



## Sleeping habits and Problems among Medical Students—cross-section study

BY

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### Abstract

**Background:** Medical students are at a higher risk of sleep deprivation and sleep disorders than other students due to high level of academic demands, which can cause irregular sleep-waking cycle, falling asleep during the day, and decreased level of attentiveness that may lead to decreased academic performance.

**Objectives:** To describe the habits and problems of sleep among student. Identify the relation between sleep quality and students' academic performance.

**Subjects and Method:** Across section study conducted at AL-Mustansiriyah University, College of Medicine, for the period from first of March to end of April 2022. The study group comprises students for the academic year 2021-2022 from the first to the fifth academic year. A self-administered questionnaire based on SLEEP - WAKE QUESTIONNAIRE was implemented for data collection to explore sleep habits and sleeping problems of the students.

**Results:** The study enrolled 766 students, 45% of students complaining from sleep problem, the highest rate (49.5%) was among the 1st-grade student, and 47.9% of male students reported sleep problems. Sleeping for 5-7 hours was the shared habit among the study group as regards to grade and gender. Out of total study group, 53% of them rated their sleep quality as inadequate. Inadequate sleep quality was significantly higher among those students who failed to pass the midyear exam.

**Conclusions:** A predominance of sleep problems observed among medical students, especially first academic year and male students. To improve the sleep quality of medical students, academic institution should provide a positive environment by establishing counseling facilities and promoting good sleep hygiene.

**Key words:** Sleep, Problems, Academic performance, Medical students.

## INTRODUCTION

Sleep is essential physiological process of the human body, it is necessary for all mental, physical, and emotional daily actions.<sup>(1)</sup>

Adults need on average about seven to nine hours of sleep every night. The quantity and quality of sleep both are vital for an individual's psychological and physical well-being<sup>(2)</sup>

Lacking of sleep has adverse effects on cardiovascular diseases<sup>(3)</sup>, neurocognitive function<sup>(4)</sup>, psychological disorders<sup>(5)</sup>, immunological response<sup>(6)</sup>, and academic performance<sup>(7)</sup>

Poor sleep quality is predominant at the present time, approximately one-third of adults in general population report some form of insomnia and is linked with cognitive decline, impaired health, and reduced quality of life<sup>(8)</sup>. There is increasing evidences of n the existence of risk factors and symptoms of numerous sleep disorders among college students, medical students are a subgroup of college students who are more susceptible to poor sleep quality<sup>(9)</sup>

Sleep disturbance is designated as a pandemic in the population of medical students compared to the general population<sup>(10)</sup>. High academic loads, extended study and clinical hours, in addition to other factors all can cause sleep disturbances and sleep disorders among medical students<sup>(11)</sup>



Long-lasting sleep deprivation impairs cognitive functions for instance memory, concentration, and response time. Among medical students, good sleep quality and refreshing sleep are fundamental for academic development due to the nature of their study and the huge amount of tasks they must complete, in addition to maintain cognitive and physical well-being.<sup>(12,13)</sup>

The study sought to describe the habits and problems of sleep among student. Identify the relation between sleep quality and students' academic performance.

### Subjects and method

A cross-sectional study was conducted in Al-Mustansiriyah University, College of medicine, Baghdad (capital of Iraq) during the period from first of March to end of April 2022.

The study group comprises a convenient sample of undergraduate medical students from the first to the fifth grade for the academic year 2021-2022.

Study tool and data collection: a self-administered questionnaire based on SLEEP - WAKE QUESTIONNAIRE<sup>(14)</sup>, some modifications were made on the original version after reviewing related literatures and discussions with all team members to come up with suitable data collection tool.

The questioner form includes three domains, the first domain covers some demographic characteristics of students such grade and gender.

The Second domain includes 24 statements to cover the usual sleeping habits.

The third domain covers the daytime sleepiness by three statements.

In addition to the mentioned domains, the academic performance was assessed according to outcome of the midyear examination of academic year 2021-2022 (except for the first grade because they did not receive their exam result during the period of data collection).

The academic performance was categorized into three levels: pass, inadequate (fail in one or two subjects, and poor fail in more than two subjects).

For data collection, the study team divided into five groups, each group was responsible for collecting data from one academic year. The members who have the responsibility to collect data from the first three academic years went to the college of medicine at Al-Qadisiyyah camps and those who were responsible for the fourth and fifth academic years went to Al-Yarmouk Teaching Hospital.

Medical students recruited during their rest time and during their practical sections for the first three academic years and after their clinical session for the fourth and fifth academic years. The data collection team clarified the objectives of the study and procedure of filling the questionnaire to the students.

On paper consent required from students to enrolled in the study. To ensure obscurity, the students asked not to put names on the questionnaire form.

Ethical Approval: The research protocol reviewed and ethically approved by ethical and scientific committee in Family and Community Medicine Department, College of Medicine - Al-Mustansiriyah University. More over confidentiality assured to all students who volunteered and none reimbursed. Privacy was considered and the collected data not to be used except for the study purpose.

Statistical analysis: The data entered then analyzed and managed by using statistical software (Microsoft Excel). Descriptive results expressed as frequency and percentage in figures and tables. The X2 used to test for relationship between categorical variables. P value less than 0.05 accepted as statistically significant.

### Results

The study group comprised 766 undergraduate medical students; the highest participation rate was from the second grade with (38%) of the participants. Figure-1

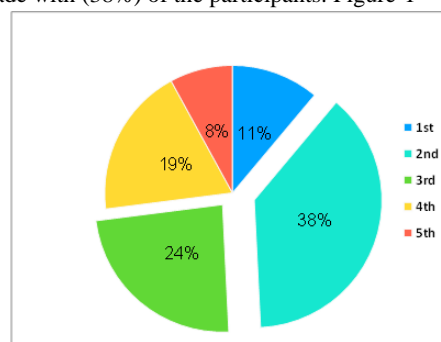


Figure -1: The distribution of study group according to academic year

According to SLEEP - WAKE QUESTIONNAIRE, 345(45%) of the study participant has complain from sleeping problem. Figure-2

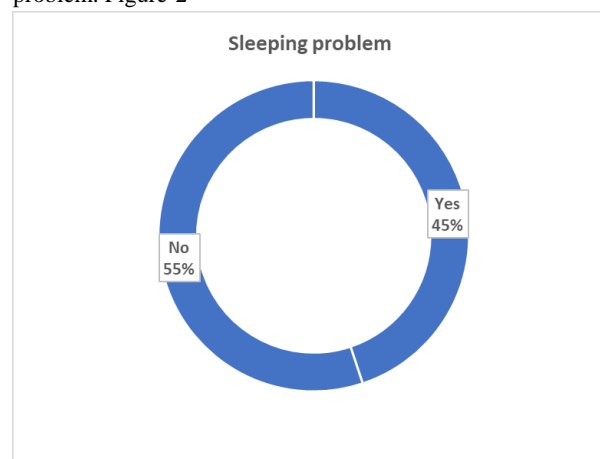
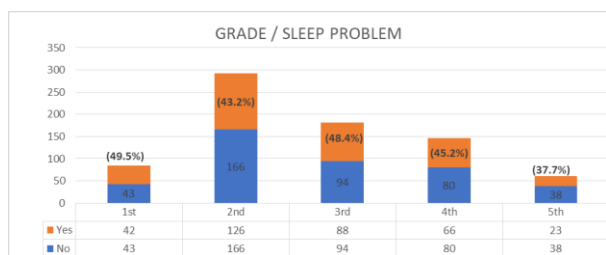


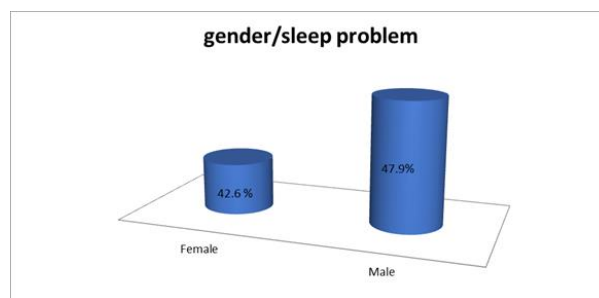
Figure 2: The distribution of the study group according to sleeping problem

Figure-3 illuminate the sleep problem in relation to grade, the highest rate (49.5%) of sleeping problem was detected among first-grade students.



**Figure 3: The distribution of students according to grade and sleeping problem**

The result in figure-4 shows that 166 males (47.9%) stated that they have sleeping problem, in contrast to 179(42.6%) of female students



**Figure-4: The distribution of students in relation to gender and sleeping problem**

Table-1 elucidates sleep duration and academic years, sleeping for 5-7 hours was a common sleeping habit among the studied group. The result show insignificant association between sleep duration and academic year (  $p=0.66914$  )

**Table 1: The distribution of students according to academic year and sleep duration**

Sleep duration	1st		2nd		3rd		4th		5th	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
5-7h	43	51	157	54	92	51	80	55	26	43
Less than 5h	12	14	35	12	31	17	23	16	11	18
More than 7h	30	35	100	34	59	32	43	29	24	39
<b>Total</b>	<b>85</b>	<b>100</b>	<b>292</b>	<b>100</b>	<b>182</b>	<b>100</b>	<b>146</b>	<b>100</b>	<b>61</b>	<b>100</b>

The result in table-2 revealed that gender had no statistically significant impact on sleep duration ( $P=0.46777$ ), as sleeping for 5-7 hours was a common practice among both gender, 53% and 51% of males and females students sleeping for 5-7 hours respectively

**Table-2: The distribution of students according to gender and sleep duration**

Sleep duration	Female		Male	
	Number	%	Number	%
5-7h	214	51	184	53
Less than 5h	58	14	54	16
More than 7h	148	35	108	31
<b>Total</b>	<b>420</b>	<b>100</b>	<b>346</b>	<b>100</b>

Figure 5 presents the academic performance of students according to sleeping problems, where (47.6% and 45.7%) of those who failed to pass the mid-year exam had sleep problems, in comparison with (40.5%) of those who pass the exam.

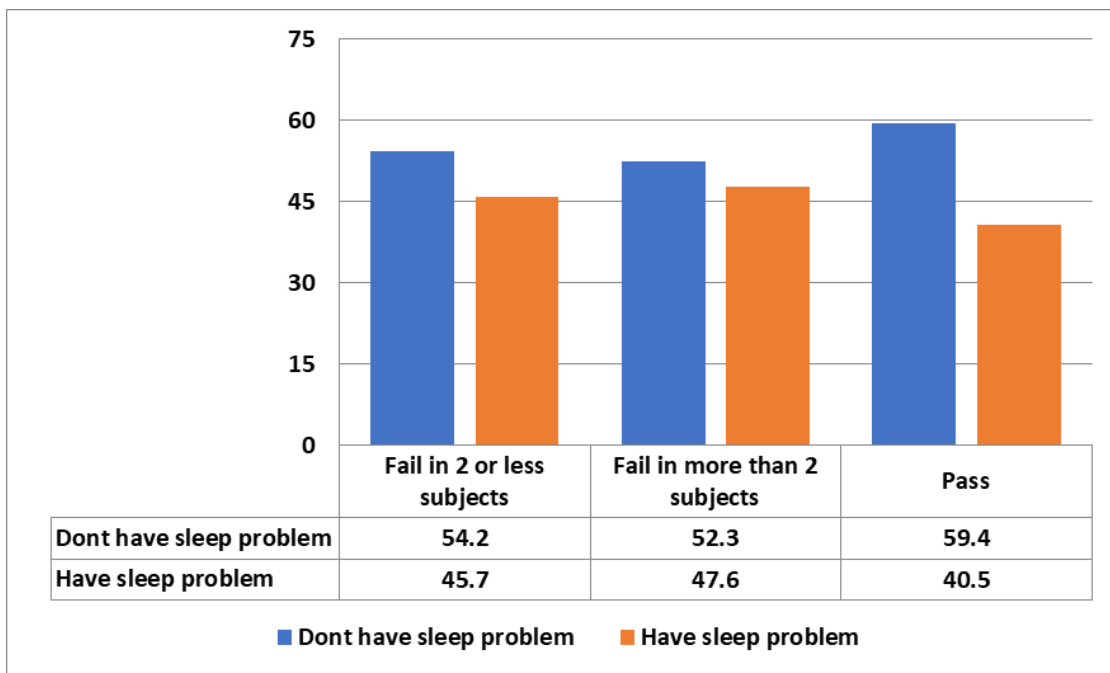


Figure 5: The distribution of study group in relation of academic performance and sleeping problems

The students demanded to describe their sleep quality. The result in figure-6 revealed out of 766 students enrolled in the study 406(53%) of them classified their sleep quality as inadequate.

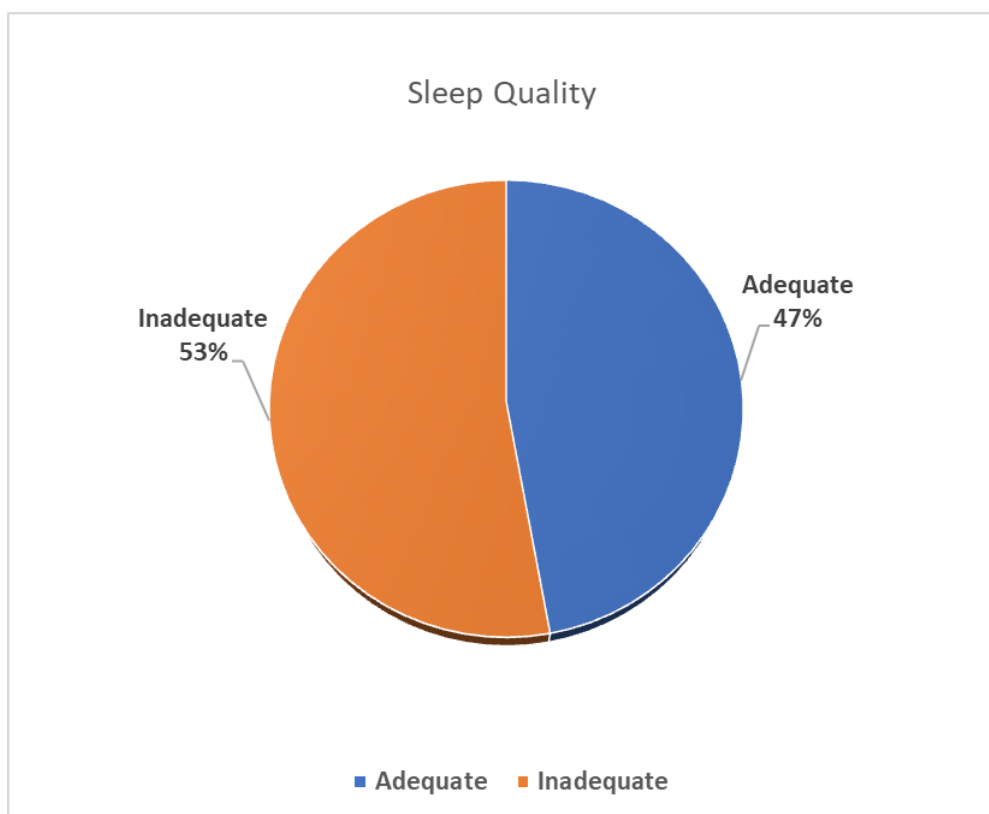


Figure-6: sleep quality among study group

When quality of sleep was analyzed in relation to academic performance, the highest percentage of adequate sleep (56.8%) observed among those students who pass themid-year exam, while (38.5% and 41%) of those students who (failed in two or less subjects) and those who (failed in more than two subjects) had adequate sleep respectively (P=0.0004). Table-3

**Table 3: The relation between academic performance and quality of sleep**

Academic performance/Quality of sleep	Adequate		Inadequate		Total
	No.	%	No.	%	
Pass	174	56.8%	132	43.1%	306
Inadequate (fail in one or two subjects)	78	38.8%	123	61.1%	201
Poor (fail in more than 2 subjects)	82	41%	118	59%	200
Total	334		373		707

**\*\* First academic year excluded from analysis**

When the daytime sleepiness was considered, the results revealed that 403(52.6%) of the students stated that they were falling asleep in inappropriate time e.g. lectures. Table-4

**Table-4 Day time sleepiness of the study group**

Daytime sleepiness	Total	%
sometimes fallen asleep at very inappropriate times, such as in lecture, or during a conversation	403	52.6
sometimes been so sleepy that I became confused or lost track of the topic during a conversation	390	50.9
When have no plans or appointments the next day, frequently go to bed late (compared with usual bedtime).	523	68.3

## Discussion

Literatures have continually revealed that sleep problems are quite common among medical students. These several studies have proven a somewhat significant prevalence of sleep-associated complaints, like poor sleep, difficulty falling asleep or maintaining sleep, early morning awakenings, inadequate sleep quality, early morning sleepiness, and daytime napping, among undergraduates' medical students.<sup>(15,16)</sup> The results of Mata analysis indicated that about 50–60% of medical students had poor sleep<sup>(11)</sup>.

The mention figures support the result obtained from present study which revealed that (45%) of students having sleeping problems. Moreover, the current result was more or less comparable to the results reported by previous studies from Lithuania (40.6%),<sup>(17)</sup> and India (67.42%)<sup>(18)</sup>.

These high rates of sleeping problems among medical students is likely to be attributed to the fact that admittance to medical school entails high academic and professional achievement, it is considered as one of the utmost demanding professions. As a consequence, stress and psychological state are imperative factors that might impair sleep quality and quantity.<sup>(5)</sup>

In the current study, sleeping problem observed mostly among first-year students (49.5%), this result was also observed by study from Bangalore<sup>(19)</sup> as students in early academic year (1st year) had more sleep problems compared to other students. Once College life starts, the students face lot of challenges such as new timetables and environment, social commitments in addition to academic stress, maybe the reasons for such conclusion<sup>(20)</sup>

Sleeping for 5-7 hours was a common sleeping habit among the studied group. This result was correspondent with other studies<sup>(21,22)</sup> which reported that majority of medical students slept between 5 and 6 hours at night. Possessing to the wide-ranging studying hours, unpredicted challenges, and intense clinical requirements, medical students are predisposed to sleep deprivation that can impair their academic performance.<sup>(13)</sup>

It has been stated that sleep quality affects medical students' physical and mental health and as a result their working capacity<sup>(23,24)</sup>. The result from the current study reported that more than half of the students describe their sleep quality as inadequate. These finding is supported by former studies on medical students worldwide which shown a high proportion of poor sleep quality among them.<sup>(9,25,26)</sup>

Sleep quality among medical students also affected their academic performance. The sleep quality has displayed significant association with academic performance; inadequate sleep quality had adverse impact on students' academic performance. This outcome is consistent with the earlier studies conducted in Saudi Arabia<sup>(27)</sup> and Nepal<sup>(28)</sup> which reported an association between poor sleep quality and poor academic performance. This finding might be the result of sleep-disturbed students are usually unacquainted that sleep deficiency can adversely influence their examination preparation and enactment and impair their capability to complete the task. Moreover, failed students might have spent more time studying at night, depriving themselves of good sleep.<sup>(20,28)</sup>

Results from the present study shown that excessive sleepiness during the day was a shared experience among study participants, this finding also observed by other studies which documented high prevalence of daytime sleepiness among students<sup>(22,29)</sup>. Morning tiredness and daytime sleepiness during lectures may interrupt concentration levels during lecture times and optimal output levels contributing to poor academic performance.

The key conclusions of the present study; majority of medical students have a poor sleep quality and a sleep less than the recommended 7-9 hours was a public behavior. The high percentage of daytime dysfunction is troublesome. Suitable Counselling, greater predicting, and reassurance need to be accessible to students that are more likely to suffer from sleep complaints.

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