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Original Article

Sleep Disorder: An Obstructive Sleep Apnea, Dentist understanding about it

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ABSTRACT

Background: Obstructive Sleep Apnea (OSA) is a prevalent condition with significant health implications, yet its management often requires interdisciplinary collaboration, including the involvement of dental professionals. Understanding their knowledge and attitudes towards OSA is crucial for effective healthcare delivery.

Objective: This study aimed to assess the knowledge and attitudes of dental professionals towards OSA in a major metropolitan area of Karachi.

Methods: A cross-sectional survey was conducted among 200 dental professionals using convenience sampling. Participants included dentists with at least one year of experience and valid PMDC registration. A structured questionnaire, encompassing sections on demographics, knowledge of OSA, and attitudes towards OSA, was used for data collection. Descriptive statistics and t-tests were applied for data analysis.

Results: The study comprised 65% male and 35% female participants, with an average age of 40 years. Most (85%) were general practitioners. The average knowledge score about OSA was 11.8 (SD = 3.1), while the average score for attitudes towards OSA was 33.5 (SD = 6.5). Dentists with prior OSA education scored higher (Mean = 14.6, SD = 3.3) in knowledge than those without (Mean = 10.4, SD = 2.4). Only 20% of all dentists correctly answered all questions.

Conclusion: The study reveals a moderate level of knowledge about OSA among dental professionals in Karachi, with better scores observed in those who had received previous education on the subject. The results underscore the need for integrating OSA management into dental education and practice to enhance patient care.

Keywords: Obstructive Sleep Apnea, Dental Professionals, Knowledge, Attitudes, Cross-sectional Study, Karachi.

INTRODUCTION

Obstructive Sleep Apnea (OSA) has risen as a critical public health issue, impacting an estimated 1 billion individuals worldwide, with a higher prevalence noted in individuals over 40 years of age and those with obesity (1). This sleep disorder, characterized by repetitive episodes of airway obstruction during sleep, extends beyond mere sleep disturbance (2). It significantly elevates the risk for serious health conditions such as hypertension, affecting 30-40% of those with OSA, cardiovascular disease, stroke, and type 2 diabetes (3). The complexity of OSA requires a multidisciplinary approach for effective management, placing dental professionals in a crucial role (4, 5). The study presented here meticulously examines the current understanding and readiness of dental professionals in identifying and managing OSA (6, 7). Through thorough research, the aim is to uncover gaps in dental education and training concerning OSA, highlighting the need for improved curricula and practical experience. The effectiveness of dental interventions in managing OSA is evaluated, with a call for innovative educational strategies to enhance training protocols (8, 9).

Dentists frequently encounter early signs of OSA, such as airway obstruction and bruxism (teeth grinding) (10), which may be overlooked in general medical assessments (11). Therefore, the research underscores the importance of incorporating OSA management into dental education and practice, considering the disorder's escalating prevalence and substantial impact on overall health (12).

Adopting a global perspective, the study explores various dental practice settings and patient demographics (4, 13). It provides an in-depth analysis of the challenges and opportunities in managing OSA within the dental field, backed by recent statistics and region-specific data. For example, it is noted that less than 30% of dental curricula globally include comprehensive training on sleep disorders, revealing a significant educational gap (14). The publication transitions from a general overview of OSA to a detailed examination of its implications in dental

healthcare. It sheds light on the concerning lack of awareness about OSA among dental professionals and explores the potential risks associated with its underdiagnosis and undertreatment (15).

Moreover, this research aims to fill a vital gap in the existing literature, offering new insights and practical recommendations for the integration of OSA management into dental care (16-20). The study advocates for the development of specialized education and training programs, focusing on the need for standardized screening tools, the inclusion of sleep medicine in continuing dental education, and the promotion of cross-disciplinary collaboration between dental and medical professionals.

The study provides evidence-based recommendations to enhance the role of dental practitioners in the early detection and management of OSA. By elevating dental practice standards and deepening the understanding of this widespread sleep disorder, the research contributes significantly to improving patient outcomes and advancing the field of dentistry in addressing OSA effectively. The objective of this research was to critically evaluate the existing knowledge and preparedness of dental professionals in the identification and management of OSA. The study aimed to identify educational deficiencies, assess the effectiveness of dental interventions, and propose comprehensive strategies for improved training and interdisciplinary collaboration.

MATERIAL AND METHODS

In a cross-sectional study conducted in a significant metropolitan district of Karachi, the attitudes and understanding of dental specialists toward obstructive sleep apnea (OSA) were assessed. A total of 200 dental specialists were recruited for the study using convenience sampling (21). The inclusion criteria stipulated that participants must hold a valid registration with the Pakistan Medical Dental Council (PMDC), have at least one year of practice experience in the metropolitan area, and express willingness to participate in the study. Excluded from the study were dental specialists who did not meet these criteria or were not actively practicing (22).

Data collection was carried out through a structured questionnaire designed to evaluate the dentists' knowledge and attitudes toward OSA. The questionnaire was divided into three sections. The first section dealt with socio-demographic information, including age, gender, and years of experience in the field. The second section focused on the knowledge of OSA, probing into the dentists' awareness of the signs and symptoms, risk factors, and treatment options for OSA. This section comprised 20 questions related to the diagnosis, treatment, and management of OSA. The third and final section of the questionnaire explored the attitudes of the dentists towards OSA. This section included 10 Likert scale questions aimed at understanding the perceived importance of screening for OSA, as well as the barriers to screening and treating OSA in dental practice (23).

For data analysis, descriptive statistics were employed, and mean scores were calculated for each section of the questionnaire. To compare the mean scores across different sections, a t-test was utilized. This analytical approach helped in identifying any significant differences in knowledge and attitudes among the participating dental specialists. The study adhered to ethical guidelines, with formal approval granted by the Ethical Review Committee. Informed consent was obtained from all participants prior to their inclusion in the study, ensuring that they were aware of the study's purpose and their role in it. This approach ensured the ethical integrity of the study and the reliability of the findings, contributing to a better understanding of the preparedness of dental specialists in managing OSA.

RESULTS

Results gathered from 200 participating dental professionals reveal data taken through convenience sampling, of which 65% were male and 35% were female. The mean age of the dental specialists was 40 years (SD = 8.3). Most dental specialists (85%) had general practice, while 15% of data showed having a specialty practice (Table 1).

Table 1 Demography of the study participants (Dental Professionals)

SECTION: Demographic		
Gender	Frequency	Percentage
Male	130	65%
Female	70	35%
Total	200	100%

SECTION: Demographic		
Age		
Mean (SD)	40 (8.3)	
Dental Practice		
General	170	85%
Specialty	30	15%

The knowledge part of the questionnaire uncovers a mean score of 11.8 out of 20. The scores' standard deviation (SD) was 3.1 (Table 2).

Few dental specialists 20% accurately answered all questions in this section (Table 3).

Those dentists who had previous education in OSA had a fundamentally higher mean score on the knowledge section (14.6, SD = 3.3) than those professionals who didn't have past training (10.4, SD = 2.4) (Table 3). The difference in means was highly statistically significant at the $p<0.001$ level, which proposes that this difference occurred by chance.

Table 2 Knowledge and Attitude of Dental Professionals towards OSA

Domain	Mean Score	Standard Deviation
Knowledge	11.8	3.1
Attitudes	33.5	6.5

Table 3 Mean Knowledge scores of Dentists with and without previous OSA Education

Dental Professionals	Knowledge Score	Standard Deviation (SD)	Correctly Answer All Questions (%)
All Dentist	11.8	3.1	20%
Dentist with Previous OSA Education	14.6	3.3	_
Dentist without Previous OSA Education	10.4	2.4	_

Table 4 gives data on dental specialists' attitudes toward obstructive sleep apnea (OSA). The information was gathered through a questionnaire, and the mean score for the attitude part was 33.5 out of 50, with a standard deviation of 6.5. This shows that dental specialists had a moderate degree of attitude toward OSA, but there was some variability in their responses.

Furthermore, most of the dental specialists (90%) accepted that they had a considerable role in the management of OSA. This response is significant since the dental expert can contribute obviously to diagnosing and treating OSA, especially through oral apparatus treatment. However, in spite of this belief, 42% of dental specialists feel satisfied with their capacity to distinguish patients of OSA (Table 4). This lack of confidence could be due to a deficiency in training and education on sleep medication. Additionally, only 25% of dental specialists feel confident about their abilities to manage patients with OSA. This lack of ability could be due to the complexity of OSA management, which frequently involves interdisciplinary care and collaboration with sleep medicine specialists.

Table 4 Attitude of Dentists towards Obstructive Sleep Apnea (OSA)

Attitude towards OSA	Mean Score	Standard Deviation	% of Dentists
Attitude Section	33.5	6.5	N/A
Dentist Role in OSA Management	N/A	N/A	90%
Confidence in diagnosing OSA patients	N/A	N/A	42%
Confidence in managing OSA patients	N/A	N/A	25%

DISCUSSION

The current study's findings on dentists' moderate attitudes toward obstructive sleep apnea (OSA) and their role in its management are in line with previous research, painting a broader picture of the challenges and opportunities in dental education regarding sleep medicine.

A literature review on the subject revealed that dentists and dental specialists have a certain level of knowledge about OSA and agree on its seriousness and their potential role in detecting and treating it. However, they often lack the necessary clinical experience to manage OSA effectively. This parallels the current study's findings where dentists acknowledged their role in OSA management but expressed low confidence in their abilities to diagnose and manage the condition. Such an observation highlights a gap between theoretical knowledge and practical application, a key area that needs addressing in dental education (24).

Further supporting these observations, another study from a dental college in India showed that while dentists had favorable attitudes towards OSA and good knowledge in certain domains like definition and risk factors, they displayed poor knowledge in crucial areas such as screening, diagnosis, and treatment. This aligns with the current study's indication of a need for more focused training in these specific areas, suggesting that while the foundation of understanding is present, more in-depth and practical knowledge is required (25).

A cross-sectional survey among Ministry of Health dentists also found a discrepancy between self-assessed knowledge and actual knowledge scores regarding OSA. Despite a majority claiming prior knowledge of OSA, the actual knowledge and attitude scores were low. This study highlights a crucial aspect of the current study's findings - the need for dentists to have a more accurate self-assessment of their skills and knowledge to identify areas for improvement. It also underlines the positive correlation between knowledge levels and attitudes towards OSA, implying that increasing dentists' knowledge could lead to more positive attitudes and potentially better patient care (26).

Moreover, the integration of medical knowledge into dental practice, as exemplified by the Dent@Prevent project, provides an innovative model. This project developed an interdisciplinary decision support system (DSS) to assist dentists and general practitioners in treating dental and chronic-systemic diseases, including OSA. This approach underlines the importance of evidence-oriented knowledge acquisition in enhancing the quality of patient care and could serve as a model for incorporating sleep medicine education into dental curricula (27).

These findings collectively suggest that while there is an acknowledgment among dental professionals of their role in OSA management, there remains a significant need for enhanced education and practical training. Integrating sleep medicine more comprehensively into dental education could bridge the gap between theoretical understanding and clinical practice, ultimately leading to improved patient outcomes in OSA management.

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