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Research Article

ASSESSMENT OF INSOMNIA AMONG UNDERGRAUATE MEDICAL STUDENTS DURING COVID-19 IN PAKISTAN.

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Abstract:

Background and Objective: COVID-19 affected the student fraternity all around the world generally and in Pakistan especially. This study is aimed at to find the insomnia in undergraduate medical students due to COVID-19 in Pakistan.

Methodology: A descriptive, cross-sectional, questionnaire-based observational study was carried out during the period from March to July 2020 among students from 1st year to final year studying at Sahiwal medical college, Sahiwal. Data was processed and exported to SPSS-26 for analysis.

Results: Female participation was predominant among our study population (68.7%) because of the fact that the MBBS students of Sahiwal Medical College Sahiwal are also having high percentage of female students (70%) generally. Mean age of the students participating in the survey was 21.77 ± 7.22 years. Fourth year medical students were the main study participants (44.2%) because in this survey their class fellows also participated as co-authors. Females were also found to be more insomniac then males (54.3%). Second year medical students were found to be more insomniac (65.4%) then students of other MBBS classes. Day scholars were also found to be slightly more insomniac (55%) than hostel residents (53.9%).

Conclusion: Our study did find out the potential insomnia in undergraduate students but the sample size can be increased in future for further research.

Keywords: COVID-19; Insomnia; Undergraduate medical students.

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INTRODUCTION:

Insomnia, the most common sleep disorder, is the term applied collectively to chronic complaints of inadequate or poor-quality sleep. Three principal complaints commonly cited are:

1. Sleep onset insomnia (Difficulty in falling sleep)
2. Frequent nocturnal awakening (Interrupted sleep characterized by frequent awakenings) and
3. Early morning awakening (waking up early in the morning and not being able to fall back asleep) [1]

Thus, insomnia is typically defined as taking longer than 30 minutes to fall asleep, awakenings during the night comprising more than 30 minutes of wakefulness, and less than 6 hours of total sleep. [2]

Most sleep experts agree that adult sleep requirement is typically between 6 and 10 hours of sleep per 24-hour period with the majority of individuals requiring approximately 8 hours of sleep per day. [3] Sleeping pattern may not be similar for all people. [4] It is influenced by factors such as lifestyle of each person, age, gender, physical and psychological health status, school and work schedules and various medical conditions of the body including genetic differences. [5,6,7] The prevalence of insomnia among general population range from 15 to 35 % with higher tendency in older age and female gender, and in medical students it has been estimated to be 30%. [8,9]

Medical students are one subgroup of the general population who are especially vulnerable to poor sleep, perhaps due to stress, the need to accomplish distinguished achievements, long duration and high intensity of study, clinical studies that include overnight on-call duties, emotionally and physically challenging work and lifestyle choices. [10,11] Good sleep is important for optimal neuro-cognitive and psychomotor performance as well as physical and mental health. [12] Poor sleep quality is highly correlated with memory reduction, reduced learning

abilities and poor academic performance. [13,14] Sleep deprivation can lead to hallucinations and delusional behaviors [15] and can indirectly predispose to multiple systemic diseases [16,17] that cumulatively affect humans' quality of life. Motor vehicle accidents, decreased work productivity [18] and psychological illnesses like anxiety and depression[19,20] can be associated with or a consequence of sleep deprivation. Thus, awareness about prevalence of insomnia, causes, effects and prevention of associated sleep complaints is greatly needed.

Research on sleep disturbances in undergraduate medical students is of great interest because of the known relationship between sleep and mental health and the concern that the academic demands of medical training can cause significant stress.²¹ This study will provide a better understanding of sleep problems burden in medical students so that we can prevent and reduce future health problems, reconsider heavy schedules and improve sleeping habits for better academic achievement in this population. The objective of current study is to determine the prevalence of insomnia and to measure the variability of different insomnia symptoms among medical students.

METHODOLOGY:

A descriptive, cross-sectional, questionnaire-based observational study was carried out during the period from March to July 2020 among students from 1st year to final year studying at Sahiwal medical college, Sahiwal. 200 students were selected on the basis of random sampling to participate in this study. The cross-sectional study design was selected because of its capacity to answer the goals of the study in a convenient manner in terms of time and resources. The investigation got approval by the Sahiwal Medical College Research Society. Ethical issues were addressed according to institutional review board. Students were informed that being enrolled in the study is voluntary. All information obtained through questionnaire was solely used for this purpose and confidentiality was maintained.

Sample size was calculated according to following formula:

$$\text{Sample size} = \frac{Z_{1-\alpha/2}^2 p(1-p)}{d^2}$$

$Z_{1-\alpha/2}$ = is standard normal variant (at 5% type 1 error ($P < 0.05$) it is 1.96. As in majority of studies P values are considered significant below 0.05 hence 1.96 is used in formula.

p = Expected proportion in population based on previous studies or pilot studies = 0.50 (7)

d = Absolute error or precision = 0.07

Sample size = **196**.

All information was obtained utilizing Google forms-based self-administered questionnaire that was developed on the basis of literature review and Athens Insomnia Scale (ASI), from 200 medical students chosen on the basis of random sampling. A complete history was taken from the subjects in relation to their academic year, sleep hours, standard sleeping time, midday nap, and major causes of sleep disturbances mentioned in the literature; age, gender, habitat, physical activity, any other disease history, medication and drug history, activities before sleeping and other sleep complaints. The students were asked to limit their responses to incidents occurred during the last month. Students with known chronic medical or Psychiatric illnesses and those who were taking drugs that cause sleepiness were excluded from study.

Athens insomnia scale is an 8-item based questionnaire amongst which first five items are related to nocturnal sleep and last three items are related to daytime dysfunction. Each item consists of 4 parameters showing insomnia severity from none to very severe level (0-3). The eight component scores are then added to yield a global AIS score in the

range of 0 to 24; the higher the score is, the worse the sleep quality. Over the period of time, AIS is considered to be an effective tool in sleep analysis, and it is validated in various countries by testing it on local patients. A cutoff score of 6 or greater than 6 on AIS is used to establish the diagnosis of insomnia. All symptoms of insomnia were evaluated on basis of these parameters. Data was processed and exported to SPSS for analysis.

RESULTS:

Female participation was predominant among our study population (68.7%) because of the fact that the MBBS students of Sahiwal Medical College Sahiwal are also having high percentage of female students (70%) generally. Mean age of the students participating in the survey was 21.77 ± 7.22 years. Fourth year medical students were the main study participants (44.2%) because in this survey their class fellows also participated as co-authors. Females were also found to be more insomniac than males (54.3%). Second year medical students were found to be more insomniac (65.4%) than students of other MBBS classes. Day scholars were also found to be slightly more insomniac (55%) than hostel residents (53.9%).

TABLES

Table 1: Frequency of Demographic Variables with Percentages (n=201)

Variables	Groups	Frequency	Percentage
Gender	Male	63	31.3
	Female	138	68.7
Academic Year	1 st Year	9	4.4
	2 nd Year	26	12.9
	3 rd Year	61	30.3
	4 th Year	89	44.2
	Final Year	12	5.9
Residence	Day Scholar	60	29.8
	Hostel Resident	141	70.2

Table 2: Prevalence of Insomnia in Undergraduate MBBS Students according to Gender (n=201)

Variable	Insomnia		*P-Value
	Yes (%)	No (%)	
Gender	109 (54.2)	92 (45.8)	0.540
Male (n=63)	34 (54%)	29 (46%)	
Females (n=138)	75 (54.3%)	63 (45.7%)	

*Calculated by Chi-Square Test

Table 3: Prevalence of Insomnia in Undergraduate MBBS Students according to Academic Year (n=201)

Variable	Insomnia		*P-Value
	Yes (%)	No (%)	
Academic Year	109 (54.2)	92 (45.8)	
1ST Year (n=9)	5 (55.6%)	4 (44.4%)	0.522
2nd Year (n=26)	17 (65.4%)	9 (34.6%)	
3rd Year (n=61)	32 (52.5%)	29 (47.5%)	
4th Year (n=89)	49 (55.1%)	40 (44.9%)	
Final Year (n=12)	6 (37.5%)	6 (62.5%)	

*Calculated by Fisher Exact Test

Table 4: Prevalence of Insomnia in Undergraduate MBBS Students according to Residence (n=201)

Variable	Insomnia		*P-Value
	Yes (%)	No (%)	
Residence	109 (54.2)	92 (45.8)	
Day Scholar (n=60)	33 (55%)	27 (45%)	0.505
Hostel Resident (n=141)	76 (53.9%)	65 (46.1%)	

*Calculated by Chi-Square Test

DISCUSSION:

Response rate of our survey population was 43%. Female gender predominance was evident in our survey. In a recent study done in Karachi, they also showed female predominance among their survey population [13]. Now a days as there is no fixed quota for gender while taking admission in medical colleges across Pakistan and population of Pakistan is female predominant [14] as well. So for the last few years female predominance is quite evident at many medical colleges in Pakistan. As the coauthors of this study are forth year MBBS students so it was expected that they would participate more than the other classes and it was proved in the results as well. First year medical students were busy in their examination during the conduction of this survey so only nine students participated in this survey from their class.

More than 70% of the survey participants were hostel residents. Though out of all the 500 MBBS students at Sahiwal Medical College Sahiwal, 323 (64.6%) are hotel residents yet our survey found out slightly more percentage of hostel residents because of the fact that it was easier for the authors to get the form filled from the hostel residents because they were easily approachable.

Though the association of the insomnia with gender was non-significant but the female students were slightly more insomniac (54.3%) then male students (54%). Females are generally more anxious then

males as found by previous studies [15] especially in this age group. Another factor can be attributed to COVID-19 pandemic now a day which is causing anxiety and restlessness all around the globe [16]. A previous Chinese study found females more anxious than males due to COVID-19 [17]. Anxiety is one of the major causes of insomnia as found by previous literature [18].

We also calculated insomnia in students according to year of study. It was striking to see that 2nd year MBBS students were more insomniac then other classes (65.4%) but the participants from there class were only 17 which is a strong limitation. 4th year and 3rd year medical students participated with greater numbers in the survey (89 and 61 respectively) and more than half of their students were found insomniac (55.1% and 52.5% respectively). A previous study showed that the final year medical students were found to be more insomniac then others [20,21]. Participants of 3rd year and 4th year students felt more stress related to COVID-19 during these days as they were unsure of the future of their classes and examinations.

When we cross tabulated the insomnia scale with residence then it was found out that day scholars were slightly more affected for sleep disturbances (55%) then the hostel residents. It can be justified as day scholars have to go to their homes on daily basis from the colleges and they are more stressed as they thought that they can be on potential risk of getting

affected by COVID-19 as they are more exposed. Though we could not find significant association ($P=0.505$). A previous literature on the same topic showed that day scholars were more insomniac than the hostel residents which is similar to our results though the number of day scholar students were much more in their study as compared to ours [22].

CONCLUSION:

Our study did find out the potential insomnia in undergraduate students but the sample size can be increased in future for further research.

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