
Quality of Sleep Among Dental Students

YOSHITA GUNTUPALLI¹, DHANRAJ GANAPATHY^{2*}, KEERTHI SASHANKA³

¹Undergraduate student, Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Science, 162, Poonamalle high road, Velapanchavadi, Chennai

²Professor and Head, Department of Prosthodontics, Saveetha dental college and hospitals, Saveetha institute of medical and technical science, 162, Poonamalle high road, Velapanchavadi, Chennai, India.

³Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Science, Chennai, India

*Corresponding Author

Email: dhanrajganapathy@yahoo.co.in², keerthis.sdc@saveetha.com³

Abstract: Sleep is very important for the normal functioning of any individual. However, with all the responsibilities we face as students, practitioners, academicians and family members, getting the recommended amount of sleep can be very hard. Insufficient sleep can severely impact the health and well being of an individual and bring down their potential to do work. This has negative effects on both individual and societal levels bringing down the quality as well as life span of useful human resources. The aim of this study is to determine the quality of sleep among dental students in South India. A survey was initiated for a randomly chosen dental student population of 100. A questionnaire was prepared involving questions assessing the sleep quality and all its various aspects. This questionnaire was then circulated to all the participants via online basis. The results obtained from the survey were compiled and analyzed. It was found that 70% of students had unpredictable sleeping patterns. 50% had disturbed sleep. Only 17% students reported that they felt fresh after receiving the recommended 8 hrs of sleep per day. 95% of students stayed up late at night. Sleep latency was found to be around 10 minutes to 1 hour for 85% students. 26% reported that they suffered from nightmares. 56% woke up at night for even the small sounds. This study concludes that dental students have a poor quality of sleep owing to their busy schedules, vast syllabus and loads of clinical and practical work.

Keywords: Sleep, Quality, Dental students, Poor

INTRODUCTION

Sleep is an important physiological process that is essential for human survival (Seun-Fadipe and Mosaku, 2017), It is considered as much more than an absence of activity in the brain and the body because the brain is still highly active during this period ('Waking up to the importance of sleep', 2005). Among the most important functions of sleep is the enhancement of optimal cognitive functioning such as attention, insight, decision making, speech and most notable learning and memory, factors which are absolutely necessary for efficient academic performance of students (Seun-Fadipe and Mosaku, 2017). On an average we spend about 30% of our lives asleep (Foster, 2012). Sleep is an active, repetitive and reversible behavior serving several different functions, such as repair and growth, learning or memory consolidation, and restorative processes (Thomas and Sundar, 2019). Good sleep is advantageous to improve the quality of life. Sleep related benefits are particularly helpful for the working class, since poor or inadequate amounts of sleep degrade work productivity and overall health (Takahashi, 2012). According to the National Sleep Foundation, which updated its sleep recommendations, young adults (age 18-25 years) and adults (age 26-64 years) should receive 7 to 9 hours of sleep but not less than 6 hours or more than 10 to 11 hours (Lichtenstein, 2015). This is the category where dental students fall.

Dental students in general have a poor quality sleep which may be unknown to them. Dental specialty is often exploited with heavy didactic works including both theoretical and practical content, which exerts heavy stress on students and demands long hours of study and practice. At the same time, dental practice requires high levels of concentration and dexterity which could be affected by a number of factors including mental, psychological, and physical state of a dentist. The quality and quantity of sleep could be detrimental to the person's quality of life and ability to function, especially for those practicing high physically and mentally demanding professions such as dentistry (Elagra *et al.*, 2016). Sleep deprivation would result in sleepiness during learning activities, with impairment of cognitive abilities and psychological well being (Thomas and Sundar, 2019). It is important to stress that sleep disruption is much more than an individual's frustration at failing to initiate and sustain sleep, or even the sensation of feeling sleepy at an inappropriate time. Disrupted sleep is closely linked to an increased susceptibility to a broad range of disorders, ranging from poor vigilance and memory to reduced mental and

physical reaction times, reduced motivation, depression, insomnia, metabolic abnormalities and even immune impairment (Foster, 2012). Sleep disorders, such as obstructive sleep apnea (OSA), have a deleterious effect on quality of life, and not just on sleep (Karimi *et al.*, 2019). Newer studies are strengthening the known relationships between inadequate sleep and a wide range of disorders, including hypertension, obesity, type 2 diabetes, cardiovascular diseases and arrhythmias, mood disorders, neurodegeneration and dementia and even loneliness (Worley, 2018).

Despite the astounding acceleration of research during the past few decades, inadequate sleep due to sleep disorders, work schedules, and chaotic lifestyles continues to threaten both health and safety (Worley, 2018). Poor sleep quality is still considered one of the most striking public health problems. The rates of poor sleep quality seem to be ever increasing in both developing and modern societies (Ibrahim *et al.*, 2017). Medical and dental training, with its immense stress load in a highly stressful environment, make students especially vulnerable to poor sleep (Thomas and Sundar, 2019). Poor sleep quality and excessive daytime sleepiness can affect performance of medical and dental students, their future work as practitioners, and the whole health care system (Ibrahim *et al.*, 2017).

Previously our department has published extensive research on various aspects of prosthetic dentistry ('Evaluation of Corrosive Behavior of Four Nickel–chromium Alloys in Artificial Saliva by Cyclic Polarization Test: An in vitro Study', 2017; Ganapathy, Kannan and Venugopalan, 2017; Jain, 2017a, 2017b; Ranganathan, Ganapathy and Jain, 2017; Ariga *et al.*, 2018; Gupta, Ariga and Deogade, 2018; Anbu *et al.*, 2019; Ashok and Ganapathy, 2019; Duraisamy *et al.*, 2019; Varghese, Ramesh and Veeraiyan, 2019), this vast research experience has inspired us to research about quality of sleep among dental students in South India. Our team has rich experience in research and we have collaborated with numerous authors over various topics in the past decade (Ezhilarasan, 2018; Ezhilarasan, Sokal and Najimi, 2018; Gupta, Ariga and Deogade, 2018; Jeevanandan and Govindaraju, 2018; J *et al.*, 2018; Menon *et al.*, 2018; Prabakar *et al.*, 2018; Rajeshkumar *et al.*, 2018, 2019; Vishnu Prasad *et al.*, 2018; Wahab *et al.*, 2018; Dua *et al.*, 2019; Duraisamy *et al.*, 2019; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Gheena and Ezhilarasan, 2019; Malli Sureshbabu *et al.*, 2019; Mehta *et al.*, 2019; Panchal, Jeevanandan and Subramanian, 2019; Rajendran *et al.*, 2019; Ramakrishnan, Dhanalakshmi and Subramanian, 2019; Sharma *et al.*, 2019; Varghese, Ramesh and Veeraiyan, 2019; Gomathi *et al.*, 2020; Samuel, Acharya and Rao, 2020)

MATERIALS AND METHODS

This study involved finding the quality of sleep among dental students who were among the age group 18-25 years. Ethical approval for the study was given by the Institutional review board. A well structured questionnaire comprising 11 questions covering socio-demographic information, knowledge, attitude, perception, was framed and circulated to the participants through an online survey planet link. The results obtained were analyzed and the conclusions were drawn.

RESULTS AND DISCUSSION

The results were collected from the online questionnaire and a pie chart was made for statistical representation of data. The questions along with their results are given below:

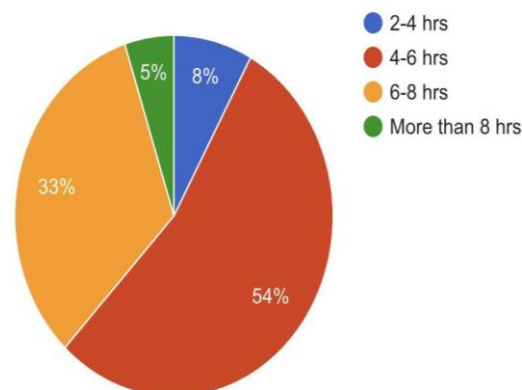


Fig.1: Pie chart showing the number of hours of sleep. More than half, i.e. 54% replied with 4-6 hrs which is below the 8 hrs of sleep usually needed for quality sleep. 8% sleep only for 2-4hrs. Only 38% get around the required hrs of sleep

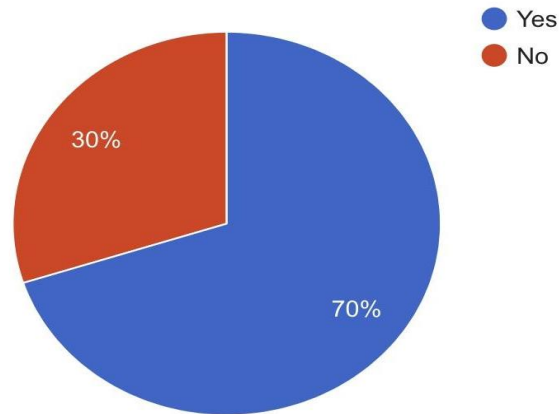


Fig.2: Pie chart showing the percentage of students with varied sleeping patterns. 70% of students reported that they had unpredictable, varied sleep patterns due to the mounds of work and the deadlines they faced

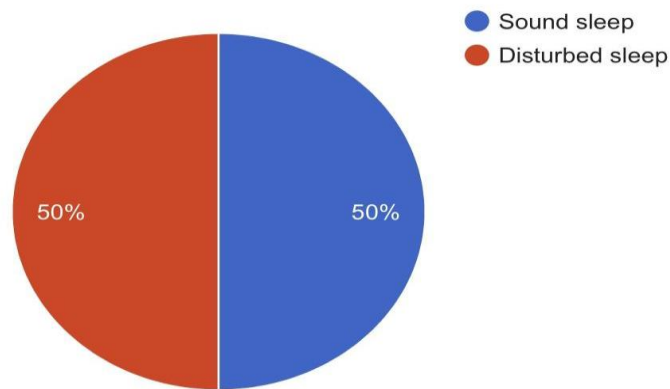


Fig.3: Pie chart showing the percentage of students with disturbed sleeping patterns. 50% of students said that they had disturbed sleep. This in turn negatively impacts the quality of their sleep

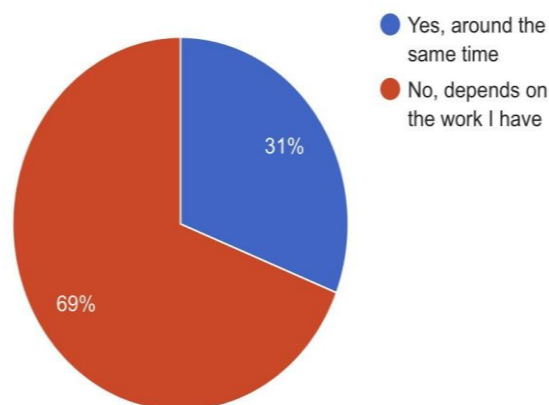


Fig.4: Pie chart showing whether the time students go to bed varies a lot. More than half of the students (69%) of them stated that the time that they go to sleep is very much variable as the work they get everyday varies. The only way they can be on track with their work schedules is by compensating their sleeping hours

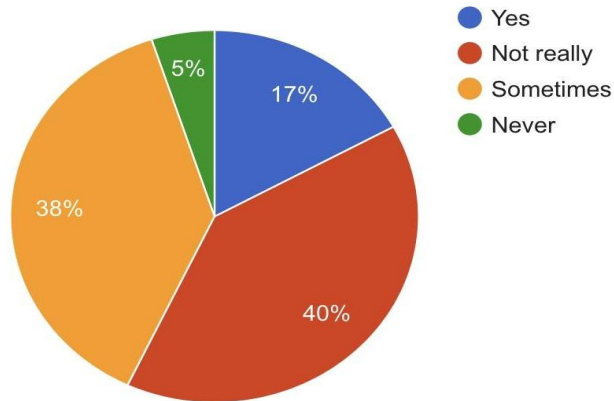
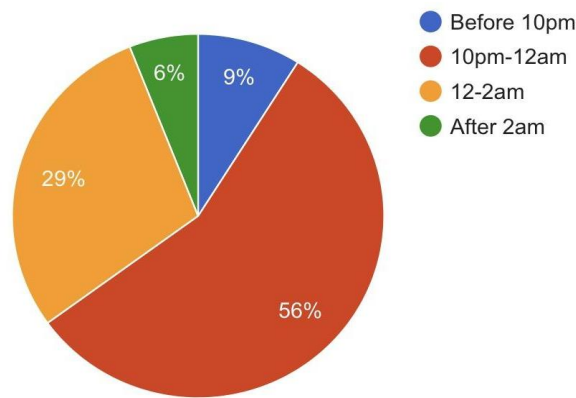


Fig.5: Pie chart showing the time at which students go to bed. Most (56%) of students go to bed between 10-12 at night. 29% sleep between 12-2 am and 6% of students go to sleep only after



2am.

Fig.6: Pie chart showing the percentage of students who feel fresh upon receiving 8 hours of sleep. Only 17% of students reported that they felt fresh whenever they had 8hrs of sleep. Others didn't feel fresh in spite of receiving the required quantity. This means that they had poor quality sleep

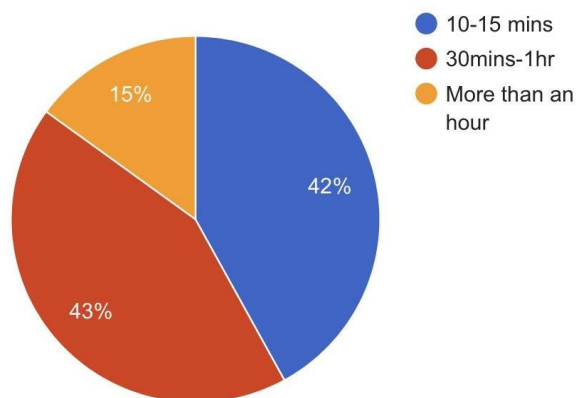


Fig.7: Pie chart showing the time students take to go to sleep once they go to bed. Sleep latency, i.e. the time taken to go from full wakefulness to deep sleep, was mostly found to be between 10mins and 1hr.

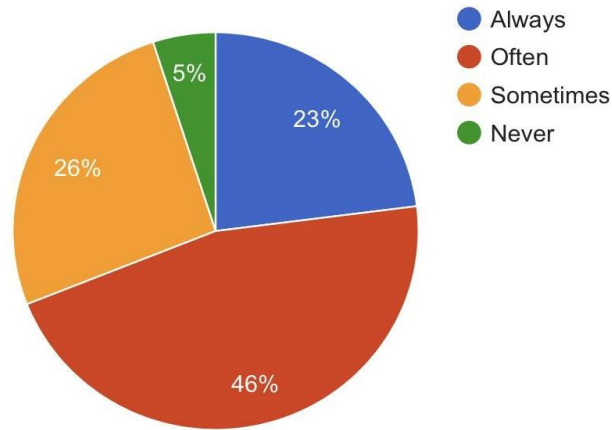


Fig.8: Pie chart showing how often students stay up late to do work. Most of the students, 95%, stay up late due to the amount of work they have to get done.

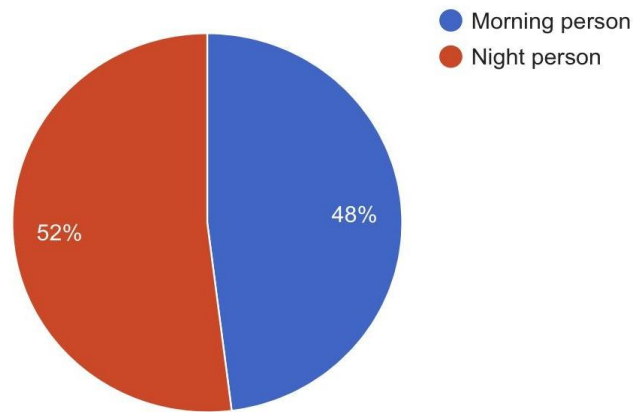


Fig.9: Pie chart showing whether students work during early morning or late nights. 52% of students prefer late nights to work while 48% prefer early mornings.

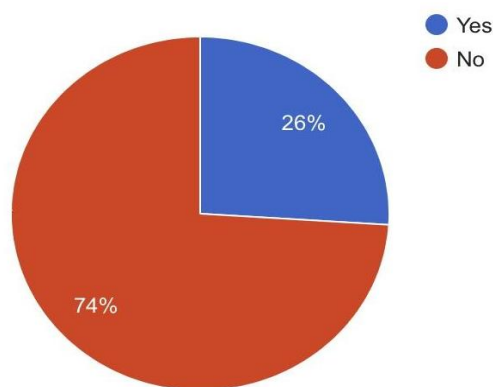


Fig.10: Pie chart showing the percentage of students who get frequent nightmares. 26% of the students suffer from disturbed sleep due to frequent nightmares. This affects their sleep quality.

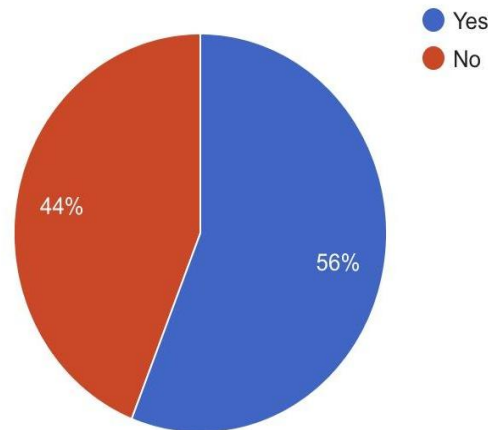


Fig.11: Pie chart showing the percentage of students who tend to wake up to the slightest of sounds at night. 56% of students tend to wake up even for the slightest of sounds. This can result in disturbance of their sleep.

From the survey, it was found that most of the students, i.e. 54% had 4-6 hrs of sleep. 70% of students reported that they had unpredictable sleeping patterns due to the variable amounts of work given to them. 50% of students had disturbed sleep at nights. 69% students reported that the time they go to sleep everyday is very much variable and depends on the work and studying they had to get done that day. 56% of students go to bed mostly around 10-12 at night. Only 17% of students reported that they felt fresh whenever they had 8 hrs of sleep. The remaining 83% didn't wake up fresh despite receiving the required quantity of sleep. Sleep latency was mostly from 10 minutes to 1 hour. 95% of students stayed up late at night due to the amount of work they had to get done. 52% students prefer late nights whereas 48% prefer early mornings to work. 26% of students suffer from disturbed sleep due to frequent nightmares. 56% of students tend to wake up for even the slightest of sounds at night.

Previously too, many studies have been conducted to determine the quality of sleep among dental students. In 2018, a study was conducted among a random sample of 150 dental students; a questionnaire was circulated to assess their sleep pattern. 38.6% students had a problem in falling asleep in which 46% of students reported less than 8 hours of sleep at night. 30% of students reported that they faced difficulty initiating sleep and sometimes 59.3% of students felt sleepy during the daytime. 39.3% had a disturbed sleep. The study concluded that overall dental students have a poor quality of sleep (Aravinth, Dhanraj and Jain, 2018). In a study conducted among Ghana medical and dental University students, it was found that the mean duration of sleep was 5.7 ± 1.2 hours. 57.5% of students had a sleep latency of 10-30 minutes while 11.8% woke up nightly. 15% of students experienced nightmares. 8.5% snored at night. Sleep quality was poor in 56.2% and was significantly associated with sleep latency, morning tiredness, daytime sleepiness, and daytime sleepiness during lectures, academic performance, leisure time, frequency of nocturnal awakenings, waking up due to noise and nocturnal awakening to use the washroom (Lawson, Wellens-Mensah and Attah Nantogma, 2019). In another study conducted in dental students among Saudi Arabia, poor sleeping pattern was found to be an important factor among students who reported sleep bruxism (Shokry *et al.*, 2016). In a study conducted in 2016, 65% of dental students reported their sleep as good or very good while 35% described their sleep as bad or very bad. Mean hours of sleep per night for all students was 5.85 ± 1.853 hours. Also GPA was found to have a significant negative correlation with sleep quality index (Elagra *et al.*, 2016). In a cross sectional study among medical students at King Abdulaziz University, results revealed that prevalence of poor sleep quality and excessive daytime sleepiness among the students were 70.4% and 37.3% respectively. Poor sleep quality was associated with students' gender, age, high Grade Point Average, anxiety, depression, excessive daytime sleepiness and drinking of caffeinated beverages. Students with poor sleep quality had low ability to attend educational sessions (Ibrahim *et al.*, 2017). Stress, fatigue and sleep disturbances are common among university students and they have an impact on their personal health. Interestingly, in a study, correlations were found among disturbed sleep, insufficient amount of sleep, poor sleep quality and several oral health related variables like tooth brushing frequency, flossing frequency and use of a tongue cleaner (Rovas, Staniulytė and Pūrienė, 2017).

From previous studies as well as from the present study we can state that dental students have a poor quality of sleep in general. This may be largely due to the vastness of syllabus and mounds of practical and clinical work they are expected to complete. With further research in future we may find a way to combat the problem of poor

quality sleep which affects not only dental students but the entire society on the whole. Our institution is passionate about high quality evidence based research and has excelled in various fields ((Pc, Marimuthu and Devadoss, 2018; Ramesh *et al.*, 2018; Vijayashree Priyadharsini, Smiline Girija and Paramasivam, 2018; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Ramadurai *et al.*, 2019; Sridharan *et al.*, 2019; Vijayashree Priyadharsini, 2019; Chandrasekar *et al.*, 2020; Mathew *et al.*, 2020; R *et al.*, 2020; Samuel, 2021)

CONCLUSION

Within the limitations of this study following conclusions can be drawn, the sleep quality as well as quantity in the dental students was less this could be due to the loads of studying and work they have and due to the deadlines they face to finish the assigned work which makes them more anxious and creates stress with the depriving of sleep.

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