Investigating the prevalence and identification of signs and symptoms of Obstructive Sleep Apnea in the Pediatric Dental Population

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Introduction

Obstructive Sleep Apnea (OSA) is a very common disorder amongst the people in the United States. This breathing disorder is "characterized by episodes of complete or partial upper airway obstruction during sleep, often resulting in gas exchange abnormalities and arousals that cause disrupted sleep" [1]. It has been documented that OSA is prevalent in one to five percent of the pediatric population, with a majority of this cohort aging between two and seven [1]. The nature of this disorder has particular predominant manifestations in different age groups. In older children, including adolescents, we often see "excessive daytime sleepiness" as a hallmark sign of this untreated disorder, while in younger children, "hyperactivity, behavioral problems, and impaired academic performance" are the most common signs of untreated OSA [1]. Excessive daytime sleepiness, or EDS, has recently been seen to manifest somewhere between 40% and 50% of pediatric cases [4]. Snoring and troubles breathing during sleep are the most prevalent findings in these cases, across all age groups, encompassing 96% overall [2]. In regards to magnitude, the degree of obesity and the degree of OSA share a positive correlation; this involves both the incidence and severity [2,4].

Referral is critical in formally diagnosing OSA. Polysomnography remains the "gold standard" tool to utilize, in which certain medical professionals are credentialed to interpret [2]. Dentists are not qualified to definitively diagnose this breathing disorder. Clinically, there are common tell-tale signs to suspect OSA, including adenotonsillar hypertrophy, Mallampati deviation classes III and IV, and class II malocclusion [3]. These patients with underlying OSA also commonly have dolichofacial phenotypes and retrognathic mandibles [3]. It is crucial to screen, early detect, and optimally treat these patients in order to improve quality of life, in which OSA often hinders [4].

Objectives

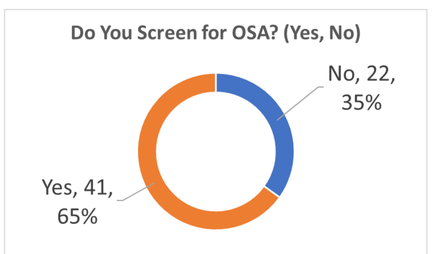
- To investigate the prevalence of Obstructive Sleep Apnea in the pediatric dental population.
- To assess the most common signs and symptoms in patients that are diagnosed with Obstructive Sleep Apnea.
- To assess if the percentage of pediatric dentists screening for Obstructive Sleep Apnea have an effect on a difference/equal prevalence in the two target populations studied.

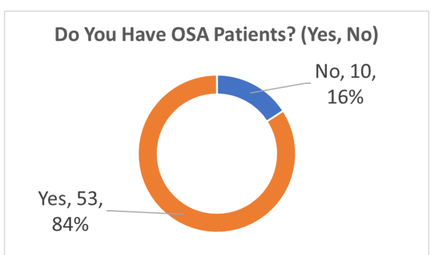
Methods

- A survey was generated via SurveyMonkey.
- This survey was emailed to pediatric dentists listed in the American Academy of Pediatric Dentistry's member directory.
- Only pediatric dentists practicing in the United States were included.
- Protective health information was not involved in the collection of this data.
- Survey responses were collected during the month of March 2023.
- 63 responses were voluntarily recorded and investigated.

Results

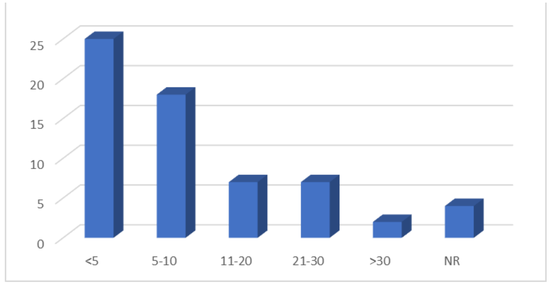
OSA SCREENING



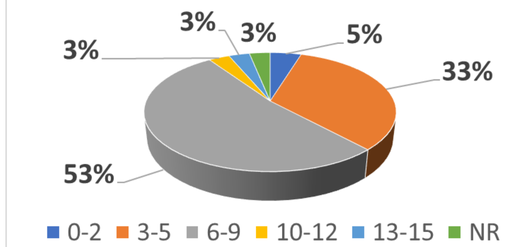


Results

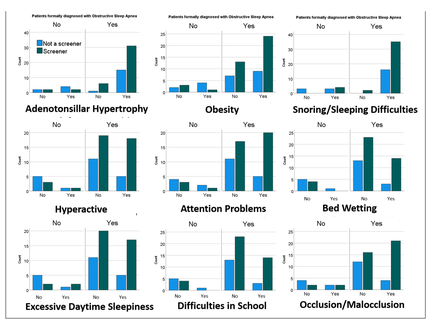
PATIENTS DIAGNOSED



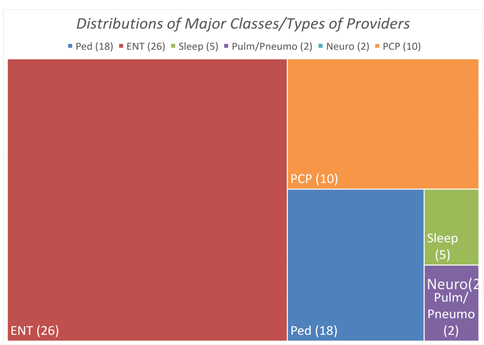
AGE DISTRIBUTION



SIGNS/SYMPTOMS



REFERRAL DISTRIBUTION



Conclusion

The results of this survey, targeting obstructive sleep apnea (OSA) in the pediatric dental population, coincide and conflict with the general pediatric population in certain areas. The age distribution is similar in nature, dominated by a range of 3-9 years old (3-5 years old – 33% of responses, 6-9 years old – 53% of responses) in the pediatric dental population and a range of 2-7 years old in the general pediatric population. Snoring/sleeping difficulties (92.1%), adenotonsillar hypertrophy (82.5%), and obesity (60.3%) were identified as the most common signs and symptoms of suspected OSA in the pediatric dental population; snoring/sleeping difficulties were seen in 96% of cases in the general pediatric population. Ear-nose-throat (ENT) specialists (26 responses) and primary care physicians (including pediatricians – 28 responses in total) were seen as the most common referrals (57/63 referred) in a pediatric dental patient with suspected OSA, amongst other specialists (i.e. orthodontists – 2 responses). The majority of pediatric dental providers reported <5 or 5-10 patients with formally diagnosed OSA. In the 2012 Survey of Dental Practice, the American Dental Association (ADA) found that the average active patient base in private practice (solo or group) was 3,390 [5]. In order to mirror OSA's prevalence of 1-5% of the general pediatric population, the "average" pediatric dental practice would need to be the active dental home for a range of 34-170 patients. This data set showed that only 65% of pediatric dentists (41/63) screen for OSA, which contributes to the low prevalence seen in our pertinent target population.

A major limitation to this research was the disassociation between provider and respective work environment (facility type, practice classification, number of active patients, etc.). The data was standardized to what the ADA had reported in their 2012 Survey of Dental Practice. Asking for the aforementioned details would have provided more accurate data. In regard to age distribution, the wording of the question was poor; the survey question should have specified the age at diagnosis, not simply the predominant age(s) of these patients. Nonetheless, the age distributions fairly reflect one another. In all, more research needs to be done, due to these limitations in addition to the sample size of the recorded responses (63).

References

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2. Verma, Sanjeev Kumar et al. "Role of oral health professional in pediatric obstructive sleep apnea." National journal of maxillofacial surgery vol. 1,1 (2010): 35-40. doi:10.4103/0975-5950.69162
3. Hafiz M. Moin Anwer, Hamad N. Albagieh, Mythili Kalladka, Harmeet K. Chiang, Shaima Malik, Sean W. McLaren, Junad Khan. "The role of the dentist in the diagnosis and management of pediatric obstructive sleep apnea". The Saudi Dental Journal, 2021.
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5. American Dental Association: 2012 Survey of Dental Practice. Pediatric Dentists in Private Practice. Characteristics Report. March 6, 2012.