

Original research article

Evaluation of sleep disturbances in medical students and their impact on physical and psychological well-being: An institutional study

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Abstract

Introduction: Medical students often face intense academic and clinical pressures, potentially leading to sleep disturbances. This study aims to evaluate the prevalence of sleep disturbances among medical students and its implications on their physical and psychological well-being.

Material and Methods: A cross-sectional study was conducted at the Department of General Medicine, in collaboration with the Department of Psychiatry, Mamata Medical College. A sample of 150 medical students participated. Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI), while psychological well-being was gauged through the Patient Health Questionnaire-9 (PHQ-9).

Results: Over half (53.3%) of the participants reported poor sleep quality (PSQI > 5). The most common sleep disturbance was difficulty falling asleep (33.3%), followed by frequent night awakenings (30%). Psychological assessment revealed that 66.7% of students reported varying degrees of depression severity. A direct correlation was observed between sleep quality and depression severity.

Conclusion: Sleep disturbances are prevalent among medical students and correlate with psychological distress. The findings underscore the importance of addressing sleep and mental health challenges in this population to ensure their overall well-being and effective functioning in the demanding medical field.

Keywords: Medical students, sleep disturbances, psychological well-being, depression, sleep quality

Introduction

Sleep is a fundamental physiological process, vital for cognitive function, emotional well-being, and overall health. However, in the demanding environment of medical education, sleep disturbances are not uncommon among students, potentially affecting their physical and psychological health ^[1].

The rigors of medical training are multifaceted. Medical students often grapple with extensive academic loads, clinical rotations, and the emotional toll of patient care. These demands can significantly impinge on their sleep quality and duration, setting the stage for a myriad of health implications ^[2].

Research has consistently shown that insufficient sleep is linked to a decrease in cognitive functions such as attention, memory, and decision-making ^[3]. For medical students, this can translate to academic struggles, reduced clinical competency and increased susceptibility to errors in patient care. Moreover, chronic sleep deprivation can have profound implications for the immune system, metabolic health and cardiovascular function ^[4].

Psychologically, the effects of sleep disturbances can be even more pronounced. Medical students with poor sleep patterns are at a heightened risk for mood disorders, including depression and anxiety ^[5]. The stressors of medical education, combined with insufficient rest, can exacerbate feelings of burnout, a phenomenon already prevalent in this population ^[6].

The cultural backdrop of the medical community, which sometimes valorizes long working hours and marginalizes the importance of self-care, can further contribute to sleep neglect ^[7]. While short-term sacrifices are often seen as rites of passage, the long-term consequences on students' well-being are concerning.

Recent studies have suggested that the prevalence of sleep disorders among medical students might be higher than previously thought. A study conducted at Stanford University found that up to 40% of

medical students had symptoms of a sleep disorder [8]. Another study in Saudi Arabia echoed these findings, with 31% of medical students reporting poor sleep quality [9].

The objective of our institutional study is to evaluate the prevalence of sleep disturbances among medical students and understand its repercussions on their physical and psychological well-being. Given the pivotal role of medical students in the future healthcare system, understanding, and addressing these issues is of paramount importance.

Materials and Methods

This was a collaborative cross-sectional study conducted at the Department of General Medicine, in conjunction with the Department of Psychiatry, Mamata Medical College. A total of 150 medical students from Mamata Medical College participated in the study.

Inclusion criteria

- Medical students enrolled at Mamata Medical College during the study period.
- Students willing to provide informed consent.

Exclusion criteria

- Students with a known psychiatric illness prior to medical school.
- Students on medications that can alter sleep patterns or mood.

Data collection

After obtaining informed consent, participants were given a structured questionnaire to assess their sleep patterns, sleep quality, and any sleep-related disturbances. The questionnaire also included sections to evaluate the psychological well-being of the participants.

For a comprehensive assessment of sleep disturbances, the Pittsburgh Sleep Quality Index (PSQI) was used [10]. This tool evaluates various facets of sleep, including latency, duration, efficiency, and disturbances, over a 1-month period.

To gauge the psychological well-being and identify potential mood disorders, the Patient Health Questionnaire-9 (PHQ-9) was employed [12]. This self-administered instrument assesses the severity of depressive symptoms.

Statistical analysis: Data were collated and entered into specific software SPSS. A p-value of less than 0.05 was considered statistically significant.

Results

Table 1: Demographic and Sleep Characteristics of Participants

Characteristic	Number (or Mean)
Total Participants	150
Male	90
Female	60
Mean Age (years)	22
Average Sleep Duration (hours)	6
Students with Poor Sleep Quality (PSQI > 5)	80

This table delineates the basic demographic and sleep characteristics of the 150 medical students who participated in the study. Notably, a majority (60%) of the participants were male. The mean age of the cohort was 22 years, reflecting a typical age range for medical students. On average, students slept for 6 hours nightly. Concerningly, over half (53.3%) of the students reported poor sleep quality as indicated by a Pittsburgh Sleep Quality Index (PSQI) score greater than 5.

Table 2: Distribution of Sleep Disturbances among Participants

Sleep Disturbance	Number of Students	Percentage (%)
Difficulty Falling Asleep	50	33.3%
Frequent Night Awakenings	45	30%
Early Morning Awakenings	40	26.7%
Nightmares	30	20%

Table 2 provides insights into the specific sleep disturbances experienced by the students. A significant proportion (33.3%) reported difficulty falling asleep, while frequent night awakenings and early morning awakenings were reported by 30% and 26.7% of the students, respectively. Additionally, 20% of the participants experienced nightmares, which can be indicative of stress or underlying psychological issues.

Table 3: Psychological Well-being Assessment (Using PHQ-9 Scores)

PHQ-9 Score Range	Number of Students	Percentage (%)
0-4 (Minimal Depression)	50	33.3%
5-9 (Mild Depression)	40	26.7%
10-14 (Moderate Depression)	35	23.3%
15-19 (Moderately Severe Depression)	25	16.7%

This table sheds light on the psychological well-being of the participants, as assessed by the Patient Health Questionnaire-9 (PHQ-9) scores. While 33.3% of the students exhibited minimal depression symptoms, a concerning 66.7% reported varying degrees of depression severity. Specifically, 26.7% had mild depression, 23.3% reported moderate depression, and 16.7% exhibited moderately severe depressive symptoms. This underscores the psychological toll medical training may exert on students, especially when coupled with sleep disturbances.

Table 4: Correlation Between Sleep Quality (PSQI) and Depression Severity (PHQ-9 Scores)

PSQI Score Range	Average PHQ-9 Score
0-5 (Good Sleep Quality)	4
6-10 (Poor Sleep Quality)	8
11-15 (Very Poor Sleep Quality)	12
>15 (Extremely Poor Sleep Quality)	18

Table 4 delves into the correlation between sleep quality and depression severity. As sleep quality deteriorated (elevated PSQI scores), the average PHQ-9 score, indicating depression severity, also increased. Students with good sleep quality had a mean PHQ-9 score of 4 (minimal depression), while those with extremely poor sleep quality had an average score of 18, which suggests moderately severe depression. This highlights the interplay between sleep disturbances and psychological health, emphasizing the potential cumulative effects of poor sleep on mental well-being.

Discussion

The relationship between sleep quality and overall health is well-established in medical literature. Our study, focusing on medical students at Mamata Medical College, further underscores the intricate interplay between sleep disturbances and their repercussions on both physical and psychological well-being.

Table 1 from our findings indicates a significant number of students, over half, reported poor sleep quality. This is consistent with global findings that emphasize the sleep challenges faced by medical students. A study conducted at Harvard Medical School found that medical students, especially during their clinical years, reported reduced sleep duration and quality due to academic pressures and clinical responsibilities ^[13].

Our results in Table 2 point towards specific sleep disturbances, with difficulty in falling asleep being the most prevalent. This can be attributed to several factors including academic stress, irregular schedules, and the emotional demands of patient care ^[14]. Furthermore, the occurrence of nightmares in 20% of the participants may suggest elevated stress levels, potentially stemming from academic pressures and the vicarious trauma of patient care ^[15].

The psychological impact of sleep disturbances, as presented in Table 3, is concerning. Over two-thirds of our participants reported some degree of depression. This is consistent with previous findings that link sleep disturbances with mood disorders. A study by Roberts and Duong emphasized that sleep disturbances during adolescence and young adulthood can significantly predict the onset of depression and anxiety in later years ^[16].

Table 4 delves deeper into this relationship, suggesting a direct correlation between sleep quality and depression severity. This aligns with research by Baglioni *et al.*, who highlighted that individuals with insomnia have a tenfold risk of developing depression compared to those without sleep disturbances (16). The academic and clinical pressures of medical education, coupled with the prevailing culture that often marginalizes self-care, contribute to the sleep challenges faced by medical students. Chronic sleep deprivation and disturbances can have a cascading effect, leading not only to academic and clinical challenges but also to long-term health implications. Our findings underscore the urgent need for interventions, including counseling, sleep hygiene education, and possibly curricular reforms to address this pervasive issue.

In conclusion, our study accentuates the profound implications of sleep disturbances on the physical and psychological health of medical students. As future healthcare providers, their well-being is paramount. Medical institutions need to recognize and address these challenges, ensuring that students are equipped not just academically, but also holistically, to manage the demands of the medical profession.

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