



Knowledge about Child Sleep Among Dentists. A Perception of Dentists about the Knowledge Acquired on the Subject at Dental School: A Pilot Study



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Abstract

Obstructive sleep apnea syndrome is one of the main disorders affecting children and adults. The aim of this study was to evaluate, using a questionnaire, the opinion of a group of dentists about the knowledge they acquired during dental school about sleep and sleep disorders linked to dentistry. The questionnaire was answered by 200 dentists. As a result, there was a lack of knowledge about sleep in childhood, indicating the importance of the subject for professionals and broader training in sleep, so that they can treat their patients fully. The subject is still little explored in educational institutions, thus limiting clinical practice.

Keywords: Sleep; Child; Sleep apnea; Childhood snoring; Breathing disorders

Abbreviations and Acronyms: OSA: Obstructive Sleep Apnea; OSAS: Obstructive Sleep Apnea Syndrome; UAV: Upper Airway PSG: Polysomnography; MAD: Mandibular advancement device; RME: Rapid maxillary expansion

Introduction

Sleep is a vital and restorative process for the body and brain, essential for children's growth and development. Obstructive sleep apnea (OSA) is a breathing disorder caused by obstruction of the upper airways (UA), which can be partial or complete. Its main characteristic is interrupted sleep and difficulty breathing during sleep [1]. Early identification is crucial, thus preventing complications for the patient, since there is the possibility of triggering various cardiovascular disorders hypertension, metabolic disorders, neuropsychiatric disorders respiratory disorders, behavioral problems and growth deficiency [2]. The aim of this article is to address sleep disorders and show data from a survey, carried out by means of a questionnaire, on the degree of knowledge of dental professionals during their undergraduate studies.

Literature Review

By identifying OSA and starting treatment, it is possible for the child to develop well in craniofacial formation. Early diagnosis

of OSA is made through clinical examinations, anamnesis and polysomnography (PSG) [3]. During screening, the anamnesis should be conducted in such a way as to identify sleep disorders to obtain important information such as simple snoring, daytime sleepiness, lack of attention, hyperactivity, irritability or even fatigue [4]. Some studies have shown that maxillary expansion improves sleep quality and, consequently, airway quality, providing patients with good breathing. Early treatment with orthodontists is extremely important for the stability of OSA throughout growth. The orthopedic effect of rapid maxillary expansion helps to increase the space for the passage of air in the nasopharyngeal region (Melo R, 2023).

Bruxism is also a sleep disorder whose main characteristic is teeth grinding. Although it has various definitions, it is divided into nocturnal and daytime [5]. A short lingual frenulum can interfere not only with breastfeeding, but also with speech, facial, dental and bone position. It directly affects the formation of the upper airways (Heit, 2022). Snoring occurs due to airflow obstruction. It

is caused by a collapse of the pharynx which blocks the air passage, causing vibrations. This symptom is often not taken seriously by parents, as many are unaware of the serious future complications [6,7]. Obesity is also an important risk factor for OSA in children and adults. Mechanisms of the contribution of obesity are related to the presence of fat at the level of the pharynx, as well as abdominal obesity, which decreases respiratory function (Heit, 2022). Other risk factors for OSA besides snoring and obesity that also require attention are frequent upper airway inflammation, allergic rhinitis, adenoid hypertrophy and tonsillitis [1,6,8].

Methodology

This study was carried out by collecting data using a virtual questionnaire. The aim was to identify dentists' prior knowledge of infant sleep-in dentistry and their interest in the proposed

topic. A literature review was carried out with articles acquired by searching PubMed, Google Scholar and Medline. Using the study tools, key words were searched for: sleep, child, sleep apnea, child snoring, child snoring treatment and child apnea treatment. Forty-three articles related to the topic were found. Data collection took place in June and July 2020. The questionnaire was applied via Google Docs, shared via a virtual access link, sent via email, social networks and messaging apps. Participants in this study were dentists who had graduated and were registered with the Regional Council of Dentistry (CRO), with the following specialties: pediatric dentistry, orthodontics and other specialties. The questionnaire was made up of seven questions, with the option to choose only one answer: yes or no. At the end of the questionnaire, participants could suggest the subject they would like to understand better about children's sleep in dentistry (Figure 1).

The image shows a screenshot of a questionnaire titled "CHILDREN'S SLEEP QUESTIONNAIRE IN DENTISTRY". The form includes an introductory paragraph and nine numbered questions, each with radio button options for "No" and "Yes".

CHILDREN'S SLEEP QUESTIONNAIRE IN DENTISTRY
If you already have a CRO, answer the quick questionnaire and help us understand how to improve teaching about Child Sleep. Personal information will not be disclosed.
What would you like to learn about children's sleep?

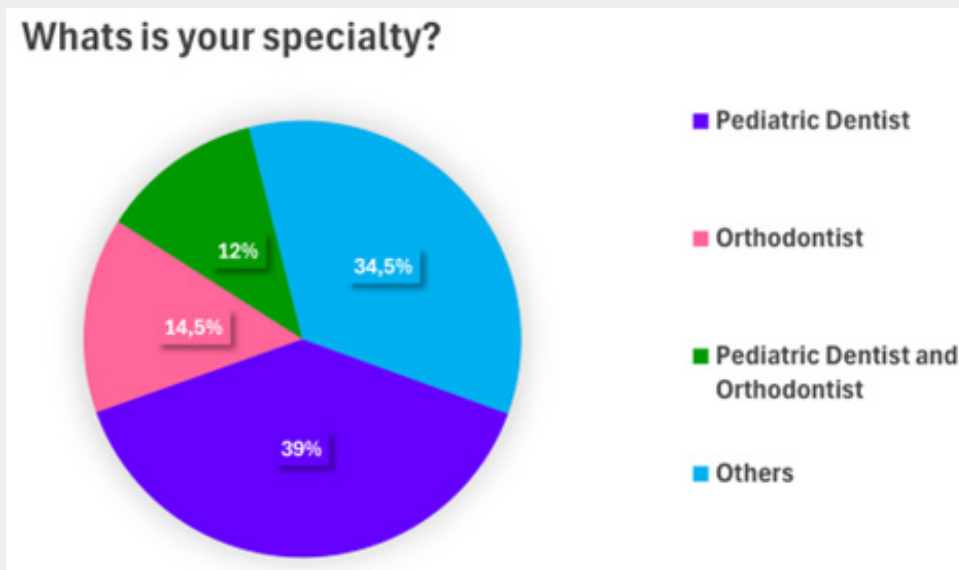
1. E-mail *
2. What is your specialty? *
 - pediatric dentist
 - orthodontist
 - pediatric dentist and orthodontist
 - others
3. Did you learn anything about sleep in college? *
 - No
 - Yes
4. Is it important for you to include sleep as a subject for undergraduate in dentistry? *
5. Does your anamnesis contain questions about the patient's sleep? *
6. Do you know children's sleep disorders? *
7. Would you like to learn more about the dentist's role in the treatment of snoring and sleep apnea? *
8. Would you like to learn more about child bruxism? *
9. Comment here if there is any topic you would like to understand better about Children's Sleep.

Figure 1: Children's sleep questionnaire in dentistry.

Results

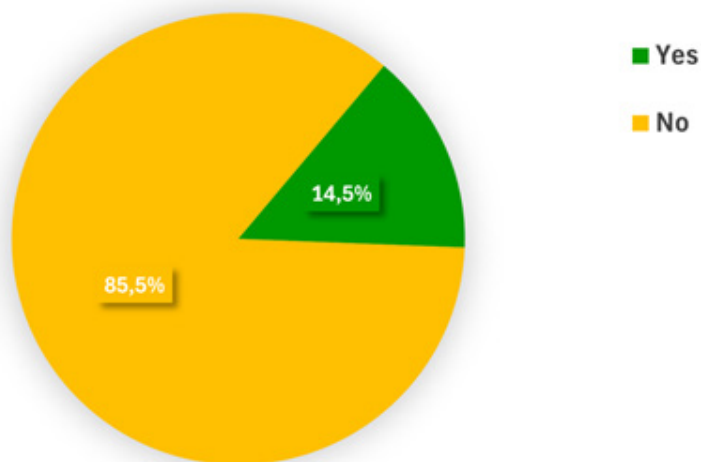
The results of this study, which involved 200 questionnaires sent to dentists from different areas, showed that 39% of the sample were orthodontists, 14.5% pediatric dentists and 12% in training in both orthodontics and pediatric dentistry. The other participants were divided into different areas of dentistry, as shown in Graph 1. Graph 2 shows that 85.5% of the participants reported that they had no knowledge of sleep-in dentistry during

their undergraduate studies. Despite this, 62.5% made a habit of investigating their patients' sleep during the anamnesis (Graph 3). According to Graph 4, 99% of the participants considered the subject to be important for training in the area during their undergraduate studies. However, 43.5% were unaware of the sleep disorders that affect children (Graph 5). Graph 6 shows that 99% of the participants felt it was necessary to learn about the role of dentists in treating snoring and sleep apnea and 98.5% were interested in learning about bruxism in children (Graph 7).

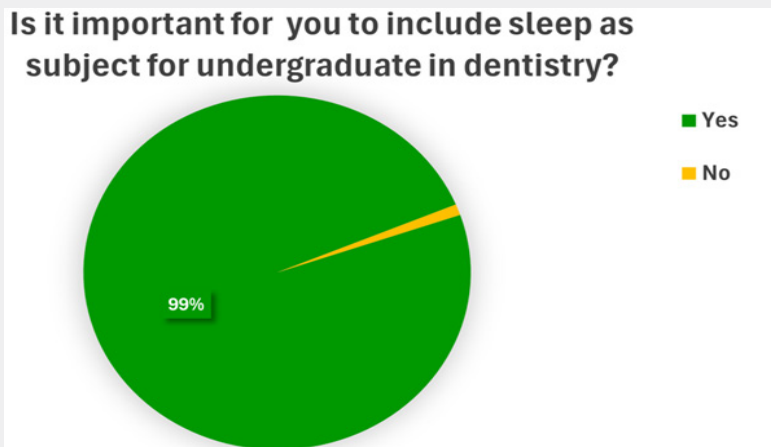


Graph 1: What is your specialty?

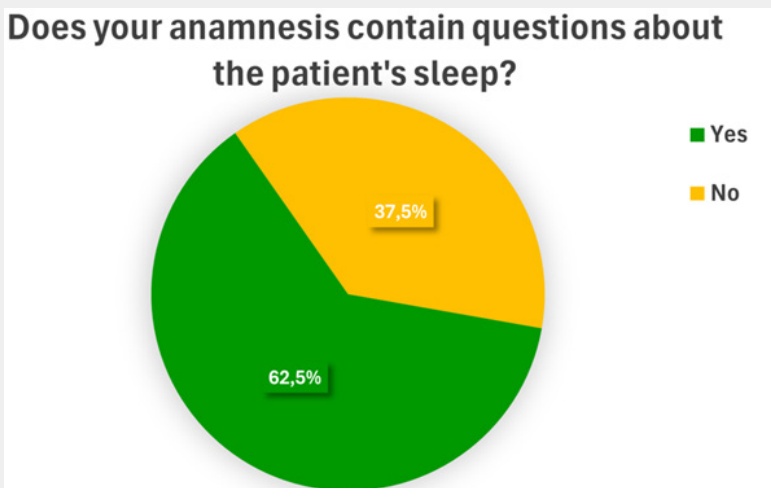
Did you learn anything about sleep in college?



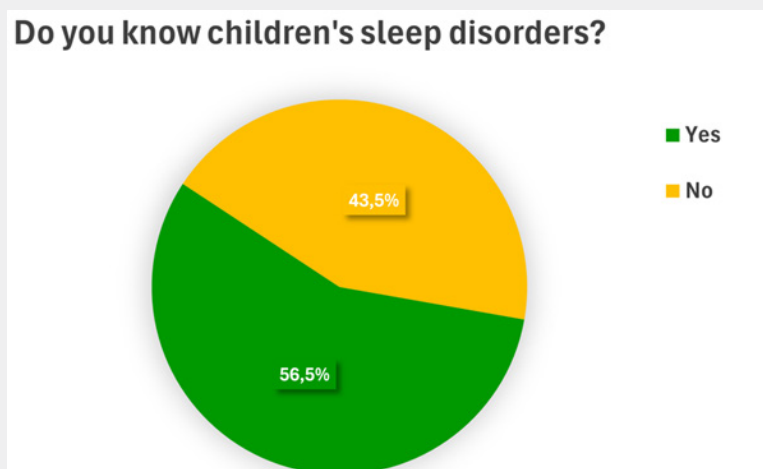
Graph 2: Did you learn anything about sleep in college?



Graph 3: Does your anamnesis contain questions about the patient's sleep?

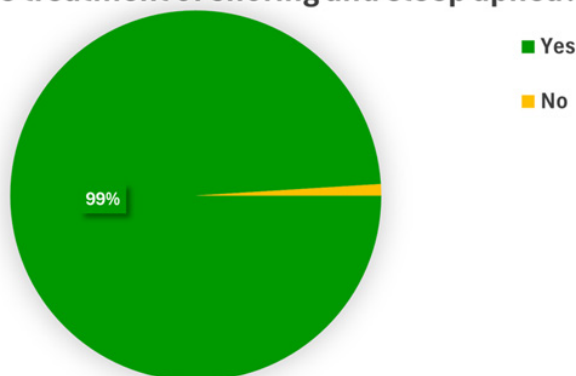


Graph 4: Is it important for you to include sleep as a subject for undergraduate in dentistry?



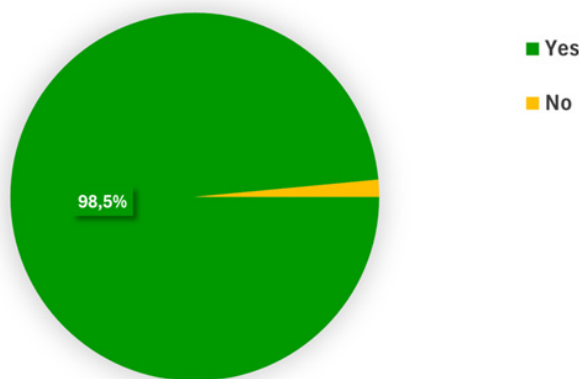
Graph 5: Do you know about children's sleep disorders?

Would you like to learn more about the dentist's role in the treatment of snoring and sleep apnea?



Graph 6: Would you like to learn more about the dentist's role in the treatment of snoring and sleep apnea?

Would you like to learn more about child bruxism?



Graph 7: Would you like to learn more about child bruxism?

Discussion

According to the results obtained in the questionnaire, there is a clear lack of knowledge on the part of professionals about the correct diagnosis and treatment options for OSA. The dental surgeon who deals with children should be one of the first professionals to receive, diagnose, treat and/or refer children to multidisciplinary sleep teams. In the clinical examination of children with OSA, important changes in the dentition, mandible, maxilla, tongue, adenoids, tonsils, hard and soft palate should be observed, since all these structures are interconnected for good health and, consequently, good breathing in adults and children (KEVIM, 2019) [9]. According to Tamasas [2], mouth breathing and dry mouth are present in 95% of children with OSAS, which leads to a deficiency in saliva production, leaving the oral region prone to cavities and periodontal diseases. Studies show that the upper airways and systemic inflammation are involved

in the pathophysiology of children with OSA. The increase in inflammatory mediators found in the tonsils can lead to a recurrent infectious condition in the pediatric population [2,8].

Surgical treatment is considered the first choice for children and adolescents with OSA, when there is a surgically correctable airway obstruction responsible for the apnea, removal of the adenoid and tonsils. [10]. Changing the quality of life is the first step, since obesity is a risk factor in both adults and children. By modifying eating habits with the help of a nutritionist and practicing daily physical exercise, patients can eliminate excess fat in important structures in the respiratory process and reduce systemic inflammation. Changing habits contributes to an improvement in your overall health. Kevin, (2019) shows that CPAP is also used as an aid in the treatment of children and adults with OSA. This non-invasive equipment facilitates breathing during sleep by reducing respiratory work and releasing respiratory

pressure. Generally, patients who use CPAP have difficulty adapting at the beginning of treatment. Studies show that rapid maxillary expansion (RME), using orthopedic appliances, which have the function of separating the median palatine suture and circummaxillary sutures, increasing the transverse diameter of the hard palate, the volume of the airways and nasal cavity, and in the nasopharyngeal area, lead to an improvement in the position of the tongue and the passage of air, thus improving breathing in mild and moderate cases of OSA in children according to [11].

It is worth noting that both adenoid and tonsil surgical procedures and MRE significantly improve the quality of life, concentration and attention of children who have breathing disorders during sleep, reducing complaints related to apnea and snoring, according to [12]. However, we must consider that to perform an RME, there must be orthodontic indications such as: high and narrow palate, deciduous dentition, mixed or permanent dentition in children and young people, dental crowding, deep bite, posterior crossbite [13]. In young adults, MRE has been increasingly performed with the aid of mini-implants such as anchorage, Mini-implant Assisted Rapid Palatal Expansion (MARPE) and studies show treatment success [3,8]. Increasingly, studies show that orthopedic appliances for advancing the mandible are effective in children with OSA, since when evaluating cephalometric measurements and comparing before and after, a significant increase in the upper airway has been observed [14-25]. It should be borne in mind that the time of use must be individual for each patient, for example, CL I Angles patients will not have the same use protocol as a CL II Angles patient, who needs continuous use for better results in muscle stability, benefits for the mandible and increased posterior airway space (LIMA, 2023). Maniglia, (2022) studies the effectiveness of combined treatment with oral appliances and treatments for nasal obstruction [26-42]. The results indicate a significant improvement in sleep apnea symptoms in patients receiving combined treatment.

Conclusion

The survey showed results that lead us to conclude that dentists still lack a great deal of knowledge about children's sleep. The participants themselves left comments with various doubts on the subject. This reinforces the fact that sleep disorders should be increasingly studied and put into practice, since a simple intervention in childhood contributes to good health and quality of life well into adulthood. A reflection on the subject is expected from the evaluation of the results [43-46]. Future studies are needed so that new educational strategies can be implemented and allow students to gain a deeper understanding of this subject. In this way, after graduating, they will be able to act comprehensively in caring for children's general health, being able to treat sleep disorders related to dentistry.

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