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SLEEP QUALITY AND ASSOCIATED FACTORS OF SLEEP DISORDERS AMONG HEALTH SCIENCES STUDENTS AT DAI NAM UNIVERSITY IN 2023

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ABSTRACT

Objective: To describe the status of sleep disorders and identify associated factors among health sciences students at Dai Nam University in 2023.

Subjects and methods: A cross-sectional descriptive study was conducted among 447 health sciences students majoring in Medicine, Nursing, and Pharmacy at Dai Nam University. Sleep disorders were assessed using the 5-item Athens Insomnia Scale (AIS-5). Students with an AIS-5 score > 4 were classified as having a sleep disorder. Data were analyzed using descriptive statistics, Chi-square tests, and multivariable logistic regression.

Results: The prevalence of sleep disorders among students was 27.96%. The mean total AIS-5 score was 2.81 ± 2.83, ranging from 0 to 14 points. Among the AIS-5 components, the highest mean scores were observed for total sleep duration and overall sleep quality. After adjustment, academic major and year of study were significantly associated with sleep disorders. Nursing and Pharmacy students were less likely to have sleep disorders than Medicine students, while second-year students were more likely to have sleep disorders than first-year students.

Conclusion: Sleep disorders are an issue of concern among health sciences students, particularly among Medicine students and second-year students.

Keywords: Sleep disorders, students, health sciences, AIS-5, Dai Nam University.

1. INTRODUCTION

Sleep is a basic physiological need that plays an important role in physical health, mental well-being, learning capacity, and quality of life among students. For health sciences students, sleep is particularly important because they often face an intensive academic workload, a large volume of knowledge, demanding theoretical and practical schedules, examination pressure, and the need to adapt to a profession-oriented training environment. Prolonged sleep disorders not only affect alertness, concentration, memory, and academic performance, but may also be associated with stress, anxiety, depression, impaired mental health, and reduced quality of life.

International studies have shown that sleep disorders are common among medical, nursing, pharmacy, and other health sciences students. Reviews and multicenter studies have reported a high prevalence of poor sleep quality or insomnia among medical students, commonly ranging from approximately 30% to 60%, and even higher in some study settings [1, 2]. Several studies in Saudi Arabia reported that approximately 33.0% to 34.9% of medical students experienced insomnia symptoms [3, 4], while studies in Iran found that the prevalence of sleep disorders among medical students may reach 59.0% to 71.1%, depending on the study and assessment method [5]. These findings indicate that sleep disorders are an important health concern in health sciences education.

Factors associated with sleep disorders among students are diverse, including academic stress, anxiety, depression, academic performance, year of study, gender, lifestyle habits, use of electronic devices at night, caffeine consumption, physical activity, and individual psychological characteristics [6-9]. In particular, the transition between academic years or years with a heavier professional workload may increase pressure and adversely affect students' sleep [3, 10].

In Vietnam, studies on sleep disorders among health sciences students need to be further expanded, especially in specific educational contexts. Assessing the status of sleep disorders and associated factors provides scientific evidence for universities to develop screening activities, counseling, sleep hygiene education, and mental health support for students. Therefore, this study was conducted to describe the status of sleep disorders and identify associated factors among health sciences students at Dai Nam University in 2023.

2. SUBJECTS AND METHODS

2.1. Study design: A cross-sectional descriptive study was conducted.

2.2. Study time and setting: The study was conducted in 2023 at Dai Nam University.

2.3. Study subjects: The study subjects were health sciences students at Dai Nam University, including students majoring in Medicine, Nursing, and Pharmacy, who were enrolled at the university during the survey period. The inclusion criteria were students who agreed to participate in the study and completed the questionnaire. Questionnaires with incomplete key information or invalid responses were excluded from the analysis.

2.4. Sample size and sampling method: A convenience

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sampling method was used. All health sciences students majoring in Medicine, Nursing, and Pharmacy who met the inclusion criteria were invited to participate. In practice, data from 447 students were collected and analyzed.

2.5. Study variables and indicators: The main groups of variables included demographic and academic characteristics, sleep quality components measured by the AIS-5, classification of sleep disorder status, and factors potentially associated with sleep disorders.

2.6. Measurement instrument and assessment method

Sleep disorder status was assessed using the 5-item Athens Insomnia Scale (AIS-5). The scale includes five items: sleep induction after lights out, awakenings during the night, final awakening earlier than desired, total sleep duration, and overall sleep quality. Each item is rated on a scale from 0 to 3, where 0 indicates normal/no problem and 3 indicates a severe problem or inability to sleep. The total AIS-5 score ranges from 0 to 15 points. Higher scores indicate more severe insomnia symptoms. In this study, students with an AIS-5 score > 4 were classified as having a sleep disorder [11].

2.7. Data processing and analysis

After collection, data were checked, cleaned, and analyzed using statistical software. Descriptive statistics were used to present frequencies, percentages, means, standard deviations, minimum values, and maximum values. Chi-square tests were used to analyze associations between participant characteristics and sleep disorder status. Multivariable logistic regression was used to identify factors associated with sleep disorders after simultaneous adjustment for variables in the model. Results were presented as adjusted odds ratios (aORs) and 95% confidence intervals (CIs). Statistical significance was set at $p < 0.05$.

2.8. Ethical considerations

Participation was voluntary after students had been informed about the objectives and contents of the study. Collected information was used only for research purposes, kept confidential, and not used to evaluate individual participants. The study did not adversely affect students' learning process or rights.

3. RESULTS

Table 1. General characteristics of the study participants

Characteristics	Male	Female	Total
Marital status			
Single	105 (35.96)	187 (64.04)	292 (65.32)
In a relationship	57 (38.78)	90 (61.22)	147 (32.89)
Married	2 (25.00)	6 (75.00)	8 (1.79)
Place of birth			
Rural	95 (35.71)	171 (64.29)	266 (59.51)
Urban	69 (38.12)	112 (61.88)	181 (40.49)
Current residence			
Living with family	59 (43.38)	77 (56.62)	136 (30.43)
Rented accommodation	86 (34.54)	163 (65.46)	249 (55.70)
Dormitory	14 (26.42)	39 (73.58)	53 (11.86)
Other	5 (55.56)	4 (44.44)	9 (2.01)
Academic major			
Medicine	102 (62.20)	62 (37.80)	164 (36.69)
Nursing	21 (21.65)	76 (78.35)	97 (21.70)
Pharmacy	41 (22.04)	145 (77.96)	186 (41.61)
Year of study			
First year	43 (46.74)	49 (53.26)	92 (20.58)
Second year	42 (38.89)	66 (61.11)	108 (24.16)
Third year	47 (41.23)	67 (58.77)	114 (25.50)
Fourth year	32 (24.06)	101 (75.94)	133 (29.75)
Total	164 (36.69)	283 (63.31)	447 (100.00)

Among the 447 students participating in the study, females accounted for a higher proportion than males (63.31% vs. 36.69%). Most students were single (65.32%), born in rural areas (59.51%), and currently living in rented accommodation (55.70%). Regarding academic major, Pharmacy students accounted for the highest proportion (41.61%), followed by Medicine (36.69%) and Nursing (21.70%). By year of study, fourth-year students accounted for the highest proportion (29.75%), while first-year students accounted for the lowest proportion (20.58%).

Table 2. Sleep quality of the study participants

Sleep quality item	Mean	Standard deviation	Min	Max
Sleep induction after lights out	0.50	0.78	0	3
Awakenings during the night	0.40	0.60	0	2
Final awakening earlier than desired	0.49	0.77	0	3
Total sleep duration	0.76	0.82	0	3
Overall sleep quality	0.66	0.75	0	3
Total AIS-5 score	2.81	2.83	0	14

Table 2 shows that the mean total AIS-5 score of the study

participants was 2.81 ± 2.83, ranging from 0 to 14 points. Among the sleep quality components, the highest mean score was observed for total sleep duration (0.76 ± 0.82), followed by overall sleep quality (0.66 ± 0.75). The lowest mean score was observed for awakenings during the night (0.40 ± 0.60). Overall, all items had low mean scores, indicating that the severity of sleep-related problems in the study group was generally not high.

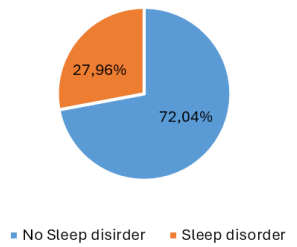

Figure 1. Classification of sleep disorders

Among the 447 students, 125 students had sleep disorders, accounting for 27.96%. Students without sleep disorders constituted the majority, with 322 students, corresponding to 72.04%.

Table 3. Factors associated with sleep disorders among the study participants

Characteristics	No sleep disorder n (%)	Sleep disorder n (%)	Adjusted OR (95% CI)
Gender			
Male	114 (69.51)	50 (30.49)	1
Female	208 (73.50)	75 (26.50)	1.29 (0.78–2.15)
Marital status			
Single	215 (73.63)	77 (26.37)	1
In a relationship	99 (67.35)	48 (32.65)	1.19 (0.75–1.90)
Married	8 (100.00)	0 (0.00)	—
Place of birth			
Rural	203 (76.32)	63 (23.68)	1
Urban	119 (65.75)	62 (34.25)	1.46 (0.89–2.41)
Current residence			
Living with family	97 (71.32)	39 (28.68)	1
Rented accommodation	180 (72.29)	69 (27.71)	1.44 (0.82–2.53)
Dormitory	39 (73.58)	14 (26.42)	1.26 (0.55–2.88)
Other	6 (66.67)	3 (33.33)	1.72 (0.38–7.83)
Academic major			
Medicine	102 (62.20)	62 (37.80)	1
Nursing	80 (82.47)	17 (17.53)	0.16 (0.07–0.35)**
Pharmacy	140 (75.27)	46 (24.73)	0.36 (0.18–0.72)**
Year of study			
First year	70 (76.09)	22 (23.91)	1
Second year	64 (59.26)	44 (40.74)	4.11 (1.97–8.59)**
Third year	85 (74.56)	29 (25.44)	0.94 (0.48–1.84)
Fourth year	103 (77.44)	30 (22.56)	1.88 (0.83–4.28)
Total	322 (72.04)	125 (27.96)	

** p<0,05; ** p < 0.05.*

The prevalence of sleep disorders among students was 27.96%. The prevalence was higher among males, students in a relationship, students born in urban areas, Medicine students, and second-year students. After adjustment in the multivariable logistic regression model, only academic major and year of study were significantly associated with sleep disorders. Nursing and Pharmacy students were less likely to have sleep disorders than Medicine students. In contrast, second-year students were more likely to have sleep disorders than first-year students, with an OR of 4.11 and a 95% CI of 1.97–8.59.

4. DISCUSSION

This study showed that the prevalence of sleep disorders among health sciences students at Dai Nam University in 2023 was 27.96%. The mean total AIS-5 score was 2.81 ± 2.83, indicating that the overall severity of insomnia symptoms was not high; however, nearly three out of ten students were classified as having a sleep disorder according to the AIS-5 cut-off. Among the scale components, the most prominent problems were total sleep duration and overall sleep quality, reflecting insufficient or unsatisfactory sleep in a proportion of students.

Compared with studies among health sciences students in many countries, the prevalence of sleep disorders in this study was lower than the commonly reported range of approximately 30% to 60%, with some studies reporting poor sleep quality above 70% [1, 12-14]. For example, studies among clinical medical students in Saudi Arabia reported that approximately 33.0% to 34.9% experienced insomnia symptoms [7, 9], while studies in Iran reported considerably higher rates of sleep disorders [14]. These differences may be related to measurement instruments, classification thresholds, survey timing, academic pressure, and the educational context of each institution.

In this study, Medicine students had the highest

prevalence of sleep disorders, while Nursing and Pharmacy students were significantly less likely to have sleep disorders than Medicine students after adjustment. This finding is consistent with the general observation that medical students often experience high academic pressure, a large volume of knowledge, and intensive class and practice schedules, all of which may affect sleep [6, 12, 13]. Previous studies have also reported that sleep disorders among medical students are associated with academic stress, academic performance, and accompanying psychological problems [6, 14].

Regarding year of study, second-year students had the highest prevalence of sleep disorders and were more likely to have sleep disorders than first-year students after adjustment. This may be the stage at which students begin adapting to a more intensive professional workload, increased study schedules, and higher self-study requirements. Previous studies have shown that year of study and transitional stages during training may affect sleep quality, especially when students face academic pressure, examinations, and changes in living environments [3, 10, 15].

Several characteristics, including gender, marital status, place of birth, and current residence, showed differences in the prevalence of sleep disorders but were no longer statistically significant in the multivariable model. In this study, males had a higher prevalence of sleep disorders than females, which differs from some previous studies reporting a higher risk of insomnia among females [3, 16]. Students born in urban areas and those in a relationship also had a higher prevalence of sleep disorders; however, these factors should be further examined in studies that include variables such as stress, anxiety, depression, electronic device use, caffeine consumption, lifestyle habits, physical activity, and examination pressure, as these factors have been shown to be closely related to sleep among students [7, 9, 16].

Based on these findings, the university should implement periodic screening for sleep disorders among health sciences students, particularly among Medicine students and second-year students. In addition, sleep hygiene education, time management, reduction of screen use at night, limitation of caffeine intake, and promotion of physical activity should be integrated into student support programs. School-based psychological counseling, stress management, and academic support should also be strengthened because stress, anxiety, depression, and academic pressure are frequently associated with sleep disorders among health sciences students [6, 8, 9].

This study has several limitations. First, the cross-sectional design only allows associations to be identified and cannot establish causal relationships. Second, sleep quality was assessed using a self-administered questionnaire, which may be affected by recall bias or subjective response tendencies. Third, the study focused on selected demographic and academic characteristics and did not deeply analyze important factors such as stress, anxiety, depression, electronic device use, caffeine consumption, physical activity, and examination pressure. In summary, sleep disorders are a noteworthy issue among health sciences students at Dai Nam University, with a prevalence of 27.96%; academic major and year of study were statistically significant associated factors. These findings suggest the need for early interventions to improve sleep quality and support students' mental health.

5. CONCLUSION

The study of 447 health sciences students at Dai Nam University in 2023 showed that the prevalence of sleep disorders was 27.96%. The mean total AIS-5 score was 2.81 ± 2.83, with the most prominent problems related to total sleep duration and overall sleep quality. Academic major and year of study were significantly associated with sleep disorders. These findings indicate the need for screening, counseling, and sleep hygiene education for students, particularly Medicine students and second-year students.

REFERENCES

[1] F. Alrashed, Abdulrahman Alsubiheen, Hessah Alshammari et al. (2022), "Stress, Anxiety, and Depression in Pre-Clinical Medical Students: Prevalence and Association with Sleep Disorders", Sustainability. doi: https://doi.org/10.3390/su141811320

[2] F. Alrashed, Kamran Sattar, Tauseef Ahmad et al. (2021), "Prevalence of insomnia and related psychological factors with coping strategies among medical students in clinical years during the COVID-19 pandemic", Saudi Journal of Biological Sciences, 28, pp. 6508-6514. doi: 10.1016/j.sjbs.2021.07.022.

[3] S. Ghosn, Mohammad Ali, N. Banu et al. (2024), "Prevalence of Sleep Disturbance Potential–Associated Factors among Undergraduate Pharmacy Students in Saudi Arabia", Journal of Pharmacy & Bioallied Sciences, 16, pp. 66-71. doi: 10.4103/jpbs.jpbs_1257_23.

[4] Mohamed Baklola, M. Terra, Mohamed Al-Barqi et al. (2024), "Prevalence of insomnia among university students in Saudi Arabia: a systematic review and meta-analysis", The Egyptian Journal of Neurology, Psychiatry and Neurosurgery, 60. doi: https://link.springer.com/article/10.1186/s41983-024-00914-9

[5] M. Belingheri, A. Pellegrini, Rita Facchetti et al. (2020), "Self-reported prevalence of sleep disorders among medical and nursing students", Occupational Medicine. doi: 10.1093/occmed/kqaa011.

[6] Reda Abdelmoaty Goweda, A. Hassan-Hussein, Mohammed Ali Alqahtani et al. (2020), "Prevalence of sleep disorders among medical students of Umm Al-Qura University, Makkah, Kingdom of Saudi Arabia", Journal of Public Health Research, 9. doi: 10.4081/jphr.2020.1921.

[7] M. Alsaggaf, S. Wali, R. Merdad and L. Merdad (2016), "Sleep quantity, quality, and insomnia symptoms of medical students during clinical years", Saudi Medical Journal, 37, pp. 173-182. doi: 10.15537/smj.2016.2.14288.

[8] Ahmed Yassin, Abdel-Hameed Al-Mistarehi, Othman Beni Yonis et al. (2020), "Prevalence of sleep disorders among medical students and their association with poor academic performance: A cross-sectional study", Annals of Medicine and Surgery, 58, pp. 124-129. doi: 10.1016/j.amsu.2020.08.046.

[9] Yuanlong Sun, Huiying Wang, Tao Jin et al. (2022), "Prevalence of Sleep Problems Among Chinese Medical Students: A Systematic Review and Meta-Analysis", Frontiers in Psychiatry, 13. doi: 10.3389/fpsyt.2022.753419.

[10] Farahmand Younes, Ghinwa Halawi, H. Jabbour et al. (2016), "Internet Addiction and Relationships with Insomnia, Anxiety, Depression, Stress and Self-Esteem in University Students: A Cross-Sectional Designed Study", PLoS ONE, 11. doi: 10.1371/journal.pone.0161126.

[11] C. Sancho-Domingo, J. L. Carballo, A. Coloma-Carmona and D. J. Buysse (2021), "Brief version of the Pittsburgh Sleep Quality Index (B-PSQI) and measurement invariance across gender and age in a population-based sample", Psychological Assessment, 33(2), pp. 111-121. doi: 10.1037/pas0000959.

[12] S. Chaabane, K. Chaabna, Salina Khawaja et al. (2025), "Epidemiology of sleep disturbances among medical students in the Middle East and North Africa: a systematic review and meta-analysis", Journal of Global Health, 15. doi: 10.7189/jogh.15.04099.

[13] S. Chaabane, K. Chaabna, Salina Khawaja et al. (2024), "Sleep disorders and associated factors among medical students in the Middle East and North Africa: a systematic review and meta-analysis", Scientific Reports, 14. doi: https://www.nature.com/articles/s41598-024-53818-2

[14] Arman Shafiee, J. Fili, Samane Ghafari et al. (2024), "The prevalence of sleep disturbance and its possible associated factors among Iranian medical students: A cross-sectional study with a national meta-analysis", Sleep Medicine: X, 7. doi: 10.1016/j.sleepx.2024.100107.

[15] Sadia Qazi, Abdal Ahmad, M. Khan et al. (2025), "Insomnia and Neuroticism in Pakistani Medical Students: A Cross-Sectional Study", Healthcare, 13. doi: https://doi.org/10.3390/healthcare13212778

[16] José Miguel Valdés, Francisco Diaz, P. Christiansen et al. (2022), "Mental Health and Related Factors Among Undergraduate Students During SARS-CoV-2 Pandemic: A Cross-Sectional Study", Frontiers in Psychiatry, 13. doi: 10.3389/fpsyt.2022.833263.