

## Knowledge of Obstructive Sleep Apnea among Dental Fraternity in a known population

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### Abstract

**Background:** This study was conducted to assess the Knowledge of Obstructive Sleep Apnoea among Dental Fraternity in a known population

**Material and methods:** Final-year dental students, interns, academics, dental practitioners, and specialists were randomly selected to participate in a cross-sectional, self-administered questionnaire survey. A questionnaire with 16 multiple-choice questions was developed to gauge respondents' OSA-related knowledge and awareness. The questionnaire also required respondents to identify themselves by gender, educational level, and number of years in the field. Only those who were both willing and able to fill out the entire questionnaire were considered for inclusion in the study.

**Results:** Out of 100 participants who filled the questionnaire, 50 were males and 50 were females. The outcomes demonstrated that oral surgeons had an in-depth understanding of OSA, with 80% of participants receiving perfect scores for their right answers.

**Conclusion:** Based on our findings, dentists should be educated on obstructive sleep apnea (OSA) and its diagnostic criteria in order to better serve their patients.

**Keywords:** OSA, Dentists, Knowledge.

### Introduction

Obstructive sleep apnea (OSA) is characterized by episodes of a complete (apnea) or partial collapse (hypopnea) of the upper airway with an associated decrease in oxygen saturation or arousal from sleep.<sup>1</sup> This disturbance results in fragmented, nonrestorative sleep. Other symptoms include loud, disruptive snoring, witnessed apneas during sleep, and excessive daytime sleepiness.<sup>2-4</sup> OSA has significant implications for cardiovascular health, mental illness, quality of life, and driving safety.<sup>5</sup> OSA causes severe symptoms, such as excessive daytime somnolence, and is associated with a significant cardiovascular morbidity and mortality. Different treatment options are now available for an effective management of this disease. After more than three decades from its first use, continuous positive airway pressure (CPAP) is still recognized as the gold standard treatment. Nasal CPAP (nCPAP) is highly effective in controlling symptoms, improving quality of life and reducing the clinical sequelae of sleep apnoea. Other positive airway pressure modalities are available for patients intolerant to CPAP or requiring high levels of positive pressure. Mandibular advancement

devices, particularly if custom made, are effective in mild to moderate OSA and provide a viable alternative for patients intolerant to CPAP therapy. The role of surgery remains controversial. Uvulopalatopharyngoplasty is a well-established procedure and can be considered when treatment with CPAP has failed, whereas maxillary-mandibular surgery can be suggested to patients with a craniofacial malformation. A number of minimally invasive procedures to treat snoring are currently under evaluation. Weight loss improves symptoms and morbidity in all patients with obesity and bariatric surgery is an option in severe obesity. A multidisciplinary approach is necessary for an accurate management of the disease.<sup>6</sup> Hence, this study was conducted to assess the Knowledge of Obstructive Sleep Apnea among Dental Fraternity in a known population.

### Material and methods

Final-year dental students, interns, academics, dental practitioners, and specialists were randomly selected to participate in a cross-sectional, self-administered questionnaire survey. A questionnaire with 16 multiple-choice questions was developed to

gauge respondents' OSA-related knowledge and awareness. The questionnaire also required respondents to identify themselves by gender, educational level, and number of years in the field. Only those who were both willing and able to fill out the entire questionnaire were considered for inclusion in the study. Out of 250 participants who received the questionnaire, only 100 participants filled it. Individuals were given hard copies of the questionnaire, while electronic copies were emailed or texted to a select few. It was made clear in the questionnaire instructions that respondents' participation was entirely optional. A representative

## Results

sample of the population was used to examine the credibility of the material and evaluate its usefulness, robustness, and clarity of replies. Those who claimed they were not sent a questionnaire were not included in our analysis. SPSS version 21 was used for the statistical analysis. Frequencies and percentages were used to analyse the descriptive data. The differences between the groups were determined using the Wilcoxon rank-sum test and the chi-square test. P value of less than 0.05 was chosen as the threshold for significance.

**Table 1: Gender-wise distribution of participants**

Gender	Number of participants
Males	50
Females	50
Total	100

**Table 2: Questionnaire**

S. no	Question	Options
1.	Are you aware of the term sleep apnea, complete or partial occlusion of the upper airway during sleep?	Yes No
2.	How often have you come across a patient with OSA?	Frequently Occasionally Never
3.	What would you offer a patient with sleep apnea?	Lifestyle modification  Provide an oral appliance  Refer to a physician
4.	Among the patients diagnosed with OSA, which gender has the highest prevalence?	Males Females No idea
5.	Do you know about the investigations or tests prescribed for such patients to diagnose OSA?	Yes No
6.	Have you come across the topic of management of sleep apnea and oral appliances in your dental course?	Yes No
7.	Are you aware that untreated sleep apnea can cause serious systemic diseases?	Yes No
8.	Do you believe that OSA patients suffer from severe snoring?	Yes No No idea
9.	Can children also suffer from OSA?	Yes No No idea
10.	Can dentists play a major role in identifying such high-risk patients by using extra-oral radiographs?	Yes No No idea

**Table 3: Participants having satisfactory knowledge- who gave the correct response.**

Speciality	Number of participants	Number of participants who gave correct response.
Final year students	20	12

Dental interns	35	14
General dentists	15	06
Oral surgery	05	04
Oral medicine	05	02
Endodontics	05	02
Pedodontics	04	02
Periodontics	04	01
Public health dentistry	03	01
Prosthodontics	02	00
Orthodontics	01	00
Oral pathology	01	00

Out of 100 participants who filled the questionnaire, 50 were males and 50 were females. The outcomes demonstrated that oral surgeons had an in-depth understanding of OSA, with 80% of participants receiving perfect scores for their right answers.

### Discussion

Thorough clinical evaluation using a basic questionnaire helps us to diagnose the condition at an early stage, to successfully manage the patient.<sup>7</sup> Dentists can play a vital role in detecting, advising, referring and treating OSA patients.<sup>8,9</sup> Patients with obstructive sleep apnoea report snoring, witnessed apnoeas, waking up with a choking sensation, and excessive sleepiness.<sup>10</sup> Other common symptoms are non-restorative sleep, difficulty initiating or maintaining sleep, fatigue or tiredness, and morning headache.<sup>11</sup> Indicators include a family history of the disease or physical attributes suggestive of obstructive sleep apnoea—eg, a small oropharyngeal airway or markers of obesity (eg, large neck circumference).<sup>12</sup> Hence, this study was conducted to assess the Knowledge of Obstructive Sleep Apnea among Dental Fraternity in a known population. In this study, out of 100 participants who filled the questionnaire, 50 were males and 50 were females. The outcomes demonstrated that oral surgeons had an in-depth understanding of OSA, with 80% of participants receiving perfect scores for their right answers.

In a study done by Janhvi et al among dentists documented that 32% of the participants were not aware of the gender in which OSA was more prevalent.<sup>13</sup> Kale SS et al<sup>14</sup> assessed the knowledge, attitude and practice regarding different domains of obstructive sleep apnea (OSA) amongst dentists from a dental college. 112 dentists participated in the study. A 23-item, self-designed, pre-tested and validated questionnaire assessing the knowledge, attitude and practice (KAP) regarding nine different domains was used to collect the data. Knowledge and practice was categorized domain wise as good/poor, while attitude as favorable/unfavorable. Dentists were observed to have good knowledge

about OSA, for domains concerning to the definition (60.71%), general findings (76.19%) and risk factors of OSA (66.96%). For the domain of screening and diagnosis (38.83%) along with treatment and referral (36.01%) dentists presented poor knowledge. 100% favorable attitude was reported for all the domains, while the dentists poorly fared (<50%) for both the practice domains. In spite of dentists showcasing favorable attitude towards OSA, they possessed poor knowledge for domains concerning screening, diagnosis and treatment modalities of OSA which may be linked to the hurdle in their way of practice. Thus, it was concluded that a special attention towards these domains needs to be given so as to improve the handling skills of dentist for OSA patients coming to their clinics and prevent further health related issues.

### Conclusion

Based on our findings, dentists should be educated on obstructive sleep apnea (OSA) and its diagnostic criteria in order to better serve their patients.

### References

1. Sankri-Tarbichi AG. Obstructive sleep apnea-hypopnea syndrome: Etiology and diagnosis. *Avicenna J Med.* 2012 Jan;2(1):3-8.
2. Mehrtash M, Bakker JP, Ayas N. Predictors of Continuous Positive Airway Pressure Adherence in Patients with Obstructive Sleep Apnea. *Lung.* 2019 Apr;197(2):115-121.
3. Esteller E, Carrasco M, Díaz-Herrera MÁ, Vila J, Sampol G, Juvanteny J, Sieira R, Farré A, Vilaseca I. Clinical Practice Guideline recommendations on examination of the upper airway for adults with suspected obstructive sleep apnoea-hypopnoea syndrome. *Acta Otorrinolaringol Esp (Engl Ed).* 2019 Nov-Dec;70(6):364-372.

4. Carneiro-Barrera A, Díaz-Román A, Guillén-Riquelme A, Bucla-Casal G. Weight loss and lifestyle interventions for obstructive sleep apnoea in adults: Systematic review and meta-analysis. *Obes Rev.* 2019 May;20(5):750-762.
5. Yeghiazarians Y, Jneid H, Tietjens JR, Redline S, Brown DL, El-Sherif N, Mehra R, Bozkurt B, Ndumele CE, Somers VK. Obstructive Sleep Apnea and Cardiovascular Disease: A Scientific Statement From the American Heart Association. *Circulation.* 2021 Jul 20;144(3):e56-e67.
6. Spicuzza L, Caruso D, Di Maria G. Obstructive sleep apnoea syndrome and its management. *Ther Adv Chronic Dis.* 2015 Sep;6(5):273-85.
7. Lavanya R, Gandhi Babu DB, Chavva S, Boringi M, Waghray S, Yeladandi M. The role of oral physicians in predicting the risk of obstructive sleep apnea: A case-control study. *Imaging science in dentistry.* 2016;46(3):167-167.
8. Jauhar S, Lyons M, Banham S, Orchardson R, Livingston E. The attitudes of general dental practitioners and medical specialists to the provision of intra-oral appliances for the management of snoring and sleep apnoea. *British dental journal.* 2008;205(12):653.
9. Bian H. Knowledge, opinions, and clinical experience of general practice dentists toward obstructive sleep apnea and oral appliances. *Sleep and Breathing.* 2004;8(02):85-85.
10. Malhotra A, White DP. Obstructive sleep apnoea. *Lancet.* 2002;360:237-45.
11. Chervin RD. Sleepiness, fatigue, tiredness, and lack of energy in obstructive sleep apnea. *Chest.* 2000;118:372-79.
12. Davies RJ, Ali NJ, Stradling JR. Neck circumference and other clinical features in the diagnosis of the obstructive sleep apnoea syndrome. *Thorax.* 1992;47:101-05.
13. Manohar J, Dhanraj, Rakshagan. Knowledge, awareness and practice among dental practitioners regarding oral appliances in treatment of obstructive sleep apnea. *International Journal Research.* 2017;9(02):46378-46381.
14. Kale SS, Kakodkar P, Shetiya SH. Obstructive sleep apnea domains: Knowledge, attitude and practice results of dentists from a dental college in India. *Sleep Sci.* 2020 Jan-Mar;13(1):3-9.