

# Interaction Between Sleep Problems, Stimulation Drink, and Academic Performance among Students in Baghdad, Iraq

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## ABSTRACT

According to psychiatric opinion, sleep disorders (SDs) can now be acknowledged as a public health concern. Our study aimed to evaluate sleep disorders in dental colleges in the University of Baghdad and assess the relationship between sleep disorders and academic performance and stimulation drink.

A cross-section study with observational was conducted in Dental college in Baghdad University, Iraq, during 2018–2019. Self-administrated questionnaires were handled to 270 students after the consent letter signed. A questionnaire gathered Demographer information about age, gender, class, marital status if students have a chronic disease, working status, stage of the study. The questionnaire also included last year grades and the average of hour sleep during normal or exam days, when sleep disorders presents, medication taken for sleeping, having stimulated drink, at which sort of drink (tea, coffee, cola, energy drink) students attend to take and how this drink effect on students' performance and how effects on sleeping hours.

Results showed that the average student age was 24 years old. More males and females attend these colleges. 30% of study samples were students in 3rd grade, and no participants agreed to take parts from the first grades. Comparing last year's performance or grades with sleep hours, we noticed that sleeping among students with acceptable grade was less compared with higher grades groups.  $5.672 \pm 0.94$ . Fewer hours sleep with low grades, and they drink more stimulated beverages.

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## INTRODUCTION

Clinical content and heavy educational requirements are often manipulated by dental specialty and students that produce heavy stress on students and seriously demands extensive hours to focus on practicing and studying.<sup>1</sup> In addition, a high level of attention and handiness work are necessary to achieve good dental practice that is impacted by several factors such as sleeping quality and quantity.

In general, each person needs approximately 8 hours of sleep each day to have good performance through daytime activity and sustain good health.<sup>2,3</sup> Sleep disorders would influence many aspects of life. It can associate with disturbed mood, deprived judgment, anxiety, and overall may reduce person achievement.<sup>4</sup> even though it has been reported that adults normally tend to have sleep disorders with age besides the lack that company young people during school and college are studying years.<sup>5</sup> A study conducted on medical displayed that sleepiness and sleep quality can negatively affect students' performance. This influence was strongly related to, firstly with sleepiness, secondly, sleep quality, and followed by sleep duration.

In the last decades, many investigators tried to find the relationship between sleep disorders and students' functioning on normal days and exam days. They suggested that academic level and exam scores negatively associated with short sleep, bad sleep quality, late bed and early bed rise time, asymmetrical sleep<sup>6-9</sup>

Usually, stimulators or energy drinks comprise ginseng, taurine, guarana, vitamins, sugar, and caffeine.<sup>10</sup> It has been approved that caffeine stimulates the central nervous system (CNS), causing augmented attentiveness and delayed fatigue. In addition, it also increases the heart rate and effect on peripheral resistance that increase in the rate of blood pressure, palpitations.<sup>11</sup>

Dentists are having sleeping problems that would imitate their academic functioning and even several physiological and psychosocial features. For this reason, the current study aimed to explore how poor sleep quality of dental students at various academic stages can consequence in them and how stimulation drink would impact sleep disorders and academic performance.

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## MATERIAL AND METHODS

Second, third, fourth- and fifth-year students from a dental college at the University of Baghdad were recruited to participate in the current study. During the academic year of 2018–2019, around 300 self-administered questionnaires were handled in the college. 270 students respond (90%), which is considered a good response among dental students who are super busy answering questionnaires. After the consent letter, a commitment letter saying no personal details were used to identify the participants was also read and signed.

**Table 1:** Variables of social demographics of all students and grade last year

Variables	N	%
Age (mean ± SD)	24.73 ± 1.2	
Gander		
Male	183	0.67
Female	87	0.34
Year of study		
First	0	0
Second	35	0.13
Third	80	0.30
Fourth	33	0.12
Fifth	122	0.45
Marital status		
Single	255	0.94
Married	15	0.06
Chronic disease		
Yes	18	0.07
No	252	0.93
Working status		
Working	46	0.17
Not working	222	0.83
Grade last year		
Acceptable	21	0.08
Average	74	0.27
Good	134	0.50
Very good	34	0.13
Excellent	7	0.02

**Table 2:** Correlation of grades in last year and characteristics of sleep average hours (mean ± SD) and drinking stimulation and its effect on sleep among dental students.

	Acceptable	Good	Very good	excellent	P-value
Sleeping hours during normal days	5.672 ± 0.94	6.34 ± 1.23	7.91 ± 1.11	7.32 ± 0.93	0.02
Sleeping hours during exam days	3.38 ± 1.98	5.72 ± 0.82	6.33 ± 0.21	6.65 ± 0.12	0.05
Sleep disorders presents					
Yes	167.4 ± 2.4	32.4 ± 2.7	20.4 ± 6.09	4.32 ± 31	0.032
No	40.32 ± 14.3	32.03 ± 9.76	12.37 ± 3.4	3.7 ± 1.1	0.83
Medication for sleep disorders	20.12 ± 2.8	18.32 ± 1.0	30.32 ± 5.4	20.14 ± 0.12	0.47
Drink Stimulant drink	180.71 ± 15.34	101.2 ± 30.4	20.32 ± 3.8	16.5 ± 2.3	0.027
Mean time of sleep when take stimulant drink	4.34 ± 1.71	5.34 ± 1.9	5.12 ± 2.56	6.7 ± 1.39	0.03

The questionnaires included three parts. The first part covered student details and demography involving: age, gender, class, marital status if a student has a chronic disease, working status. The second part covered steep quality information, which included the average of hour sleep during normal or exam days, when sleep disorders present, medication is taken for sleeping. The third part covered having a stimulation drink, a sort of stimulation drink, at which days students attend to take this drink, how this drink affects students' performance, and how it affects sleeping hours.

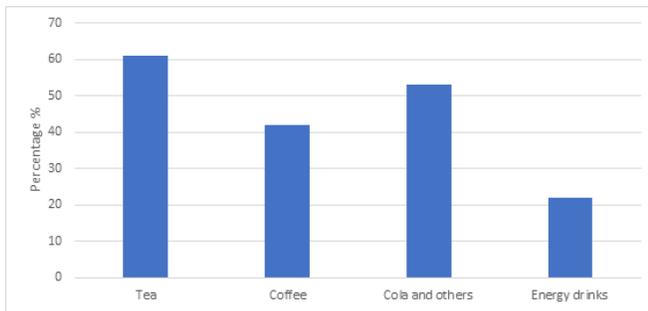
After all, questionnaires were collected and data cleaned and organized. All the analysis were managed using SPSS version 24.

## RESULTS

Out of 300 students who received the questionnaire, 270 students responded with fall answers (90%). Table 1 showed the demographic information about the participates. The average age of students was 24.73 ± 1.2. 67% of our sample were male, and 34% only females. More students who agreed to participate in the study were at 5<sup>th</sup> (45%), followed by third grade 30%. First-year students did not agree to participate in the study. 2<sup>nd</sup>- and 4<sup>th</sup>-year students were 13 and 12%, perceptively. Marital status from the same table showed that 94% of students were single while 6% were married. The questionnaire also asked if students suffer from chronic disease that prevents students from drink stimulant drinks. In Table 1, we can notice that the answer of 7% was yes, and 93% do not have any chronic disease. 83% of students do not work, and 17% only working during studying. Grades of subjective last year varied between acceptance 8%, average 27%, and highly at good 50%, very good 13%, and excellent only 2%.

Table 2 showed that students of dental colleges who get acceptable grades last year have an average of 5.672 ± 5.94 hours sleeping on the regular days, while the average of sleep on exam days was 3.38 ± 1.98 hours. results from this table showed significant differences between sleep hours and grades last year, whereas fewer sleep hours lead to fewer exam grades at a significant level of P > 0.05.

Based on students' responses, if they do have sleep disorders or do not have sleep problems, results indicated that sleep disorders present more among students whose grades were acceptable, which was significantly different from student



**Figure 1:** Frequency of having stimulation drink.

groups—no significant difference between study groups who do not use any medication to get sleep.

Table 2 showed that there are significant differences between groups of dental students who drink stimulation beverages. Even though, mean hours of sleep students when they drink stimulation beverages were  $4.34 \pm 1.71$  with acceptable grades. Good grades students spent an average of  $5.34 \pm 1.9$  sleeping hours while students who get very good and excellent grade average of their sleeping hours was  $5.12 \pm 2.56$  and  $6.7 \pm 1.39$ .

The questionnaire also included a question to identify which kind of beverage has been taken. Figure 1 illustrated that 61% of students drink tea, 42% drink coffee, 53% drink Cola and other gases drink, 22% drink energy drink such as read ball.

## DISCUSSION

Dental students and specialties introduced through their duties heavy stress come from long hours of study and training that would overstate sleeping duration and latency.<sup>12</sup> It has been reported that there are extreme associations between sleep habits and dental students' academic performance.<sup>13</sup> In the current study high percentage of students sleep more during regular days compared to exam days where stress is more similar to results as reported.<sup>14,15</sup> This finding illustrated that dental students worldwide would sleep before or close to midnight and wake very early compared to other students, probably because of business from their load academic schedule, which involves practicing in hospital and assignments in the classroom.<sup>16</sup> Prevalence among our study subjective that students who think they are having sleep disorders and sleep quality. Stress level is arising to be significant with apparent symptoms of anxiety particularly through exam periods.<sup>17</sup> frequency of examination among dental students and worrying about their future to be good doctors may increase sleeping difficulties.<sup>18</sup> Even though a high percentage of our subjective have sleep disorders, a small number of them, 2% taken medication to get sleep. It may be because they know how these medications would impact their brain. However, investigators on the general population noticed that short sleep contributed to elevating the frequency of utilizing the medication as sleep aids.<sup>19</sup>

Deprived sleep and sleepiness during the daytime have been approved to have been negatively associated with academic performance.<sup>20</sup> In this study, we found that a high

percentage of students (50%) had good grades last year, which means it's around 60.2% of study samples got excellent last year. These results would demonstrate a negative correlation between sleep duration and grade point average, which supports the hypothesis that inadequate sleep is associated with poor dental students' performance. Our outcome came along with many studies that approved that deprivation would lead to lack of concentration and function day.<sup>21-23</sup>

we noticed an increasing number of dental college students who drink tea and cola comparing to coffee and energy drink. However, caffeine is the key ingredient in tea, cola, and coffee; many other ingredients also increase drink stimulation, such as amino acid, taurine, and vitamins.<sup>24</sup> Research evidence report that consuming a high amount of stimulation beverage would increase the risk of arrhythmia, blood pressures, and psychological symptoms.<sup>16</sup> Stimulated drink may have a negative influence on sleep quality. We found that sleep problems are widespread among college students and associated with increased consumption of caffeinated beverages; this finding agrees with a previous study where this relationship is also documented.<sup>22</sup> Hindmarch and his collages suggest that caffeinated drinks negatively impacted sleep onset, sleep quality, and time.<sup>25</sup>

## CONCLUSION

In summary, deprived sleep is highly prevalent among dental college students in the college of Baghdad. Consumption of stimulation drinks is exceedingly associated with increased poor sleep quality. Students in Iraq, especially males, have a habit of taking tea daily. Thus, college students in Iraq should be conscious of the consequence of caffeine consumption on sleep patterns. They also need to aware that improve sleep duration and time would have significant benefits on daily activity and exam performance, and health status. Dental college environment and high academic requests expensed exposing to sleep-inhibiting factors; therefore, dental college students should know to avoid build-up chronic sleep disorders and develop psychiatric disorders and cardiometabolic complaints in late of their life.

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