

# Academic Performance Among Undergraduate Medical Students of Chandka Medical College (Shaheed Mohtarma Benazir Bhutto Medical University) Larkana

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## ABSTRACT

**Objective:** To assess the frequency of insomnia among medical students, secondary to evaluate the impact of insomnia on their education performance. A valid Athens Insomnia Scale (AIS) was applied to assess the frequency of insomnia and the GPA was computed for academic performance.

**Study Design:** Cross-sectional study

**Place and Duration of Study:** This study was conducted at the Chandaka Medical College Larkana from September 2014 to February 2015.

**Materials and Methods:** In which 248 undergraduate medical students (First to Fourth years MBBS) were selected through a stratified random sampling method. In the current study, the frequency of insomnia among medical students 96(38.7%) was analyzed. In addition, the significant association has seemed between insomnia and academic performance ( $p < 0.016$ ) and frequency of insomnia was observed more in female students. In the current study, a high frequency of insomnia was observed among the medical students, as well as, poor academic performance was observed in insomniac students. In this regard, to improve sleep, there is a great need for good health education and awareness programs to improve the quality of future health personnel.

**Results:** Our study consist of 248 subjects, each batch (1st year to 4th year) contain equal participants, while female 162(65.3%) was observed high in respect to male 86(34.7%) in all batches. Graph-I

All the participating undergraduate medical students mean age was  $20.15 \pm 1.413$  years and the range of age was 17 to 24 years. Scale GPA 4.0 was used to measure the Academic performance of subjects, therefore 166 (66.9%) subjects secured good performance while 82(33.1%) subjects obtained low GPA (poor performance).

**Conclusion:** In the current study shows a high frequency of insomnia in medical students of CMC (1<sup>st</sup> year to 4<sup>th</sup> year MBBS) with multiple factors affecting sleep. The frequency of insomnia even high in female students. Insomniac students are found to have an impact on their GPAs(academic performance).

**Key Words:** Impact, Insomnia, academic, undergraduate, students

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## INTRODUCTION

Good sleep has been shown to improve the problem-solving skills and to increase memory performance of both children and adult.<sup>1-3</sup> Insomnia (repeated difficulty

to initiate or maintain sleep or poor quality of sleep) is the most frequent sleep problem as well as the health issue.<sup>4,5</sup>

Insomnia is one of the big public health challenges, because of its increasing frequency and relation to increasing rate of absence of work, too low job productivity; enhancing the economic burden and increasing medical and social costs.<sup>6</sup>

The researcher has been highlighted that the frequency of insomnia ranges from 10% to 48% in the general population, and insomnia have an effect on all age groups,<sup>7,8</sup> in another study, majority insomnia seemed in adults 30% while more common in female as compared to male.<sup>9</sup> Korean studies, have shown that the frequency of insomnia 22.8% was observed in adults, whereas women are more affected by men.<sup>10</sup>

Sleeping plays a significant function in learning and memory.<sup>11</sup> In Saudi Arabia study, where insomniac

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frequency 62.1% was found, and a weak association was calculated among insomniac subjects and academic performance.<sup>12</sup> Also in an American survey, the adult frequency of insomnia was recorded as 30% and appeared to be lack of concentration, short memory, and a bad educational achievement or the work.<sup>13</sup>

Another related study was undertaken that illustrated 30% insomniac symptoms in college students next to noxious effects on the school output (low GPA).<sup>14</sup>

In a recent study among teenagers in Hong Kong, symptoms of insomnia (24.8%) were observed, to be associated with weak performance at school. The quality of the sleep has a vital effect on the cognitive functions, including several features; to affect the quality of sleep, like as stress.<sup>16</sup> Moreover, the stress of the examination may be due to the inability to cope with the hard concepts of the study, long duration of coursework, etc more to sleep disturbances and insomnia.<sup>17</sup>

As a developing country, there is an enormous need for strategies for the medical sector to improve more importantly the quality of doctor in the future. Consequently, this kind of practice can help to improve productivity, reduce health care costs and a positive impact on society.

This study will help us identify sleep problems and their impact on the academic performance of medical students, so to improve the concept of sleep hygiene; ideas/suggestions can be developed to reduce sleep disorders. In addition, statistical data can help get better the strategic plans for health care and health expenses.

## MATERIALS AND METHODS

Our cross-sectional study was conducted at SMBB medical University Larkana, four batches of medical students comprise the population of 248 subjects. Total students were stratified according to batch-wise 1st, 2nd, 3rd, and 4th-year MBBS, and then systematic random sampling applied to select subjects from each batch. During selection, in inclusion criteria, an age of the subjects was 17 years and above, male /female subject from the first year to fourth-year batches was selected. While in exclusion criteria, subjects were not suffering from any serious disease or any history of substance abuse except tea and coffee.

The study procedure was reviewed and permitted by the Research and ERC of LUMHS, Jamshoro. Confidentially was assured and then written consented was taken by selected subjects. The insomnia measuring tool Athens insomnia scale (AIS) and a questionnaire included demographic as well as social life characteristics were filled by the students at their respective class rooms.

A valid assessment instrument Athens insomnia scale was applied for insomnia measuring while for the diagnosing of insomnia ICD-10 criteria was applied.<sup>18</sup>

[“a)- The complaint is either of the difficulty falling asleep, maintaining sleep or of the poor quality of sleep; b)- The sleep disturbance has occurred at least three times per week for at least 1 month;

c)- There is a preoccupation with sleeplessness and excessive concern over its results at night and during the day;

d)- The unsatisfactory quality and/or quantity of sleep, either due to distress or interfere with ordinary activities in daily living.”]

AIS is a valid scale that measures the insomniac symptoms accounting of 08 factors as recommended by ICD-10. Each factor was rated 0-3 scales while 0 scales standing “no problem “to 03 digits “very serious problem“. In addition, the sums score from (0-24), therefore a cut - off score of 06 or above on AIS scale to be consider as the diagnosis of insomnia.

Academic performance (good & poor performance) among whole medical students were evaluated by Grade point average. The GPA of the students was categorized into 02 categories if GPA is 03 or above ( $GPA \geq 3.00/4$ ) considered good performance while GPA remained below the 03 points ( $GPA < 3.0/4$ ) considered poor performance. All GPA record (academic performance) of students was gathered from the Controller's Examination office (SMBBMU) Larkana.

**Data Analysis:** The data were analyzed using version 16.0 of the Statistical Program for the Social Sciences (SPSS). Means and standard deviation of the quantitative variables were computed as the age of the participants.

Calculation of rate, ratio, and proportion are made for qualitative variables for example as gender, educational performance, history of medical illness etc and the chi-square test was applied, Level of significance was adjusted at  $< 0.05$ .

## RESULTS

Our study consist of 248 subjects, each batch (1st year to 4th year) contain equal participants, while female 162(65.3%) was observed high in respect to male 86(34.7%) in all batches. Graph-I

All the participating undergraduate medical students mean age was  $20.15 \pm 1.413$  years and the range of age was 17 to 24 years. Table-I

Scale GPA 4.0 was used to measure the Academic performance of subjects, therefore 166 (66.9%) subjects secured good performance while 82(33.1%) subjects obtained low GPA (poor performance). Table-2

In addition, Undergraduate medical students in relation to residency as rural 115(46.4%) and urban 133 (53.6%) were recorded, plus 13 (5.2%) subjects were reported to have tobacco use. Table-II Late evening tea user students seemed high proportion 148(59.7%) while female were using tea more than males. As well as use of Benzodiazepine 9(3.6%) and alcohol consumption 02(0.8%) was seemed among medical students.

Subjects 14(5.6%)were suffering from medical illness, for example, D.M, fibromyalgia kidney and hepatic disorders etc. Table-2

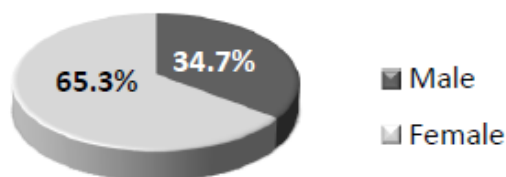
Sleeping disorder with any noise inside or outside the sleeping room was 91 (36.7%), female 46 (53.1%) affected more than males 45 (46.9%). Notice of known psychological disorder among medical students found 05/248 (2%). Table-2

On the analysis of the Athens Insomnia Scale (AIS), the frequency of insomniac symptoms among students showed 96(38.7%), in which female 62(64.6%) showed the increased symptom of insomnia than male 34(35.4%) (p=0.476) Graph-2

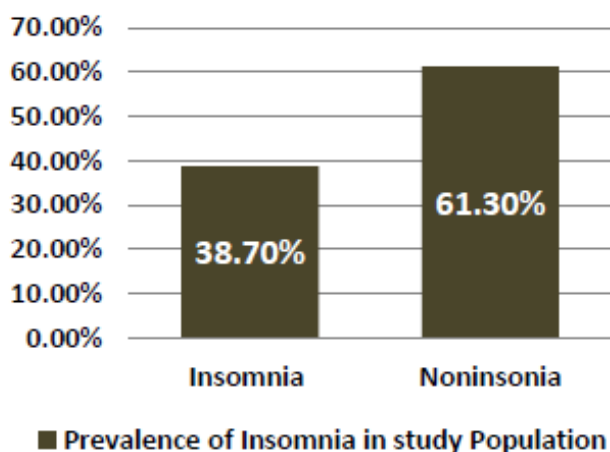
The statistical association seemed between insomniac students and their academic performance; insomniac students showed poor academic performance means low GPA <03 as compare to non-insomniac students (p=0.016). graph-3

Table 03 illustrated bivariate analysis the different variables with the score of Athens insomnia scale. In a study, Insomnia and medical illness showed significant collaboration (p=0.043) 9(9.4%). Sleep trouble among subjects in or out of the sleeping room, as a result of noise, seemed significant association(p=0.006) 45(46.9) and as well as subjects were lived in rural locale showed significant association to Athens Insomnia Scale (AIS) score(p=0.009).

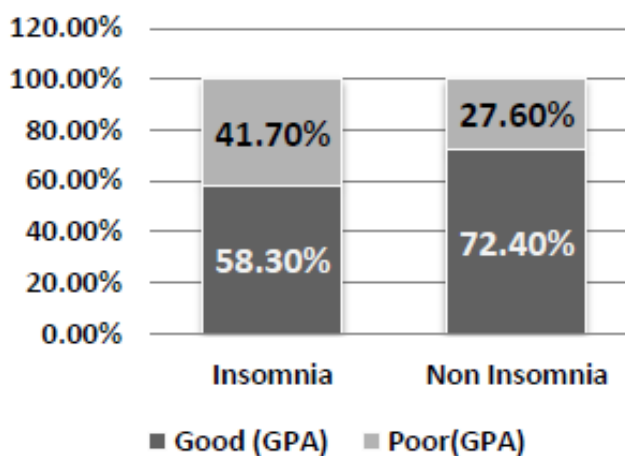
Moreover, variables of study such as tea usage in late evening (P=0.027), use of benzodiazepine (p=0.003), use of tobacco (p=0.001) showed significant relation with insomnia and other variables such as, sex, academic batch year and alcohol were shown to have negative significant support with insomnia.



Graph No.1: Gender-wise participation of study population.



Graph No.2: Prevalence of insomnia in study population.



Graph No.3: Accedemic performance among insomniac & non insomniac subjects.

Table No.1: Age-wise participation of study population (n=248)

Overall mean	20.16+1.505
Age Range	17 to 24 years
Age	No. & %age
17 years	05 (02.00%)
18 years	23 (09.30%)
19 years	55 (22.20%)
20 years	54 (21.80%)
21 years	59 (23.80%)
22 years	35 (14.10%)
23 years	12 (04.80%)
24 years	05 (02.00%)
<b>Total</b>	<b>248 (100%)</b>

Table No.2: Demographic and other variable in a population study.

Variables		N %
Gender	Male	86 (24.7%)
	Female	162 (65.3%)
Academic performance	Good	166 (66.9%)
	Poor	82 (33.1%)
Residence	Rural	115 (46.4%)
	Urban	133 (53.6%)
Any noise in or out	Yes	91 (36.7%)
	No	157 (63.3%)
Medical illness	Yes	14 (05.6%)
	No	234 (94.4%)
Tea use in late evening	Yes	148 (59.7%)
	No	100 (40.3%)
Tobacco	Yes	13 (05.2%)
	No	235 (94.8%)
Alcohol	Yes	02 (0.8%)
	No	248 (99.2%)
Benzodiazepine	Yes	09 (03.6%)
	No	239 (96.4%)

**Table No.3: Analysis of insomnia with different variables in study populaiton**

Variables	N	%	P-value
Insomnia	Male	34 (35.4%)	0.476
	Female	62 (64.6%)	
Academic performance	Good	56 (58.3%)	0.016
	Poor	40 (41.7%)	
Residence	Rural	54 (56.2%)	0.009
	Urban	42 (43.8%)	
Medical illness	Yes	09 (09.4%)	0.043
	No	87 (90.6%)	
Tea	Yes	65 (67.7%)	0.027
	No	31 (23.3%)	
Tobacco	Yes	11 (11.5%)	0.001
	No	85 (88.5%)	
Alcohol	Yes	02 (02.1%)	0.149
	No	94 (97.9%)	
Benzodiazepine	Yes	08 (08.3%)	0.003
	No	88 (91.7%)	
Any noise in or out	Yes	45 (46.5%)	0.006
	No	51 (53.5%)	
Known psychiatric disor	Yes	08 (08.3%)	0.003
	No	88 (91.7%)	

## DISCUSSION

In our study, insomnia among undergraduate medical students (38.7%), with which it was affected by more than one in three students significantly. In previous studies, 28.1% in Hong Kong studies and another study in Saudi Arabia (62.1%) had shown the frequency of insomnia among medical students.<sup>19,12</sup> In addition, a study was conducted recently in Pakistan in which students had 72% insomnia.<sup>21</sup> Another Malaysian study was conducted among adult population showed symptoms of insomnia 34.4%.<sup>24</sup> As stated that greater variability in the frequency of insomnia is also attributed to that there is no consensus on classification, essentially defines insomnia in the period of its symptoms, frequency, and severity.<sup>26</sup>

Demographic common variables, sex, and age mostly linked to insomnia. In the gender gap, our study revealed the most of previous researched studies that increase symptoms of insomnia has been shown in female (64.6%) compared to men (35.4%).<sup>22</sup> In meta-analysis studies, gender differences were celebrated in insomnia, wherein 1265015 men/ Women were selected, where outcome showed that 41% of women have chance more to observe insomniac symptoms than men.<sup>20</sup>

The current study revealed the studies, that the insomniac symptoms enhancing with the increasing age, such enhanced insomniac symptoms has been observed between the age 19 and 24 years.<sup>10,25</sup>

To our best knowledge, that our study remarkably heightened that impact of insomnia on students'

academic (educational) performance i.e., poor educational performance (GPA score low) seemed in insomniac students as compared to non insomniac students. Due to academic demands, students tend to bear stress at higher levels especially during the exam period. The study in Saudi Arabia was shown weak negative, yet seemed statistical significance relation among insomnia and GPA of medical student and one more study also revealed that discomfort of sleep affects the educational performance negatively.<sup>12</sup>

Present studies showed that a high proportion of medical students (45%) were residing insleep disturbing environment and falling asleep due to noise disturbance outside or inside the sleeping room, female subject suffered more. It seemed in research review that approximately 27 percentages of subjects resided in the dormitory. It is observed that regarding the noise, subjects reported difficult more falling asleep as compared to those who did not live in the dormitory.<sup>23</sup> A study carried out in Pakistan showed that 40.8% subjects felt sleep trouble by means of noise while female disturbed more as compare to male.<sup>21</sup>

Smoking was correlated with the disturbance in sleep due to sleep, which could reduce sleep quality and loss in the health.<sup>27</sup> Researched studies have observed that the use of tobacco compared to non-tobacco users is significantly more prone, trouble in falling asleep in addition daytime sleepiness.<sup>28,29</sup> Significant association between insomnia and tobacco use 13(5.2%) seemed in our study.

As a Muslim state, alcohol is strongly prohibited, resulting in 02 (0.8%) subjects seem the consumption of alcohol, and there observed to be no significant correlation with insomnia. Excessive use of coffee, alcohol, smoking among medical subjects results in sleep problems as well as daytime sleepiness.<sup>30,23</sup>

## CONCLUSION

In the current study shows a high frequency of insomnia in medical students of CMC (1<sup>st</sup> year to 4<sup>th</sup> year MBBS) with multiple factors affecting sleep. The frequency of insomnia even high in female students. Insomniac students are found to have an impact on their GPAs(academic performance).

The researchers conclude that the insomnia is a major problem for the academic performance of medical students and should be taken as such. To solve this problem, one of the ways would be to have health education sessions for medical students for insomnia as a danger mark for their academic performance.

### Author's Contribution:

Concept & Design of Study: Vijia Kumar Gemnani  
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**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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