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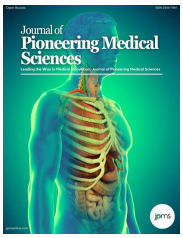

Prevalence and Factors Influencing Insomnia among College Students in a Private University in Chennai

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Abstract **Objectives:** The review of national and international literature, indicates that upto 75% of college students face intermittent sleep disturbances, and 15% report persistent declines in sleep quality. This study is aimed to estimate the prevalence of insomnia among college students and identify the factors that influence insomnia. **Method:** A cross-sectional study was conducted in institutions affiliated with the Dr MGR Educational and Research Institute, involving 1,222 students aged between 18 to 25 years, from December 2022 to April 2023. Participant information was acquired using a standardised proforma. Demographic details and anthropometric measurements were meticulously recorded during data collection. The data collection involved administering a questionnaire to gather pertinent information from study participants. **Results:** The study population included 580 (47.5%) females and 642 (52.5%) males, distributed across academic years, as follows: 476 (39%) in the second year, 324 (26.5%) in the third year, 240 (19.6%) in the fourth year, 172 (14.1%) in the first year, and 10 (0.8%) in the fifth year. Body Mass Index classifications were 12.9% underweight, 50.1% normal weight, 23.9% overweight, and 13.1% obese. The Global PSOI Score analysis revealed a significant negative correlation with age ($\rho = -0.098$, $p=0.001$). Noteworthy patterns were observed across demographic categories, with significant variations according to sex, academic year, BMI, and type of residence. **Conclusion:** This study provides crucial insights into the complex relationship between demographic factors and perceived stress as sleep disturbances among college students, emphasising the need for tailored interventions to mitigate stressors and enhance well-being in this population.

Key Words Insomnia, Sleep quality, sleep practices, internet addiction, mental health, poor academic performance

INTRODUCTION

Background

The guidelines established by the National Sleep Foundation, the American Academy of Sleep Medicine, and the Sleep Research Society advocate a sleep duration of 7 to 9 hours for young adults [1]. Nevertheless, most college students, constituting at least 60%, experience suboptimal sleep quality, obtaining an average nightly sleep duration of 7 hours [2]. Prior investigations indicate that up to 75% of college students encounter intermittent sleep disturbances, with 15% reporting a pervasive decline in sleep quality [3]. In a separate study involving 191 undergraduate students, it was observed that 73% exhibited various sleep-related issues, with a higher prevalence among female students than their male counterparts [4]. Adverse outcomes stemming from inadequate sleep among college students include heightened tension, irritability, depression, cognitive confusion, diminished life satisfaction, and subpar academic performance [4]. Substantial evidence supports a positive correlation between academic underachievement, low grade point average, unfavorable academic outcomes, and patterns indicative of poor sleep quality [5].

Rationale and Knowledge Gap

Given the early onset of these complications in the academic lives of students, there is a high risk for progression into more severe health issues such as hypertension, diabetes,stroke and mental health illnesses, thereby contributing to a burgeoning

public health predicament. The repercussions of insomnia extend beyond academic performance, weakening both physical and mental functions, potentially precipitating mental health issues or vice versa [6].

Investigations into the prevalence of sleep-related challenges among medical students underscore elevated academic demands, examination-related stress, late-night Internet utilisation, mental health issues, and heightened daytime sleepiness [7]. The spectrum of mental health issues among students, encompassing mild to severe symptoms of depression, anxiety, and stress, exhibited prevalence rates ranging from 46.92-82.4%, 26.6-96.82%, and 28.5-70.1%, respectively. Notably, a meta-analytic study revealed that students are grappling with elevated rates of depression, anxiety, and stress compared to both the general population and healthcare professionals [8]. The determinants influencing the occurrence of insomnia can be categorically delineated into five principal factors: (i) mental health concerns, (ii) the consumption of stimulants, (iii) suboptimal sleep hygiene practices, (iv) engagement with social media and other entertainment platforms, and (v) an excess of academic workload.

This study aimed to estimate the prevalence of insomnia among college students and identify the factors that influence insomnia.

Objective:

- To estimate the prevalence of insomnia among the college students in a private university in Chennai.
- To study the various factors influencing insomnia among the college students in a private university in Chennai.

METHODS

This cross-sectional study investigated the prevalence of sleep deprivation among college students in institutions affiliated with the Dr. MGR Educational and Research Institute, Maduravoyal, Chennai, and Tamil Nadu, from December 2022 to April 2023. The participating institutions included ACS Medical College, Sri Lalithambigai Medical College, Thai Moogambigai Dental College, Faculty of Pharmacy, Physiotherapy, Dr. MGR Engineering College, and Faculty of Law.

Inclusion Criteria

The study included college students aged 18-25 who provided informed consent.

Exclusion Criteria

Exclusion criteria included students with known genetic or syndromic abnormalities, those with chronic systemic medical conditions (such as cardiac, renal, or neurologic illnesses), and those who refused to provide consent.

These criteria aimed to ensure a focused examination of the target population and collect data from participants without significant genetic or chronic medical complexities that could impact the study's outcomes. The sample size (N = 1222) was calculated based on a 30% prevalence of sleep disorders among college students, as the Gaultney [9] study reported. Using a limit of accuracy of 2.5% and a Z value of 1.96, calculations were performed to ensure a representative sample for the study. Detailed explanations of the study protocol and its objectives were provided to the college authorities and parents of the study participants. Subsequently, necessary approval was obtained from the college authorities. Participant information was acquired using a standardized proforma after getting an informed consent. Demographic details and anthropometric measurements were meticulously recorded during data collection. The data collection process involved administering a questionnaire to gather pertinent information from study participants. The collected data were analysed using SPSS software version 24.0.

RESULTS

The study population consisted of 1,222 participants, of whom 580 (47.5%) were female and 642 (52.5%) were male. Regarding the distribution across academic years, the majority were in the second year (476 participants, 39%), followed by the third year (324 participants, 26.5%), fourth year (240 participants, 19.6%), first year (172 participants, 14.1%), and a smaller proportion in the fifth year (10 participants, 0.8%). Body Mass Index (BMI) classifications revealed that 158 participants (12.9%) were underweight, 612 (50.1%) had normal weight, 292 (23.9%) were overweight, and 160 (13.1%) were obese. In terms of residence, the majority of participants resided in family homes (668 participants, 54.7%), followed by student hostels (352 participants, 28.8%), apartments with friends (106 participants, 8.7%), apartments alone (52 participants, 4.3%), and with relatives (44 participants, 3.6%) (Table 1).

The analysis of the Global PSOI Score revealed a statistically significant negative correlation with age, as indicated by Spearman's rho ($p = -0.098$, $p = 0.001$) (Table 2).

Table 1: Demographic details of the participants

Parameters	Frequency	Percentage
Sex		
Female	580	47.5
Male	642	52.5
Year of study		
1	172	14.1
2	476	39.0
3	324	26.5
4	240	19.6
5	10	0.8
BMI		
Underweight	158	12.9
Normal weight	612	50.1
Overweight	292	23.9
Obese	160	13.1
Type of residence		
Alone in apartment	52	4.3
Apartment with friends	106	8.7
Family home	668	54.7
Student Hostel	352	28.8
With Relatives	44	3.6

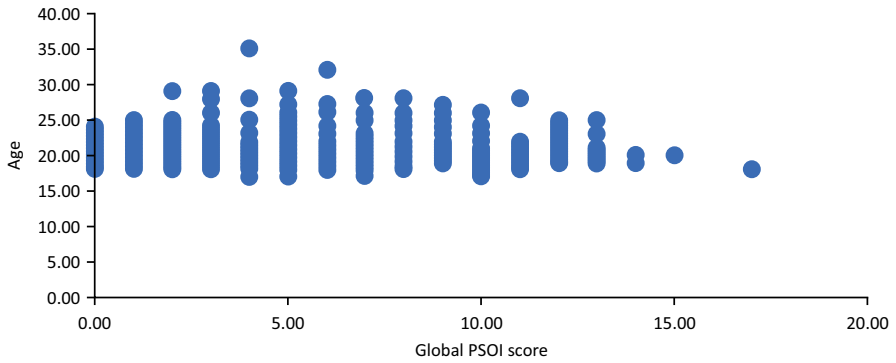

Figure 1: Global PSOI score analysis

Table 2. Global PSOI score analysis

Spearman's rho	Global PSOI score
Age	
Correlation Coefficient	-0.098
p-value	0.001

Table 3: Comparison of global PSOI score with patient parameters

	Global PSOI Score			
Parameters	Median	Percentile 25	Percentile 75	p-value
Sex				
Female	5.00	3.00	8.00	0.002
Male	4.00	2.00	7.00	
Year of study				
1	6.00	4.00	8.00	<0.0001
2	3.00	2.00	6.00	
3	5.00	2.00	8.00	
4	5.50	3.50	8.00	
5	7.00	5.00	9.00	
BMI				
Underweight	5.00	3.00	8.00	0.012
Normal weight	5.00	3.00	8.00	
Overweight	4.00	2.00	7.00	
Obese	3.50	2.00	8.00	
Type of residence				
Alone in apartment	5.50	2.00	9.00	<0.0001
Apartment with friends	7.00	3.00	9.00	
Family home	5.00	3.00	7.00	
Student Hostel	4.00	2.00	6.00	
With Relatives	5.00	2.00	9.00	

The Global PSOI Score was analysed across various demographic categories, revealing noteworthy patterns. Female participants exhibited a median score of 5.00 (25th percentile = 3.00, 75th percentile = 8.00), whereas male participants had a slightly lower median of 4.00 (25th percentile = 2.00, 75th percentile = 7.00). A statistically significant difference was observed between the two groups (p = 0.002). Regarding participants' academic progression, significant variations were found across the study years (p<0.0001). First-year students had a median score of 6.00 (25th percentile = 4.00, 75th percentile = 8.00), while the medians for subsequent years ranged from 3.00 to 7.00. Body Mass Index (BMI) categories also demonstrated significant differences (p = 0.012), with underweight individuals having a median score of 5.00 (25th percentile = 3.00, 75th percentile = 8.00). Notably, the type of residence significantly influenced the Global PSOI Score (p<0.0001), with those living alone in apartments having a median score of 5.50 (25th percentile = 2.00, 75th percentile = 9.00). These findings highlight the nuanced association between demographic factors and global PSOI scores in the study population (Table 3).

DISCUSSION

Key Findings

The present study provides valuable insights into the interplay between demographic characteristics and global PSOI scores in a diverse cohort of 1,222 participants. As outlined in Table 1, the demographic profile of the participants reflects a balanced representation of both sexes, with slightly more males (52.5%) than females (47.5%). The distribution across academic years highlights a predominance of second-year students (39%), followed by third-year students (26.5%), fourth-year students (19.6%), first-year students (14.1%), and a smaller contingent in the fifth-year (0.8%). Additionally, the BMI classifications indicated a diverse composition, with 50.1% falling within the normal weight range, whereas 23.9% and 13.1% were categorised as overweight and obese, respectively. A similar cross-sectional study conducted by Solanki *et al.* [8] reported parallel findings among 122 participants, of whom 46.7% were males and 53.3% were females. However, the study did not assess BMI and other parameters. Table 2 and Figure 1 show that the correlation analysis revealed a statistically significant negative correlation between the Global PSOI Score and age (ρ = -0.098, p = 0.001). Our study suggests that as age increases, there is a tendency for a reduction in perceived stress related to academic and personal life. A large-scale study demonstrated that most of the students with insomnia were affected in the age group of 17 to 27 years, with a mean age of 20.52±1.928 years, with an increasing incidence of insomnia after 30 years of age [10]. This finding is not consistent with our study, where we have seen an decreasing trend for insomnia with the study age group, probably because the participants age group is within 5 years. Older age was positively associated with insomnia, representing it as an essential risk factor [11].

Females exhibited a higher median score than males, indicating potentially higher perceived stress levels.

Comparison with Similar Research

A study conducted by Swathika et al. reported similar observations where females were more prone to high stress levels, resulting in insomnia [12]. This is consistent with the existing literature on gender differences in stress perception among college students [8]. First-year students reported higher median scores, possibly indicative of the transitional challenges associated with the initial year of collegiate education. The influence of academic progression was evident, with significant scores varying throughout the study. Zhang *et al.* [10] also reported a significant variation across study years, in which participants who were in their first year of college were more prone to insomnia. This can be attributed to adjustment to new environments, places, and situations [10]. Noteworthy differences are also discerned in the context of BMI classifications, with underweight individuals exhibiting a higher median PSQI Score. Mbous et al. reported similar findings; no significant difference between BMI and insomnia was observed [13].

The impact of residence type on stress levels is particularly striking. Participants living alone in apartments demonstrated a higher median Global PSOI Score than those living in other settings. This underscores the potential influence of environmental factors on stress perception and emphasizes the need for targeted interventions in specific living arrangements. A recent systematic review and meta-analysis reported similar study findings where college students in India are at higher risk of developing insomnia, which ranges from 20% to 40% with grade IA [14].

Strengths and Limitations

Our study findings correlate with the literature, where the development of insomnia was majorly seen in young students living alone or away from families. A significant association was also reported between age groups, study duration, years, and the development of insomnia. The limitation of the study is that it was done in one university limited to one geographical area, the study results. The study questionnaire was not converted to local language and was hence translated, leading to bias.

CONCLUSIONS

This study revealed a prevalence of insomnia among college students (71.30%). The factors contributing to insomnia includes excessive workload, mental health issues, improper sleep hygiene, social media usage, and stimulant consumption. Most respondents experienced sleep onset-related insomnia, emphasizing the need for targeted interventions. The study also found significant correlations between demographic factors, such as age, sex, academic progression, BMI, type of residence, and the Global PSOI Score. Future research should explore tailored interventions to enhance well-being in this population.

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