



EVALUATION OF SLEEP QUALITY INDEX IN POSTGRADUATE MEDICAL STUDENTS IN INDIA

Social Science

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ABSTRACT

Background: Sleep quality is defined as the satisfaction of the sleep experience, integrating aspects of sleep initiation, sleep maintenance, sleep quantity, and refreshment upon awakening. It is important to measure sleep quality in postgraduate medical students and this study aims to monitor it across the various years of the course.

Methodology: A cross-sectional study involving medical postgraduates students at the Postgraduate Institute of Medical Sciences and Research & Dr. Ram Manohar Lohia Hospital, New Delhi was conducted. All first- to third-year postgraduate students were invited to participate. It was a self-rated questionnaire based study using the Pittsburgh Sleep Quality Index (PSQI).

Results: Poor sleep quality as observed using raised global PSQI of more than 5 was seen in 104 students (74%). Of this, 39 students belonged to third year (88.6%), 37 students were from second year (74%) and 28 students were from first year (59.6%). Only 26% of students showed an adequate sleep quality with global PSQI <5. The mean global PSQI scores for students in first, second and third year were 6.2, 6.6 and 7.8 respectively reflecting that third year students were most affected.

Conclusion: Postgraduate medical students have more sleep disturbance with impaired sleep quality. Sleep quality has a strong influence on physical and mental health. Active intervention is required to improve sleep hygiene in these students.

KEYWORDS

Postgraduate students, Medical, Sleep, Quality, PSQI

INTRODUCTION

Sleep quality is defined as the satisfaction of the sleep experience, integrating aspects of sleep initiation, sleep maintenance, sleep quantity, and refreshment upon awakening. Sleep quality is a vital construct to clinicians due to the high prevalence of disturbed sleep and insomnia. Sleep quality has been studied among university students.¹ Such studies have shown impairments in sleep quality, which are even greater when it comes to medical students, who have a heavy academic load and clinical responsibilities great impact on sleep quality. These students are especially prone to irregular sleep pattern, with poor sleep quality having a long term effect on their physical and mental health.² Sleep deprivation is known to reduce function of immune system and hypothalamus leading to memory reduction and reduced learning ability. Sleep disturbances have a concomitant effect on mental health. Studies suggest that insomnia increases the risk of depression by four times and can be used as an early marker for depression, anxiety and alcohol abuse.³ Since impairment in sleep quality directly affects academic performance and also emotional health it is the important to measure sleep quality in postgraduate medical students and monitoring it across the various years of the course.⁴ Research in this area is important to improve general sleep education for postgraduate medical students, to identify students at risk, and target them with programs to improve sleep.

METHODS

A cross-sectional study involving medical postgraduates students at the Postgraduate Institute of Medical Sciences and Research & Dr. Ram Manohar Lohia Hospital, New Delhi was conducted from October 2017 to March 2019. All first- to third-year postgraduate students were invited to participate. It was a questionnaire based study using the Pittsburgh Sleep Quality Index (PSQI).⁵ The PSQI is used worldwide and is validated for assessing sleep disorders. Its seven components—subjective sleep quality; sleep latency; sleep duration; habitual sleep efficiency; sleep disturbances; use of sleeping medication; and daytime dysfunction—were analyzed separately. The range of score for the questionnaire is from 0 to 21 points, and scores ≥ 5 signify poor sleep quality, indicating sleep disturbance. The sum of the seven component scores produces a global score. Data was collected over three months. The study was approved by the hospital research ethics committee and participants gave written informed consent.

INCLUSION CRITERIA:

All students who completed the PSQI fully within the specified period were included in the study.

EXCLUSION CRITERIA:

The students who declined to participate in the study or who did not complete the entire questionnaire were excluded.

DATA ANALYSIS:

Statistical analysis was carried out using Microsoft Excel Spreadsheet. Analysis was performed using the proportion of responses as a function of each component. Chi square test was used for among group comparison of the components of PSQI and Student's t test was used for between group comparison of the global score.

RESULTS:

Of the total 164 students recruited in the study, 141 students completed the questionnaire and were enrolled in the study. There were 47 (33.3%) first year students, 50 (35.5%) second year students and 44 (31.2%) third year students from various disciplines. Of the total, 79 were males and 62 were females. Average age distribution was from 24 to 29 years, with the mean age of 25.8 years.

Poor sleep quality as observed using raised global PSQI of more than 5 was seen in 104 students (74%). Of this, 39 students belonged to third year (88.6%), 37 students were from second year (74%) and 28 students were from first year (59.6%). Only 26% of students showed an adequate sleep quality with global PSQI <5.

With regard to subjective sleep quality, 36% students reported the sleep quality to be very bad or fairly bad. The average duration of sleep per night was 6 hours 2 minutes for third years, 6 hours 49 minutes for second years and 7 hours 3 minutes for first years. The sleep latency was affected in 34% (48 students) who took more than 30 minutes to fall asleep two or more times a week. An indicator of daytime dysfunction reported as difficulty in staying awake during the day at least once a week was seen in 41% (58 students). Of the total students, 10% (14 participants) also had to take medication for sleep at least once a week. The mean global PSQI scores for students in first, second and third year were 6.2, 6.6 and 7.8 respectively reflecting that third year students were most affected.

DISCUSSION

The quality of sleep is essential for optimal health and functioning of an individual and is an important aspect of maintaining the body's circadian rhythm. Post graduate medical students are a group of people whose sleep habits vary due to their academic and professional lifestyle leading to poor sleep habits and sleep deprivation. Several

studies have shown an important relationship between sleep patterns with learning capacity and consequent academic performance.⁴

PSQI is extremely important tool for the monitoring of sleep health and can help in the planning of interventions and improving the sleep quality.⁵ Our study found a very large proportion of affected students with 74% having impaired sleep quality. This was much more than the reported numbers in literature which ranges from 40% to 60.9%.⁴ The third year students were affected most in our study unlike studies that reported the entry first year students were affected the most.

The sleep latency was affected in 34% of students and the average sleep duration ranged from 6 to 7 hours on an average which is consistent with studies in medical students. Day time dysfunction is also seen in 41 % of cases. This is consistent with the literature, although there are variations across studies in the proportion of medical students reporting daytime sleepiness from 31% to 63%.¹

There was frequent use of sleeping medication in 10% of the participants in the present study, but this proportion is lower than that found in a study involving medical students in Saudi Arabia, which identified that 17% of those students used drugs for sleep induction.⁶ Giri et al. found that there are many disorders related to poor sleep quality among medical students including caffeine and alcohol intake indicating the need for early intervention programs targeting poor lifestyle habits.⁷

The mean global PSQI scores were consistent with literature however in our study the third year students were impacted the maximum. According to a study comparing sleep patterns between medical and law students in India 60.8% of law students had refreshing sleep at night as opposed to just 47.1% of medical students.⁸ The main factors which discriminate the medical students from their peers were academic loads, attitude towards study, and lifestyle.^{1,9}

A study by Curcio et al. suggested that student learning and academic performance are closely linked to sleep quality and quantity.¹⁰ Sleep stabilizes and enhances cognitive processes. Cognitive attributes like consolidation and encoding of memories are indispensable for higher education, especially for medical education. This is attributed to the need to retain a substantial amount of complex factual information by medical students in a short period of time.¹¹ Thus research suggests that sleep disruption should be minimized for all those individuals who are trying to optimize their learning potential and that there are some very specific effects of sleep deprivation to consider in medical students like it has been shown to have a major negative effect on emotional intelligence and the ability to show empathy.¹² The underlying cause of this maybe multifactorial, however addressing the quality of sleep in this group is very important.¹³

Limitation of the study: Being an observational study, sleep disturbances were assessed only on subjective evaluation by participants. An objective evaluation by polysomnograph could have been used to strengthen the study.

CONCLUSION

Postgraduate medical students have more sleep disturbance with impaired sleep quality. Sleep quality has a strong influence on physical and mental health. Sleep deprivation can reduce the function of immune system, lead to cardiovascular events, and impaired mental activities.² Thus active intervention is required to improve sleep hygiene in these students.

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