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INSOMNIA AND ITS ASSOCIATED FACTORS AMONG INDIAN MEDICAL STUDENTS IN VIETNAM: A CROSS-SECTIONAL STUDY USING THE ISI

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ABSTRACT

Objective: To describe sleep quality and explore associated factors among Indian medical students at Dai Nam University, Vietnam, in 2026.

Subjects and methods: A cross-sectional study was conducted in April 2026 among all first-year Indian medical students at Dai Nam University. Of 192 eligible students, 190 participated (response rate: 99.0%). Sleep quality was assessed using the Insomnia Severity Index (ISI). Descriptive statistics were used to summarize the data, while Chi-square tests and independent samples t-tests were applied to examine associations between insomnia and related factors.

Results: The mean ISI score was 9.96 ± 6.31 (range: 0–27). Overall, 61.05% of participants were classified as having insomnia (ISI ≥ 8). Mild insomnia was the most common category (39.47%), followed by no insomnia (38.95%), while moderate and severe insomnia accounted for 15.79% and 5.79%, respectively. Insomnia symptoms were mainly reported at mild to moderate levels across all ISI components. No statistically significant associations were observed between insomnia and gender, chronic disease, alcohol consumption, smoking status, GPA, or monthly living expenses (all $p > 0.05$).

Conclusion: Insomnia was highly prevalent among Indian medical students in Vietnam, predominantly at mild to moderate levels. Further studies incorporating psychological and environmental factors are needed to better understand sleep disturbances in this population.

Keywords: Insomnia; sleep quality; medical students; international students; Vietnam.

1. INTRODUCTION

Sleep quality is an important determinant of both physical and mental health, as well as academic performance, particularly among medical students who are exposed to high academic demands and intensive training schedules. Numerous studies have reported that insomnia and poor sleep quality are highly prevalent among university students, commonly assessed using validated instruments such as the Insomnia Severity Index (ISI) or the Pittsburgh Sleep Quality Index (PSQI). The prevalence of insomnia symptoms among students has been reported to range from approximately 25% to over 50% depending on the population and study context, and may be even higher during periods of increased academic stress [1-3].

Poor sleep quality has also been shown to be closely associated with psychological factors such as stress, anxiety, and depression, as well as lifestyle behaviors including alcohol use, smoking, and physical inactivity [3-5]. In addition, academic workload, living conditions, and levels of social support have been identified as important determinants of sleep quality among university students [6, 7]. However, most existing studies have focused on domestic student populations, while evidence regarding international students, particularly those studying medicine in Vietnam, remains limited.

International students may face unique challenges such as language barriers, cultural adaptation, and unfamiliar living environments, all of which can negatively affect sleep patterns and overall well-being. The lack of research focusing on this population highlights an important gap in the current literature.

Therefore, this study was conducted to describe sleep quality among Indian medical students at Dai Nam University, Vietnam, in 2026.

2. METHODS

2.1. Study population

The study targeted first-year Indian medical students enrolled at Dai Nam University, Vietnam, during the study period.

- Study setting and period: Data collection was carried out at Dai Nam University in April 2026.

- Study design: A cross-sectional descriptive study.

2.2. Sample size and sampling method

A census sampling strategy was applied. All 192 eligible students were invited to participate in the study, and 190 students completed the questionnaire, resulting in a response rate of 99.0%.

2.3. Variables and measurements

The primary outcome variable was insomnia, assessed using the Insomnia Severity Index (ISI). The ISI is a 7-item scale evaluating sleep difficulties over the past two weeks, with total scores ranging from 0 to 28, where higher scores indicate greater insomnia severity. Based on standard cut-off values, participants were categorized into four groups: no insomnia (0–7), mild insomnia (8–14), moderate insomnia (15–21), and severe insomnia (22–28). For analytical purposes, insomnia was also dichotomized into no insomnia (0–7) and insomnia (≥8).

Independent variables included socio-demographic

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characteristics (age, gender, marital status, and Vietnamese language proficiency), academic performance (GPA), and economic status (monthly living expenses). Health-related variables comprised the presence of chronic diseases and lifestyle behaviors, including smoking status, alcohol consumption, and physical activity (defined as sessions of at least 30 minutes per week).

2.4. Data collection methods and tools

Data were collected using a structured, self-administered questionnaire adapted for the study context. The questionnaire was distributed online via Google Forms, allowing participants to complete it voluntarily and anonymously. It included sections on demographic characteristics, health status, lifestyle behaviors, and sleep quality.

2.5. Data management and analysis

Data were cleaned, coded, and analyzed using Stata software. Descriptive statistics were used to summarize the data, including frequencies and percentages for categorical variables, and means with standard deviations for continuous variables.

Associations between categorical independent variables and insomnia were examined using the Chi-square test. For continuous variables, such as GPA and monthly living expenses, differences between groups (insomnia vs. no insomnia) were assessed using independent samples t-tests.

All statistical tests were two-tailed, and a p-value of less than 0.05 was considered statistically significant.

2.6. Ethical considerations

Participation in the study was voluntary, and informed consent was obtained from all participants prior to data collection. The survey was anonymous, and no identifying information was collected. All data were kept confidential and used solely for research purposes.

3. RESULTS

The study included 190 Indian medical students, with females accounting for the majority (67.89%) and males 32.11%. Nearly all participants were single (98.95%). Vietnamese language proficiency was mainly reported as fair (40.00%) and poor (35.79%), while only a small proportion reported good proficiency (11.06%). The mean age was 20.20 ± 1.38 years (range: 18–25), and the mean GPA in the last semester was 3.08 ± 0.25 (on a 4-point scale).

Regarding health status and behaviors, most participants reported no chronic diseases (93.16%). Health-risk behaviors were uncommon, with 97.37% being non-smokers and 94.21% reporting no alcohol consumption. The majority of students engaged in physical activity, with 88.42% participating at least once per week.

Table 1. Distribution of insomnia symptoms across ISI components among Indian medical students

Item	None n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	Very severe n (%)
Difficulty falling asleep	61 (32.11)	39 (20.53)	58 (30.53)	24 (12.63)	8 (4.21)
Difficulty staying asleep	78 (41.05)	34 (17.89)	56 (29.47)	18 (9.47)	4 (2.11)
Waking up too early	56 (29.47)	35 (18.42)	64 (33.68)	26 (13.68)	9 (4.74)
Satisfaction with sleep	16 (8.42)	47 (24.74)	71 (37.37)	39 (20.53)	17 (8.95)
Sleep problem noticeable	67 (35.26)	46 (24.21)	50 (26.32)	19 (10.00)	8 (4.21)
Worried about sleep	62 (32.63)	43 (22.63)	51 (26.84)	20 (10.53)	14 (7.37)
Interference with daily function	55 (28.95)	49 (25.79)	51 (26.84)	21 (11.05)	14 (7.37)
ISI (mean ± sd, min – max)	9.96 ± 6.31, 0 - 27				

Moderate levels ranged from 26.84% to 37.37% and mild levels from 17.89% to 25.79% across ISI components, while severe levels ranged from 9.47% to 20.53% and very severe levels from 2.11% to 8.95%. The mean ISI score was 9.96 ± 6.31, ranging from 0 to 27.

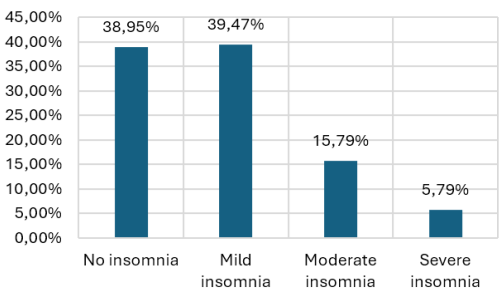


Figure 1. Distribution of insomnia severity based on ISI classification among Indian medical students (n = 190)

Mild insomnia was the most common category (39.47%), followed by no insomnia (38.95%). Moderate and severe insomnia accounted for smaller proportions, at 15.79% and 5.79%, respectively (Figure 1).

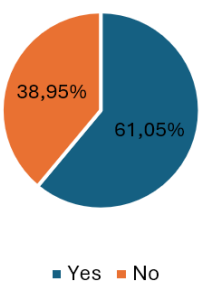


Figure 2. Prevalence of insomnia among Indian medical students

The majority of participants had insomnia (61.05%), while 38.95% reported no insomnia (Figure 2).

Table 2. Factors associated with insomnia (ISI ≥ 8) among Indian medical students in Vietnam (n = 190)

Characteristics	No insomnia n (%)	Insomnia n (%)	p-value
Gender			
Male	28 (45.90)	33 (54.10)	0.176
Female	46 (35.66)	83 (64.34)	
Chronic disease			
No	69 (38.98)	108 (61.02)	0.97
Yes	5 (38.46)	8 (61.54)	
Alcohol consumption			
No	70 (39.11)	109 (60.89)	0.856
Yes	4 (36.36)	7 (63.64)	
Smoking status			
Non-smoker	72 (38.92)	113 (61.08)	0.961
Smoker	2 (40.00)	3 (60.00)	
GPA (mean ± SD)	3.09 ± 0.19	3.08 ± 0.28	0.812
Monthly expenses (USD, mean ± SD)	81.04 ± 63.78	94.72 ± 116.22	0.359

No statistically significant associations were observed between insomnia and gender, chronic disease, alcohol consumption, smoking status, GPA, or monthly living expenses (all $p > 0.05$).

4. DICUSSION

This study revealed a high prevalence of insomnia among first-year Indian medical students in Vietnam, with 61.05% of participants classified as having insomnia (ISI ≥ 8) and a mean ISI score of 9.96 ± 6.31. Insomnia symptoms were observed across multiple dimensions, including difficulty initiating sleep, maintaining sleep, and early awakening, with most symptoms reported at mild to moderate levels. No statistically significant associations were found between insomnia and socio-demographic factors, health behaviors, GPA, or monthly living expenses.

The prevalence of insomnia in this study is higher than that reported among medical students in Jordan, where approximately 49.9% had subthreshold insomnia symptoms [1], and comparable to findings from Italy, where 54.8% of university students exceeded the ISI threshold [3]. However, it is lower than the extremely high prevalence reported among Pakistani medical students during examination periods, where up to 89% had ISI ≥ 8 [2]. These variations may reflect differences in study context, academic stress levels, and timing of data collection, particularly the influence of examination stress and pandemic-related disruptions.

The distribution of insomnia severity in this study indicates that mild and moderate levels predominated across all ISI components, while severe and very severe levels were less common. This pattern is consistent with previous research showing that most students experience subclinical or moderate sleep disturbances rather than severe insomnia [1], [3]. The mean ISI score observed in this study is also comparable to that reported in Jordan (11.2 ± 5.2) [1], suggesting a similar overall burden of sleep disturbance. Notably, symptoms such as difficulty falling asleep and waking up too early showed relatively high proportions of moderate severity, highlighting common sleep regulation issues in this population.

No significant associations were found between insomnia and the variables examined. This contrasts with prior studies demonstrating strong relationships between insomnia and psychological factors such as depression, anxiety, and stress, which can increase the risk of sleep disturbances by 3–5 times [3-5, 7]. Behavioral factors, including alcohol use, smoking, and physical inactivity, have also been identified as contributors to poor sleep quality [5-8]. The absence of significant findings in the present study may be due to the relatively homogeneous sample, limited variability in behaviors (e.g., low rates of smoking and alcohol use), and the lack of assessment of key psychological variables.

A key feature of this study is its focus on Indian medical students studying in Vietnam, a group that may experience unique challenges compared to domestic students. Factors such as cultural adaptation, language barriers, and unfamiliarity with the local academic and healthcare systems may influence sleep patterns. Previous research has shown that stress related to academic workload, financial pressure, social support, and living conditions can significantly impact sleep quality [5, 6, 9, 10]. These contextual factors are particularly relevant for international students but were not fully captured in the current study, which may explain the limited associations observed.

This study has several limitations. First, the cross-sectional design precludes causal inference. Second, the use of self-reported data may introduce recall and reporting bias. Third, the study was conducted among first-year students at a single institution, limiting generalizability. Additionally, the absence of key variables such as stress, anxiety, depression, and lifestyle factors (e.g., screen time or internet use) may have led to an incomplete understanding of the determinants of insomnia.

5. CONCLUSION

In conclusion, insomnia is highly prevalent among Indian medical students in Vietnam, with most cases occurring at mild to moderate levels. Although no significant associated factors were identified, the findings highlight the need for further research incorporating psychological, behavioral, and environmental variables. Interventions aimed at improving sleep hygiene and mental health support should be considered, particularly for international students adapting to new academic and cultural environments.

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