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Prevalence and different management of sleep disorders among medical students, Umm Alqura University Makkah, Saudi Arabia

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ABSTRACT

Background: Sleep is a reversible state of disconnection from the environment which helps the body and mind to recover and rest. Sleep could be interrupted by a numerous number of disorders and suffering from sleep disorders could affect a person physically and mentally. This study was done to assess the prevalence of sleep disorders and different modalities of using sleep medicine to improve sleep quality among medical students of Umm Al-Qura University. **Methods:** A descriptive cross-sectional study conducted at Umm Al-Qura University in Makkah, Saudi Arabia using electronic survey in September 2021. The study population was Umm Al-Qura university undergraduate medical students from the 2nd year to intern level. In **Results:** Of the 342 students who participated in the study, 55.6% of them had at least one sleep disturbance. Narcolepsy was the most often reported sleep condition among students (43.9%), followed by insomnia (29.5%). According to the data, 38.6% of people in our population sleep between 6 and 8 hours per day, compared to 47.4% who sleep less than 6 hours daily. While interns made the fewest complaints about sleep issues, second-year medical students made the most. **Conclusion:** Our study found that sleep disorders prevalence is high among medical students. We recommend increasing the awareness about the important of sleep and activating the role of academic mentors or advisors and provide the support for junior medical students.

Keywords: management, sleep disorders, medical students, Makkah, Saudi Arabia.

1. INTRODUCTION

Sleep is a reversible condition of perceptual disconnection from insensitivity to the environment. Sleep is a complicated combination of physiologic and behavioral processes as well. Postural recumbency, behavioral quiescence,

closed eyelids and all the other signs normally associated with sleeping are usually (but not always) present (Carskadon & Dement, 2011). For newborns, the recommended sleep time is between 14 and 17 hours. 8 to 10 hours was considered appropriate for teenagers, for young adults and adults it was 7 to 9 hours, and 7 to 8 hours of sleep for older adults (Hirshkowitz et al., 2015).

Sleeping problems are quite frequent. Sleep deprivation and problems affect far more people around the world than previously thought, according to population research (Ferrie et al., 2011). For example, studies have confirmed almost one-third of individuals suffer from insomnia (Mellinger et al., 1985). Medical students is one section of the general population that is particularly sensitive to poor sleep, possibly as a result of the long duration and high intensity of study, clinical obligations that include emotionally challenging employment and lifestyle choices (Wong et al., 2005). The International Classification of Sleep Disorders, Second Revision reported 81 different sleep disorders categorized in 8 major categories disorder insomnias, sleep-related breathing disorders, hypersomnias of central origin, circadian rhythm sleep disorders, sleep-related movement disorder, isolated symptoms, parasomnias, apparently normal variants and unresolved issues and other sleep disorders (Thorpy, 2012).

Several studies explored the sleep disorders prevalence among the medical students (Abdelmoaty et al., 2021; Nishijima et al., 2018; Abdulghani et al., 2012). Another study confirmed that analysis of the relation between academic performance and sleep disorders indicates a significant relationship between abnormal Epworth Sleepiness Scale (ESS) scores, total sleeping hours, and academic performance (Abdulghani et al., 2012). There are many studies reporting the incidence of sleep problems within medical students in Saudi Arabia. However, there are no studies to assess the different modalities of using sleep medicine to increase medical students' sleep quality who complain from sleep disorders at Umm Al-Qura University.

This study aims to identify the prevalence and different management methods of sleep disturbances between medical students at UQU in Makkah, Saudi Arabia.

2. MATERIALS AND METHODS

This is a descriptive cross-sectional study conducted at UQU in Makkah, Saudi Arabia from September 2021 to December 2021. The study population was undergraduate medical students of UQU from the 2nd year to intern level. There are more than 1440 medical students and interns in the university, the required sample size for this study was calculated by OpenEpi website version 3.0 (AG, KM, 2013), in consideration of the following: the population size of UQU medical students (from 2nd year to 6th year) and interns is about 1440 students and interns, keeping the confidence interval (CI) level at 95% and considering 50% incidence of sleep problems among medical students in UQU. The sample size was calculated to be 304 participants. In case of any possible data loss, we are planning to maximize the total sample size to reach 400 participants.

A validated questionnaire was used based on a previously published article (Spoonmaker et al., 2005). After obtaining ethical approval from the Biomedical ethics committee at UQU, the questionnaire was created via Google forms and was distributed among UQU students through social media platforms. Consent was obtained from all participants. The first author's contact data was attached with the message of the survey to facilitate contact if there were any issues. Students from the second to the sixth year and interns, both males and females at the medical college of UQU were enrolled. Students in the preparatory year and who refused to participate were excluded. The questionnaire form was divided into two different sections, the first section contained demographic information like gender, age, college and academic year. The second part contained a group of questions related to sleep disorders and possible management methods. SPSS software version 23 was used for the data analysis, the mean, frequencies and Percentages were used for the descriptive analysis and then chi-square test was performed to find the relation between the categorical variables, P-value <0.05 was considered to be statistically significant.

3. RESULTS

Table 1 shows the demographic data of a total of 342 medical student and intern were collected, participants were (55.8%) female and (44.2%) male, the medical students were drafted beginning from the second year to sixth year, participants from third year were the most students to take part in the study (30.1%) followed by second year (26%), while the lowest rate of participants were interns by (3.5%). Only (9.1%) of participants were smokers. (79.2%) of our population had a GPA of 3.5 or more out of 4.

Variable		N (342)	%
Gender	Male	151	44.2%
	Female	191	55.8%

Smoking status	Smoker	31	9.1%
	Non smoker	311	90.9%
GPA	<3.5	71	20.8%
	>3.5	271	79.2%
Academic year	2 nd	89	26%
	3 rd	103	30.1%
	4 th	57	16.7%
	5 th	64	18.7%
	6 th	17	5.0%
	Intern	12	3.5%

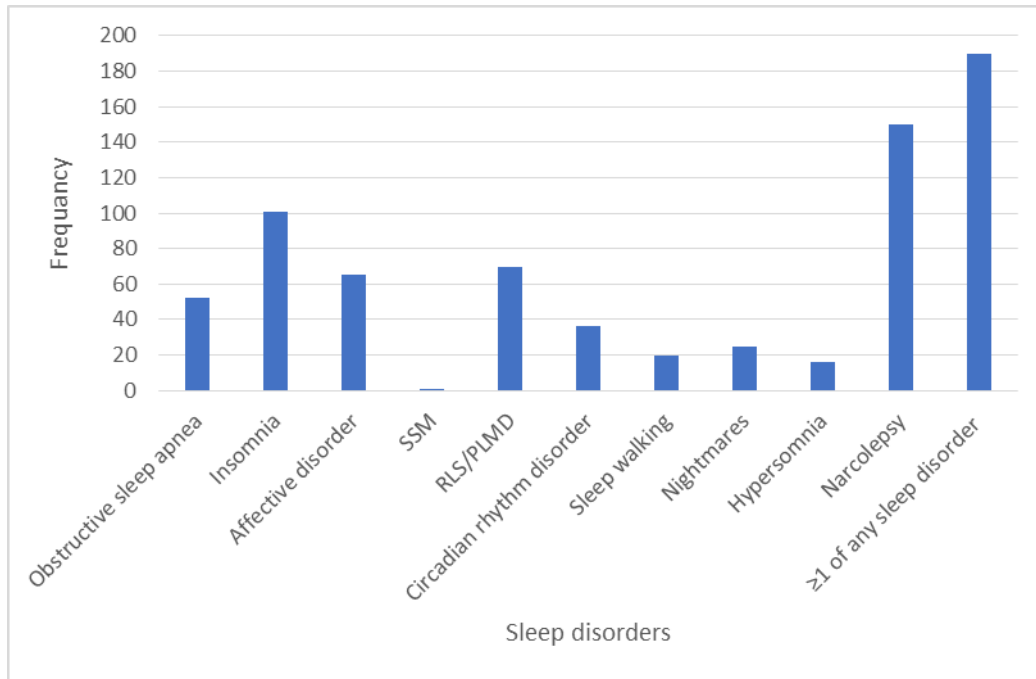


Figure 1 sleep disorders frequencies

Figure 1, shows the frequency of sleep disorders. (55.6%) of our participants complain of at least one of the sleep disorders measured, the most prevalent one is Narcolepsy by (43.9%), followed by insomnia with (29.5%), RLS/PLMD (restless legs syndrome/periodic limb movement disorder) by (20.5%), and obstructive sleep apnea by (15.2%), and lowest rate was sleep state misperception (SSM) by (0.3%). 162 (47.4%) of our participants sleep less than 6 hours while, 132 (38.6%) sleep between 6-8 hours, and 48 (14%) sleep more than 8 hours.

Variable		Sleep disorders		P-value
		Yes (%)	No (%)	
Gender	Male	81 (53.6%)	70 (46.4%)	0.58
	Female	109 (57.1%)	82 (42.9%)	
Smoking status	Smoker	19 (61.3%)	12 (38.7%)	0.57
	Non smoker	171 (55%)	140 (45%)	
GPA	<3.5	29 (40.8%)	42 (59.2%)	0.007
	≥3.5	161 (59.4%)	110 (40.6%)	

Academic year	2 nd	66 (74.2%)	23 (25.8%)	<0.001
	3 rd	51 (49.5%)	52 (50.5%)	
	4 th	34 (59.6%)	23 (40.4%)	
	5 th	28 (43.8%)	36 (56.3%)	
	6 th	9 (52.9%)	8 (47.1%)	
	Intern	2 (16.7%)	10 (83.3%)	

Table 2, represents the connection between sleeping problems and academic and social variables. Each of Gender and Smoking status show no significance. However, there was a significant relation with GPA (<0.007). Participants who have a GPA less than 3.5, (59.3%) of them did not complain of sleep disorders, while participants with 3.5 or more GPA (59.4%) did complain of sleep disorders. Furthermore, there was a significant relation with academic year (<0.001). Second year medical student’s show the highest rate by (74.2%) to have sleep disorders and the lowest rate by (16.7%) was in interns.

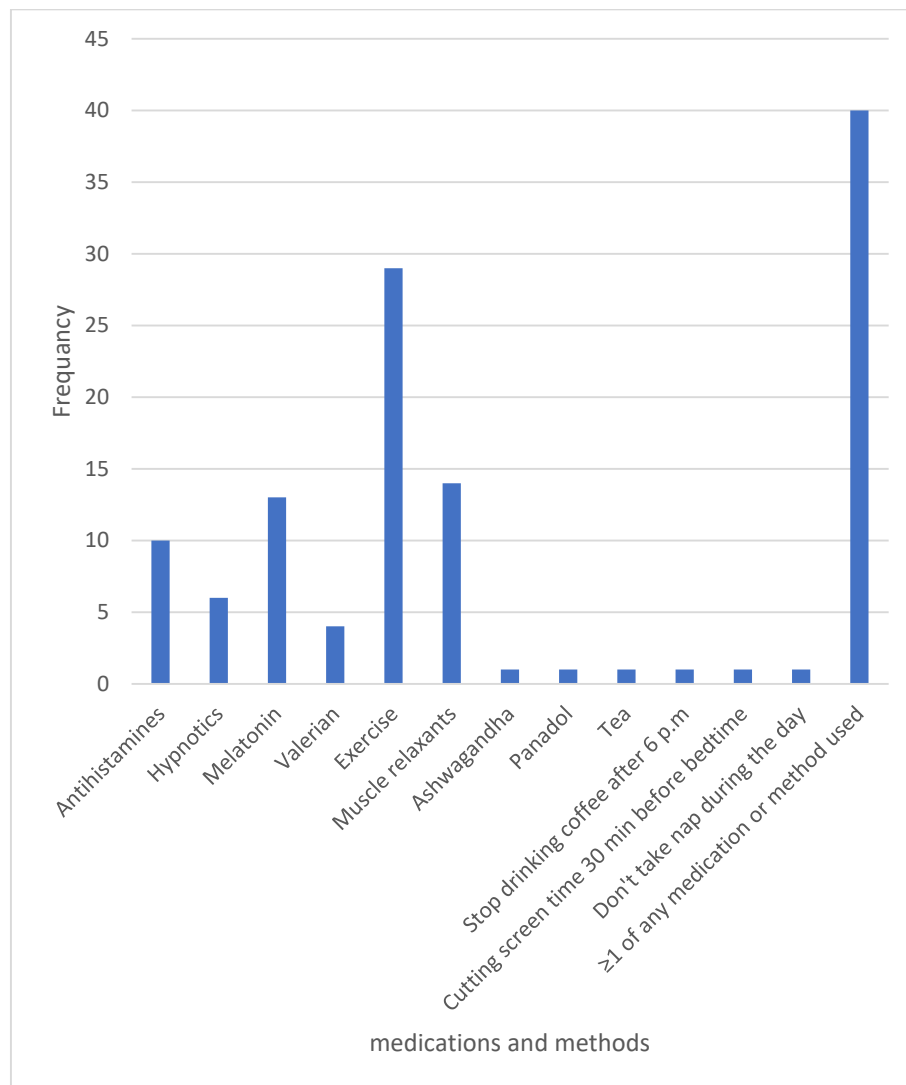


Figure 2 medications and methods used to treat sleep disorders

Figure 2, shows medications and methods used to treat sleep disorders, (11.7%) of our participants use one or more of these methods for their sleep problems, the most used method was to exercise (8.5%), followed by muscle relaxants use by (4.1%) and Melatonin use by (3.8%).

4. DISCUSSION

Sleep disorders affect a lot of people (Ferrie et al., 2011), one group of people who seem to be especially vulnerable to lack of sleep is medical students potentially as a result of the extensive and intense school schedule and clinical commitments (Wong et al., 2005). The topic of sleeping disorders prevalence among medical students has been researched over and over but in this study the authors took the extra mile to investigate more sleeping disorders than the previous study done in UQU and the methods used by medical student to deal with their struggles with sleeping disorders.

There is a lack of evidence regarding what medical students in UQU do to deal with their sleep disorders. As mentioned before 342 students have been drafted in total and (9.1%) were smokers, (55.6%) of the total experienced one or more sleep disorders. The results indicate that the most experienced sleep disorder among the students was Narcolepsy with a prevalence of (43.9%) followed by Insomnia (29.5%), then RLS/PLMD (20.5%) and obstructive sleep apnea (15.2%). While the least experienced was SSM with a prevalence of (0.3%) among our population. Regarding sleeping hours, the data shows that (47.4%) of our population sleep less than 6 hours per day, while (38.6%) sleep between 6-8 hours a day and only (14%) sleep more than 8 hours daily. The data also indicates that there is little to no significant relation between sleeping disorders and gender or smoking.

However, the study demonstrates a correlation between sleep disorders and GPA, (59.3%) of students who have a GPA less than 3.5 did not complain of sleeping disorders. While (59.4%) of students who have a GPA more than 3.5 complained of sleeping disorders. The results also support the theory that there is a significant relation between sleeping disorders and the academic year. Second year medical students were the most to complain about sleeping disorders, while interns were the least. Regarding the management of the sleeping disorders the results shows that (11.7%) tried to manage their disorder with 1 or more of any medication or method mentioned. The most used method to overcome the sleeping disorders was exercise, and 2nd most used was muscle relaxant.

As mentioned before the most experienced sleep disorder among the students was Narcolepsy and insomnia was second. This is in line with Reda's findings in UQU medical students (Abdelmoaty et al., 2021). However, this study shows a relation between GPA and sleep disorders and it also shows no significant relation of sleeping disorders with gender which is in contrast to Reda's study and Alsaggaf's study (Abdelmoaty et al., 2021; Alsaggaf et al., 2016). A sleep disorder of some kind was discovered in (55.6%) this is also in contrast to Thomas from Alabama who reported (24%) (Thomas, 2014) and Abdulghani who found (36.6%) (Abdulghani et al., 2012). While the previous research has focused on prevalence, this study demonstrates how students manage their sleeping disorders. The generalizability of the results is limited by conducting this study in a single university.

Furthermore, this study was mostly conducted during COVID-19 pandemic which affected everyone's sleep and lifestyle. Further investigation in the management methods that students use to cope with their sleep disorders is needed to better understand the effects of each method and to weight the benefits and the risks of each method.

5. CONCLUSION

Among medical students, sleep disturbances are quite common; the sleep less than 6 hours is associated with sleep disorders. Narcolepsy is the most common sleep disorder. Our results demonstrate students who have a GPA more than 3.5 complained of sleeping disorder and Second year medical students were the most to complain about sleeping disorders. We recommend increasing the awareness about importance of sleep and activating the role of academic mentors or advisors and provide the support for junior medical students.

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Consent to participate

Informed consent was obtained from all the participants.

Ethical approval

The study was approved by the Medical Ethics Committee of Umm Al-Qura University, Saudi Arabia, ethical approval number: (HAPO-02-K-012-2021-09-734). An electronic informed consent was obtained from each participant to submit their answers.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All datasets used during this research are available upon reasonable request from the corresponding author.

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