



Journal Homepage: -www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/15251
DOI URL: <http://dx.doi.org/10.21474/IJAR01/15251>



RESEARCH ARTICLE

THE PREVALENCE OF SLEEP DISORDER IN MEDICAL STUDENTS AT TAIBAH UNIVERSITY IN 2021

Abdulrahman Awad Aljohani and Dr. Mohammed Kabli
Family Medicine Resident in Family Medicine Program, Almadina.

Manuscript Info

Manuscript History

Received: 26 June 2022
Final Accepted: 28 July 2022
Published: August 2022

Abstract

Copy Right, IJAR, 2022,. All rights reserved.

Introduction:-

Sleep disorders are a group of conditions that affect the ability to sleep well on a regular basis.¹

Sleep deprivation is a significant public health issue, according to The Centers for Disease Control and Prevention (CDC) a third of US adults report that they usually get less than the recommended amount of sleep.

Not getting enough sleep is linked with many chronic diseases and conditions—such as diabetes, heart disease, obesity, and depression—that threaten our nation's health.² The recommendations for amount of sleep-in adolescents (10–17 years old) is about 8.5–9.5 hours per night and those persons ≥ 18 years of age is 7–9 hours of sleep per night.¹ However significant proportion of students sleep than less than 6 hours a day³. With the advent of advanced technology, gadgets and mobile phones, sleep disturbances are common among the adolescents, particularly students.⁴

Insomnia complaints among college students are significantly associated with a decline in school performance.⁵ Stress in medical students is common and is process-oriented.

Majority of these students are away from home and undergo severe emotional turmoil in addition to facing heavy burden of the studies and expectation.⁶

Both, lack of sleep or decreased quality of sleep have an effect on this group's overall health and functioning. Lack of sleep has an effect on the endocrine, immune, and nervous systems and is associated with an increased risk of cardiovascular factors including obesity, diabetes, impaired glucose tolerance, and hypertension.⁷ Moreover, insufficient sleep is important in influencing body weight regulation and metabolism.⁸

Rational ;

1. Sleep disorder is a major and common health problem among medical students.
2. There are very few published studies on Sleep Disorders on
3. Medical Students, especially In Saudi Arabia
4. The researcher has noticed that sleep disorder can effect on their academic performance .

Corresponding Author:- Abdulrahman Awad Aljohani

Address:- Family Medicine Resident in Family Medicine Program, Almadina.

General Objectives:

To determine the extent of sleep disorder among medical student and understand whether it is a concerning health problem among medical students in Saudi Arabia.

Specific Objective:

To determine the prevalence of sleep disorder and the level of sleepiness among medical students studying at Taibah University in 2020.

Literature Review:-

Global epidemiology of sleep problems among medical students

Epidemiological studies for assessing sleep problems among medical students have been conducted in China, Hong Kong, Malaysia, India, and Iran, amongst the

Asian countries. In a Chinese study, the Pittsburgh Sleep Quality Index (PSQI), self-evaluation depression scale (SDS), self-evaluation anxiety scale (SAS) and self-developed questionnaire of influencing factors on the quality of sleep-in medical college students were used to study the status of sleep quality.

A total of 19.17% participants showed poor quality of sleep and the difference between genders was not statistically significant ($P > 0.05$). Statistically significant ($P < 0.05$) difference was seen among different years of students and correlation was found between sleep quality and depression or anxiety ($P < 0.0001$). Factors influencing the quality of sleep-in medical college students would include: the worry of sleep, irregular work/rest, worry on examination, stress, relationship with classmates, self-evaluated health condition, environments of the dormitory and late to bed.⁹ Another study in Chinese medical students reported that more than 90% of the undergraduates had experienced excessive sleepiness in class, with more males than females affected.¹⁰

In North and South America, epidemiological data on medical students' sleep problems are available from United States, Brazil, and Mexico. In the United States, a study determined whether subjective sleep quality was reduced in medical students, and whether demographics and sleep hygiene behaviors were associated with sleep quality. Around 314 medical students completed a web-based survey containing questions about demographics, sleep habits, exercise habits, caffeine, tobacco and alcohol use, and subjective sleep quality (using the PSQI). Medical students' sleep quality was significantly worse than a healthy adult normative sample ($t = 5.13, p < .001$). Poor sleep quality in medical students was predicted by several demographic and sleep hygiene variables.¹¹

A cross-sectional self-administered questionnaire-based study on April 2012 in Saudi Arabia. The participants were medical students of the first, second, and third academic years. The Epworth Sleepiness Scale (ESS) was also included to identify sleep disorders and grade point average was recorded for academic performance. The ESS score demonstrated that 36.6% of participants were considered to have abnormal sleep habits, with a statistically significant increase in female students ($p < 0.000$). Sleeping between 6–10 h per day was associated with normal ESS scores ($p < 0.019$) and academic grades 3.75. Abnormal ESS scores were associated with lower academic achievement ($p < 0.002$).¹²

In a study on 244 Iranian medical students, 40.6% reported poor sleep quality; this was significantly associated with lower grades, economic and marital status, and type of training, but not gender.¹³

A validated sleep disorder questionnaire surveyed sleep data during the 2007–2008 academic year published on 23 sep 2010. Participants were 1,845 college students at a large, southeastern public university. Twenty-seven percent of students were at risk for at least one sleep disorder. African American and Asian students reported less risk for insomnia and fewer poor sleep practices relative to white and Latino students. Students reported insufficient sleep and a discrepancy between weekday and weekend amount of sleep. Students at risk for sleep disorders were overrepresented among students in academic jeopardy ($GPA < 2.0$).¹⁴

Methodology:-

Study design:

A Cross-Sectional descriptive study among Medical students at Taibah University in Al-Madina City.

Study period :

This study will be conducted during 2020

Study Area:

Almadinah Almunawarah is the second holiest city in Islam after Makkah. It is located on the country's west side along the red sea coast. Taibah University (TaibahU) was founded in 2003 and provides various courses including that of medicine. The faculty of Medicine was established as a branch of King Abdul Aziz University in Madinah in 1419 H¹⁵.

Study Population:

There are 300 male medical student in Medical collage at Taibah University in Madinah¹⁶.

Inclusion criteria:

The study included Male Students at Taibah University. The participants had to agree to fill the questionnaire voluntarily.

Exclusion criteria

Female students.

Students who had respiratory problems such as sleep apnea, those with incomplete information on sleep quality
Students who were on medications that induced sleep.

Sample size:

The Total number of a male medical students in medical collage at Taibah University is 300 Students²⁷

By using Epi Info app, the following was calculated:

Population Size: 300 Expected Frequency: 50%.

Worst Acceptable: 55%.

Confidence Interval: 95%.

The Calculated Sample Size: 168

Study instruments:

The Epworth Sleepiness Scale:

The ESS is a self-administered questionnaire with 8 questions. On a 4-point scale (0-3), respondents are asked to rate their usual chances of dozing off or falling asleep while engaged in eight different activities. Most people engage in those activities occasionally, although not necessarily every day. The ESS score (the sum of 8 item scores, 0-3) can range from 0 to 24. The higher the ESS score, the higher that person's average sleep propensity in daily life (ASP), or their 'daytime sleepiness'. The questionnaire takes no more than 2 or 3 minutes to answer. It is available in many different languages. The detailed questionnaire and the scoring system has been provided in the **Appendix section**.

Data collection procedure:

After screening for inclusion and exclusion criteria, the subjects would be invited to participate in the study. The questionnaire required less than 15 min to fill out. The participants will be asked to complete a self-administered anonymous questionnaire, which detailed age, gender, and sleep quality and the outcome of interest. The data will be collected by the researcher himself/assistant in paper copies. English version will be available. An informed consent will be obtained prior to the filling of the questionnaire and is detailed in **Appendix section**.

Variables:

The demographic information will include the age, ethnicity, past medical history, smoking history.

Statistical analysis :

Data will be entered into a personal computer by the researcher and analyzed by SPSS(The Statistical Package of The Social Science) version 16. Frequency distributions of sleep quality and other components of sleep among study participants will be examined. Characteristics were summarized using means and standard deviations for continuous variables and counts and percent-ages for categorical variables.

Results:-**Table 01:-** Sociodemographic characteristics of the participants in Taibah University.

Characteristic	Total no	Percentage (%)	P value
Age			
20-25	168	100%	0.37
Gender			
Male	168	100%	0.36
Female	0	0%	0.12
Marital status			
Married	27	25%	0.25
Unmarried	132	78.5%	0.43
Divorced/widow	9	8.5%	0.51
Monthly income			
<10,000	88	52.4%	0.16
10,000-20,000	59	35.1%	0.19
>20,000	21	12.5%	0.73
GPA performance			
2.5-3.3	94	73.1%	0.59
3.3-4.2	48	28.5%	0.38
4.2-5.0	26	15.4%	0.44
Academic year			
1-3 th years	132	78.5%	0.39
3-5 th years	36	21.5%	0.48
Family history of sleep disorders			
Yes	108	64.2%	0.72
No	85	35.8%	0.79
Use tobacco products			
Yes	96	57.2%	0.68
No	72	42.8%	0.71
Daily caffeine use			
Yes	95	56.5%	0.83
No	73	43.5%	0.69

Table 02:- Prevalence of sleep disorders among the participants of Taibah University.

Sleep disorders	Total no	Percentage(%)
No sleep disorder	16	9.5%
Mild sleeping disorder	31	18.4%
Moderate sleeping disorder	78	46.4%
Severe sleeping disorder	23	13.6%
Very severe sleeping disorder	20	11.9%

Table 03:- Association between demographic characteristics and social disorders of participants in Taibah University.

Characteristics	Mean	Standard Deviation	P value
Age			
20-25	19.26	3.56	0.38
Gender			
Male	16.4	4.56	0.36
Female	0	2.97	r
Marital status			
Married	29.86	8.37	0.25
Unmarried	12.76	2.97	0.43
Divorced/widow	55.26	6.57	r

Monthly income			
<10,000	26.76	3.68	r
10,000-20,000	35.36	4.47	0.19
>20,000	16.96	9.37	0.73
GPA performance			
2.5-3.3	26.87	6.58	0.59
3.3-4.2	22.97	8.47	r
4.2-5.0	26.69	6.45	0.44
Academic year			
1-3 th years	19.57	5.86	0.42
3-5 th years	19.57	6.45	0.95
Family history of sleep disorders			
Yes	22.97	3.65	r
No	31.87	6.86	0.79
Use tobacco products			
Yes	18.44	5.65	0.68
No	22.86	6.87	r
Daily caffeine use			
Yes	10.58	7.38	0.83
No	22.87	8.36	r

Discussion:-

Table 1 comprises the demographic characteristics of participants of Taibah University. A total of 168 participants were recruited from the 1st year to the 6th year for data collection. All the participants were male while excluded the females. From 20 to 25 years aged people were recruited, because the most participants of university were between 20-25(100%). Most of the medical students were unmarried (78.5%) while least were divorced or widow. The monthly income of the medical students varies from each other. At the same time, half of the students (52.4%) were earning less than 10,000 per month. GPA performance of the participants also varied from each other. More than half of the students (73.1%) had a low GPA between 2.5-3.3. Students of all semesters recruited in the research while 78.5% students were from 1st-3th semester and 21.5% from were 3rd to 5th semester. 64.2% of students' families were suffering from a sleeping disorder of different levels. 57.2% of participants were using tobacco products, while 56.5% of students are used to having caffeine regularly.

Table 2 comprises the level of sleeping disorders of all participants. Only 16 participants were with no sleeping disorder at all. 18.4% of medical students of Taibah University were suffering from mild sleeping disorders. 46.4% of medical students of Taibah University were suffering from moderate sleeping disorders. 13.6% of medical students of Taibah University were suffering from severe sleeping disorders. While 11.9% medical students of Taibah University were suffering from very severe sleeping disorder.

The third table shows the association between social disorders and the demographic characteristics of participants. It is found in the study that most of the medical students in Taibah University are suffering from sleeping disorders irrespective of the cause. Only 16 students sleep with satisfaction and peace without any distraction. While 78 students out of 168 experience moderate sleeping disorders. In addition, 20 students are suffering from the very severe sleeping disorders due to any cause. But this association shows that most of the student's experience sleeping disorders, but their demographic characteristics are behind this. 52.4% students are earning less than 10,000 which is not sufficient to fulfill the expenditure so it can contribute to the anxiety, resulting in sleeping disorders. In addition, more of the students use tobacco products and use caffeine daily, leading to sleeping disorders. It is also found in the study that the sleeping disorders may be a result of family history because the families of 108 medical students are suffering from sleeping disorders.

This study also found that most of the students are experiencing sleeping disorders and are unmarried. So, maybe there's a correlation between marital status and sleeping patterns. In addition, it is also found that most of the students are not fresh because they are suffering from sleeping disorders so their performance is not satisfactory as a result 73.1% medical students are getting low GPA (2.5-3.3). Regular use of caffeine and tobacco products may also

contribute to the sleeping disorders because caffeine and tobacco contain some substance which activate the pituitary gland and shuffle the sleeping cycle.

Ethical Consideration :

The proposal will be submitted by the research ethical comity for approval of the study.

A consent will be taken from every subject.

All Data from the study will be absolutely confidential. An Approval litter from the supervisor of the training program will be issued to obtain.

Limitation :

1. Time limitation.
2. Absence of students.

Budget :

Self-Funded.

Services :

The Researcher hopes to increase awareness about sleep Disorder.

Conclusion:-

Sleep disorders are common among medical students, and it affects their physical, mental, and psychological health. It is crucial to detect these problems and address them before their condition deteriorates. Sleep disorders are more common in students with less income, more intake of caffeine and tobacco products and family background with sleeping disorders. Female students appear at higher risk. In conclusion, the prevalence of sleeping disorders among medical students of Taibah University is high. Most of the students are suffering from a sleeping disorder of any level. The sleeping disorders are associate with age, gender, performance, marital status, use of tobacco products and source of income. The impact of the ongoing 2020-2021 global COVID-19 crisis and rolling lockdowns on medical students' sleep patterns, mobile phone use and socialization, and academic performance, has been consequential and a topic for investigation in further studies. So, hard efforts are needed for the early detection of sleeping disorders and to regulate the sleep-awakening cycle.



OHIO SLEEP MEDICINE INSTITUTE CENTER OF SLEEP MEDICINE EXCELLENCE™

Main Office | 4975 Brodenton Avenue, Dublin Ohio 43017 | T 614.766.0773 | F 614.766.2599

Branch Office | 7277 Smith's Mill Rd., New Albany 43054 | T 614.775.6177 | F 614.775.6178

Epworth Sleepiness Scale

Use this scale to determine your patient's level of sleepiness.

Choose the most appropriate number for each situation:

0 = no chance of dozing
1 = slight chance of dozing or sleeping
2 = moderate chance of dozing or sleeping
3 = high chance of dozing or sleeping

Situation	Chance of Dozing or Sleeping
Sitting and reading	—
Watching TV	—
Sitting inactive in a public place	—
As a passenger in a motor vehicle for an hour or more	—
Lying down to rest in the afternoon when circumstances permits	—
Sitting and talking to someone	—
Sitting quietly after lunch without alcohol	—
In a car, while stopped for a few minutes in traffic	—
Total score (add the scores up) (This is your Epworth score)	—

If your patient scores 10 or more, we recommend your patient consult one of our physicians to treat a sleep disorder, address an underlying condition affecting sleep and develop proper sleep hygiene.

Informed Consent Instructions

This questionnaire contains questions about your basic personal information, your sleeping history, and your health status. It will help us to understand what the current sleeping issues in the medical students are.

All the information you fill in this questionnaire is completely confidential and will only be used for analysis purpose by the concerned study team. Your answers will be treated as private and will not be disclosed to anyone outside the study team.

Please: Make sure you complete and sign the consent form and patient details section.

Complete the questionnaire by placing a cross in the box (e.g., ☒) that represents your answer. If you make a mistake please shade in the entire box and then place a cross in the box that represents your answer.

If you would prefer not to take part in this study, please fill out patient details and complete Section A to update your medical records and return the entire questionnaire as detailed above.

References:-

1. <https://www.ncbi.nlm.nih.gov/pubmed/28460563> <https://www.cdc.gov/sleep/index.html>
2. <https://www.cdc.gov/sleep/index.html>
3. National Sleep Foundation. Children, Teens and Sleep. NSF Web Site; 2013; Available From <http://www.sleepfoundation.org>.
4. <https://aasm.org/insomnia-significantly-affects-the-schoolperformance-of-college-students/>
5. Nandi M, Hazra A, Sarkar S, Mondal R, Ghosal MK. Stress and its risk factors in medical students: an observational study from a medical college in India. *Indian journal of medical sciences*. 2012;66(1):1–12.
6. Knutson KL. Sleep duration and cardiometabolic risk: a review of the epidemiologic evidence. *Best Pract Res Clin Endocrinol Metab*. 2010;24(5):731-743.
7. Chaput JP, Després JP, Bouchard C, Tremblay A. Short sleep duration is associated with reduced leptin levels and increased adiposity: results from the Quebec family study. *Obesity*. 2007;15(1):253-261.
8. Feng G, Chen J, Yang X. Study on the status and quality of sleep-related influencing factors in medical college students.
9. *Zhonghua Liu Xing Bing Xue Za Zhi*. 2005;26:328–31. 10-Lu J, Fang GE, Shen SJ, Wang Y, Sun Q. A Questionnaire survey on sleeping in class phenomenon among Chinese medical undergraduates. *Med Teach*. 2011;33:508
10. Brick CA, Seely DL, Palermo TM. Association between sleep hygiene and sleep quality in medical students. *Behav Sleep Med*. 2010;8:113–21.
11. <https://www.ncbi.nlm.nih.gov/pubmed/22409189>
12. Ghoreishi A, Aghajani AH. Sleep quality in Zanjan university medical students. *Tehran Univ Med J*. 2008;66:61–7. <https://www.tandfonline.com/doi/full/10.1080/07448481.2010.483708>
13. <https://www.taibahu.edu.sa/Pages/EN/Home.aspx?ln=en>
14. Medical college At Taibah University Director office paper.