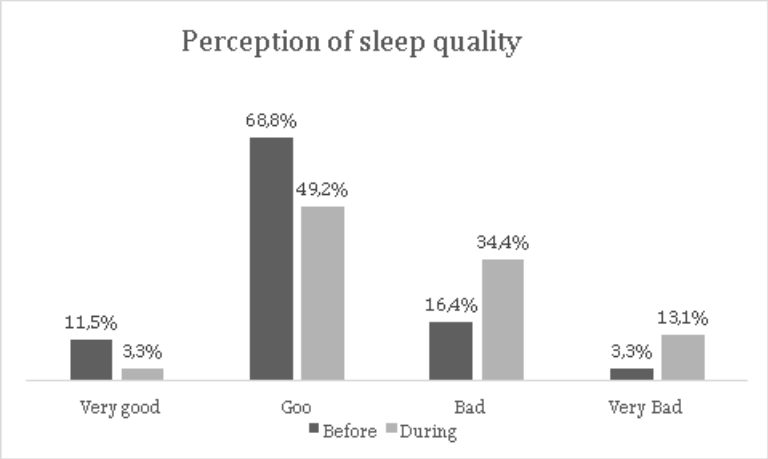
RESULTS

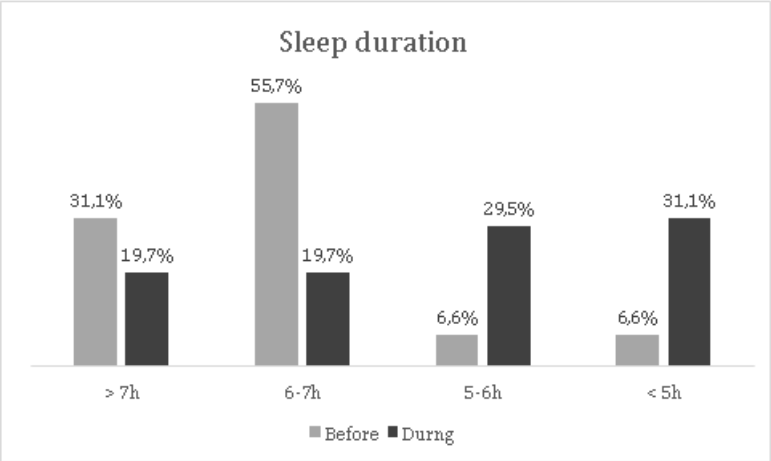
Sixty-one medical students participated in the study, 60.6% (n=37) were female and 39.4% (n=24) were male.

Through the PSQI questionnaire, it was possible to observe that before the tests, 80.3% (n=49) students considered their own sleep quality as very good or good and 19.7% (n=12) rated their sleep quality. as bad or very bad. During the test period, 52.5% (n=32) students reported that their sleep quality was good or very good and 47.5% (n=29) of the students considered their sleep quality to be bad or very bad (P <0.001).



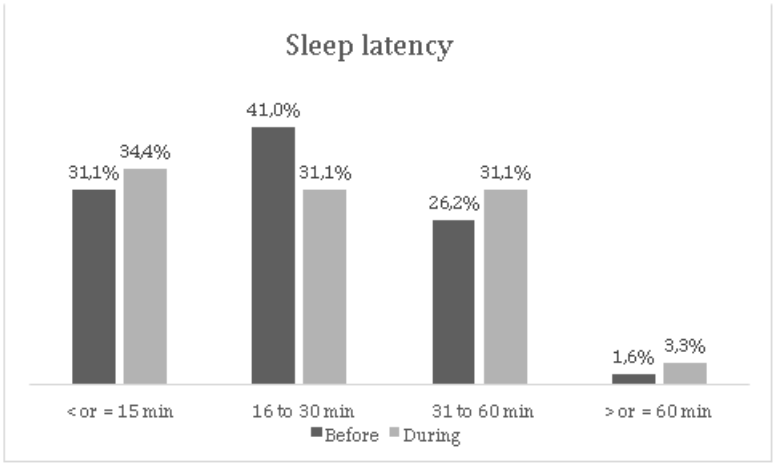
Graph 1: Perception of sleep quality by medical students before and during the exam period.

Regarding sleep duration, 86.8% (n=53) of the students reported that they slept more than 6 hours before the test week and 39.4% (n=24) of the students slept more than 6 hours during the week. of evidence. The duration of sleep less than or equal to 6h per night increased from 13.2% (n=8) to 60.6% (n=37) from the first to the second evaluation moment (P<0.001).



Graph 2: Sleep duration of medical students before and during the exam period.

In the sleep latency assessment, 72.1% (n=44) of the students reported that they took 30 minutes or less to sleep before the test period and 65.8% (n=40) of the students reported that it took the same time to sleep. during the tests. The time referring to 30 minutes is considered borderline as a marker of adequate latency (P=0.056).

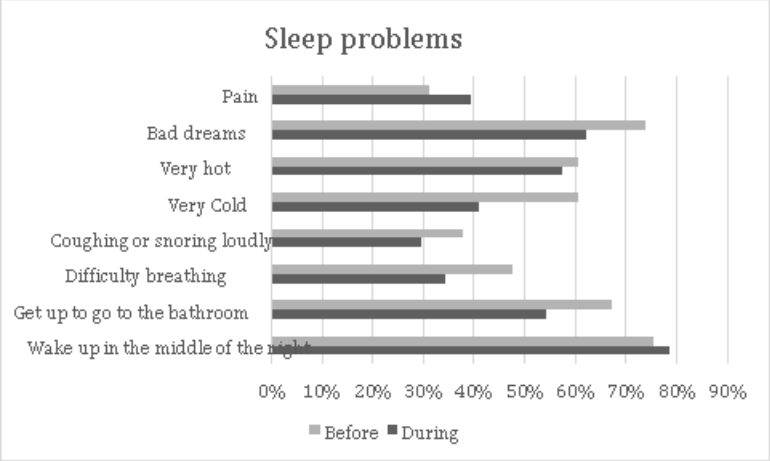


Graph 3: Sleep latency of medical students before and during the exam period.

Another point evaluated in the questionnaire is the habitual sleep efficiency, which consists of the value obtained by calculating the number of hours spent in bed (defined as the difference between the time informed for going to bed and for getting up), encompassing the sleep latency period and the number of hours spent actually sleeping. The sleep efficiency score considered adequate is the value above 85% efficiency. This parameter was observed in 83.6% (n = 51) of the sample before the tests and 85.2% (n=52) during the tests, with no statistical difference in the comparison of the evaluated moments. It is worth mentioning that efficiency is not influenced by shorter sleep duration if it is accompanied by a proportional reduction in the number of hours spent in bed.

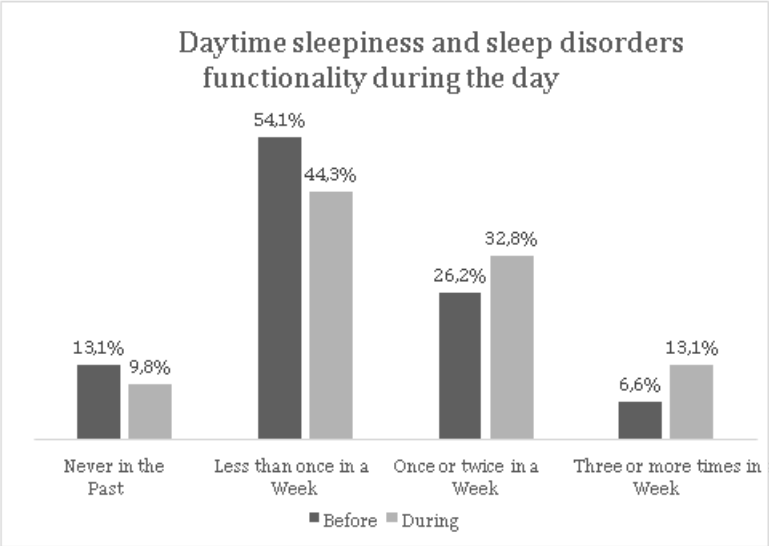
The PSQI also assesses the presence of sleep disorders, without, however, characterizing the severity or identifying the type of change. In relation to this item, a score other than zero (indicative of sleep disturbance) was reached by 98.3% (n=60) of the students equally in the two evaluated moments, with no statistical significance between the groups under study.

Regarding sleep problems, the presence of awakenings in the middle of the night or at dawn was the most mentioned factor by the students, having occurred at least once a week in 75.4% (n=46) of the students before the tests and in 78.7% (n=48), during the tests. Regarding the description of factors that lead to sleep problems, 27.9% (n=17) of the students before the tests answered the question “another reason” and the main factor pointed out by this group was anxiety, described by 35.6 % (n=6) of the sample. During the tests, the field “another reason” was filled in by 14.8% (n=9) of the sample and anxiety corresponded to 33.3% (n=3) of the indicated factors, also being the main reason mentioned.



Graph 4: Sleep problems of medical students before and during the exam period.

Another assessment of the PSQI questionnaire is related to daytime sleepiness and loss of functionality during the day, through the analysis of two questionnaire questions related to the frequency of difficulty staying awake when driving, eating or being in social situations and the difficulty to stay awake. excited about carrying out their activities. Those who had such problems, that is, who mentioned the change at least once a week and who complained of loss of enthusiasm, represent 86.9% (n=53) of the pre-test sample and 90.2% (n=55) of students during the assessments (P=0.038).

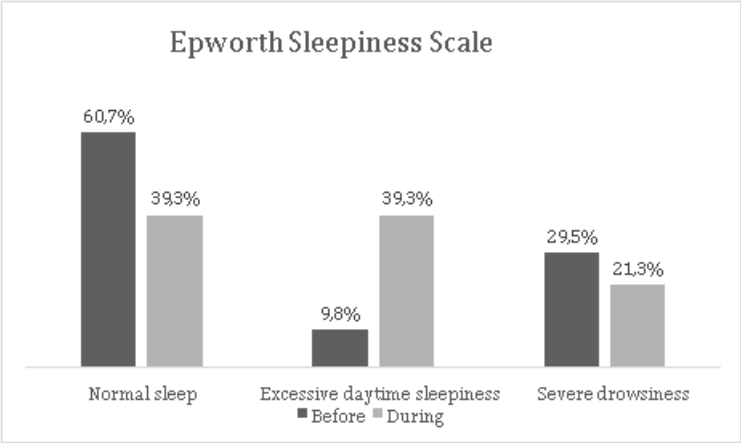


Graph 5: Daytime sleepiness and daytime functioning disorders in medical students before and during the exam period.

The use of sleeping medication showed no statistical difference between the moments evaluated with use by 26% (n=16) of the students before the tests and the same percentage, during the week of evaluations, with no changes in relation to the frequency of weekly use reported.

The comparison between the global PSQI scores before and during the test week also showed no statistical difference in the test used. The proportions before the assessments were 18% (n=11) of good sleep quality, 70.5% (n=43) of poor sleep quality and 11.5% (n=7) of sleep disturbance compared to 13 .1% (n=8) of good sleep quality, 62.3% (n=38) of poor quality and 24.6% (n=15) detected during the tests.

In the evaluation of the Epworth Sleepiness Scale, 39.3% (n=24) of the students showed a pattern of excessive daytime sleepiness before the tests, with severe sleepiness representing 75% (n=18) of these. During the test week, 60.6% (n=37) of the students were classified as having excessive daytime sleepiness and 35% (n=13) of the group was identified as having severe sleepiness (P=0.007).



Graph 6: Epworth sleepiness scale of medical students before and during the exam period.

DISCUSSION

Sleep abstention is one of the explanations for the excessive periods of daytime sleepiness and other sleep disorders presented by the evaluated students. This fact is worrying for the medical community, since there is already evidence that sleep deprivation has a significant correlation with the decline in academic performance.[12]

When analyzing the quality of sleep according to the PSQI, it was observed that 47.5% (n=29) of these students have poor sleep quality, a rate lower than that found in medical students at UFAC, which has a prevalence of 61 .9% (n=112) of the total sample.[7] However, the study does not specify whether the sleepiness assessment was temporally correlated with the institution's tests.

It is also observed that the average sleep duration of the present study was 6.72 hours before the test week, compared to 5.45 hours during the test week. It is noticeable that the rate of sleep hours of students during the week of tests is lower than the average of the adult population in general, which is seven to nine hours of sleep per day.[13] This difference becomes more evident when we compare the average during the test week with that of other studies where students had about 6.13 hours of sleep.[1] In other studies, values of 6.8 and 6.48 hours were found of sleep per day in medical students from Brazil and Argentina,[3,14]

In a recent study regarding sleep latency, it was identified that medical students in São Paulo, Brazil, take an average of 21.83 minutes to sleep, while other studies have shown an average of 15.31 minutes, but both studies do not report whether these values were entered during the week of assessments.[1,3] Unlike the current study that found 28.8 minutes of sleep time before exam week, 39.3 minutes during exam week.

Considering sleep disturbances before and during the test period, alarm clocks at night and anxiety were the elements with the highest incidence. Our results are different from another study that listed the presence of bad dreams as more prevalent than nocturnal awakenings, with 32% (n=88) of students having "bad dreams or nightmares" at least once a week, 22.1% (n=61) had nocturnal awakenings and 15.4% (n=42) had trouble sleeping due to anxiety, but the study did not differentiate sleep quality before and during the test week.[1]

Although the current study did not find significant differences regarding the use of hypnotic-sedative medication, both before and during the test week, the rate found of 26% was higher than that presented in the general population of Brazil, 6.9% (n =28).[15] and also higher in other studies evaluating medical students.[1,3,16,18]

Such values show the abusive use of this type of medication, which should be the object of study and control by the medical community, it is worth noting that none of the mentioned studies made comparisons in relation to the prevalence and frequency of use of these medications with the periods of assessment in the respective educational institutions.

Regarding the Epworth Sleepiness Scale, comparing both evaluation periods, the mean found before the tests of 39.3% showed a low prevalence of excessive daytime sleepiness when compared to another study1. However, it was in line with another study that obtained 34.3% (n=62)[7]. On the other hand, during the test week this average was 60.6%, showing a high compared to other recently published studies.[7,11] Thus, excessive daytime sleepiness can interfere with the well-being of students, who start to adopt an irregular sleep pattern, and it is accentuated mainly during the evaluation period. This sleep deprivation that the student undergoes can lead to a drop in productivity, cognitive deficit, loss of quality of life and demotivation.

CONCLUSION

We can infer that medical students have sleep disorders, with reduced sleep quality and greater excessive daytime sleepiness during the test period.

In view of the data, it is necessary for medical schools to invest in guidance programs on the quality and importance of maintaining good sleep patterns during graduation in the search for better academic performance and quality of life for medical students.

Competing Interests
Authors have declared that no competing interests exist.

Consent
All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editorial office/Chief Editor/Editorial Board members of this journal.

Ethical Approval
Not applicable

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