SAÚDE E PESQUISA
e-ISSN 2176-9206

ORIGINAL ARTICLE

https://doi.org/10.17765/2176-9206.2025v18e13314

SLEEP QUALITY OF UNIVERSITY STUDENTS IN THE HEALTH SCIENCES FIELD AND ASSOCIATED FACTORS

QUALIDADE DO SONO DE UNIVERSITÁRIOS DA ÁREA DE CIÊNCIAS DA SAÚDE E OS FATORES ASSOCIADOS

Alexia Gomes Souza[1*], Joyce Mazza Nunes Aragão[2], Eliany Nazaré Oliveira[3], Maristela Ines Osawa Vasconcelos[4]

ABSTRACT: Sleep is essential for physical and mental recovery, including memory and learning. This study analyzed the sleep quality of 393 Nursing and Physical Education students from the Vale do Acaraú State University, using sociodemographic data and the Pittsburgh Sleep Quality Index (PSQI), validated in Brazil by Bertolazi. Results indicated that 77% of the students had poor sleep quality, 20% presented sleep disorders, and only 2.54% showed good sleep quality. Factors such as being female, a Nursing student, bisexual, having chronic diseases, or using medication for mental health issues were associated with poorer sleep quality. Additionally, 37% of participants reported weekly use of sleep medications and difficulties falling asleep. The study revealed a high prevalence of poor sleep among Health Sciences students, related to sociodemographic and health factors, impacting academic and mental well-being.

KEYWORDS: Health Sciences Students. sleep. College students.

RESUMO: O sono é essencial para a recuperação física e mental, incluindo memória e aprendizado. Este estudo analisou a qualidade do sono de 393 estudantes de Enfermagem e Educação Física de uma universidade pública do interior do Ceará, usando dados sociodemográficos e o Índice de Qualidade do Sono de Pittsburgh (PSQI), validado no Brasil por Bertolazi. Os resultados indicaram que 77% dos estudantes tinham má qualidade de sono, 20% apresentavam distúrbios e apenas 2,54% apresentavam boa qualidade do sono. Fatores como ser mulher, estudante de Enfermagem, bissexual, possuir doenças crônicas ou usar medicamentos para doenças mentais, foram associados estatisticamente a uma pior qualidade de sono. Além disso, 37% dos participantes relataram uso semanal de medicamentos para dormir e dificuldades para adormecer. O estudo revelou uma alta prevalência de sono ruim entre estudantes da área de Ciências da Saúde, relacionada a fatores sociodemográficos e de saúde, com impacto no bem-estar acadêmico e mental.

PALAVRAS-CHAVE: Estudantes de Ciências da Saúde. Sono. Universitários.

[1] Bachelor's degree in Nursing from the State University Vale do Acaraú (UVA), Sobral, CE, Brazil. [2] Faculty member of the Nursing program at the State University Vale do Acaraú (UVA), Sobral, CE, Brazil. [3] Faculty member of the Nursing program at the State University Vale do Acaraú (UVA), Sobral, CE, Brazil. [4] Faculty member of the Nursing program at the State University Vale do Acaraú (UVA), Sobral, CE, Brazil.

***Corresponding author**: Alexia Gomes Souza – **Email:** alexiagomes121@gmail.com

Received: 12 Nov. 2024
Accepted: 24 Dec. 2024

INTRODUCTION

Entering university can be a period of significant physical, psychological, and social changes in a person's life. Changes in lifestyle habits and sleep quality are common during this time, as students are susceptible to sleep deprivation due to the excessive academic activities they must complete on time and the difficulty of managing time for social relationships and leisure activities.[1]

Good sleep quality is essential for the body's energy recovery, as well as for performance in learning activities, cognition, memory, and reasoning, which depend on reducing bodily activities and awareness during rest.[2] Therefore, a good night's sleep is crucial in the academic routine, as it allows the recovery of energy lost during the day and preserves attention and memory abilities, which are directly related to learning.[3]

During the COVID-19 pandemic, significant impacts on university students' sleep quality were also observed worldwide. Concerns about changes in routines, health, and poor eating habits were major causes of sleep disturbances among students. Additionally, social distancing contributed to changes in students' sleep schedules, with many sleeping later and staying awake for longer periods at night.[4,5]

The quality of sleep among university students is frequently impacted by the changes in routine when entering university. This transition period is marked by new responsibilities, classes, activities, and adapting to a new daily life, which can contribute to increased stress and anxiety, both associated with poor sleep quality. Additionally, the workload and the need to adapt to new study schedules often result in irregular sleep patterns.[6]

A study conducted in 15 countries with university students showed a positive and independent association between insomnia, fatigue, sleep dysfunction, and the presence of depressive and anxious symptoms, with anxiety and depression rates reaching 39.4% and 31.2%, respectively, among university students.[7] Despite consolidated estimates regarding the psychological impact of sleep changes in different population groups, such as university students, the general population, and patients with pre-existing conditions, it is still necessary to quantify the evidence related to the mental health of university students.

Nighttime social activities, such as parties and celebrations, which are common in university life, also contribute to reduced sleep hours. As a result, many university students experience poorer sleep quality, which can negatively affect their academic performance and overall well-being.[3]

Sleep quality is also related to factors such as lifestyle, physical activity, and diet, which are essential for maintaining physical and mental health. However, due to the excessive academic workload and lack of time to engage in physical activity or prepare healthy meals, many adopt a sedentary lifestyle, which increases the risk of developing non-communicable diseases such as obesity.[8]

Low levels of physical activity are also associated with an increased risk of comorbidities such as type 2 diabetes, cardiovascular diseases, and higher levels of anxiety and depression.8 A global estimate indicates that a large percentage of adults do not engage in sufficient physical activity, which may be linked to poor sleep quality.[9]

Excessive use of technology in academic life can harm students' sleep. Prolonged exposure to screens of electronic devices, such as smartphones, tablets, and computers, especially before sleep, interferes with the production of melatonin, the hormone that regulates sleep.[10] Moreover, the habit of studying or browsing the internet late at night contributes to irregular sleep patterns and reduced sleep quality, leading to fatigue, difficulty concentrating, and reduced academic performance.[11]

In some cases, the difficulty in sleeping and the consequent harm to academic performance leads students to seek, either illicitly or unsupervised, psychoactive substances to induce sleep.[12] The constant

use of these medications without proper medical supervision can cause dependency or worsen pre-existing sleep disorders.[13]

It is important to emphasize that sleep quality directly influences academic performance, concentration, and learning ability, in addition to being closely related to mental health, emotional well-being, and the overall quality of life of students. These students often face unique challenges that may affect their sleep patterns, such as academic pressure, excessive use of technology, and changes in lifestyle, which can lead to sleep disorders, insomnia, excessive drowsiness, and negative consequences for mental and physical health. Therefore, investigating and understanding students' sleep patterns is crucial not only to address individual health issues but also to develop strategies and institutional policies that promote a healthier university environment conducive to academic success.

Thus, the objectives of the present study were to analyze the quality and sleep habits and their possible associations with sociodemographic and academic factors among university students in the Health Sciences field, as well as to identify sleep disorders and the use of medication among these higher education students.

METHODOLOGY

This is a descriptive, observational, and cross-sectional study with a quantitative approach, aiming to analyze the sleep patterns and quality of university students from the Nursing and Physical Education courses.

In quantitative research, the researcher uses measurable parameters (characteristics) and translates information and opinions into numbers to classify and analyze them in the search for cause-and-effect relationships between the variables under study. In cross-sectional studies, cause and effect are identified simultaneously.[14]

The research was conducted at the Center for Health Sciences (CCS) of the State University of Vale do Acaraú (UVA), located in Sobral, Ceará, Brazil, in the semi-arid region of the Brazilian Northeast. This municipality has a population of 203,023 inhabitants, distributed across an area of 2,068.474 km². The CCS encompasses two health-related programs: the undergraduate Nursing course (bachelor's degree) and Physical Education (both teaching degree and bachelor's degree).

The sample was calculated using the formula for cross-sectional studies with finite populations, considering a 95% confidence level and an absolute sampling error of 5%, with an additional 20% to account for potential data loss. Thus, for the Bachelor's in Nursing course, the study population includes all students enrolled in the 2024.1 semester, resulting in a sample of 217 students. For the Physical Education course, students enrolled in 2024.1 were considered, with a sample of 176 students. In total, the sample consisted of 393 students from the Health Sciences courses at UVA.

Data collection occurred between March and April of 2024, during morning, afternoon, and evening shifts, in accordance with students' class schedules. The inclusion criteria were: being enrolled in the selected courses and consenting to participate in the study. Exclusion criteria included students with disabilities or dysfunctions that prevented them from completing the questionnaire independently. Discontinuation criteria considered students who left 20% or more of the questions unanswered.

The instrument used was an online self-administered questionnaire, divided into two parts, composed of objective questions: 1st) Characterization of students, developed by the authors to collect sociodemographic and academic performance data (sex, race, family income, education level, marital status, religion, sexuality, IRA, etc.); 2nd) The Pittsburgh Sleep Quality Index (PSQI), validated for Brazil

by Bertolazi.[15] The questionnaire contains ten open and semi-open questions, divided into seven components evaluated according to a score from zero to three, to assess the quality of sleep in the past month of the participants. It evaluates subjective sleep quality, duration, latency, habitual efficiency, disturbances, use of sleep medication, and daytime sleepiness. The sum of these seven components results in a global PSQI score, with a maximum score of 21 points, where scores below 5 indicate good sleep quality, between 5 and 10 indicate poor quality, and above 10 suggest sleep disturbances.[15]

The questionnaire was administered in the classroom by request, authorization, and scheduling with the coordinators and professors of each course, according to the best availability of the groups. Participants were provided with all information about the study, the Free and Informed Consent Form, and clarification of any doubts regarding the completion of the form, which was made available through the Google Forms platform.

The data were analyzed using the R program (version 4.0.5) for the descriptive analysis of the variables presented in tables. For data analysis, Pearson's Chi-Square and Fisher's Exact tests were used in bivariate tables, along with their respective confidence intervals. The significance level adopted for the statistical tests was 5%, with 95% confidence intervals.

This research was conducted in accordance with Resolution 466/12 of the Ethics Committee for Research Involving Human Beings at the State University of Vale do Acaraú - UVA, under the number 6.747.786, respecting all ethical aspects for the study's execution.

RESULTS AND DISCUSSION

SOCIODEMOGRAPHIC, ACADEMIC, AND HEALTH PROFILE OF HEALTH SCIENCE UNIVERSITY STUDENTS

Based on the responses obtained from the evaluation form using the PSQI-BR sleep quality scale.15 The data were classified into three levels of sleep quality: Good, Poor, and Disturbance (sleep disturbance).

Table 1: presents the frequency distribution for the three levels of sleep quality.

Sleep Quality	**N**	**%**
Good	10	2,54
Poor	303	77,10
Disturbance	80	20,36
Total	**393**	**100,00**

The results of the sleep quality analysis of health sciences university students were concerning, as more than half of the students (n=303), or 77.10%, were classified with poor sleep quality. Others had an even more unfavorable health situation, representing 20.36% (n=80) of students with sleep-related disorders. A smaller group, approximately 2.54% (n=10), reported good sleep quality.

A study conducted with 257 participants from eight Portuguese institutions found that 65% of the university students analyzed had poor sleep quality, a situation mainly related to factors such as gender and course, which were also observed in the present research.

Based on the classification of sleep quality levels, possible relationships with sociodemographic, academic, and economic variables were analyzed, as presented in Table 2 below.

Table 2: Distribution of Health Sciences university students according to sleep quality levels and sociodemographic data. Sobral-CE, 2024.

Variables	PSQI-BR Classification			P
	Good n (%)	Poor n (%)	Disturbance n (%)	
Course				
Nursing	4 (1,8)	139 (64,1)	74 (34,1)	
Physical Education	4 (2,3)	135 (76,7)	37 (21)	**0,01**
Sex				
Female	6 (2,5)	152 (64,4)	78 (33,1)	
Male	2 (1,3)	122 (77,7)	33 (21)	**0,01**
Idade				
Adolescent	3 (2,2)	111 (81)	23 (16,8)	
Young	6 (2,7)	169 (75,8)	48 (21,5)	
Adult	1 (3)	23 (69,7)	9 (27,3)	0,55
Year				
1st grade	3 (2,5)	101 (84,2)	16 (13,3)	
2nd grade	3 (3,2)	70 (73,7)	22 (13,3)	
3rd grade	0 (0)	51 (78,5)	14 (21,5)	
4th grade	2 (3,1)	47 (72,3)	16 (24,6)	
5th grade	2 (4,2)	34 (70,8)	12 (25)	0,29
Race				
Brown	3 (1,3)	161 (70,3)	65 (28,4)	
White	3 (2,3)	90 (68,2)	39 (29,5)	
Black	2 (6,5)	22 (71)	7 (22,6)	
Other	0 (0)	1 (100)	0 (0)	0,47
Income				
0 to 1	5 (2,8)	121 (67,2)	54 (30)	
1 to 2	2 (1,6)	87 (69)	37 (29,4)	
2 to 4	0 (0)	48 (75)	16 (25)	
4 to 6	1 (7,7)	10 (76,9)	2 (15,4)	
6 to 8	0 (0)	5 (71,4)	2 (28,6)	
8 to 10	0 (0)	0 (0)	0 (0)	
10 to 20	0 (0)	3 (100)	0 (0)	0,67
Religion				
Catholic	5 (1,7)	205 (71,4)	77 (26,8)	
Evangelical	0 (0)	28 (80)	7 (20)	
None	3 (4,9)	33 (54,1)	25 (41)	
Other	0 (0)	8 (80)	2 (20)	0,09
Region of Origin				
Sobral Hinterland	6 (2,2)	193 (69,4)	79 (28,4)	
Northern Coast	1 (2,4)	29 (69)	12 (28,6)	
Ibiapaba Range	0 (0)	25 (64,1)	14 (35,9)	
Crateús Hinterland	0 (0)	21 (91,3)	2 (8,7)	
Western Coast/ Vale do Curu	1 (11,1)	5 (55,6)	3 (33,3)	
Central Sertão	0 (0)	0 (0)	1 (100)	
Greater Fortaleza	0 (0)	1 (100)	0 (0)	0,18
Municipality				
Sobral	6 (3,2)	122 (65,2)	59 (31,6)	
Districts	0 (0)	25 (86,2)	4 (13,8)	
Outhers	2 (1,1)	127 (71,8)	48 (27,1)	0,14
Marital Status				
Single	7 (2,6)	185 (67,5)	82 (29,9)	
With Fixed Partner	0 (0)	76 (75,2)	25 (24,8)	
Married/Stable Union	1 (5,6)	13 (72,2)	4 (22,2)	0,21
Sexual Orientation				
Heterosexual	8 (2,4)	238 (72,1)	84 (25,5)	

Variables	PSQI-BR Classification			P
	Good n (%)	Poor n (%)	Disturbance n (%)	
Bisexual	0 (0)	12 (38,7)	19 (61,3)	
Homosexual	0 (0)	23 (74,2)	8 (25,8)	
Outher	0 (0)	1 (100)	0 (0)	**0,00**
Children				
No	7 (1,9)	262 (70,4)	103 (27,7)	
Yes	1 (4,8)	12 (57,1)	8 (38,1)	0,19

According to the results found, nursing students show a higher prevalence of sleep disorders (n: 74, 34.1%) compared to physical education students (n: 37, 21%), demonstrating a significant difference in sleep quality between the students of both courses (p: 0.01). It is known that the nursing program studied has a workload of 5,000 hours to be completed over five years of undergraduate study, with 100 mandatory hours of complementary activities.

In order to effectively complete such activities, students need to manage their time to avoid reducing their hours of rest and, consequently, a decline in sleep quality. [17]

Regarding gender, a predominance of sleep disorders was identified in females (n: 78, 33.1%), compared to male students, and the result of this analysis showed significant importance by demonstrating the degree of difference in sleep quality between genders (p: 0.01). An explanation for this may be found in a study conducted with the population of Campinas, which pointed out psychological factors as possible reasons for women having more changes in their sleep patterns, as they tend to experience symptoms of anxiety and depression more frequently than men. In addition, hormonal variations throughout the menstrual cycle may also influence sleep.[18]

In terms of sexual orientation, it was observed that homosexual students (n: 8, 25.8%) and bisexual students (n: 19, 61.3%) were more affected by poor sleep quality and sleep disorders, and this result was statistically significant (p: 0.00). The LGBTQIA+ population has a higher likelihood of developing mental disorders, as it is more susceptible to daily experiences of discrimination and prejudice compared to the heterosexual population. There are still many challenges in addressing the quality of life of homosexual individuals, as this is a less explored area in a society marked by prejudice and stigma against the LGBTQIA+ population.[19]

There are still many difficulties in working with the quality of life of homosexual individuals, as it is an area that has been little explored in a society marked by prejudices and stigmas against the LGBTQIA+ population.[20]

Considering that the sleep quality and academic performance of students involved in extracurricular activities and those who have jobs may be affected by the increase in responsibilities and workload, the sleep quality of these students was analyzed, as presented in Table 3 below.

Table 3: Distribution of Health Sciences university students according to sleep quality levels and academic data. Sobral-CE, 2024.

	PSQI-BR Classification			
Variables	**Good n(%)**	**Poor n(%)**	**Disturbance n(%)**	**p**
Participation in Extension Activities				
No	5 (2.2)	160 (69.9)	64 (27.9)	
Yes	3 (1.8)	114 (69.5)	47 (28.7)	0.96
Participation in Research Activities				
No	5 (1.7)	208 (71.7)	77 (26.6)	
Yes	3 (2.9)	66 (64.1)	34 (33)	0.30
Receives University Scholarship				
No	7 (2.3)	208 (68.6)	88 (29)	
Yes	1 (1.1)	66 (73.3)	23 (25)	0.67
Employment				
No	7 (2.1)	237 (69.9)	95 (28)	
Yes	1 (1.9)	37 (68.5)	16 (29.6)	0.90
Receives Government Assistance				
No	7 (2.7)	175 (68.1)	75 (29.2)	
Yes	1 (0.7)	99 (72.8)	36 (26.5)	0.35
IRA (Academic Performance Index)				
No IRA	2 (8.3)	19 (79.2)	3 (12.5)	
Less than 7	0 (0)	20 (76.9)	6 (23.1)	
Between 7 and 8.9	4 (2)	137 (67.8)	61 (30.2)	
Between 9 and 10	2 (1.4)	98 (69.5)	41 (29.1)	0.25

Students not participating in research activities (n: 285, 98.3%) reported poor sleep quality and sleep disorders. A review study conducted with medical students found that these students, regardless of their participation in extracurricular activities or employment, face considerable challenges related to sleep quality. However, those involved in various extracurricular activities are more likely to report sleep problems, such as insomnia and daytime sleepiness, which may be related to poor time management, stress, and lack of adequate social interaction. [21]

Another study conducted with 298 university students from Rio Grande do Norte indicated that students without employment exhibited irregular sleep patterns influenced by disorganized study schedules, excessive technology use, and academic stress.22 In both cases, the lack of a healthy sleep routine compromises academic performance and overall well-being, highlighting the need for interventions to promote healthy sleep habits among all students.

Students who do not yet have an Academic Performance index (GPA) because they are in their first semester of the degree program showed a higher percentage of good sleep classification (n: 2, 8.3%), although this result was not statistically significant.

The quality of students' sleep can be influenced by various internal and external factors, especially those related to health and illness, as well as the demands of academic life. The table below presents the distribution of students' sleep quality in relation to health-illness status.

Table 4: Distribution of Health Sciences university students according to sleep quality levels and the health-illness process. Sobral-CE, 2024.

	PSQI-BR Classification			
Variables	**Good n(%)**	**Poor n(%)**	**Disorder n(%)**	**p**
Presence of Chronic Disease				
No	7 (1.9)	268 (72.2)	96 (25.9)	
Yes	1 (4.5)	6 (27.3)	15 (68.2)	0.00
Use of Medication for Mental Illness				
No	8 (2.2)	266 (74.7)	82 (23)	

	PSQI-BR Classification			
Variables	**Good n(%)**	**Poor n(%)**	**Disorder n(%)**	**p**
Yes	0 (0)	8 (21.6)	29 (78.4)	0.00
Health Insurance				
No	8 (2.3)	245 (70.2)	96 (27.5)	
Yes	0 (0)	29 (65.9)	15 (34.1)	0.51
Substance Use				
Alcohol	0 (0)	52 (65.8)	27 (34.2)	
Alcohol, Marijuana	0 (0)	2 (66.7)	1 (33.3)	
Alcohol, None	0 (0)	1 (100)	0 (0)	
Alcohol, Tobacco	0 (0)	3 (60)	2 (40)	
Alcohol, Tobacco, Marijuana	0 (0)	3 (75)	1 (25)	
Marijuana	0 (0)	1 (100)	0 (0)	
None	8 (2.7)	210 (71.2)	77 (26.1)	
Tobacco	0 (0)	1 (33.3)	2 (66.7)	
Tobacco, None	0 (0)	1 (100)	0 (0)	
All	0 (0)	0 (0)	1 (100)	0.56
Weekly Physical Activity				
0	2 (1.6)	73 (59.8)	47 (38.5)	
1 to 2	1 (1.6)	43 (70.5)	17 (27.9)	
3 to 4	2 (2.1)	73 (77.7)	19 (20.2)	
5 to 7	3 (2.6)	85 (73.3)	28 (24.1)	0.07

Similarly, when analyzing the presence of chronic diseases and their relationship with the participants' sleep, it was found that students who reported having a chronic disease showed some sleep disorder (n: 15, 68.2%) compared to those who did not. This showed a statistically significant difference (p=0.00) between these students. The presence of chronic diseases increases the likelihood of developing sleep problems and also influences the onset of other chronic conditions.[23]

It was also observed that students using medication for mental health conditions (n: 29, 78.4%) reported sleep disturbances, with this result being statistically significant (p=0.00). Research indicates that up to 15% of students have some form of psychiatric disorder, with anxiety and depression being the most common.[24] The university itself is an environment that demands good time management and responsibilities, in addition to academic skills, which can lead to illness, primarily affecting mental health and contributing to the development of chronic problems.[13]

Regarding the use of psychoactive substances in the 30 days prior to the survey, most students reported not having consumed any substances (n: 295, 75.06%), while a significant number of students reported using alcohol, marijuana, or tobacco (n: 95, 25.66%). Alcohol was the most used drug among the students (n: 80, 20.35%). In various studies, alcohol is cited as the most consumed psychoactive substance among students. Although more than half of the students reported not using any drugs, it is important to note the frequency of use among those who do, especially when this can impact academic performance and sleep quality.[13,24]

Regarding physical activity, the results showed that those who did not engage in physical activity had a higher percentage of sleep disturbances compared to those who reported engaging in physical activity at least once a week. However, this result was not statistically significant.

Students who do not engage in physical activity had a higher percentage of sleep disturbances (n: 47, 38.5%) compared to those who reported engaging in physical activity at least once a week (n: 17, 27.9%). Stress related to studies and academic demands can interfere with the ability to relax. Additionally, intense exercise close to bedtime can lead to the release of hormones that hinder sleep. Finally, habits like excessive use of electronic devices before sleep also negatively impact sleep quality.[25,26]

The impact of the academic routine can contribute to changes in students' sleep patterns. The following Table 5 presents the characteristics related to the sleep patterns of students from the Nursing and Physical Education courses at UVA.

Table 5: Sleep characteristics stratified by students in the Nursing and Physical Education undergraduate programs at UVA, by measures of central tendency and dispersion, represented in hours. Sobral - CE, 2024.

Characteristic	Measures of Central Tendency			Measure of Dispersion
	Mean	Median	Mode	Standard Deviation
Bedtime	22:41	23:00	23:00	01:11
Sleep Latency	01:16	01:00	01:00	00:59
Wake-up time	06:07	06:00	05:00	01:36
Sleep duration	07:26	07:00	08:00	01:39

According to the research findings, it was possible to map the sleep patterns of students, revealing that they sleep an average of 7 to 8 hours per night. However, the transition time from wakefulness to total sleep was one hour and sixteen minutes, which is considered a long latency period, detrimental to an adequate sleep state, as students take longer to fall asleep.

These factors are similar to the results of a systematic study conducted with 996 university students, showing that poor sleep quality affected 23.1% of the analyzed sample. This was due to the possible difficulty in falling asleep at least once a month, caused by the challenge of balancing a good night's sleep with an exhausting academic routine, excessive activities, limited leisure time, and reduced sleep duration.

Table 6 presents an analysis of students' sleep habits and sleep quality, based on events that occurred during the week prior to data collection.

Table 6: Sleep habits and factors influencing sleep quality during the week before the study. Sobral, 2024.

Question	Never	Less than once/ week	1 or 2 times/ week	3 or more times /week
	N (%)	N (%)	N (%)	N (%)
Unable to fall asleep within 30 minutes	126 (32,1)	101 (25,7)	92 (23,4)	74 (18,8)
Woke up in the middle of the night or early morning	69 (17,6)	122 (31,0)	103 (26,2)	99 (25,2)
Had to get up to use the bathroom	108 (27,5)	114 (29,0)	107 (27,2)	64 (16,3)
Unable to breathe comfortably	249 (63,4)	69 (17,6)	44 (11,2)	31 (7,9)
Coughed or snored loudly	263 (66,9)	60 (15,3)	39 (9,9)	31 (7,9)
Felt very cold	143 (36,4)	106 (27,0)	97 (24,7)	47 (12,0)
Felt very hot	104 (26,5)	82 (20,9)	92 (23,4)	115 (29,3)
Had bad dreams	116 (29,5)	136 (34,6)	89 (22,6)	52 (13,2)
Felt pain	217 (55,2)	79 (20,1)	62 (15,8)	35 (8,9)
Took medication to help sleep	246 (62,6)	71 (18,1)	42 (10,7)	34 (8,7)
Had difficulty staying awake while driving, eating, or participating in social activities.	222 (56,5)	99 (25,2)	56 (14,2)	16 (4,1)
How problematic was it to maintain enthusiasm (motivation) to do things?	113 (28,8)	141 (35,9)	100 (25,4)	39 (9,9)

After analyzing aspects such as the need to 'get up in the middle of the night to use the bathroom,' 'difficulty breathing during sleep,' and 'reports of coughing or loud snoring,' the variable 'woke up in the middle of the night or early morning' stood out, representing 324 (84.4%) students.

Stress and anxiety are identified as major causes of these sleep disturbances, potentially leading to episodes of insomnia. [26,27]

Approximately 289 (73.6%) students reported that feeling hot at night was a detrimental factor to sleep at least once a week, making it one of the main causes of sleep discomfort. This can be explained by the high temperatures in the city where the study was conducted and where most students reside.

The results show that 147 (37%) participants took medication to sleep, whether prescribed or self-administered, at least once a week. This use may be related to the fact that some students have diagnosed mental disorders and take daily medication to alleviate symptoms, while others self-medicate without a medical prescription, which poses considerable risks, such as decreased attention, reduced alertness, and impaired working memory. A study conducted among students at the Faculty of Medical Sciences of Minas Gerais, from the first to the fourth year, showed that students reported difficulty staying awake while driving, eating, or participating in social activities. [27]

Similarly, 267 (68%) students reported being unable to fall asleep within 30 minutes at least once a week. The sleep quality of these students is frequently compromised by constant exposure to blue light from electronic devices before bedtime, which prolongs the latency period to fall asleep.[11]

Additionally, a study conducted with 470 students in Curitiba, PR, in which the majority (59.1%) had difficulty maintaining enthusiasm three or more times per week, aligns with the present study. Here, approximately 71.2% of students reported having trouble maintaining motivation at least once when performing daily activities.[28]

Based on the objective data presented on sleep quality, Table 7 shows the subjective classification of sleep quality as perceived by the study participants.

Table 7: Students' subjective assessment of sleep quality

Subjective perception of sleep quality	N (%)
Very poor	33 (8,4)
Poor	110 (28,0)
Good	215 (54,7)
Very good	35 (8,9)

The results in the table show that 215 (54.7%) students considered their sleep quality good in the past month, differing from most studies, which indicate a prevalence of negative self-assessments regarding sleep quality. This discrepancy may be due to the difficulty in identifying factors that determine poor sleep quality, such as recognizing that everyday issues like heat, cold, or snoring can negatively impact sleep quality.

This study highlights an important panorama for the implementation of specific interventions and policies. It identifies women, nursing students, homosexuals, students with chronic diseases, and those who use sleep medication as groups with poorer sleep quality. The lack of adequate support for these populations can lead to various negative consequences on both individual and collective levels. Students with inadequate sleep exhibit lower concentration, impaired memory, and difficulty absorbing complex content, affecting learning outcomes.

Sleep deprivation and sleep disorders are strongly associated with anxiety, depression, irritability, and burnout. Without proper psychological and emotional support, these problems can worsen, leading to a cycle of declining mental health and overall well-being among students.

CONCLUSION

The analysis of sleep quality among Health Sciences university students indicated that the vast majority (77%) exhibited poor sleep quality, while 20% showed signs of sleep disorders, and only 2.54% reported good sleep quality.

Poor sleep quality was more prevalent among nursing students, women, individuals identifying as bisexual, those with chronic diseases, and users of medication for mental health conditions, highlighting a higher incidence of sleep disturbances in these populations. Notably, the consumption of medication for mental health conditions among young people is significant, whether due to a medical diagnosis and prescribed treatment or, in some cases, self-medication to alleviate associated symptoms.

The observed prevalence of sleep disorders among individuals with chronic diseases and other variables in this study underscores the importance of preventive measures concerning comorbidities and students' sleep health. Recognizing these factors associated with sleep quality among Health Sciences university students is essential for planning public policies and targeted actions to promote their physical and mental well-being. Health promotion initiatives and disease prevention strategies should include effective measures to improve sleep quality. Actions such as educational campaigns, institutional policies encouraging a balance between study, work, and rest, and improved access to mental health services are essential. These initiatives not only contribute to individual well-being but also enhance academic and professional performance, reduce the risk of chronic diseases, and improve overall quality of life.

Therefore, it is crucial for public administrators, educators, and healthcare professionals to prioritize interventions that consider sociodemographic and academic specificities, fostering healthier environments that acknowledge the importance of sleep for a more productive and balanced society.

It is important to note that this study did not collect specific data on the most commonly used medications or the most prevalent mental health conditions, both of which can influence students' sleep quality.

Raising awareness of healthy habits should be encouraged from childhood, fostering a culture that values rest. Investing in sleep quality represents a commitment to holistic health and the sustainable development of society.

The knowledge generated by this research is fundamental in encouraging further studies on the subject. Additional information on this issue is highly valuable, enabling comparisons of students' sleep quality both inside and outside the classroom.

REFERENCES

1. Araújo GL, Lima de Araújo G, Araújo TJ, Silveira MA, Botelho Florêncio TM, Vilela Heimer M. Cronotipo, Qualidade do sono e Rendimento escolar em adolescentes - uma revisão da literatura. Res Soc Dev [Internet]. 11 set 2021 [citado 21 dez 2024];10(11):e594101120176. Disponível em: https://doi.org/10.33448/rsd-v10i11.20176
2. Gajardo YZ, Ramos JN, Muraro AP, Moreira NF, Ferreira MG, Rodrigues PR. Problemas com o sono e fatores associados na população brasileira: Pesquisa Nacional de Saúde, 2013. Cienc Amp Saude Coletiva [Internet]. Fev 2021 [citado 21 dez 2024];26(2):601-10. Disponível em: https://doi.org/10.1590/1413-81232021262.08412020
3. Maciel FV, Wendt AT, Demenech LM, Dumith SC. Fatores associados à qualidade do sono de estudantes universitários. Cienc Amp Saude Coletiva [Internet]. Abr 2023 [citado 21 dez 2024];28(4):1187-98. Disponível em: https://doi.org/10.1590/1413-81232023284.14132022

4. Eleftheriou A, Rokou A, Arvaniti A, Nena E, Steiropoulos P. Sleep Quality and Mental Health of Medical Students in Greece During the COVID-19 Pandemic. Front Public Health [Internet]. 19 nov 2021 [citado 21 dez 2024];9. Disponível em: https://doi.org/10.3389/fpubh.2021.775374
5. Smit AN, Juda M, Livingstone A, Stephanie RU, Mistlberger RE. Impact of COVID-19 social-distancing on sleep timing and duration during a university semester. PLOS ONE [Internet]. 26 abr 2021 [citado 21 dez 2024];16(4):e0250793. Disponível em: https://doi.org/10.1371/journal.pone.0250793
6. Carone CM, Silva BD, Rodrigues LT, Tavares PD, Carpena MX, Santos IS. Fatores associados a distúrbios do sono em estudantes universitários. Cad Saude Publica [Internet]. 2020 [citado 21 dez 2024];36(3). Disponível em: https://doi.org/10.1590/0102-311x00074919
7. Batra K, Sharma M, Batra R, Singh TP, Schvaneveldt N. Assessing the Psychological Impact of COVID-19 among College Students: An Evidence of 15 Countries. Healthcare [Internet]. 17 fev 2021 [citado 21 dez 2024];9(2):222. Disponível em: https://doi.org/10.3390/healthcare9020222
8. Fontanelli MS, Correa GC, Guiraldelli LR, Mocelin A, Bertin LR, Ulbrich ZA. Baixos Níveis de Atividade Física e suas Associações com o Estado de Humor, Sonolência Diurna e Consumo Alimentar em Universitários. Mundo Saude [Internet]. 1 jan 2024 [citado 8 out 2024];48. Disponível em: https://doi.org/10.15343/0104-7809.202448e15792023p
9. Murawski B, Plotnikoff RC, Rayward AT, Oldmeadow C, Vandelanotte C, Brown WJ, Duncan MJ. Efficacy of an m-Health Physical Activity and Sleep Health Intervention for Adults: A Randomized Waitlist-Controlled Trial. Am J Prev Med [Internet]. Out 2019 [citado 8 out 2024];57(4):503-14. Disponível em: https://doi.org/10.1016/j.amepre.2019.05.009
10. Paul VCG, Neves AC, Oliveira GA, Antônio ACFT, Antonio TT, Jassi FJ. Análise da dependência do uso de smartphone em comparação à dor, sono, ansiedade e depressão em universitários. Fisioter Em Mov [Internet]. 2023 [citado 1 nov 2024];36. Disponível em: https://doi.org/10.1590/fm.2023.36110.0
11. Santos AS, Freitas EA. Ritmos biológicos: como o mau uso de smartphones pode influenciar negativamente o sono. Rev Neurocienc [Internet]. 16 jun 2021 [citado 8 out 2024];29. Disponível em: https://doi.org/10.34024/rnc.2021.v29.11394
12. Santos ZMA, Silva MS, Florêncio NLM, Pachú CO. O uso de medicamentos por universitários brasileiros: uma revisão narrativa. RECIMA 21 Rev Cient Multidiscip ISSN 2675 6218 [Internet]. 15 set 2023 [citado 8 out 2024];4(9):e493876. Disponível em: https://doi.org/10.47820/recima21.v4i9.3876
13. Araújo MIA, Barboza ACS, Guedes JPM. Uso de medicamentos ansiolíticos e antidepressivos por estudantes universitários na área de saúde: uma revisão de literatura. Res Soc Dev [Internet]. 17 nov 2022 [citado 18 out 2024];11(15):e296111537379. Disponível em: https://doi.org/10.33448/rsd-v11i15.37379
14. Silva AL, Paiva AP. Metodologia da pesquisa científica no Brasil: natureza da pesquisa, métodos e processos da investigação. Res Soc Dev [Internet]. 7 ago 2022 [citado 8 out 2024];11(10):e479111032264. Disponível em: https://doi.org/10.33448/rsd-v11i10.32264
15. Bertolazi AN, Fagondes SC, Hoff LS, Dartora EG, da Silva Miozzo IC, de Barba ME, Menna Barreto SS. Validation of the Brazilian Portuguese version of the Pittsburgh Sleep Quality Index. Sleep Med [Internet]. Jan 2011 [citado 8 out 2024];12(1):70-5. Disponível em: https://doi.org/10.1016/j.sleep.2010.04.020
16. Mendes J, Sousa M, Leite VM, Bettencourt da Silva Belchior NM, Pires Medeiros MT. Qualidade do sono e sonolência em estudantes do ensino superior. Rev Port Inv Comp Soc [Internet]. 30 nov 2019 [citado 18 out 2024];5(2):38-48. Disponível em: https://doi.org/10.31211/rpics.2019.5.2.150
17. Morais HCC, Gomes BG, de Holanda AKS, Nogueira KEA, Fonseca R, Pinto ACMD, Mendes IC. Factors associated with poor sleep quality in nursing students from a private university in Ceará. Mundo Saude [Internet]. 1 jan 2022 [citado 9 out 2024];46:003-11. Disponível em: https://doi.org/10.15343/0104-7809.202246003011

18. Barros MB, Lima MG, Ceolim MF, Zancanella E, Cardoso TA. Quality of sleep, health and well-being in a population-based study. Rev Saude Publica [Internet]. 27 set 2019 [citado 18 out 2024];53:82. Disponível em: https://doi.org/10.11606/s1518-8787.2019053001067
19. Ponso N, Carvalho RC. Qualidade de vida de jovens homossexuais e bissexuais residentes em uma capital do nordeste brasileiro. Rev Bras Sex Humana [Internet]. 16 dez 2021 [citado 8 out 2024];32(2). Disponível em: https://doi.org/10.35919/rbsh.v32i2.980
20. Costa-Val A, Manganelli MS, Moraes VMF, Cano-Prais HA, Ribeiro GM. O cuidado da população LGBT na perspectiva de profissionais da Atenção Primária à Saúde. Physis [Internet]. 2022 [citado 8 out 2024];32(2). Disponível em: https://doi.org/10.1590/s0103-73312022320207
21. Zavarise LF, Gonçalves CRL, Lustosa NG, Duarte GGM, Soares EA. Relação entre a qualidade de sono e o rendimento acadêmico dos estudantes de medicina: revisão sistemática. Res Soc Dev [Internet]. 12 jun 2023 [citado 8 out 2024];12(6):e11612642047. Disponível em: https://doi.org/10.33448/rsd-v12i6.42047
22. Araújo MFS, Lopes XFM, Azevedo CVM, Dantas SD, Souza JC. Qualidade do sono e sonolência diurna em estudantes universitários: prevalência e associação com determinantes sociais. Rev Bras Educ Medica [Internet]. 2021 [citado 8 out 2024];45(2). Disponível em: https://doi.org/10.1590/1981-5271v45.2-20200182
23. Brito DFF, Nascimento AA, Vilanova-Campelo CR, De Carvalho KO, Nolêto DCS, Nolêto VL, Ribeiro DAF, Almeida FJF. Atividade física, qualidade do sono e aptidão física em universitários. Fiep Bull Online [Internet]. 13 fev 2023 [citado 9 out 2024];93(I). Disponível em: https://doi.org/10.16887/93.a1.09
24. Sousa FMA, Sousa LMD, Aragão JMN, Oliveira EN, Almeida PC, Bezerra SMN, Vasconcelos MIO. Uso de substâncias psicoativas e rendimento acadêmico de universitários da área de saúde. Cogitare Enferm [Internet]. 2023 [citado 8 out 2024];28. Disponível em: https://doi.org/10.1590/ce.v28i0.87063
25. Diniz LN, Lima FF, Carvalho LS, Milhomem PAM, Celestino PHO, Santos GMR, Simplício PFP, Lacerda TTB. A influência da atividade física no sono e desempenho acadêmico. Rev Eletronica Acervo Saude [Internet]. 31 out 2020 [citado 9 out 2024];12(10):e5000. Disponível em: https://doi.org/10.25248/reas.e5000.2020
26. Dias LG, Silva NA, Oliveira SSB, Marques MS. Ansiedade e Depressão em Universitários a Área da Saúde: Uma Revisão Integrativa / Anxiety and Depression in University Students in the Health Area: An Integrative Review. ID Line Rev Psicol [Internet]. 30 dez 2021 [citado 18 out 2024];15(58):565-75. Disponível em: https://doi.org/10.14295/idonline.v15i58.3344
27. Alvarenga JV, Fernandes BL, Maia TL, Guimarães LC, Cruvinel AR, Vieira BC, Alves LP, Azevedo GF. O uso de psicoestimulantes entre estudantes de uma faculdade de medicina: prevalência e fatores associados. Rev Foco [Internet]. 20 set 2023 [citado 12 nov 2024];16(9):e3118. Disponível em: https://doi.org/10.54751/revistafoco.v16n9-099
28. Bodanese BC, Roderjan AK, Gil I, Purin KS. Como a qualidade do sono e a ansiedade podem afetar estudantes que desejam cursar medicina - uma avaliação objetiva. Rev Medicina [Internet]. 20 maio 2021 [citado 9 out 2024];100(2):96-101. Disponível em: https://doi.org/10.11606/issn.1679-9836.v100i2p96-101
29. Goto RE, Capeleti FF, Nobeschi L. Avaliação da qualidade do sono nos acadêmicos de graduação em enfermagem / Evaluation of sleep quality in undergraduate nursing students. Arq Medicos Hosp Fac Cienc Med St Casa Sao Paulo [Internet]. 13 jul 2023 [citado 9 out 2024]. Disponível em: https://doi.org/10.26432/1809-3019.2023.68.010
30. Gotardo AL, Da Silva CM, Madeira HS, De Peder LD. O uso de medicamentos psicotrópicos por estudantes de um centro universitário de Cascavel, Paraná. SaBios Rev Saude Biol [Internet]. 26 jul 2022 [citado 9 out 2024];17(1):1-10. Disponível em: https://doi.org/10.54372/sb.2022.v17.3225