

Sleep Disorders and the Connection to Dentistry

Student's Name:

Institution:

Capstonewriting.com

### Abstract

Sleep disorder is a medical condition affecting millions of Americans. Most cases of this condition go untreated or not diagnosed at all. Annual checkups at physicians do not provide good timing to diagnose sleep disorders. This is where dentistry comes into play. There is a higher chance of an individual visiting than a physician in the course of a year. Dentists, therefore, play a huge role in identifying patients with sleep disorders or at those at risk of having them. Dentists are knowledgeable to determine whether a patient is suffering from sleep disorders (by looking at certain signs in the patient's anatomy or enquiring from the patient on various lifestyle factors that may point towards sleep apnea) though they cannot provide an official diagnosis. Therefore, they collaborate with physicians to diagnose patients then send the patients back to them to come up with appropriate means of treatment for patients suffering from sleep disorders. Most common means of treatment are the use of oral appliances and CPAP machines. Dentistry is, therefore, connected to sleep disorders in many ways.

### Sleep Disorders and the Connection to Dentistry

The purpose of this of this paper is to provide better understanding and raise awareness on the high connection between sleep disorders and dentistry. Surveys and research have to a great extent shown that dental health directly causes sleep disorders (Friend & Hope, 2016). A study in 2015, carried out by Almozino and associates, indicated that 50% of patients with dental health issues also did not get appropriate sleep. 45% of the patients also stated that they had used sleep aids sometime in the past. 87% of those involved in the survey expressed trust in their dentists (Friend & Hope, 2016). Dentists, therefore, have a huge role to play in managing sleep disorders. Dentists should be knowledgeable on how quality and quantity of sleep of patients connect with their dental health. They should collect sufficient evidence on possible sleep disorders from their patients. They should then be able to recommend changes in behavior or habits for the patients to improve their quantity and quality of sleep. For people with sleep disorders (P), how crucial are regular visits to the dentist (I) compared to an annual exam by a physician (C) in improving the quality and amount of sleep (O) they get?

Sleep disorders refer to disruption of the quantity and/or quality of one's sleep because of certain habits and disturbances (Friend & Hope, 2016). Sleep is very critical to an individual's overall health and also his/her day-to-day daytime functionality. There are benefits associated with quality sleep such as mood, learning, memory, and healing (Friend & Hope, 2016). The extent of sleep disorders hinders all aspects of an individual's life. Patients with dental health issues run a greater risk of experiencing sleep disorders (Friend & Hope, 2016).

The International Classification of Sleep Disorders is a manual created by various sleep disorder associations across the world to have a uniform internationally recognized guide for

diagnosing, studying and communicating sleep disorders across the globe (Friend & Hope, 2016). The manual lists 85 different sleep disorders which are further placed in five categories. These categories include; breathing disorders, circadian rhythm, isolated symptom, movement disorders, insomnia, hypersomnolence, parasomnias and other (Friend & Hope, 2016).

Sleep apnea is one of the most sleep disorders among people; categorized as a breathing disorder. According to The National Sleep Foundation, about 18 million people living in the U.S. have sleep apnea (Helmer, 2018). A person with sleep apnea has a reduced airflow, about 50% (hypopnea) or the total cessation of airflow (apnea) (Collins & Brame, 2015). The extent of this sleep disorder is obtained from the apnea-hypopnea index (AHI); which combines the number of hypopneas and apneas for each night.

Sleep apnea makes an individual have breathing interruptions that repeatedly occur throughout the night. These interruptions normally last for about 10 seconds. In an hour, the interruptions may occur more than 30 times (Helmer, 2018). The cause of these breathing interruptions can be attributed to the tongue being too large, the muscles located behind the throat being flaccid or the jaws being too small (Helmer, 2018). These conditions obstruct airways. Tooth grinding also referred to as bruxism, is considered the first sign of sleep apnea by dentists (Helmer, 2018). Tooth surfaces that are worn show tooth grinding. Tooth grinding is not only responsible for receding, and inflamed gums but also tooth breakage and wear. When one is sleeping at night, and they tense their jaw such as their teeth grind, a message is sent to the brain to wake up the individual so that he/she may take a breath. This gasp for breath makes individuals wake up repeatedly throughout the night. This repeated waking up has an adverse effect on the quantity and quality of sleep an individual receives. Other oral health signs of sleep apnea apart from tooth grinding include; redness in the throat, a lot of snoring (which causes

throat redness), and scalloped edges of the tongue. Individuals with sleep apnea are also at a higher risk of getting other diseases such as obesity, diabetes, heart disease and high blood pressure (Helmer, 2018).

Sleep apnea has three categories; Obstructive Sleep Apnea (OSA- which is the most common), Complex Sleep Apnea and Central Sleep Apnea (Collins & Brame, 2015). OSA refers to sleep disruptions that occur 5 or more times in a single night of hypopnea and apnea because of the airway being obstructed. Central Sleep Apnea refers to fall in oxygen saturation levels in the body caused by the failure of the brain delivering a signal for the body to breathe; this results in shallow and effective breaths. Complex Sleep Apnea is a combination of Central Sleep Apnea and OSA (Collins & Brame, 2015).

Dentistry is a field of medicine concerned with the diagnosis, treatment, and prevention of conditions, disorders, and diseases of the gums, jaws, mouth, and teeth. It is concerned with oral health and how it impacts the health of the entire body (Chand, 2014).

Dentistry is vital not only for a patient's oral health but also their systematic health (Collins & Brame, 2015). Dentists, therefore, play a critical role in providing solutions to sleep disorders through the management of oral health. They can detect sleep disorders early enough since they meet patients on a more regular basis compared to the patient's primary physician. Studies have indicated that there is a higher chance, 24.1%, of a patient visiting a dentist compared to a physician for an annual exam (Collins & Brame, 2015).

Millions of Americans have sleeping disorders, excluding those who go untreated or not diagnosed. It is difficult to know which patients are suffering from sleep disorders or are at the risk of having such disorders. However, through the continuous research on sleep disorders, it

has been discovered that certain factors contribute largely to the occurrence of sleep disorders in individuals. These factors include; alcohol or substance abuse, stress, female gender, being widowed/divorced/separated, aging, lower social class/status and some medical disorders (Friend & Hope, 2016). These factors can help dentists know which of their patients are more likely to have sleep disorders or at risk of having it. Dentists should gain the trust of their patients so that they can open up about these factors so as to determine any sleep disorders. It is always essential to inquire about a patient's change in lifestyle since patients are dynamic. Through the routine dental examinations, dentists can examine the small upper airway in their patients and also other risk factors from the patient's anatomy that point towards sleep disorders (Quan & Schmidt-Nowara, 2017). Dentists can find out whether the changes in the lifestyle influence the factors affecting sleep disorders. From the interaction with the patient through observation and enquiring answers from the patients, the dentist looks out for certain signs of sleep disorders. These symptoms include; morning headaches, jaw pain, excessive sleeping during the day, difficulty concentrating, tiredness when one wakes up, snoring, morning headaches and frequent nighttime waking (Wolnik, 2018). Dentists would then be able to recommend a solution for the sleep disorder in case they diagnose one.

Sleep apnea in patients is mainly characterized by jaw pain (Wolnik, 2018). The condition causing sleep apnea is referred to as temporomandibular joint disorders, often referred to as TMJ/TMD (Wolnik, 2018). From research, it has been found out that during a sleep apnea disorder, the throat relaxes prior to the sleep apnea episode. The relaxation of the throat, as a reflex, the jaw clumps down. This is with the aim of preventing blockage of the airway. When this happens, it places extra stress on the mouth, jaw, shoulders, and the neck. This causes TMJ. There are also other dental signs that dentists look out for before recommending a sleep study for

a patient. These signs include; worn front teeth, jaw clenching, chronic headaches, pain when chewing, excess teeth grinding, missing/broken/cracked teeth, and shoulder and neck pains (Wolnik, 2018). From the study of possible signs of sleep disorders, especially sleep apnea, the dentist recommends a sleep study in case they think one of their patients suffers from sleep apnea (Helmer, 2018).

The importance of dentist's role in helping patients with sleep disorders continues to increase. Dentists are knowledgeable about the various symptoms and possible treatment plans for sleep apnea, with about 50% of dentists able to identify this disorder. However, only a physician is allowed to make a diagnosis of the disorder officially. The sleep study, referred to as polysomnogram, is usually conducted by a physician (Shwaber, 2010). Polysomnography is mainly used to diagnose Obstructive Sleep Apnea. It takes count of various body functionality aspects which include the patient's sleep stages and cycles, eye movement, blood oxygen levels, heart rate, brain waves and air flowing in and out of the lungs (Phillips, 2015).

From the sleep study, if the patient is diagnosed with sleep apnea, he/she is then referred to the dentist for evaluation. The dentist then examines the patient's sleep history and also dentition and upper airway. The most used forms of sleep apnea treatment are Continuous Positive Airway Pressure (CPAP) therapy and the use of oral appliances. Other forms of treatment include; surgical options, positional therapy, and lifestyle change.

CPAP is the most recommended treatment option for sleep apnea (Heinrich, 2013). The mechanism behind CPAP aims at directing air under pressure through the nasal passages and upper airway then reaching the lungs. The pressurized airflow is described as "creating airway patency in the oropharyngeal area, anteriorly displacing the tongue and distending the lateral

pharyngeal walls thereby creating patency of the entire airway, preventing it from collapsing” (Heinrich, 2013, p.5). Not all patients, however, are open to the idea of CPAP, some prefer oral appliances.

Dentists can also advise patients on the use of oral appliances to improve the sleep condition, including quantity and quality, the patients receive. More people are beginning to accept oral appliances as a treatment option. This may be attributed to its better portability when compared to CPAP machines. Oral appliances are also not invasive making them highly accepted by patients. Oral appliances, like dental retainers, are worn in the mouth. They are recommended by the American Academy of Sleep Medicine to treat sleep apnea (Shwaber, 2010). Patients with symptoms/signs of sleep apnea such as snoring and tiredness, use oral appliances which are practical and comfortable. Oral appliances are mostly used by patients unable or unwilling to use CPAP machines. In the use of oral appliances, the dentist and the patient then discuss the different available oral appliances and how these appliances work. Oral appliances are more comfortable compared to hoses and facial masks which are used in CPAP (Shwaber, 2010). The appliances are then monitored and adjusted over time.

The Mandibular Repositioning Device (MAD) is the most commonly used oral appliance. The appliance is able to make the mandible move forward hence a patency of the upper airway is created during sleep. The mandible’s anterior repositioning allows freedom for the forward movement of the tongue, away from the upper airway; this increases the volume of the upper airway (Heinrich, 2013). Another advantage of repositioning the mandible forward is that it stabilizes muscles supporting the pharynx. There are more muscles that provide support to the upper airway. The increased support reduces the collapsibility of the airway when one sleeps (Heinrich, 2013).

Both qualified dentists and sleep physicians play a critical role in treating sleep apnea among other sleep disorders. The sleep physician's role is to provide a diagnosis of the sleep disorder after carrying out a sleep study. The physician may also recommend a possible solution on the disorder, whether through a CPAP machine or use of oral appliances. The ultimate decision on the appropriate means of treatment for a disorder hinges on the discussion between the dentist and the patient on the appropriate solution to a certain disorder. During the discussions, the dentist provides the patients with various treatment options, but he/she also recommends the best form of treatment. The dentist then carries out the treatment plan as agreed upon by the patient. Follow-up on the treatment can be carried out by both the sleep physician and the dentist. Each of them provides expert knowledge on the recovery process. For effective care, it is crucial that the sleep physician and the dentist have a collaborative relationship. They would then be able to agree on the best practices that would help the patient recover from the diagnosed sleep disorder.

Another way a dentist can improve the quantity and quality of sleep for their patients is by knowing the potential effects of drugs used for sleep aids. The commonly used drugs include; benzodiazepines, hypnotics, and non-benzodiazepines. Research has shown that when such drugs are used for longer, then they have the opposite effect of sleep aids. After usage for a long time, these drugs no longer improve the quality or quantity (Friend & Hope, 2016). These drugs are also associated with dependence which may result in an addiction in patients using them (Friend & Hope, 2016). It is, therefore, recommendable for dentists to advise their patients on the potential negative effects that may arise from the long-term use of such drugs.

As seen throughout the paper, the field of dentistry is very connected to sleep disorders. The field also offers various ways of improving the quantity and quality of sleep in patients with

sleep disorders. The paper mainly focuses on sleep apnea as a breathing sleep disorder. Dentists are crucial in managing sleep disorders. There are still a high number of people who go undiagnosed but suffer from sleep disorders; dentistry has greatly helped in reducing these numbers. More people visit the dentist compared to a physician; hence the dentist is more likely to determine whether a patient has sleep disorders or is at the risk of having one. By looking for signs of sleep disorders and asking the patient questions on his/her lifestyle, a dentist would recommend a sleep study if the dentist suspects the patient might have a sleep disorder. After diagnosis by a physician, patients are referred back to the dentist for treatment. The dentist recommends various treatment plans such as the use of oral appliances and CPAP machines. Dentists also provide assistance to patients with sleep disorders by advising them about the effects of drugs, used as sleep aids, when used for a long time. It is evident that dentistry, through various discussed means, improves the quality and amount of sleep.

## References

- Chand, U. (2014). *What is dentistry?. Mcleanfamilydentistry.com*. Retrieved 2 April 2018, from [https://www.mcleanfamilydentistry.com/faq/your\\_local\\_dentistry\\_mclean\\_vienna\\_great\\_falls\\_virginia\\_va/](https://www.mcleanfamilydentistry.com/faq/your_local_dentistry_mclean_vienna_great_falls_virginia_va/)
- Collins, E., & Brame, J. (2015). Obstructive Sleep Apnea and the Role of Dental Hygienists. *Journal Of Dental Health Hygiene*, 89(5), 286-292. Retrieved from <http://jdh.adha.org/content/89/5/286.full>
- Friend, J., & Hope, C. (2016). Dental anxiety: What role do sleep disorders play in dental fears?. *Principles Of Practice Management Conference*. Retrieved from <http://www.dentistryiq.com/articles/2016/01/dental-anxiety-what-role-do-sleep-disorders-play-in-dental-fears.html>
- Heinrich, R. (2013). *Sleep Apnea for Dentists: An Overview of the Signs, Symptoms, Consequences, and Treatment. Penwell Publications.*
- Helmer, J. (2018). *The Link Between Sleep Apnea and Your Dentist. WebMD*. Retrieved 2 April 2018, from <https://www.webmd.com/oral-health/features/link-sleep-apnea-dentist>
- Phillips, K. (2015). *What is a Polysomnogram Test?. Alaskasleep.com*. Retrieved 2 April 2018, from <http://www.alaskasleep.com/blog/what-is-a-polysomnogram-test>
- Quan, S., & Schmidt-Nowara, W. (2017). The Role of Dentists in the Diagnosis and Treatment of Obstructive Sleep Apnea: Consensus and Controversy. *Journal Of Clinical Sleep Medicine*, 13(10), 1117-1119. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5612624/>

Shwaber, D. (2010). *Dentists play an important role in treatment of patients' sleep disorders*. *Dentistryiq.com*. Retrieved 2 April 2018, from

<http://www.dentistryiq.com/articles/2010/07/dentists-play-an-important-role-in-treatment-of-patient-s-sleep-disorders.html>

Wolnik, K. (2018). *Sleep Apnea: Symptoms, Risks, & Diagnosis*. *Tooth Wisdom*. Retrieved 2 April 2018, from <https://www.toothwisdom.org/a-z/article/sleep-apnea-and-dentistry-why-we-care/>

CapstoneWriting.com