



SLEEP QUALITY AND THE TEACHING-LEARNING PROCESS: A CASE STUDY WITH BAHIAN STUDENTS

ORIGINAL ARTICLE

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ABSTRACT

Sleep is a natural physiological condition of the human organism, and performs functions such as: restoring the neurological system, modulating cognition, consolidating memory and learning and contributing psychologically to people's mental well-being. Therefore, an investigation was developed during supervised curricular internship II, of the Degree course in Biological Sciences, with the objective of identifying the causes that compromise the quality of sleep of high school/technical students and its main consequences for the teaching-learning process. The research was developed in two 1st year classes of a Technical course in Agriculture of a Federal Institute located in the Northern Region of the State of Bahia. For the data production movement, a Form from Google Docs was used, in which 40 students participated. After analysis, it was noticed that the socioeconomic and psychological conditions of the students, the school infrastructure, the use of technologies and the number of activities requested by the teachers are the main causes that interfere in the quality of the students' sleep. Thus, the investigated adolescents have a low sleep duration, which refers to the need for interventions.

Keywords: Supervised curricular internship, Research, Sleep, Adolescents.



1. INTRODUCTION

The teaching-learning process is a complex system of interactions between teachers and students. To construct this statement, it started from what Freire reveals (1983, p. 68), which recognizes teaching and learning, they present dialectical character, that is, they are in constant movement and construction by those who do; teaching is directly related to learning, and "the educator is no longer what he only educates, but what, as an education, is educated, in dialogue with the student who, being educated, also educates". Both thus become important subjects of the process.

Based on this relationship presented, teaching gains great influences. During the practice of Supervised Curricular Internship II, for example, behaviors were identified in the students, which hindered interaction and attention in the classes. It can be said that these interferences that affected the teaching-learning process may have been generated by social, cultural, environmental, political and also behavioral causes; and, thus, the trainee student, during the period of the internship, was able to identify and develop skills about the perceived difficulties. The internship, in this sense, assumes an important place of formation and constitution of the teaching identity, as emphasized by Pimenta (2013), is a moment that brings the future teacher closer to the educational reality.

Thus, the observations made during the internship allow an approximation to the educational reality and, by the character of research articulated to this moment of formation, the thinking of problems that circumscribe the regency and/or situations that alter or may affect the teaching-learning process. This condition makes room for the trainee, from the realization of research, to constitute themselves as a researcher, contributing and strengthening their training and expanding repertoires to solve problems arising from teaching practice (PIMENTA, 2013; SUZART; SILVA, 2020).



Starting from the presented, Pimenta and Lima (2018) affirm that the research, in the internship, translates, on the one hand, in the mobilization of research that allows the expansion and analysis of the contexts in which the internships take place; on the other hand, and in particular, it expresses the possibility for trainees to develop posture and researcher skills from internship situations, elaborating projects that allow them, at the same time, to understand and problematize the situations they observe, in an inseparable and pendulous movement between theory and practice (PIMENTA, 2013; SUZART; SILVA, 2020).

Thus, based on the observations made during supervised internship II of the Degree course in Biological Sciences of the Universidade do Estado da Bahia, campus VII, in Senhor do Bonfim - BA, it was possible to notice that a particular situation influenced the teaching-learning process: sleep. In this sense, we sought to develop an investigation taking into account the quality of the students' sleep, since they had the habit of sleeping during classes. It is important to consider that the research was developed in the classes that performed the internship, being two classes of the Technical course in Agriculture of a Federal Institute (FI).

The habit of students sleeping during classes compromises their learning, as they lose attention in class and the presentation of content, preventing them from having interactions with the class or questions about the content presented by the teacher. This action, as previously stated, can harm students in the teaching-learning process, since learning is a cognitive activity that occurs through memory consolidation, and sleep is fundamental to effect this process (VALLE; VALLE; VALLE, 2008). Thus, if the person does not sleep well, he/she will have daytime sleepiness, as well as difficulty concentrating and paying attention to the issues raised in the day-by-day, especially during classes.

It is worth mentioning that this situation, sleep during classes, lacks discussion, in view of the situation experienced by children, adolescents and even adults in contemporary society, becoming a major problem for education. According to Neves



et al. (2013, p. 58), sleep is a behavioral state "[...] complex in which there is a typical relaxed posture, motor activity is reduced or absent and there is a high threshold for response to external stimuli". In addition, sleep is considered a natural physiological factor of the human organism, and this behavioral state performs functions such as: restoring the neurological system, modulating cognition, consolidating memory and learning and contributing psychologically to people's mental well-being.

The public investigated is formed by adolescents who, according to Domingues and Alvarenga (1997), are part of a phase that prepares them for the beginning of adulthood. However, there is no precision about its beginning and end, being between childhood and adulthood, as an intermediate period, experienced under vast contradiction and ambiguity. Thus, different patterns of behavior are noted in adolescents, especially in the habit of sleeping. For example: the preference for sleeping and waking up later in adolescence is due to factors of both biological and socio-behavioral origin (MOORE; MELTZER, 2008).

It is also believed that the changes that happen in sleep patterns in adolescence are associated with increased school obligations and social activities, as well as activities such as television and internet, which can help adolescents sleep later and become more sleepy (CARSKADON *et al.*, 2002).

Still, Pereira (2011) states that variables such as the characteristics of commuting to school, eating habits at breakfast, the history of young people in relation to their school schedules in previous years, the environment where the young person sleeps, the location of the school (urban/rural), psychic disorders, smoking, alcohol consumption, insertion in the world of work, among others, these are issues that also affect the quality of sleep of adolescents and end up contributing to sleepiness during classes (PEREIRA, 2011).

Therefore, based on the consequences surrounding the behavioral changes of students during classes during the supervised curricular internship and the habit of



sleeping in classes, an investigation was carried out with the objective of identifying the causes that compromise the quality of students' sleep and the main consequences for the teaching-learning process. Two classes of 1st year of the Technical course in Agriculture of an FI participated in this study. It is important to consider that the educational institution has resumed its face-to-face activities recently due to the covid-19 pandemic, which led students to a readaptation. In addition, the investigated students joined the institution in 2022.

2. METHODOLOGY

This research is qualitative, and has no support. To carry out this research, an online form was developed in Google Docs, which was later shared with students through the digital communication platform WhatsApp in order to collect the data. It is worth mentioning that the ethical issues for this investigation were followed and that the collaborators agreed to participate in the study.

The study was developed in two 1st year classes of the Technical course in Agriculture of an IF, considering the identified problem. The choice of classes was because they were the classes that were performing the Supervised Curricular Internship II. It is worth mentioning that the classes have different characteristics, especially regarding the age and place of residence of the students. These are full-time morning classes that start activities at 7:30 am.

For the production of search data, a Google Docs form was used, with a total of 44 questions. The questions asked about: gender, age, sleep habits, social, cultural, behavioral, psychological and eating aspects of the students. Data collection lasted two weeks, starting on November 16, 2022 and ending on December 1, 2022. There were the participation of 40 students, 19 students of class A and 21 students from B.



Data analysis was made from a qualitative perspective, as Gil (2008) guides us. As the author presents, there are three steps to follow in the data analysis movement: reduction, display, and completion/verification. Following these principles, and based on the answers presented in the questionnaire, theoretical references were used for discussion and appreciation.

3. RESULTS AND DISCUSSION

It is important to highlight, initially, in an attempt to trace the profiles of the collaborators, who, of the 40 (forty) students who participated in the study, 24 (60%) were female and 16 (40%) were male. The ages of the participants ranged from 15 to 18 years. Considering the social-cultural and environmental aspects of the classes, 34 (80%) students lived in the urban area and only 6 (15%) in the rural area. Class A had students from the municipality of Senhor do Bonfim - BA, and class B, students from the other municipalities that comprise the *Território de Identidade Piemonte Norte do Itapicuru* (TIPNI), in the northern region of the state of Bahia. For example, the cities of Andorinha, Antônio Gonçalves, Itiúba and Jaguarari were mentioned.

Other concerns were also questioned to the students. Regarding night occupations, when arriving home after class, 36 (90%) students do not work at night and 4 (10%) work. Of the 40 students, 2 (5%) have children, and 33 (85%) usually study at night before bedtime. Another activity that is recurrent to students during the night is going to the academies to perform physical activity: 16 (40%) students perform training in academies when they arrive from school and 19 (47.5%) do not train.

Regarding transportation, 39 (97.5%) students make use of public transportation provided by the municipalities to reach the institution, only 1 (2.5%) students do not make use of public transport. About the quality of transportation, only 1 (2.5%) student thinks the quality is optimal, 16 (40%) students think it's good, 19 (47.5%) think it's regular and 4 (10%) think it's bad. As for the distance from the students'



residence to the institution, it was noted that there are many distinctions, since the students live in different municipalities. Thus, based on time, 13 (32.5%) students take 10 to 20 minutes to reach the institution; 7 (17.5%) students, from 20 to 30 minutes; 8 (20%) students, from 30 to 40 minutes; 3 (7.5%) students, from 40 to 50 minutes; 5 (12.5%) take an hour to arrive; 1 (2.5%) student, one hour and thirty minutes; and 3 (7.5%) students, more than one hour and thirty minutes. Based on the results, the place where they live and the time it takes to get to school are issues that also contribute to drowsiness, because they need to wake up early to get organized and go to class, which starts at 7:30 am.

Regarding the behavioral issues of the students, drowsiness during classes is recurrent, and of the subjects, 7 (17.5%) students reported sleeping during classes, 26 (60%) said they sometimes sleep and only 7 (17.5%) mentioned not sleeping in classes. It is important to consider that the practice of sleeping in classes is often conditioned on the number of hours these adolescents sleep daily. Thus, 12 (30%) students sleep from 5 to 6 hours of sleep per day; 14 (35%) sleep 6 to 7 hours; 7 (35%) students, 7 to 8 hours; 1 (2.5%) students, from 8 to 9 hours; and 1 (2.5%) student, more than 10 hours.

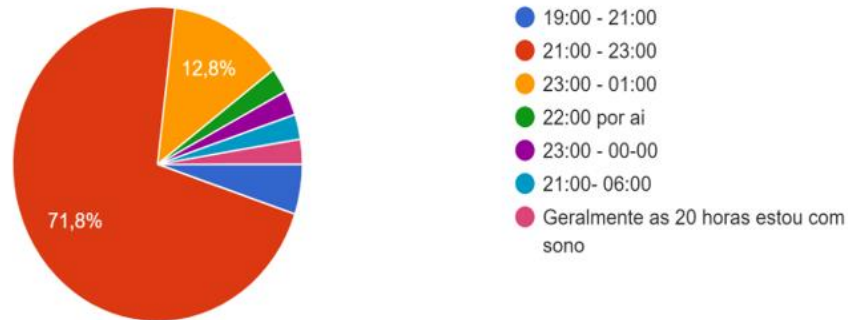
These patterns, referring to what was previously presented, are related to the time students sleep and wake up. It is noteworthy that, in the study by Carskadon *et al.* (2002), the recommendation was presented that adolescents need around 9 to 10 hours of sleep per night to maintain physical and cognitive health; but, given the result, only 2 students are able to meet this recommendation.

Figures 1 and 2 below can be observed in figures 1 and 2 below, the time students sleep and wake up.

Figure 1 - Times students usually sleep during the days of the week

Horário que costuma dormir durante a semana?

39 respostas

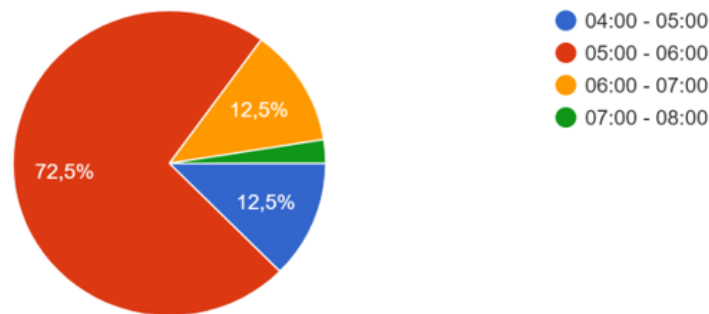


Source: authors.

Figure 2 - Times that students usually wake up to during the days of the week

Que horas acorda durante a semana?

40 respostas



Source: authors.

It is noticed that the majority of students, in this case, 28 (71.8%), always sleep from 9 pm. Only one student reported sleeping at 8:00 p.m. Regarding the waking time, 5 (12.5%) students agree between 4:00 am and 5:00 am, and the majority, 29 (72.5%), agree between 5:00 am and 6:00 am.

The use of technologies was also a point questioned to students. Although none of them have televisions, notebooks or video games in their room, they make use of



their cell phones constantly before bedtime. Based on the results, 33 students (82.5%) use their cell phones before bed, and of these, 14 (35%) keep the cell phone connected to their side during sleep and only 14 (35%) turn off their cell phones to sleep, which makes the uncontrolled use of technological devices, such as the cell phone, for example, an aggravating factor in sleep quality.

To date, the results show that there are several factors that can interfere with the quality of sleep of these students, and 23 (57.5%) of them reported feeling tired as soon as they woke up. In addition, 21 (52.5%) of the students sometimes wake up at night, and 34 (87.5%) feel the need to sleep more when they wake up. This scenario leads 29 (72.5%) students to feel sleepy during the day and, consequently, in classes.

As already mentioned in the introduction to this text, sleep can interfere in the teaching-learning process of students; thus, students were asked about the contribution of the number of hours of sleep to the concentration in the classes: 38 (97.5%) students believe that good quality of sleep helps in the attention to the class and prevents them from sleeping during their performance. Based on this result, some suggestions were requested, thinking about the possibility of improving the quality of sleep presented by them, and they can be observed in table 1 below.

Table 1 - Tips for improving sleep quality

INDIVIDUAL	SUGGESTION
Student 01	Have more time to rest and sleep
Student 02	Join the vacant classes and put the rest in only 1 shift, so you can be free in the afternoon, so you can rest
Student 03	Fewer activities. There's no time to rest with so much activity to do
Student 04	Sleep early
Student 05	Don't wake up so soon
Student 06	The school start a little later, to have a little more time to sleep
Student 07	Have less cell phone addiction



Student 08	Have 1 day in the week without class to be able to rest or have something in school that contributes to the rest of the student
Student 09	Create a routine, proper feeding and stay away from the phone from a certain time

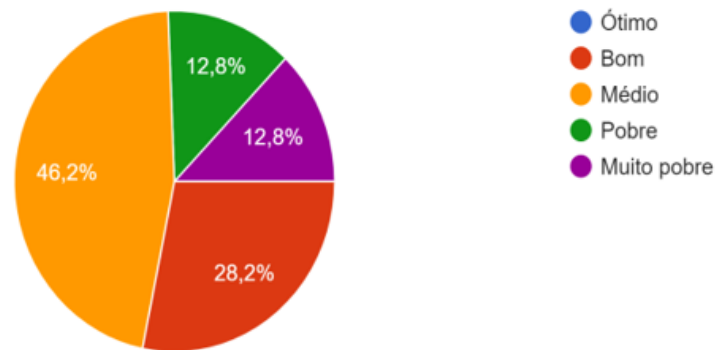
Source: authors.

Considering the suggestions presented in the previous excerpts, it is perceived that the time at which students sleep and wake up interferes with the quality of sleep. In addition, the number of activities requested by teachers, cell phone use, poor diet, the start time of classes or pattern of classes, which occurs from Monday to Saturday, full-time, are also factors that contribute to this. The students also answered about the quality of their sleep. Below, we can observe how they classified it:

Figure 3 - Classification of sleep quality by students

Como você classifica a qualidade do seu sono?

39 respostas



Source: authors.

Given the result, it is possible to notice that no student classifies their sleep quality as optimal; only 11 (28.2%) classify it as good; 18 (46.2%), as average; 5 (12.8%) as poor; and 5 (12.8%), very poor. This question was answered by 39 students.

To Wolfson *et al.* (2007, p. 11), chronic sleep deprivation in adolescents and young people is a global and multifactorial problem. He presents a possible 9-hour sleep



recommendation for adolescents, and discusses that this amount of hours is generally not achieved. Nevertheless, regardless of changes in sleep schedules, Excessive Daytime Sleepiness (EDS) has an increasing trend during adolescence due to biological factors (CAMPBELL *et al.*, 2007). In summary, it can be said that the biological and behavioral changes that occur in adolescence contribute to the delay of maturation in this phase; which, when considering issues of social, environmental, cultural and school context, will reflect deeply on the decrease in sleep hours and, consequently, increase excessive daytime sleepiness, affecting work and school performance, negatively impairing learning, social interaction and quality of life.

The food aspects were also taken into consideration in the research, understanding that eating can also contribute to the quality of sleep of students. Dashti *et al.* (2015) state that people who sleep little (<6 hours) consume less vegetables than people who sleep normally (6 to 9 hours), and this situation compromises the quality of food, which they often associate with the habit of consuming fats, which can trigger other problems, such as obesity. Of the 40 students, only 14 (35%) had a good diet during breakfast, 16 (40%) mentioned that they sometimes eat well and 10 (25%) students do not eat well before classes.

The institution provides breakfast for students, but of the total, only 25 (62.5%) students eat coffee at the institution, 7 (17.5%) eat coffee at home and 8 (20%) students do not eat coffee in the morning. Among the foods that students consume in the morning are: bread, coffee, aipim, potato, couscous, cheese, ham, baked banana, egg, cracker, honey, oatmeal, açaí, banana vitamin, yogurt, chocolate, milk, cereal, tapioca and fruits, the latter was cited only by a student, and did not define which fruits he consumes for breakfast. Other students did not mention anything, because they did not eat breakfast in the morning, and one student reported that there is never time to eat early, and when he arrives at school the cafeteria is closing.



Finally, the last questions highlighted in the research were psychological aspects. When asked about the use of medications before bed, 32 (80%) students reported not using sleeping medications and 8 (20%) said they sometimes use them. In line with this, they cited some health problems that interfere with sleep at night: anxiety, respiratory problems, insomnia, panic crisis, gas, stress, depression and Generalized Anxiety Disorder (GAD).

Considering the results presented, it can be perceived that the quality of sleep of students is related to a number of factors, whether biological in nature, due to the adolescence, social, cultural, environmental, behavioral, alimentary or psychological phase.

When analyzing, for example, sociocultural and environmental issues, it was noticeable that the time students sleep and the time they wake up, in addition to the distance from their residence to the educational institution, they are factors that contribute to the quality of sleep, considering that some still work or review the contents of classes at night.

In behavioral issues, many students usually use their cell phones before bed, which influences the good quality of sleep. According to Dollman *et al.* (2007), this act is a great negative influence on the sleep quality of adolescents, and this influence can be noted when considering the substitution of sleep hours by activities related to computers, televisions, smartphones and video games. In addition, the blue pigmentation found in electronic equipment, and existing inside and outside homes, contributes to the loss of sleep. Louzada (2007) reports that recent studies indicate that ganglion cells, which contain melanopsin, are more sensitive to the blue color, and therefore have greater sensitivity to this wavelength, which makes it necessary to avoid excessive contact with this color of light before bedtime.

It is worth noting that the operation of the institution is full-time, with this, students stay all day at school. Thinking about it, there were suggestions that the schedules



of vague classes be occupied with the other classes, so that students could have a longer period of rest. In addition, other students reported on the class start time pattern, which could be later on, allowing them to sleep longer. The students also point out that teachers request many activities, which compromises the rest and leisure period.

Therefore, students were urged to think about how to improve or implement these suggestions in the institution, and the answers were: 1 - it would be nice if they had somewhere to sleep. In the accommodation, for example, we only have one bed and one mattress. There's nowhere else to rest; 2 - speaking with coordination; 3 - organizing my study routine, so that I can be carefree about school activities; 4 - placing a transport only for the FI, something that is faster; 5 - passing fewer activities; 6 - making a schedule of activities and respective schedules for their realization, preserving the amount of hours for a good sleep; 7 - relaxing the mind and resting fully; 8 - the class start later.

Given what was placed by the students, it is noted that even the institution with accommodation, verified from the observations made during the internship, this does not meet the students' need for containing only one bed, which leads to the school infrastructure being a factor that also affects the quality of students' sleep, since it could contribute to rest in the vacant classes. And, still, the students mention the condition of transportation, the number of activities requested by the teachers and the start time of the classes.

It can be considered that all these issues contribute significantly to the quality of sleep of students, and that these, in addition to suffering from the biological changes of adolescence, are also vulnerable to other limitations resulting from the context in which they are inserted. It is also important to highlight that some students have psychological problems, something that aggravates sleep quality, often have insomnia or are prevented from sleeping, either by anxiety, stress or depression.



4. CONCLUSION

Based on the results described in the present study, it can be concluded that sleep is fundamental to maintain the balance of the human organism, contributing to the physiological, psychological and also the teaching-learning process of students.

Thus, based on the research carried out, it was possible to identify that most adolescents sleep a few hours per week, and present a series of limitations, involved with biological, social, cultural, environmental, behavioral, food and psychological issues. These limitations often impair the quality of students' sleep and can cause problems in the teaching-learning process.

The issues that imply the quality of sleep range from the time when students sleep and/or wake up at a distance from the residence to school, excessive use of the cell phone, start time of classes, number of activities requested by teachers, food, school structure with regard to accommodation and psychological problems. Thus, 95% of the adolescents investigated have low sleep duration, which causes daytime sleepiness and totally affects attention in classes.

However, the finding made in this research reinforces the urgency of including this discussion in public policy guidelines, in initial and continuing teacher training courses, holding debates and meetings with parents and in the classroom with students, considering that poor sleep quality can cause the onset of diseases. Moreover, it is important that this theme be discussed widely among students, and that they can reflect on their habits, since most adolescents are unaware of the benefits of sleeping well, both for social and school life. This is clear, the need to inform and imply these issues in schools, even if they are not present in textbooks, is clear.



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