ORIGINAL ARTICLE

Prevalence of Insomnia among Medical Students

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ABSTRAT

Objective: To determine the frequency and prevalence of insomnia among medical students of sheikh Zayed hospital and medical college

Study design: Cross sectional study.

Place and Duration of Study: Study startedfrom 1st September 2018 and lasted to 30th March 2019 and was carried out at Sheikh Zayed Medical College and Hospital (Rahim Yar Khan).

Methodology: This study was done through a questionnaire (Athens Insomnia Scale (AIS). Sample of the study consisted in medical students who were chose by random sampling tocheck the prevalence of insomnia. 75 students were male and 60 were female. Similarly,14 students from third year, 93 from fourth year and 28 from final year of MBBS. Complete history record maintain in academic years, sleep hour, midday nap and common cause of sleep disturbance mention in the literature: age, gender, habitat, BMI, physical activity, smoking and socioeconomic status was taken from the participant. During the interview, psychological assessment done for psychiatric illness and other screening for medical issues.

Results: Study was done on the sample size (N) of two hundred and sixty (260) medical students. Response rate was 90% for two hundred and fifty students (250). 101(40.4%) were male out of these 250 students, and 149(59.6) were female students. Maximum and minimum age of the students was 25 years and 18 years respectively and mean age of the respondents was 21.076±1. This scale Athens Insomnia Scale, 102 (40.8%) participants were found to be insomnic and 148(59.2%) are non-insomniac. Among 102 Insomniac students, 70 were females and 32 were males. So result indicates that insomnia is more common in females then males.

Conclusion: Insomnia is very common in medical student's .This study shows that prevalence ofinsomnia in medical students is high. While the severity of insomnia is greater in female medical students as compare to the male students.

Practical Implication: In our system, proper assessment of such problems would help in developing policies and adjusting medical study curricula to boost the output of one of the most expensive professional degree courses.

Keywords: Insomnia, Medical students, Athens Insomnia Scale, BMI,

INTRODUCTION

Sleep is basic need for biological, behavioral and physical health because individual cannot livewithout sleep. If person cannottake adequate sleep like 8 to 10hrs sleep cycle too much disturb this problem lead to hallucination and delusion and other systematic disease which effects the human quality of life and low work ability and psychological illness like anxiety, depression result sleep deprivation. Insomnia can be defined as a difficulty with sleep. The sign of insomnia[1] are considered by the presence of a long sleep latency, frequent nightly awakenings, and elongated periods of wakefulness during the sleep period or even frequent arousals. Most of the experts agree that in 24-hour period, in adult proper sleep is between 6 to 10 hours with approximately 8 hours of sleep each day is required by the majority of people. The average minimum sleep time is approximately 6 hours.[2] Prevalence rates for insomnia are estimated to be from 27% in the United States to 37% in France and Italy[3] , as reported. Insomnia was found prevalent in 31.3%[4] population of Karachi.

Most adults take average sleep between 7.5 and 8.5 hours of sleep per day. However, the sleep cycle may different from person to person. . Lifestyle of every person, the age, mental and physical health, family environment and other domestic problem affect the sleep cycle for each person vary. Prolonged time sleep disturbance cause sleep issues. Simultaneous physical and psychiatric problems have been associated with Insomnia and it may possibly be a risk factor for the cause of depressive or anxiety related illnesses[5,6]. There is an association of sleep problems with short and long-term effects on health and well-being of an individual. The general well-being, performance, daytime sleepiness and fatigue are the acute effects at the individual level. In longer term, there is evidence of the associations between sleep deprivation and sleep disorders and numerous health outcomes including premature death, cardiovascular disorder, hypertension, inflammation, obesity, diabetes and impaired tolerance of glucose,

and psychiatric disorders, such as anxiety and depression.[7]

In university students, sleep deprivation related to difficulty in memory lack of learning abilities which can eventually lead to reduce their academic performance. In medical student sleep reductionmore common. The prevalence of insomnia among these students can range from 9.5 to 27% based on recent studies. In stress, complete sleep produce good result the need to accomplish distinguished achievements, physiological sleep problems during adolescence, and bad lifestyle ofthe medical student residency bad friends cycle can affect the sleep of the students[7].

Vigorous training and studying throughout the educational tenure of 5-6 years[8], which, is thereforean extreme mental stress on the under-graduate students[9]. Medical students have to study an enormous variety of books, attend lectures, practical classes and ward rotations. Thus, mental freshness and physical health that they need can be achieved through proper sleep. Insomnia during medical studies can be a huge hurdle in development of a medical student as a good doctor that's because insomniacs are mostly unable to attend lectures and have unsatisfactory academic records in their studies.[10,11]

Major differences in academic lifestyles of students can be avoided if the amount of time of students' sleep is sufficient enough. If sleep requirement is neglected, the mind does not get sufficient recharging, specifically the Nissl's granules in the nerve cells which are supposed to be the one of the most important factors in determining the activity of human brain. It is an associated between sleep and mental health, research about sleep disturbance in medical students is and concern as the academic duties of medical training can cause significant sleepdisturbance [3].

Disturbances in sleep are on the rise among medical school students all around the world. To the best of our knowledge, this is the first study to examine sleep disruptions among medical school students in the Rahim Yar Khan area of South Punjab, Pakistan. The study's objectives were to provide an estimate of the

prevalence of sleep disturbances among medical students and to evaluate the connection between sleep disturbances and academic performance among medical students.

METHODS:

Study Design and Setting: This study was carried from September 2018 to March 2019 (Sheikh Zayed Medical College Rahim Yar Khan).Research ethics were addressed to participant according to institutional review board. The class representatives were informed about the time and place of conducting the session so all willing participate could be assembled in the lecture hall. All the participants were informed about the research and how to fill the questionnaire.

Inclusion Criteria: In this study medical students were taken in this study.

Exclusion Criteria: Students who had known history of chronic medical illnesses and those on drugs which cause sleep issues were excluded from the study.

Method and Material: Athens Insomnia Scale (AIS) was used to test the prevalence of insomnia among medical students. Sample (N=260) of the study was selected through random sampling. Sample consist of 75 male students and 60 female student, a total of 14 students were selected from third year ,93 from fourth year and 28 were from final year of MBBS. Assessment done from participant like their academic year, sleep hours, midday nap, and major causes of sleep disturbance mentioned in this study age, gender, physical activity, BMI, smoking and socioeconomic status. During the study participant were screened for chronic medical or psychiatric illnesses.

Procedure and Data Analysis: The frequency of insomnia was measured through validated 'Athens Insomnia Scale'this scale was consistence of 8-item questionnaire with each item consisting of 4 points showing insomnia severity from none to very severe levels (0-3). To get individual total score, score on each item of 'Athens Insomnia Scale' was added (possible score 0 to 24); the higher score indicates the worse is sleep quality. Students, who had score of 6 or greater, were considered insomniac according to this scale. Evaluation of insomnia was done on basis of this scale. Data was entered and analyzed on SPSS v.20.

Results: In this study two hundred and sixty (260) medical students were participated they filled 08 items questionnaire. Out of these Two hundred and fifty (250) students returned the questionnaires after filling, so the response rate was 96.15%.

Among these 250 students, 101(40.4%) were male students and 149(59.6) were female students. Maximum and minimum age of the students was 25 years and 18 years respectively with the overall mean of 21.07**6** ±1. General characteristics of the medical students have been mentioned in the (Table 1).

According to Athens Insomnia Scale, 102 (40.8%) participant were insomniac while 148(59.2%) student were non-Insomniac (Figure 1). Out of these 102 participants 70 were females while 32 were male, which shows that insomnia is more prevalent in female students. Likewise, out of 148 non-insomniac students 79 were females and 69 were males. The occurrence of insomnia in different age groups of medical students is shown in the table

Table 1: General characteristics of medical students

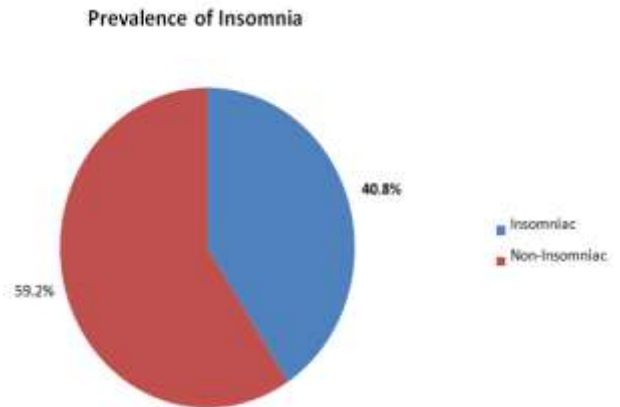| Characteristics	Parameters	Number	Percent (%)
Socio-economic status	Poor class	10	4
	Middle class	213	85.2
	Upper Class	27	10.8
	Total	250	100
Smoking status	Smokers	29	11.6
	Non Smokers	221	88.4
	Total	250	100
Habitat	Hostilities	190	76
	Day Scholars	60	24
	Total	250	100

Prevalence of Insomnia

Figure 1: Prevalence of insomnia among total sample of medical students

Table 2: Responses to the Athens Insomnia Scale questionnaire, broken down by gender

Sr. #	Questions	Scoring*	Males (%) N=101(100%)	Females (%) N=149(100%)
1.	Sleep Induction (Time it Takes You to Fall Asleep afterTurning-off the Lights)	0 1 2 3	37(36.63%) 47(46.53%) 14(13.86%) 03(2.97%)	55(36.91%) 58(38.92%) 34(22.8%) 2(1.34%)
2.	Awakenings During theNight	0 1 2 3	59(58.41%) 31(30.69%) 11(10.89%) 00	60(40.26%) 65(43.62%) 20(13.42%) 04(2.68%)
3.	Final Awakening Earlierthan Desired	0 1 2 3	70(69.30%) 25(24.75%) 05(4.95%) 00	87(58.38%) 50(33.55%) 12(8.05%) 00
4.	Total Sleep Duration	0 1 2 3	52(51.48%) 45(44.55%) 04(3.96) 01(0.99%)	83(55.70%) 58(38.92%) 06(4.02%) 01(0.67%)
5.	Overall Quality of Sleep (No Matter How Long You Slept)	0 1 2 3	64(63.36%) 31(30.69%) 05(4.95%) 01(0.99)	82(55.03%) 52(34.89%) 12(8.05%) 03(2.01%)
6.	Sense of Well-Being Duringthe Day	0 1 2 3	58(57.42%) 34(33.66%) 07(6.93%) 02(1.98)	64(42.95%) 67(44.96%) 16(10.73%) 12(8.05%)
7.	Functioning (Physical andMental) During the Day	0 1 2 3	47(46.53%) 46(45.54%) 05(4.95%) 03(2.97%)	77(51.67%) 57(38.25%) 13(8.72%) 02(1.34%)
8.	Sleepiness During the Day	0 1 2 3	17(16.83%) 54(53.46%) 25(24.75%) 05(4.95%)	19(12.75%) 92(61.74%) 31(20.80%) 07(4.69%)

Table 2: Responses to the Athens Insomnia Scale, by Grade

Sr. #	Questions	Scoring*	Class (First Year) N=60(100%)	Class(Second Year) N=28(100%)	Class (Third Year) N=55(100%)	Class (Fourth Year) N=60(100%)	Class (FinalYear) N=47(100%)
1.	Sleep Induction (Time It Takes You to Fall Asleep after Turning-off the Lights)	0 1 2 3	22(36.66%) 25(41.66%) 11(18.33%) 2(3.33%)	13(46.42%) 09(32.14%) 05(17.85%) 01(3.57%)	22(40%) 25(45.45%) 06(10.90%) 02(3.63%)	17(28.33%) 30(50%) 13(21.66%) 00	18(38.29%) 15(31.91%) 13(27.65%) 01(2.12%)
2.	Awakenings During The night	0 1 2 3	29(48.33) 23(38.33%) 07(11.66%) 01(1.67%)	11 (39.28%) 13(46.43%) 02(7.14%) 02(7.145)	24(43.63%) 25(45.45%) 06(10.90%) 00	28(46.67) 20(33.330 12(20%) 00	27(57.44%) 14(29.78) 04(8.51) 02(4.25)
3.	Final Awakening Earlierthan Desired	0 1 2 3	36(60%) 20(33.34%) 04(6.67%) 00	17(60.71%) 09(36%) 02(7.14%) 00	29(52.72%) 25(45.45%) 01(1.81%) 00	41(68.33%) 12(20%) 07(11.67%) 00	33(70.21%) 09(19.14%) 04(8.51%) 01(2.12%)
4.	Total Sleep Duration	0 1 2 3	24(40%) 31(51.66%) 03(5%) 01(1.67%)	18(64.24%) 10(35.71%) 00 00	33(60%) 18(32.72%) 03(5.4%) 01(1.81%)	35(58.33%) 19(31.66%) 04(6.67%) 02(3.33%)	22(46.80) 20(42.55%) 03(6.38%) 02(4.25%)
5.	Overall Quality of Sleep (No Matter How Long YouSlept)	0 1 2 3	37(61.67%) 19(31.67%) 03(5%) 01(1.6%)	19(67.85%) 06(21.42%) 03(10.71%) 00	34(68.81%) 18(32.72%) 02(3.63%) 01(1.81%)	37(61.67%) 17(28.33%) 05(8.33%) 00	19(40.41%) 23(48.94%) 03(6.38%) 02(4.25%)
6.	Sense of Well-BeingDuring the Day	0 1 2 3	25(41.67%) 31(51.66%) 04(6.67%) 00	16(57.14%) 09(32.14%) 03(10.71%) 00	32(58.18%) 18(32.72%) 05(9.09%) 00	25(41.67%) 27(45%) 06(10%) 02(3.33%)	24(51.03%) 15(31.91%) 05(10.63%) 03(6.38%)
7.	Functioning (Physical and Mental) During the Day	0 1 2 3	24(40%) 30(50%) 05 (8.33%) 01(1.67%0	16(57.14%) 12(42.85%) 00 00	32(58.18%) 15(27.27%) 07(12.72%) 01(1.81%)	24(40%) 28(46.67%) 06(10%) 02(3.33%)	27(57.44%) 18(38.3%) 01(2.12%) 01(2.12%)
8.	Sleepiness During theDay	0 1 2 3	12(20%) 35(58.33%) 11(18.33%) 02(3.33%)	03(10.71%) 19(67.85%) 03(10.71%) 03(10.71%)	04(7.27%) 33(60%) 14(25.45%) 04(7.27%)	9(15%) 31(51.66%) 18(30%) 02(3.33%)	8(17.02%) 28(59.57%) 09(76.6%) 02(4.25%)

Table 3: Age wise Prevalence of insomniac and non-insomniac students in enrolled medical students

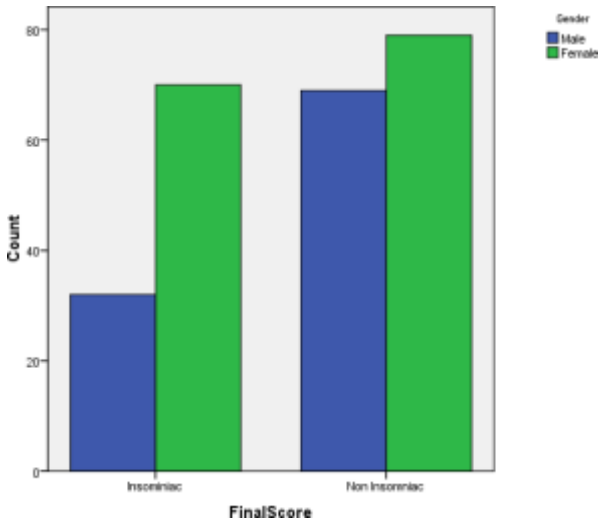| Age (Years)	Insomniac Students	Non Insomniac Students	Total	Percentage of Insomniac Students
18	6	10	16	37.5%
19	16	20	36	44.44%
20	21	33	54	38.88%
21	17	21	38	44.73%
22	13	30	43	30.23%
23	21	22	43	48.83%
24	7	9	16	43.75%
25	1	3	4	25%
Total	102	148	250	100%

Figure 2: Final score among insomniac and non-insomniac medical students

DISCUSSION

By the assessment of current study, about 40.8% of the sample population of the medical students (MBBS) of 'Sheikh Zayed Medical College Rahim Yar Khan' was affected with insomnia. Findings of our study are superposeable and comparable with the contemporary studies. The study of Iranian medical student's shows, 40.6% were found to have poor sleep quality[14].In a study in Brazil, 28.2%, difficulty of maintaining sleep in female medical students then male student reported to be Insomniac. Likewise, insomnia was prevalent among 68.6%[16] of the college students of Hong Kong.

Total 40.8%, reported insomnia using the AIS scale; the majority of these patients were female. Seventy-seven percent or more of medical students in Pakistan reported experiencing subpar sleep, with 7.6 percent blaming self-medication. Our findings show that the United States and Canada had much higher rates of insomnia among college students compared to other affluent countries. In the United States, 12% of the population suffers with insomnia; 8% of men and 14% of women are plagued by the disorder.

According to studies, 18.80% of Chinese people and 25.6% of Japanese people experienced insomnia.[22] Our findings are consistent with those of a previous study which found a prevalence of insomnia in Chile of 51.8% and in Lebanon of 58.7%. In 17 (34%) of the 50 cases of insomnia, sleep disruptions occurred often during the night, and sleep deprivation was reported by 33%.[23, 24]

This difference between the results of different studies could be due to difference in region, life styles of students and different curricula of medical education around the world. In the present study, insomnia is more prevalent in female than male, out of 148 non-insomniac students 79 were females and 69 were males. It was comparable of with the sample of Nishter medical university with shows that a total of 55 insomniac student in which 23 (41.81%) were males while 32 (58.18%) were females.[17]

We found statistically significant (p<0.05) gender variations in the frequency and severity of insomnia. Insomnia affects female students more than male ones. Based on the Athens Insomnia Questionnaire's gender-specific scoring, it was determined that sleep disturbance in females is significantly more severe than in males in terms of sleep induction difficulty, awakenings during the night, early morning awakening, total sleep period, overall sleep quality, and daytime sleepiness. An adult longitudinal twin study found that females' insomnia symptoms were more severe than males' due to hereditary variables.[18]

Class-by-class analysis of the Athens Insomnia Questionnaire revealed a correlation between advancement in rank and a rise in the incidence and severity of insomnia. Sleeplessness is more common in seniors and fourth-year students. This could be because students now have more classes

to take and more clinical rotations to complete. These results have been corroborated by numerous other investigations. Three separate studies (by Pagel and Kwiatkouski, Veldi et al., and Medeioros et al.) came to the same conclusion: insomnia has a major impact on academic performance.[19,20,21] Sleep deprivation is a major problem for students, resulting in worse concentration and memory during the day, less productive work hours, learning disabilities, and academic failure. [20]

Limitations: There are a lot of limitations in present study. This study was conducted in a medical colleg e and on the other hand, underreporting may be a factor affecting the results of the study. Thirdly, the sleep details in this cross-sectional study were based upon previous one month, which might not be elucidating the students' general sleep patterns. Fourthly, we were unable to rule out any medical and Psychological comorbidity in this study which could possibly give us a different picture.

Recommendation/Suggestions: On the basis of results of our study, we would recommend next level researchers to carry out thisstudy on larger sample and on different medical colleges to get generazibility of result to larger extend. Secondly we would suggest next level researchers to include students from different fields, so that insomnia can be seen in different population for figuring out which population is more prone to insomnia. Thirdly, we would suggest to the student counselors to pay some attention towards the sleeping pattern and quality of sleep while addressing stress, anxiety and depression in medical students. Next level studies can also include causes and consequences of insomnia among medical students.

CONCLUSION

The results showed that 20% of the students suffered from insomnia. According to the data, females and senior-year college students are more likely to suffer from severe cases of insomnia. As people lived longer, the trend continued. Finally, to address the major study's weaknesses, we suggest conducting future research with a larger sample size, more diverse source population, more ways of assessing academic performance, and a new study design.

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