

Prevalence of sleep disorder among dental students and correlation with oral hygiene status – A cross-sectional study

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ABSTRACT

Aim and Objective: This study aims to investigate the prevalence of sleep disorders among dental students and to determine the effect of sleep patterns on the academic performance of students. **Background:** Sleep disorders can be described as the disruption of the quality and/or quantity of sleep due to certain disturbances and habits. The degree and depth of sleep disorders can hinder every aspect of a person's life. Sleep plays a key role in daytime functionality, as well as long-term effects on overall health. Dental specialty exerts heavy stress on students and demands long hours of study and practice, which might exaggerate the poor quality of their sleep. Dental studies and practice, especially in the clinical years, require high levels of concentration, cognitive performance, and motor dexterity. Poor sleep quality or sleep deprivation can affect performance negatively. It can also be concluded that sleep quality plays a significant role in the academic performance of dental students, especially in the clinical years. Students should accustom themselves to a healthier sleep pattern to enhance their academic performance and avoid related health and psychological hazards. **Materials and Methods:** A random sample of 150 dental students was taken. A short pre-tested questionnaire of 19 questions was given to them. The questionnaire was designed to assess their sleep pattern and its effects on academic performance of the students. Data obtained were tabulated, statistically analyzed, and the results were obtained. **Results:** In this study, about 38.6% of dental students having a problem in falling asleep, in which 46% of students reported <8 h of actual sleep at night. About 30% of students reported facing difficulty in initiating sleep and sometimes 59.3% of students felt sleepy during daytime were reported. It can be noted that 39.3% of students felt disturbed sleep. **Conclusion:** Within the basis of this study and on the basis of results obtained, we concluded that dental students, in general, have poor sleep quality, which may be unknown to them. It can also be concluded that sleep quality plays a significant role in the academic performance of dental students.

KEY WORDS: Academic performance, Dental students, Sleep quality, Undergraduate

INTRODUCTION

Nights with poor sleep can be a sign of disharmony in health.^[1] Sleep deprivation may have a negative effect on mood, attention, sensory registering, and academic performance.^[2-11] Snoring, hours of sleep, use of medications, use of alcohol, waking in the night, bad dreams, and environmental factors are some characteristics that affect quality of sleep.^[12-16] Student tasks, conflicts, and pressures of everyday life can lead to stress.^[11] Stress can affect the quality of sleep and, consequently, can affect the health.^[10-17]

A normal person needs approximately 8 h of sleep every night to perform daily activities efficiently and maintain good health.^[18] Sleep deprivation influences many aspects of a person's life, and it is often associated with poor judgment, disturbed mood, high stress, anxiety, and reduced achievement.^[19-21] Although reported sleep disorders in adults tend to increase with age, young people often suffer from lack of sleep during their school and college years.^[22,23] The quantity and quality of sleep could be detrimental on the person's quality of life and ability to function, especially for those practicing high physically and mentally demanding professions such as dentistry. Sleep is undoubtedly an important aspect of a successful academic and economically prosperous career. Students who well understand the importance

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ISSN: 0975-7619

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Received on: 19-06-2019; Revised on: 27-07-2019; Accepted on: 19-08-2019

of a proper sleeping habit can improve their academic performance.

Sleep quality and pattern should be considered as an important issue for college students, as it affects the academic performance which in turn influences the cognitive functioning and oral hygiene maintenance. In the past few decades, many studies have concluded that self-reported short sleep duration, poor sleep quality, late bed and rise times, and irregular sleep schedules are negatively associated with academic performance of students in different populations and academic levels.^[13,24-32] Most of these studies concluded that students with low sleep quality or disturbed sleep are more to psychological disorders and academic tardiness or even failure.^[13,29-32] Some studies showed that students' academic performance was affected by the time students went to bed and the time they woke up rather than the total time spent in bed.^[1,10] Most dental students seem to experience sleeping problems that might affect their academic performance as well as their physiological and psychosocial characters. The purpose of the present study was to determine the prevalence of sleep disorders among dental students and to determine whether students who are at risk for sleep disorders were also at risk for poor academic performance and its impact on oral hygiene.

MATERIALS AND METHODS

A questionnaire comprising 19 questions was prepared and distributed among to 150 students from clinical and non-clinical levels in Saveetha Dental College and Hospitals, Saveetha University, Chennai. The questionnaire was designed to assess the sleep pattern and its effects on academic performance of the students and oral hygiene. The questionnaire includes questions based on sleep quality, habits, and academic performance on oral hygiene. The data from the participants were collected, statistically analyzed, and results were obtained.

Questionnaire

A validated short retested questionnaire of 19 questions was distributed among all the students of the study. The questionnaire was designed to assess their sleep pattern and its effects on academic performance and oral hygiene of the students. Data extracted were collected, statistically analyzed, and results were obtained.

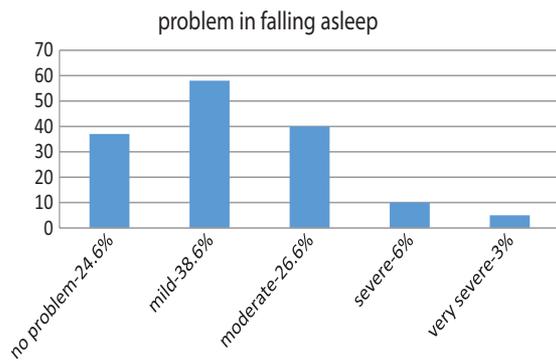
Description of Questionnaire

1. Do you face problems in falling asleep?
 - a. No problem
 - b. Mild
 - c. Moderate
 - d. Severe
2. Delayed sleep due to computer and internet usage per week?
 - a. Never
 - b. Below once
 - c. 1–2 times
 - d. 3–5 times
 - e. Every night
3. Habit of studying before sleep?
 - a. Never
 - b. Below once
 - c. 1–2 times
 - d. 3–5 times
 - e. Every night
4. Are you living with your family?
 - a. No
 - b. Yes
5. Hours of actual sleep at night
 - a. <8 h
 - b. More than 7 h
6. Habit of tea or coffee consumption?
 - a. Never
 - b. Weekly
 - c. Daily
7. Do you face any difficulty in initiating sleep?
 - a. Never
 - b. Sometimes
 - c. Almost every night
8. Do you have a fixed time of going to bed every night?
 - a. Yes
 - b. No
9. Do you feel tired and sleepy during the day?
 - a. Never
 - b. Sometimes
 - c. Almost everyday
10. Do you experience nightmare?
 - a. Never
 - b. Sometimes
 - c. Almost every night
11. Do you consume sleeping pills?
 - a. Never
 - b. Sometimes
 - c. Almost every night
12. How long do you take to fall sleep every night?
 - a. 30 min or less
 - b. 60 min or more
13. Habit of smoking/drinking alcohol per week?
 - a. Never
 - b. Below once
 - c. 1–2 times
 - d. 3 times/more
14. Year of study
 - a. Basic science
 - b. 3rd year
 - c. Final year
 - d. Internship

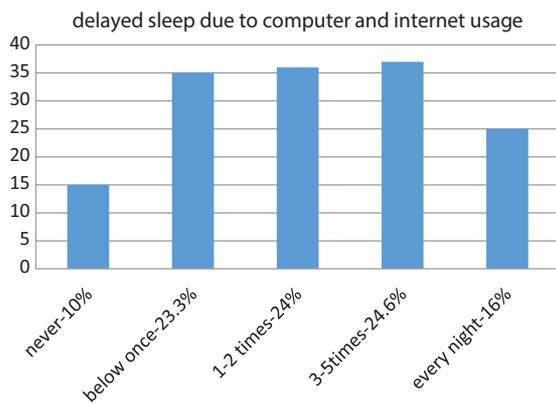
15. Do you have continuous sleep till morning or is your sleep disturbed?
 a. Always disturbed
 b. Sometimes disturbed
 c. Continuous sleep till morning
16. Habit of brushing teeth before sleep?
 a. Never
 b. Only rinsing mouth
 c. Once in 2 days
 d. Once in a week
 e. Every night
17. Do you brush teeth when you wake up?
 a. Never
 b. Only rinsing mouth
 c. Once in 2 days
 d. Once in a week
 e. Every morning
18. Is your morning and night brushing habit influenced by your sleep pattern?
 a. Yes
 b. No
19. Do you feel your brushing efficiency is affected by your sleep pattern?
 a. Yes
 b. No

RESULTS

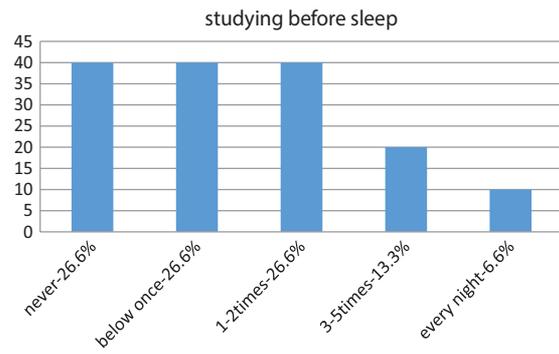
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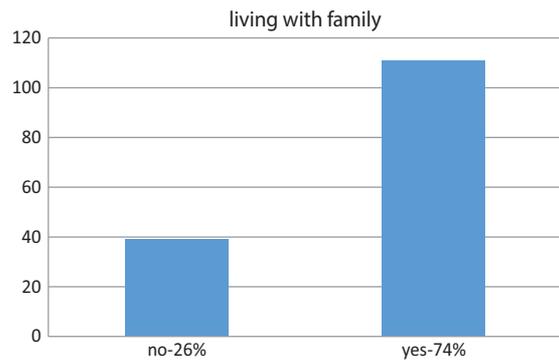
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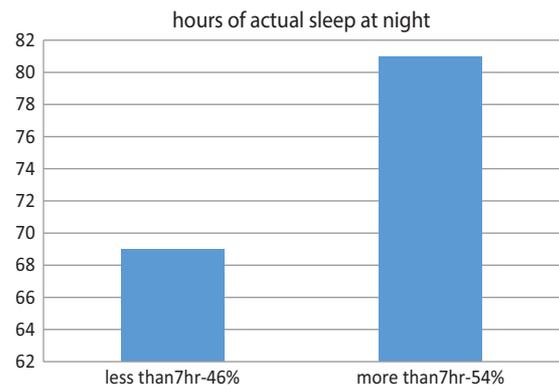
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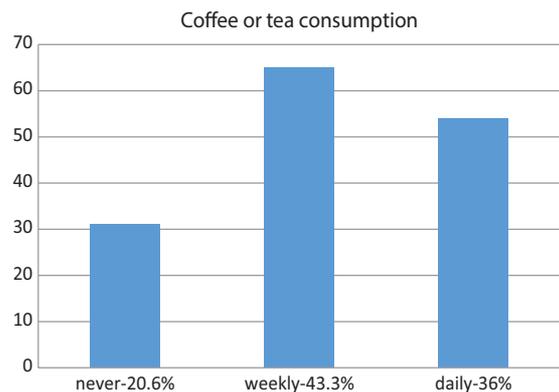
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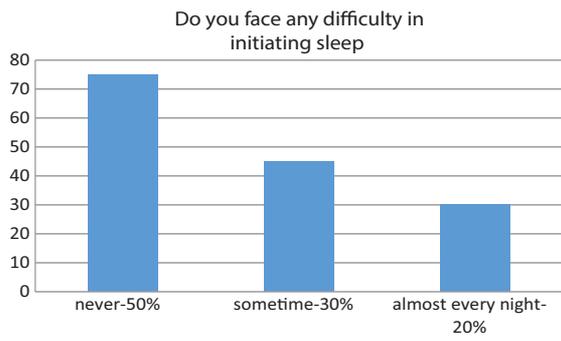
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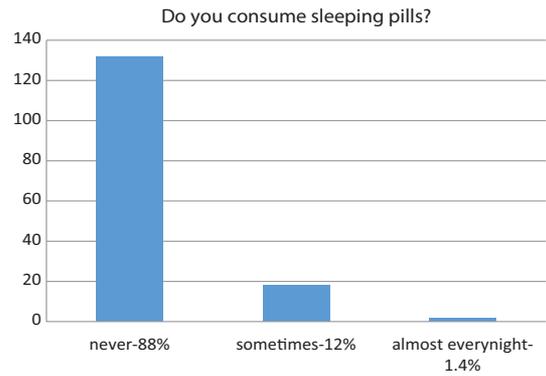
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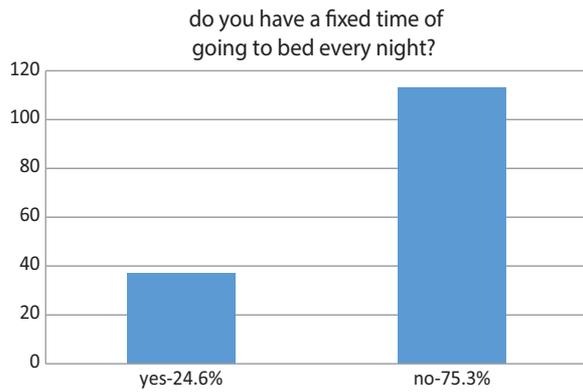
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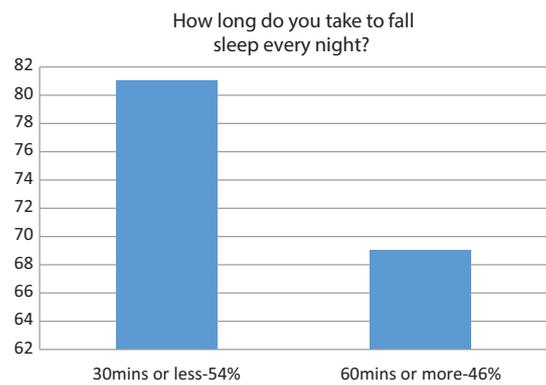
Question 11



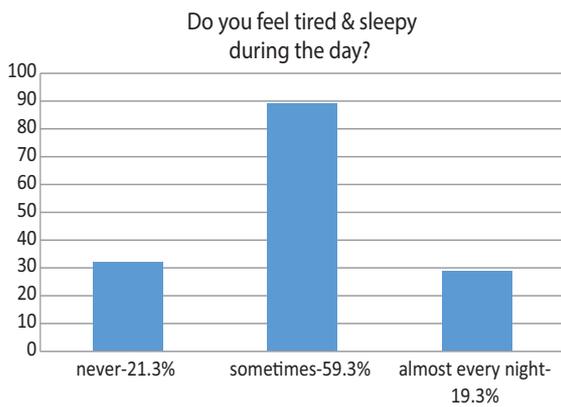
Question 8



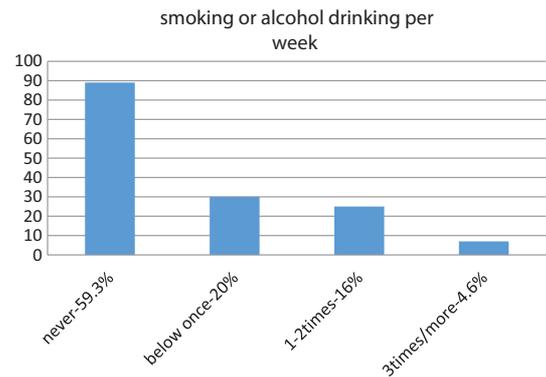
Question 12



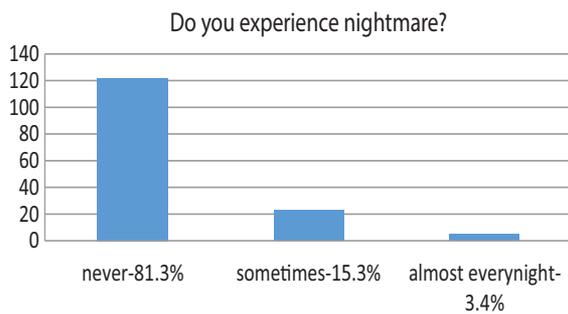
Question 9



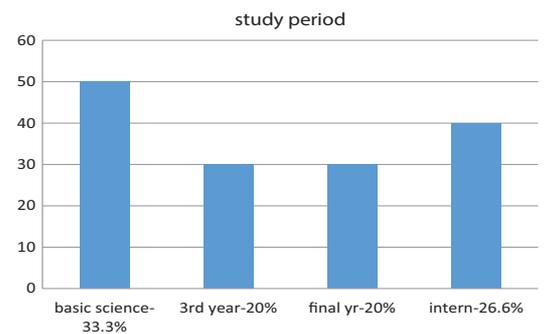
Question 13



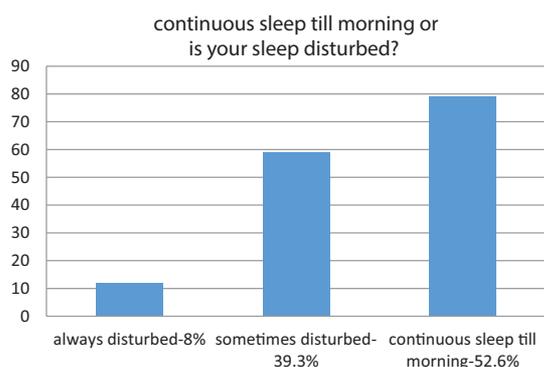
Question 10



Question 14



Question 15



From the result of this study, it can be seen that about 38.6% of dental students have mild problem in falling asleep, followed by 26.6% of moderate problem, 6% of severe problem, and 3% of very severe. About 46% of students reported <8 h of actual sleep at night. About 30% of students reported facing difficulty in initiating sleep sometimes and followed by 20% of students reported almost every single night. The current study also shows that 75.3% of students' do not have a fixed time to go to bed. About 59.3% of students reported that they felt sleepy during daytime. Some students also reported the experience of nightmare sometimes which is of 15.3% followed by every night experience of 3%. It can be noted that 52.6% of students experience continuous sleep till morning and 39.3% of students felt disturbed sleep followed by 8% of students reported that the sleep is always disturbed.

DISCUSSION

Students are the main role players in the dental education process. Proper knowledge of dental students is vital to diagnose and perform various dental treatments, and this knowledge level can be judged by the academic performance of the students. The World Health Organization recommends a minimum of 8 h sleep per night as the ideal amount for a good quality night's sleep.^[32] Sleeping is a natural repetitive state of rest for the mind and body which is essential to life. The results of the present study were similar to other studies that evaluated undergraduate students and found that student tasks and high anxiety could influence the amount of sleeping hours per night.^[7,6] Sleep plays a key role in healthy development through childhood and adolescence. To the best of our knowledge, the present research is one of its kinds to assess the association of poor sleep quality, fatigue, and academic performance of dental students.

Dental specialty exerts heavy stress on students and demands long hours of study and practice, which might exaggerate the poor quality of their sleep which leads to a condition called sleep disorder.^[31] Sleep disorders

are a group of conditions that affect the ability to sleep well on a regular basis. Whether they are caused by a health problem or by too much stress, sleep disorders are becoming increasingly common in the United States. Most people occasionally experience sleeping problems due to stress, hectic schedules, and other outside influences. However, when these issues begin to occur on a regular basis and interfere with daily life, they may indicate a sleeping disorder. Depending on the type of sleep disorder, people may have a difficult time falling asleep and may feel extremely tired throughout the day. The lack of sleep can have a negative impact on energy, mood, concentration, and overall health. This can also affect your performance at work.

The association between poor sleep quality and academic performance was explored in this study.

Dental studies and practice, especially in the clinical years, require high levels of concentration, cognitive performance, and motor dexterity. Poor sleep quality or sleep deprivation can affect performance negatively.^[32,33] Moreover, poor sleep quality and daytime sleepiness reduce levels of attention, elevate the level of anxiety, affect cognitive performance, and may impair memory and decision-making.^[20,21,24]

Gilbert *et al.*, in 2010,^[19] found that the average number of sleep hours in a sample of 557 undergraduate introductory psychology students was 7.2 ± 1.2 , which is congruent with our research findings that the mean number of sleep hours at night for all students was 7.17 ± 1.34 and the average Pittsburgh sleep quality index (PSQI) score was 2.63 ± 2.08 . On the other hand, it is contrary to the study done by Elagra *et al.*, in 2016,^[34] on dental students of Riyadh Colleges of Dentistry and Pharmacy, where the authors found the mean sleep duration to be less (5.85 ± 1.853) and PSQI average score to be high (7.6 ± 3.396). Although the mean sleep hours obtained from the current study are somewhat higher in comparison to other surveys, it is still less than the mean of 8 h one would expect in a normal distribution of sleep duration. This might be due to the absence of examinations during the study duration; students may have engaged themselves in regular sports activities as refreshment from their hectic schedule.

In one study, it was observed that subjects, who were more vibrant, less fatigued, and having good sleep reported good self-perceived dental health. This is in accordance with the study by Dumitrescu *et al.*, in 2010,^[35] where significant differences were brought to notice between disturbed sleep, vitality, and fatigue scales in terms of perceived dental health.

In this current study, a high percentage of students 38.6% described that they have a mild problem in

falling asleep followed by moderate problem of 26.6%, in which 24.6% of students stated that they never had a problem in falling asleep. About 30% of student reported facing difficulty in initiating sleep sometimes and followed by 20% of students reported almost every single night. The current study also shows that 75.3% of students' do not have a fixed time to go to bed. Sometimes 59.3% of students felt sleepy during daytime were reported. Some students also reported the experience of nightmare sometimes which is of 15.3% followed by every night experience of 3%. It can be noted that 52.6% of students experience continuous sleep till morning and 39.3% of students felt disturbed sleep followed by 8% of students reported that the sleep is always disturbed.

Moreover, the results of the current study revealed that only 54% of the students slept for an average of 8 or more hours, which is the expected normal sleep duration. The average number of sleep hours among all students was almost 6 h, which is similar to that reported in different undergraduate student populations.^[17] Students with sleep disorders fail to achieve optimum academic achievement. Decreased productivity, increased risk of treatment procedural accidents, and poor quality of life are associated with excessive daytime sleepiness.^[36,37]

Many studies have concluded that self-reported short sleep duration, poor sleep quality, late bed and rise times, and irregular sleep schedules are negatively associated with academic performance of students in different populations and academic levels. Most of these studies concluded that students with low sleep quality or disturbed sleep are subjected more too psychological disorders and academic tardiness or even failure. Some studies showed that students' academic performance was affected by the time students went to bed and the time they woke up rather than the total time spent in bed.^[31]

A study conducted by Serra-Negra *et al.* stated that when asked about difficulty in concentrating while performing daytime activities, most students reported daytime dysfunction (79.2%). Such findings in students who require concentration to treat patients are worrying.^[12]

Most dental students seem to experience sleeping problems that might affect their academic performance as well as their physiological and psychosocial characters. Sleep is undoubtedly an important aspect of a successful academic and economically prosperous career. Students who well understand the importance of a proper sleeping habit can improve their academic performance where usually it is noted that adults require 8 h sleep a day.^[19] In the modern society, sleep disturbances have become quite frequent

along with which several risk factors have also been identified such as female gender, depression, snoring, nocturnal micturition, use of hypnotic drugs, and stressful lifestyle.^[19] Sleep quality and pattern should be considered as an important issue for college students, as both maintenance of oral hygiene and academic performance are affected by it and affect cognitive functioning. Sarita *et al.*, in 2016, found that duration of sleep during examination was found to be significantly reduced as compared to normal days. During normal days, the sleep duration of physiotherapy students (6.8 h) was highest and lowest in pharmacy students (6.2 h) while during examination highest among dental students (5.1 h) and lowest in pharmacy students (4.4 h).^[38]

Optimized sleep pattern improves the neurocognitive and academic performance of students.^[25] However, sleep deprivation is a common finding in students' academic life. A study done by Curio *et al.* stated that day napping did not show any significant role in academic performance of the students. Regarding students' perception of the ideal sleep duration for better academic results, 63% of student opined that 6–8 h of sleep is necessary for better academic results.^[25] However, in reality, <60% of students slept 6–8 h both in weekdays and weekends. Insufficient sleep, on the other hand, is a cause of emotional shakiness, memory loss, daytime sleepiness, and decreased concentration. Necessities of sleep differ from person to person, but 6–8 h of sleep is considered normal for an adult.

Studies to investigate sleep quality among dental students, in specific, and its effect on their academic performance and practice are lacking. In light of the evidence presented in this study, the poor quality of sleep among dental students can be considered an alarming condition that might affect their academic performance as well as their health. This issue needs further investigation.

CONCLUSION

Sleep is extremely important for healthiness and it plays an important role in learning processes and the improvement of our memory. Sleep loss is one of the most remarkable problems in modern society. Not getting enough sleep is a cause of poor academic performance. To achieve a better academic performance, an adequate sleep of 6–8 h per day is essential.

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Source of support: Nil; Conflict of interest: None Declared