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Knowledge and awareness about "obstructive sleep apnea" among undergraduate dental students

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Abstract
Aim: The present study was aimed to assess the level of awareness an knowledge towards treating Obstructive sleep patients among undergraduate dental students of Pune, India.
Methodology: A cross sectional questionnaire-based online-study was conducted among undergraduate dental students in and around Pune.
Result: A total of 150 respondents participated among which more than 50% of the students didn't answer correctly to 2/3rd of the knowledge items. They struggled especially with topics related to symptoms, treatment of Obstructive sleep apnea.
Conclusion: Thus it is essential for the undergraduate dental students to incorporate Obstructive sleep apnea in dental curriculum, participate in the continuing medical/dental education programs, interdisciplinary courses focusing on Obstructive sleep apnea in departments, and assist handling this severe and inevitable health condition.

Keywords: Awareness, dental students, obstructive sleep apnea, symptoms

Introduction

Sleep apnea is a condition in which person stops breathing periodically during sleep.

Sleep apnea is classified into three categories, of which most common type is "obstructive sleep apnea". Obstructive sleep apnea (OSA) is a chronic patho-physiological sleep disorder characterized by partial or complete obstruction and collapse of upper respiratory tract, predominantly pharynx resulting in repetitive episodes of apnea, hypercapnia, hypoxia, insomnia and multiple arousals during sleep [1, 2].

OSA is broadly classified into 3 types central, obstructive and mixed and can be graded as mild, moderate and severe [3]. It is associated with several systemic conditions like hypertension, diabetes, cognitive deficiency, and depression [4].

It leads to tiredness, anxiety, depression, daytime sleepiness, also with increased risk of motor vehicle accidents and impairment of function in those who have it (4) Obesity is considered the main risk factor of obstructive sleep apnea. Other factors associated with obstructive sleep apnea is older age, hereditary, smoking, alcohol, and periodontal disease, orofacial anatomical abnormalities such as mandibular micrognathia, macroglossia, and hypertrophy of palatine tonsils and enlarged uvula [5]

OSA affects 3-7% of adult men and women and 2-5% of adult women worldwide. OSA is more common in males than females [6]

Most of the OSA patients are unaware of their problem due to lack of knowledge and improper guidance from their dentist or physician as well as expensive diagnostic tests which are involved in diagnosing the disease [5].The gold standard diagnostic test to the diagnosis of obstructive sleep apnea is an overnight inlaboratory Polysomnography test(PSG) [6]. Treatment of OSA is governed by the severity of symptoms, degree of clinical complications, and aetiology of upper airway obstruction. The most effective therapy considered until today is continuous positive airway pressure [3].

Thorough clinical evaluation using a basic questionnaire helps us to diagnose the condition at an early stage, to successfully manage the patient. [4] Dentists can play a vital role in detecting, advising, referring and treating OSA patients [7, 8].

Untreated or unrecognised OSA has been shown to contribute to cardiovascular diseases, stroke, diabetes mellitus and depression.

Future dental practitioners must possess a knowledge and awareness of OSA in order to effectively recognize and treat individuals with the condition early. In fact, OSA is a very common and clinically significant disorder. But nothing is known about dentistry students' awareness and aptitude as of yet. To identify patients with Obstructive sleep apnea.

The aim of this study Is therefore to determine the knowledge and attitudes of dental students towards Obstructive sleep apnea.

Methodology

A cross sectional study was conducted among undergraduate dental students in Pune, Maharashtra. The study population included dental students.

An online questionnaire format was designed to access the knowledge and awareness among the students.

The questionnaire validity (Aikens V) was found to be 0.772 which was found to be satisfactory. Reliability of questionnaire was done using Cronbach's alpha value

determined by average of four evaluators which was found to be 0.821 (good to excellent).The sample size calculated was 150.

Data collected from the survey will be analyzed using statistical software to identify patterns, and gaps in knowledge and awareness among dental students.

Results

The study included 150 participants.

Among them maximum participants age ranged between 24 – 25 years. Of which 58% were female and 42% male.

Based on the questionnaires, 42.7% i.e 64 participants have already received a lecture regarding Obstructive sleep apnea.

Among which 83% have come across this topic at undergraduate level. The majority of dental students have heard about Obstructive sleep apnea 49% from theoretical lectures while others heard it during a seminar and conferences 20%, questionnaire 19% and training or workshops 12% (Figure 1)

On being asked about the symptoms of Obstructive sleep apnea majority of the students 68.2% choose episodes of stopped breathing and 63.6% choose loud snoring as basic symptoms. (Figure 2) But on contrary, on being asked about the risk factors 14 % replied on not having any idea about the risk factors. (Figure 3)

Majority of the participants considered hypertension (57%) and stroke (47%) as the potential complications for untreated sleep apnea while 21.9% were unaware of it.

It looks like the majority, around 40.4%, agree that there is a connection between body mass index and obesity with obstructive sleep apnea.

Most students (47.7%) are aware that individuals with obstructive sleep apnea tend to snore. It's a pretty common symptom of the condition. But on the other hand 25.2% choose neutral as their opinion.

Approximately 46.4% number of students responded correctly to the symptoms of Obstructive sleep

Apnea in children.In this study, 47% students were aware of the clinical symptoms and orofacial characteristics of obstructive sleep apnea used to identify the patients.

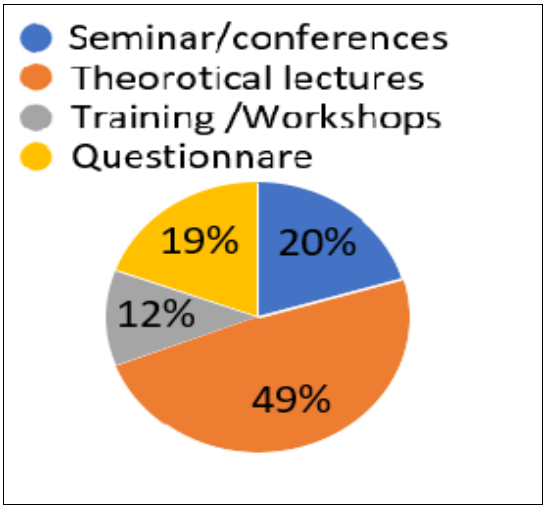

Fig 1: Way of introduction of term obstructive sleep apnea.

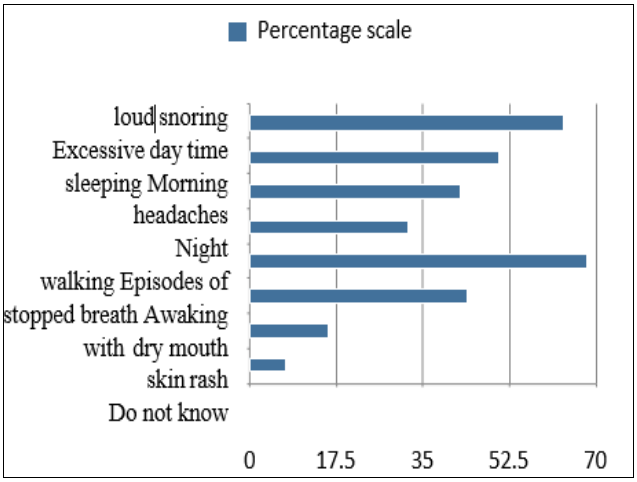

Fig 2: Percentage scale of Symptoms of Obstructive sleep apnea

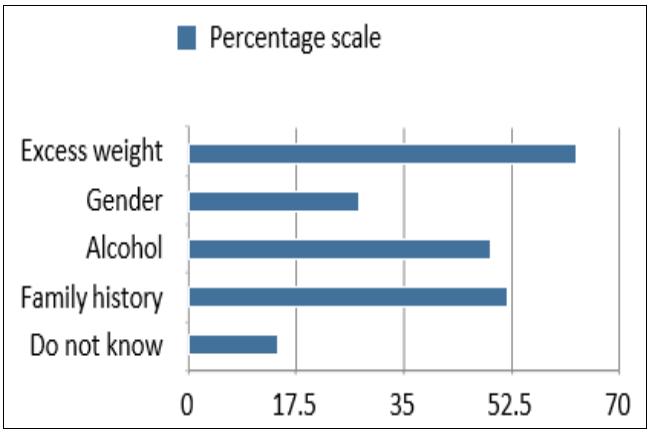

Fig 3: Risk factors of Obstructive sleep apnea

According to the study, 47.7% of students said that dentists play a vital role in patients with obstructive sleep apnea. On evaluation on standard treatment for sleep apnea majority considered oral appliances 55% and positive airway pressure 51% as the better treatment option.

Around 54% were unaware about the Epworth sleepiness scale to assist patients with Obstructive sleep apnea. 60.9% have never diagnosed a patient with obstructive sleep apnea. (Figure 4)

Majority 40.4% agreed that lifestyle changes can help manage obstructive sleep apnea still 36.4 %being unaware of it. (Figure 5)

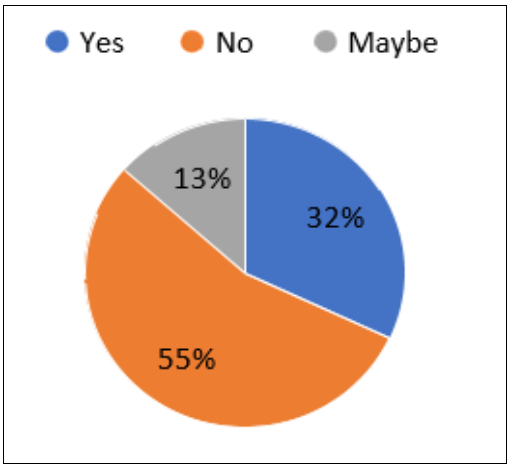

Fig 4: Are you aware of Epworth sleepiness scale to assist patients with Obstructive sleep apnea.

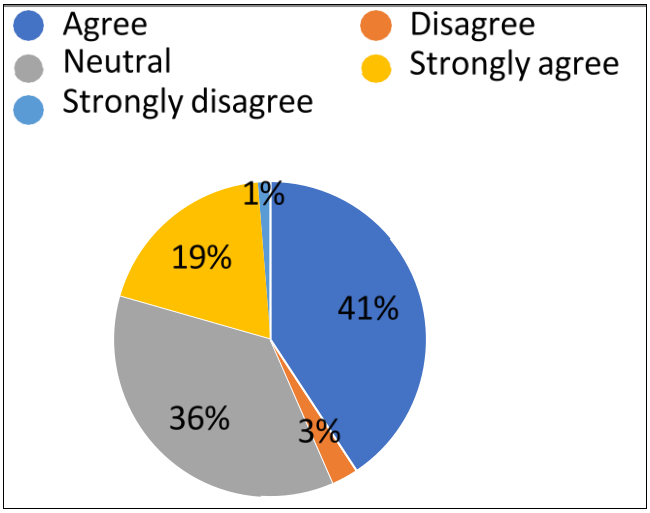

Fig 5: Can lifestyle changes adjustment help manage Obstructive sleep apnea.

Discussion

Dental professionals play a crucial role in the detection and management of patients with obstructive sleep apnea (OSA). They can refer patients to general physicians or sleep specialists and even provide treatment through a multidisciplinary approach. It's anticipated that undergraduate dental students will perform more patient screenings, initial diagnoses, and referrals of suspected cases in their early career rather than treatment. Very few studies focused at how frequently dentists were involved in diagnosing Obstructive sleep apnea [11, 12] and available data suggest that there is a lack in referral and management of these patients.

In our present study, More than 50% of the students didn't answer correctly to about two-thirds of the knowledge items. It seems that they struggled, especially with topics related to the diagnosis, and treatment of obstructive sleep apnea (OSA). It highlights the Importance of further education and training in these areas for students. Nearly 80 % of the study participants are familiar with the condition called obstructive sleep apnea. Similar results were also obtained in studies by Swapna *et al* (80%), Shafiei S *et al* (70.8%), Ahmed S *et al* (84.3%). The variation in observations across these studies can be attributed to several factors. These factors include the study population, sample size, different designs of the questionnaires used, dental education systems, sleep medicine courses, and the differences in dental curricula followed across countries. It's fascinating to see how these factors can influence the outcomes and findings of the studies.

According to our study conducted, 40.7% agreed that obesity is related to obstructive sleep apnea similarly Patil *et al* and Malhotra *et al* argued that an obese male has a major risk factor for obstructive sleep apnea due to the anatomy of the upper airway tract of men predisposing them to pharyngeal collapse more than women.

In this study, 48% believe that obstructive sleep apnea patients suffer from serious snoring while, 64.79% think snoring is directly associated as shown in studies by Swapna *et al* (62.5%), Alansari and Kaki (37%) followed by obesity (46.48%) and cardiovascular risk (36.62%) as significant predisposing factors of OSA. Thus it's important to emphasize the training of dental graduates and dentists in appropriately identifying patients with obstructive sleep apnea (OSA) and actively participating in their referral or treatment. With the increasing risks associated with conditions like obesity and vascular issues such as hypertension and cardiovascular diseases, the role of dentists becomes even more vital in addressing these concerns.

In our study, 47.3% of the students were aware of the clinical symptoms and orofacial characteristics which can be used to identify patients with obstructive sleep apnea in contrast to observations by Swapna *Et al* (53%), Alansari and Kaki, Alharbi *et al*.

This study also says that, 40% of participants have never come across with the patient with obstructive sleep apnea while 60 % have never diagnosed them.Similar findings were reported by Ahmed S *et al* (48.1%), Alansari and Kaki, Khanagar *et al*, Senturk H *et al* (61.4%) which could be attributed to lack of training, misdiagnosis with lower level of confidence towards diagnosis strategies and mistreat sleep disorders as other medical condition.

The treatment options for obstructive sleep apnea (OSA) vary depending on the severity of the condition. They can include behavior management, diet modification, medications, continuous positive airway pressure (CPAP), oral appliances, and even orthopedic or orthognathic surgeries. It's important to consider the specific needs of each individual when determining the most suitable treatment approach.In our current study

On evaluation on standard treatment for sleep apnea majority considered oral appliances 55% and positive airway pressure 51% as the better treatment option while In previous studies Swapna *et al* (36%), Manohar *et al* (11%) recognized low prevalence of knowledge towards continuous positive airway pressure therapy (CPAP) routinely performed in treatment of patients with obstructive sleep apnea.

Several studies briefly discussed the importance of oral appliances as an alternative treatment to CPAP like mandibular advancement or mandibular retaining devices such as snore guard, silencer tongue retaining device and Snor Ex sos palate Lifter in treatment of Obstructive sleep apnea. [10, 11] nonetheless dental professionals were often overlooked while managing obstructive sleep apnea.On contrary in our study about 2/3rd of the respondents were unconscious regarding the same. This could explain why 35.3% of the students were unaware that untreated sleep apnea can cause serious systemic diseases.

According to our study 45% of the participants may or may not ask their patients about his /her sleep history while 30% never ask about it. Thus, Dentists should definitely make it a routine to obtain Obstructive sleep apnea screening questionnaires during history-taking. By regularly updating their strategies, treatment plans, and recommendations for using oral appliances in OSA treatment, dentists can provide the best care possible. It's important to stay up-to-date with the latest advancements and guidelines to ensure effective treatment for Obstructive sleep apnea.

This study found that 43.3% of dental students claimed that they have never attended any lectures/ seminars regarding Obstructive sleep apnea similarly to Munirah Mohd Adnan *et al* which being is 34%.

Thus it indicates that after graduation, many dental students may struggle to recognize high-risk Obstructive sleep apnea effectively manage their cases. This could be attributed to

limited exposure to sleep disorders in the current teaching module. To address this, it's crucial to incorporate comprehensive sleep disorder education and training into the dental curriculum. By doing so, future dentists will be better equipped to handle such cases.

Conclusion

The study suggests that dental students had a relatively low level of knowledge and attitude towards Obstructive sleep apnea. This highlights the need for an enhanced Obstructive sleep apnea education and training program in dental schools. By implementing such a program, students can improve their understanding and skills in managing Obstructive sleep apnea cases. It's crucial to prioritize the development of comprehensive education to ensure the best possible care for patients. It's essential for all dental practitioners, regardless of their specific area of interest, to be ready and capable of diagnosing, investigating, and managing potential Obstructive sleep apnea patients. By doing so, we can make a significant impact on improving their quality of life. Obstructive sleep apnea a serious condition, and dental professionals play a crucial role in identifying and treating it. With the right knowledge and skills, we can make a positive difference in the lives of our patients.

References

1. Swapna LA, Alotaibi NF, Falatah SA, Joaithen MSA, Koppolu P. Knowledge of Obstructive Sleep Apnea among Dental Fraternity in Riyadh. Open Access Maced J Med Sci,2019:7(15):2508-2512.
2. Alansari RA, Kaki AS. Knowledge of signs, symptoms, risk factors, and complications of obstructive sleep apnea among dental interns. The Journal of Contemporary Dental Practice,2020:21(5):558-61.
3. Prabhat K, Goyal L, Bey A, Maheshwari S. Recent advances in the management of obstructive sleep apnea:The dental perspective. Journal of natural science, biology, and medicine,2012:3(2):113. https://doi.org/ 10.4103/0976-9668.101877 PMid:23225971 PMCid:PMC3510903. [PMC free article] [PubMed] [Google Scholar]
4. 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. 5.Al-Jewair TS, Nazir MA, Al-Masoud NN, Alqahtani ND. Prevalence and risks of habitual snoring and obstructive sleep apnea symptoms in adult dental patients. Saudi medical journal,2016:37(2):183. https://doi.org/10.15537/ smj.2016.2.12852 PMid:26837402 PMCid:PMC4800918. [PMC free article] [PubMed] [Google Scholar]
5. Punjabi NM. The epidemiology of adult obstructive sleep apnea. Proceedings of the American Thoracic Society,2008:5(2):136-43. https://doi.org/10.1513/pats.200709-155MG
6. Gharibeh T, Mehra R. Obstructive sleep apnea syndrome: natural history, diagnosis, and emerging treatment options. Nature and science of sleep,2010:2:233-255. https://doi.org/10.2147/NSS.S6844
7. 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. https://doi.org/10.1038/sj.bdj.2008.1022 PMid:19029919. [PubMed] [Google Scholar]
8. 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. https://doi.org/10.1055/s-2004-829633 PMid:15211392. [PubMed] [Google Scholar]
9. Ramesh L, Rajegowda N, Rai P. Knowledge, attitude and practice with regard to obstructive sleep apnoea - a survey among dental clinicians. J Evolution Med Dent Sci,2021:10(07):419-424.
10. AlRumaih HS, Baba NZ, AlShehri A, AlHelal A, Al-Humaidan A. Obstructive Sleep Apnea Management: An Overview of the Literature. J Prosthodont,2018:27:260–265.
11. 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.
12. Alharbi LN, Alsaikhan MA, Al-Haj Ali SN, Farah RF. Pediatric Obstructive Sleep Apnea: Knowledge and attitudes of Medical and Dental Students and Fresh Graduates from Saudi Arabia. Children,2021:8(9):768.