

## Sleeping Disorders among Medical Students in Saudi Arabia; in Relation to Anti-Insomnia Medications

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### ABSTRACT

**Background:** due to their demanding lifestyle, sleep deprivation is common amongst the medical students. A study, which followed 1,007 young adults at a health maintenance organization for 3.5 years, found that a history of insomnia predicted new-onset depression, also other psychiatric disorders. Another study showed that sleeping disorders and insomnia are negatively associated with academic performance in medical students in Saudi Arabia. The relationship between sleeping disorders among medical students in Saudi Arabia; about anti-insomnia medications is insufficiently addressed in the literature. This study aimed to assess the relationship between sleep habits and sleep duration with academic performance in the medical students. **Objectives:** this study aimed to determine sleep pattern disorders among medical students, as well as, the use of anti-insomnia medications and also to define the relation regarding the academic performance among the sample medical students in Saudi Arabia.

**Methods:** this is a cross-sectional study which was conducted among the medical students at three different medical schools, Riyadh, Saudi Arabia from May 2014 to December 2014.. A self-administrated randomized questionnaire was developed and designed in the Arabic language in the form of multiple choices and short answers, concerning age, gender, educational level, grade point average GPA, financial status, total sleep hours per day, mid-day naps duration, quality and latency of sleep and using of anti-insomnia medications. Epworth Sleepiness Scale (ESS) was also involved in the questionnaire. **Results:** out of 276 received questionnaires, 237 questionnaires were completed. Out of those 237 subjects, 92 subjects were female students (38.7%), and 145 were male students (60.9%). The mean age was  $22 \pm 2.37$ . Regarding GPA, 122 participants got below average GPA, 28 participants got average GPA, 62 participants got an average GPA, while 25 participants got an excellent GPA (51.3%, 11.8%, 26.1%, 10.5% respectively). 127 of the participants were used medications to help them to sleep, and 9.7% used it occasionally, whereas 110 of the participants did not use any medication. Out of 127 participants who used the medications, 92.5% of them agreed that medications they took were helpful and effective. **Conclusion:** this study showed a significant relationship between the use of anti-insomnia medications and the academic performance of medical students, further committee and education should be established by the universities and faculties to enhance the student's awareness to the issue of the chronic use of anti-insomnia medications at first and to apply a perfectly healthy environment with less stress and condensed classes and exams.

**Keywords:** sleep, sleeping disorders, anti-insomnia, Saudi Arabia.

### INTRODUCTION

Sleep is an essential part of a human being's life. An average person spends about 7 - 9 hours per day sleeping. Sleeping is crucial for promoting efficient thinking and daily physical performance. Sleeping disorders are defined as problems with sleeping, including trouble falling or staying asleep, decreased sleeping, sleeping at the wrong times, too much sleep or abnormal behaviors during sleep. Insomnia is a broad term used to describe a wide range of complaints relating to disorders of sleep. For many people, insomnia is a subjective complaint of dissatisfaction with sleep, including decreased sleep quality, decreased sleep

quantity, trouble getting to sleep and trouble maintaining sleep<sup>(1)</sup>.

A general consensus has developed from population-based studies that approximately 30% of a variety of adult samples drawn from different countries reported one or more of the symptoms of insomnia: difficulty initiating sleep, difficulty maintaining sleep, waking up too early and in some cases, nonrestorative or poor quality of sleep<sup>(2)</sup>. A study, which followed 1,007 young adults at a health maintenance organization for 3.5 years, found that a history of insomnia at baseline not only predicted new-onset depression, but also other

psychiatric disorders (any anxiety disorder, alcohol abuse, drug abuse and nicotine dependence<sup>(3)</sup>).

Due to their demanding lifestyle, sleep deprivation is common amongst medical students and thus a significant fraction may resort to using anti-insomniac medications to sleep more hours at night. Decreased nocturnal sleep time, late bedtimes during week days and weekends, catch-up sleep on weekends and increased daytime sleepiness were negatively associated with academic performance in medical students in Saudi Arabia<sup>(4)</sup>. Insufficient sleep and irregular sleep-wake schedules among adolescents are becoming a significant health concern. Sleep disturbances are related to the decreased quality of life, substance abuse and reduced workplace performance apart from impaired thinking, memory and occurrence of anxiety and depression<sup>(1)</sup>.

The relationship between sleeping disorders among medical students in Saudi Arabia; about anti-insomnia medications is insufficiently addressed in the literature.

## METHODS

This is a cross-sectional study which was conducted from May 2014 to December 2014. The target population was the medical students in all the academic levels (Year I to Year V) at three different medical schools, Riyadh, Saudi Arabia (Imam University, King Saud University and King Saud Bin Abdul-Aziz University for Health Sciences). Self-administered questionnaires collected data in the form of the electronic survey using Survey Monkey Website. The questionnaire was developed and designed in Arabic language in the form of multiple choices and short answers, concerning age, gender, academic level, GPA, financial status, total sleep hours per day, mid day naps duration, quality and latency of sleep, using of anti-insomnia medications (medications that causes sleepiness) and their efficacy. In addition, the students recorded their activities time outside of school. Epworth Sleepiness Scale (ESS) was also involved in the questionnaire that consisted of eight items to measure the propensity of falling asleep in different situations and activities of daily life (The total score ranges from 0 to 24 and the normal range for healthy adults is 0 to 10). ESS scores >10 indicated increased daytime sleepiness. The school performance was stratified as below average students (GPA 2.5-3.5 out of 5), average students (GPA 3.51-4.00 out of 5), above average students (GPA 4.01- 4.50 out of 5), or excellent

students (GPA >4.51/5) based on the self-reported GPA grading.

The study was approved by the Ethics Board of Al Imam Mohammad Ibn Saud Islamic University.

Standard statistical software (SPSS, Statistical Package for the Social Sciences, version 20.0) and Microsoft Office Excel was used for the data management and statistical analyses.

## RESULTS

Out of 276 received questionnaires, 237 questionnaires were completed. However, 39 questionnaires were excluded because of uncompleted questionnaires. Out of those 237 subjects, 92 subjects were female students (38.7%) and 145 were male students (60.9%) (**Table 1**). The mean age was  $22 \pm 2.37$ . Regarding the GPA, 122 participants got below average GPA, 90 participants got average GPA, while 25 participants got an above average GPA (51.4%, 37.9 %,10.5% respectively) (**Figure 1**). Regarding medical schools in Riyadh, Saudi Arabia; 59.7% of the subjects were students at King Saud University, 26.5% were students in Imam Mohammed Bin Saud Islamic University and 13.4% from King Saud Bin Abdulaziz University for Health Sciences.

82 (34.5%) of the participants share their bedroom with others, while 155 (65.1%) were not. 78.6% of the participants are used to get 4-7 hours of sleep/day, 14.7% were used to get 8-10 hours and 6.3% were used to get more than 10 hours of sleep/day (**Figure 2**). Of the participants, 117 (49.2%) they take a nap after school, but 120 (50.4%) did not. 157 participants (66%) evaluated their sleep as continuous, while 80 (33.6%) evaluated it as intermittent. This study showed that 151 participants were suffering from sleep disorders, while 86 participants did not (63.4%, 36.1% respectively).

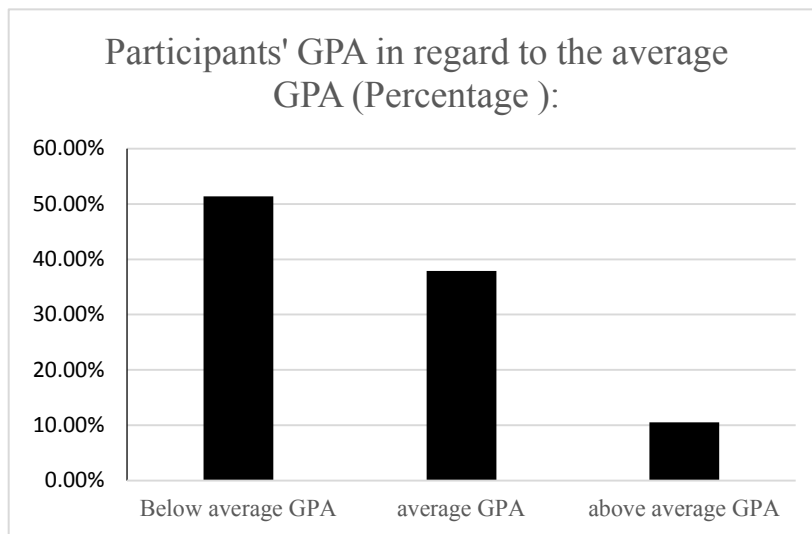
127 of the participants used medications to help them to sleep and 9.7% of those 127 used it occasionally and 21 used it daily, whereas 110 of the participants did not use any medication. Out of 127 participants (77.8% males, 22.2% females) who used the medications, 92.5% of them agreed that medications they took were helpful and effective. Also, out of those 127 subjects who were taking medications that help them to sleep, 51.9% of them were excellent students (GPA >4.51/5).

In term of total hours of sleep, they get during weekdays, 64 of 127 subjects (50.3%) got an

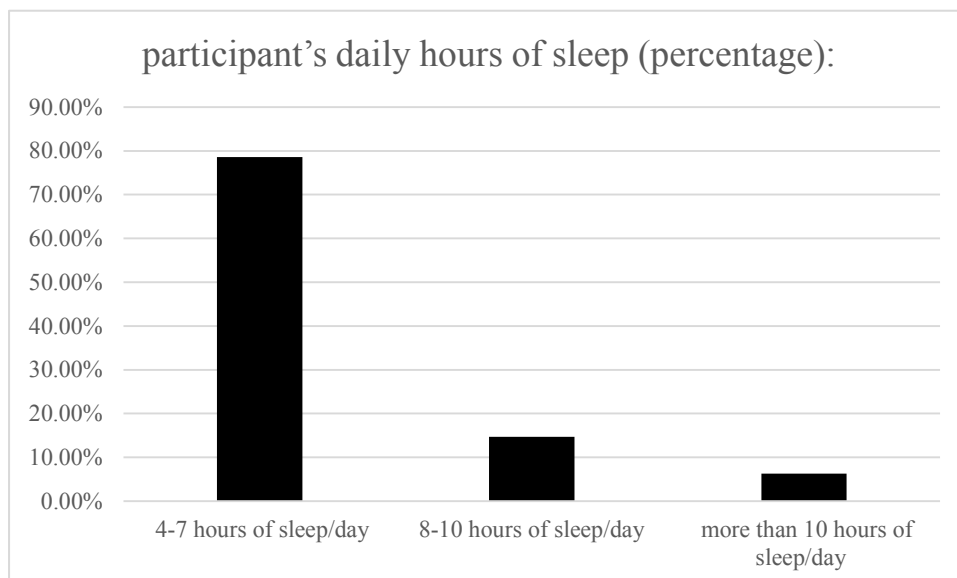
average of 4 hrs to 7 hrs/day of sleep. 21 subjects of those 127 subjects complained of intermittent pattern of sleepiness. Also, the results showed that 66 subjects of the 127 whom used aiding-sleep medications (33.07%) were suffering from sleeping disorders. According to Epworth Sleepiness Scale (ESS), 102 (43%) of the participants were not having any sleep disorders (Score 0-10) whereas 135 (56.9 %) of them were suffering from sleep disorders (Score >10).

**Table 1: general characteristics of the medical students**

Variable	N (%)
Male	145 (60.9%)
Female	= 92 (38.7%)
The Mean Age	22 ±2.37
Total	237



**Figure 1: participants' GPA in regard to the average GPA (Percentage )**



**Figure 2: participant's daily hours of sleep (percentage)**

## DISCUSSION

Speaking of academic performance among the medical students, **Abdulghani *et al.***<sup>(5)</sup> found a significant relationship between abnormal ESS scores, total sleeping hours and academic performance. In contrast, **Haile YG *et al.***<sup>(6)</sup> found no significant association between insomnia and academic performance despite the prevalence of insomnia among medical students.

Subsequently, it was clearly shown in the presented results that the majority of participants had GPA (51.3%) below average. And by looking at the percentages, it has been noticed that a large number of participants (56.9 %) were suffering from sleeping disorders; moreover, most of them sleep less than 8 hours/day. The achieved aim of this study showed that 127 of subjects were taking medications to help them to sleep. We can infer that using of anti-insomnia medications has significant effect on a student's GPA rather than sleeping disorders itself, as well as lack of sleep can be associated with a decrease in subject's academic performance which represented by the GPA which represented the medical student's academic performance.

## CONCLUSION

The study showed a significant relationship between the use of anti-insomnia medications and the academic performance of medical students, further committee and education should be established by the universities and faculties to enhance the student's awareness to the issue of the chronic use of anti-insomnia medications at first. and to apply a perfectly healthy environment with less stress and condensed classes and exams.

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