Original Research Article

Insomnia and Related Anxiety among Medical Students

Varsha Davis[1], Rajveer Singh Nirwan[2], Brajesh Kumar Pushp[3], Rajendrakumar Katte[4]

[1,2]Resident, Pacific Institute of Medical Sciences, Umarda, Udaipur, Rajasthan
[3]Associate Professor, Pacific Institute of Medical Sciences, Umarda, Udaipur, Rajasthan
[4]Professor Department of Psychiatry, Pacific Institute of Medical Sciences, Umarda, Udaipur, Rajasthan

Abstract

Objective: Objective of this study is to determine the prevelance of insomnia in medical students and also to identify anxiety related insomnia.

Method: This is a cross sectional study to determine prevalence of insomnia in medical students with sample size of 190 students. Questionnaire consisted of socio-demographic characteristics along with questions related to insomnia for anxiety.

Result: Students with sub-threshold, moderate and severe insomnia were 48.9%, 17.4%, 3.7% respectively. 50% students who were insomniacs had mild anxiety.

Conclusion: Study concludes that prevalence of insomnia in medical students are high. There is significant association between insomnia and anxiety.

Keywords: Insomnia, anxiety

Introduction

Insomnia is defined as persistent problems in falling asleep, maintaining, or poor quality of sleep. It occurs as a result of multiple environmental, medical, psychological and mental disorders [1]. Insomnia in youth and adolescence is poorly recognized, under diagnosed and under-treated. Sleep serves various brain functions, including neurons communication with each other. Studies have stated that sleep plays a very important role in removing toxins from the brain that build up while the person is awake [2]. Sleep deprivation may cause disruption in the brain EEG recordings by affecting the biological rhythm [3]. Gumustekin reported that sleep deprivation may delay wound healing [4]. Many studies demonstrated the effect of short duration of sleep and increased risk of hypertension and acute myocardial infarction [5,6]. Sleep deprivation can disrupt the autonomic control of heart rhythm and predispose to various cardiovascular diseases [7]. It may also cause sympatho-vagal imbalances by affecting the biological rhythm due to work shift [8]. Insomnia is considered as a nocturnal disorder that have an impact on individual's performance during waking time, taking the physical and cognitive functions that sleep usually provides [9,10]. Insomnia related disorders are associated with depressive illnesses, psychiatric problems and is an independent

risk factor for suicide and substance abuse [11-15]. Prevalence of insomnia differs with different age and gender. In Elderly patients, female gender and excessive tea consumption is associated with increased risk of insomnia [16,17]. Various studies have shown that insomnia is more prevalent in females than in males and majority is from the young age group [18]. According to various other studies, 59% of young adults from 18 to 29 years of age cannot fall asleep early at night, and not getting enough sleep [19,20]. A study conducted on medical students of medical colleges was done to assess sleep habits during clinical years, which showed that students acquired an average of 5.8 hours of sleep each night, with an average bedtime at 01:50 am. Medical students tend to reduce their sleep, in an effort to adjust with the workload and stressful environment while some reduce the sleeping time in order to have an extra hours for studying especially before exams [21,22]. Insomnia is an emerging problem that interferes with students' performance and predispose to various psychological problems. The objective of this study is to determine the prevalence of insomnia among Medical students of Pacific Institute of Medical Sciences, Udaipur to identify the rate of anxiety-related insomnia.

Materials and Methods

This is a cross sectional study to determine the prevalence of Insomnia in medical students of Pacific Institute of Medical Sciences, Udaipur. Students of both sexes were included in this study. Sample size is 190, taken by simple random sampling using the table of random selection. Data were collected by a pre-tested questionnaire after obtaining ethics approval from the ethical committee of the institute. The questionnaires consisted of socio-demographic characteristics along with questions related to insomnia and anxiety. Epworth Sleepiness Scale (ESS) was included in the questionnaire [23]. The State Anxiety Scale (S-Anxiety) was employed for anxiety [24]. Descriptive statistics was used. For qualitative data, comparisons between groups were determined using the chi-square test and p value less than 0.05 was considered as significant.

Table 1: Socio-demographic characteristics of the students

Characteristics	Number	Percentage
Gender		
Male	145	76.3
Female	45	23.7
Total	190	100.0
Academic year		
First year	44	23.2
Second year	33	17.4
Third year	35	18.4
Final year	42	22.1
Intern	36	18.9
Total	190	100.0

Table 2: Insomnia among medical students

Category	Number	Percentage
No clinically significant insomnia	57	30.0
Subthreshold insomnia	93	48.9
Moderate clinical insomnia	33	17.4
Severe clinical insomnia	7	3.7

Results

The sample size was 190 out of which 145 (76.3%) were male and 45 (23.7%) were female students. About 23.2% students were from 1st year, 17.4% were from 2nd year, 18.4% were from 3rd year, 22.1% were from final year, and 18.9% were Interns. Students with no clinically significant insomnia were 57 (30%). Students with moderate clinical and severe insomnia were 17.4% and 3.7% respectively. 31.6% of the students have no difficulty in falling asleep while 25.8% have mild difficulty. Students with severe and very severe difficulty in falling asleep were 14 (7.4%) and 12 (6.3%) respectively. In waking early, 27.4% of students have no problems in waking early while those who have severe and very severe problem in waking up early were 14.2% and 11.1% respectively. About 50% of students who were insomniacs had mild anxiety. 72.1% and 91.5% who had moderate and severe anxiety had insomnia respectively.

Table 3: Insomnia and anxiety comorbidity

Anxiety	Insomnia		Total	Chi square	P value
	Yes NO.	No NO.			
Mild	35	35	70	42.054	<0.001
Moderate	44	17	61		
Severe	54	5	59		

Discussion

This study was done to study the prevalence of insomnia among medical college students. Our result shows that more than 2/3rd of the students (70%) are insomniacs. In a study by Sing the rate of insomnia was 68.6% among Hong Kong college students [14]. In another study, Almojali reported that 76% of students in a medical college were insomniac [21]. The reasons behind medical students sleep deprivation is due to pre-sleep cognitions such as active thinking, worrying, and analyzing problems [25]. Lichstein suggested that intrusive cognitions are far more prevalent than somatic factors in creating insomnia [26]. Our study show that students who are insomniac and having severe anxiety were 54 (91.5%), and prevalence of insomnia increases as the anxiety increases from mild to moderate to severe (p=< 0.001). Albhlal concluded that insufficient sleep and daytime sleepiness can lead to problems like interpersonal relationship, anxiety and depression [27]. Another study done earlier by Ford reported that 40% of those with insomnia and 46.5% of those with hypersomnia had anxiety and others psychiatric disorders compared with those with no sleep complaints [2829].

Conclusion

Our study concludes that the prevalence of insomnia among medical students is high. There is also a significant association between insomnia and anxiety. More than half of students complain of insomnia and anxiety comorbidity. Management of insomnia consists of improving sleep habits, counseling, behavior therapy and identifying underlying causes.

References

1. Kupfer DJ, Reynolds CF. Management of insomnia. N Engl J Med 1997; 336:341–346.
2. https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Understanding-Sleep
3. Salako M, Welcome MO, Unal C, et al. The effect of sleep deprivation on cortical oscillatory waves of the EEG

in shift and non-shift health workers. J Res Med Dent Sci 2019; 7:112-118.

4. Gumustekin K, Seven B, Karabulut N, et al. Effects of sleep deprivation, nicotine, and seleni-um on wound healing in rats. Int J Neurosci 2004; 114:1433-1442.

5. Gangwisch JE, Heymsfield SB, Boden-Albala B, et al. Short sleep duration as a risk factor for hypertension. Analyses of the first national health and nutrition examination survey. Hypertension 200 6; 47:833–839.

6. Liu Y, Tanaka H. The fukuoka heart study group. Overtime work, insufficient sleep, and risk of non-fatal acute myocardial infarction in Japanese men. Occup Environ Med 2002; 59:447–451.

7. Arslan M, Welcome MO, Dane S. The effect of sleep deprivation on heart rate variability in shift nurses. J Res Med DentSci 2019; 7:45-52.

8. Cebeci S, Canbal M, Yuksel R, et al. The effect of sleep deprivation on heart rate variability in shift and non-shift physicians. Clin Invest Med 2015; 38: 233-236.

9. Rasch B, Born J. About sleep's role in memory. Physiol Rev 2013; 93:681–766.

10. Hall MH, Smagula SF, Boudreau RM, eta al. Association between sleep duration and mortal-ity is mediated by markers of inflammation and health in older adults: The health, aging and body composition study. Sleep 2015; 38:189–195.

11. de Zambotti M, Goldstone A, Colrain IM, et al. Insomnia disorder in adolescence: Diagnosis, impact, and treatment. Sleep Med Rev 2017; S1087-S0792.

12. BaHammam AS, Alaseem AM, Alzakri AA, et al. The relationship between sleep and wake habits and academic performance in medical students: A crosssectional study. BMC Med Educ 2012; 12:61.

13. Schlarb AA, Friedrich A, Claßen M. Sleep problems in university students - an intervention. Neuropsychiatr Dis Treat 2017; 13:1989-2001.

14. Sing CY, Wong WS. Prevalence of insomnia and its psychosocial correlates among college students in hong kong. J Am College Health 2010; 3:174-182.

15. Javadi1AHS, Shafikhani AA. Evaluation of depression and anxiety, and their relationships with insomnia, nightmare and demographic variables in medical students. Sleep Hypn 2019; 21:9-15.

16. Jaussent I, Dauvilliers Y, Ancelin M, et al. Insomnia symptoms in older adults: Associated factors and gender differences. Am J Geriatr Psychiatry 2011; 19:88–97.

17. Roth T. Insomnia: Definition, prevalence, etiology, and consequences. J Clin Sleep Med 2007; 3:S7–S10.

18. Ahmed AE, Al-Jahdali H, Fatani A, et al. The effects of age and gender on the prevalence of insomnia in a sample of the Saudi population. Ethn Health 2017; 22:285-294.

19. Arellano A., Arellano A., & Arellano D. Gluteoplasty Implants and Lipotransfer Technique. Journal of Medical Research and Health Sciences. 2022; 5(11): 2329–2338.

20. Gaultney JF. The prevalence of sleep disorders in college students: Impact on academic performance. J Am College Health 2010; 59:91-97.

21. Hysing M, Pallesen S, Stormark K, et al. Sleep patterns and insomnia among adolescents: A population-based study. J Sleep Res 2013; 22:549–556.

22. Almojali AI, Almalki SA, Alothman AS, et al. The prevalence and association of stress with sleep quality among medical students. J Epidemiol Glob Health 2017; 7:169-174.

23. Azad MC, Fraser K, Rumana N, et al. Sleep disturbances among medical

students: A global perspective. J Clin Sleep Med 2015; 11:69–74.

24. Johns MW. A new method for measuring daytime sleepiness: The epworth sleepiness scale. Sleep 1991; 14:540-545.

25. Julian LJ. Measures of anxiety: State trait anxiety inventory (STAI), beck anxiety inventory (BAI), and hospital anxiety and depression scale-anxiety (HADS-A). Arthritis Care Res 2011; 63:S467-S472.

26. Lund HG, Reider BD, Whiting AB, et al. Sleep patterns and predictors of disturbed sleep in a large population of

college students. J Adolesc Health. 2010; 46:124–132.

27. Lichstein KL, Rosenthal TL. Insomniacs' perceptions of cognitive versus somatic de-terminants of sleep disturbance. J Abnorm Psychol 1980; 89:105–107.

28. Albhlal LA, Alanzi FG, Ghannam KB, et al. Sleep disturbance patterns among medical students, Saudi Arabia. Arch Med 2017; 9:1-3.

29. Ford DE, Kamerow DB. Epidemio - logic study of sleep disturbances and psychiatric disorders. An opportunity for prevention. JAMA 1989; 262:1479-84.