



Survey of Orthodontists that Screen for Obstructive Sleep Apnea in the United States

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INTRODUCTION

Obstructive sleep apnea (OSA) is a sleep-related breathing disorder (SRBD) characterized by repeated episodes of upper airway obstruction during sleep resulting from an increased collapsibility of the upper airway. The prevalence of OSA in adults varies widely in the literature, but it is estimated that OSA affects up to 14% of men and 5% of women, although it has also been reported that 82% to 93% of adult patients with OSA remain undiagnosed.^{1,2} The prevalence of OSA in children also varies widely in the literature, but it has been estimated to be as high as 62%, with OSA in children most commonly affecting those between the ages of 2 and 7 years old.^{1,3-5} The comorbidities of untreated OSA in the pediatric and adult populations are myriad and can potentially even be fatal. The most common sequelae seen alongside untreated pediatric OSA are somatic growth impairment, impaired cognitive development, excessive daytime sleepiness, hyperactivity, attention problems, bedwetting, cardiovascular stress, and a decreased quality of life.^{2,6} The most common sequelae seen amongst the untreated adult OSA population include coronary artery disease, insulin resistance, congestive heart failure, myocardial infarction, stroke, sudden cardiac death, and an increase in motor vehicle accidents.^{1,7}

Orthodontists are uniquely positioned to identify patients suffering from undiagnosed OSA, as well as to influence and modify the growth of their patients through their knowledge of growth and development and their use of oral appliances throughout orthodontic treatment. A definitive diagnosis of obstructive sleep apnea must be made by a medical doctor specializing in sleep medicine, typically after the administration of an in-house, overnight polysomnography (PSG) test at a sleep center, however, the orthodontist can play a vital role in the identification of those patients that may warrant a referral to the appropriate specialists for further examination.

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OBJECTIVES

1. Investigate trends across the United States of orthodontist's preferred screening methods for Obstructive Sleep Apnea
2. Determine the frequency in which orthodontists are screening their patients for OSA
3. Determine which screening modalities for OSA are most commonly used by orthodontists
4. Determine the confidence level orthodontists have in screening for OSA
5. Determine if there is any correlation between the screening methods used and an orthodontist's gender, age, the orthodontist's length of time in practice, practice setting, practice location, residency location, or number of hours of continuing education completed on the subject of OSA post-residency.

METHODS



1. Develop Survey
2. Distribute and Collect Survey
 - a. Qualtrics used to compose and administer the survey
 - b. AAO Partners in Research will select 6,675 orthodontists at random from the desired membership groups in their database and distribute survey invitation.
3. Analyze and interpret the results using the Statistical Package for the Social Sciences (SPSS) version 25.

HYPOTHESIS & VARIABLES

- Descriptive studies only describe the current state of a variable, so there is no presumed cause and effect, and therefore, no independent and dependent variables
- Descriptive Statistics:
 - Gender
 - Age
 - Screening for OSA
 - Modalities used for screening for OSA
 - Self-reported confidence level in screening for OSA
 - Regional practice location
 - Regional location of residency attended
 - Practice setting
 - Length of time in practice
 - Number of continuing education hours completed on OSA

RESEARCH DESIGN & SAMPLE

- Cross-sectional Survey
- Sample of 6,675 AAO orthodontists in the United States that have practiced in the previous 12 months, selected at random from the AAO database

INCLUSION & EXCLUSION CRITERIA

- Inclusion criteria: AAO orthodontists in the United States that have practiced orthodontics in the previous 12 months
- Exclusion criteria: AAO orthodontists that are outside of the United States or that have not practiced in the previous 12 months

STATISTICS

Data will be analyzed using the Statistical Package for the Social Sciences (SPSS) version 25. Frequency and proportion of similar responses will be calculated for each item on the questionnaire. Logistic regression will be used to determine if the different demographic factors were associated with screening for OSA. Univariate analysis will be used to identify the significant variable and will then use the significant variable for multivariate analysis. Significant difference will be identified by Tukey's multiple comparison procedure.

RESULTS

No results or conclusions have been made at this time because the data collection process is currently ongoing.

REFERENCES

1. Behrents RG, Shelgikar AV, Conley RS, et al. Obstructive sleep apnea and orthodontics: An American Association of Orthodontists White Paper. *Am J Orthod Dentofacial Orthop.* 2019;156(1):13-28.
2. Chiang HK, Reddy N, Carrico C, Best AM, Leszczyszyn DJ. The Prevalence of Pediatric Dentists Who Screen for Obstructive Sleep Apnea. *Journal of Dental Sleep Medicine.* 2017;04(01):5-10.
3. Padmanabhan V, Kavitha PR, Hegde AM. Sleep Disordered Breathing in Children - A Review and the Role of a Pediatric Dentist. *J Clin Pediatr Dent.* 2010;35(1):15-22.
4. Chan J, Edman JC, Koltai PJ. Obstructive Sleep Apnea in Children. *Am Fam Physician.* 2004;69(5):1147-1154, 1159-1160.
5. Andersen IG, Holm JC, Homoe P. Obstructive sleep apnea in obese children and adolescents, treatment methods and outcome of treatment - A systematic review. *Int J Pediatr Otorhinolaryngol.* 2016;87:190-197.
6. Capdevila OS, Kheirandish-Gozal L, Dayyat E, Gozal D. Pediatric obstructive sleep apnea: complications, management, and long-term outcomes. *Proc Am Thorac Soc.* 2008;5(2):274-282.
7. Young T, Peppard PE, Gottlieb DJ. Epidemiology of Obstructive Sleep Apnea. *Am J Respir Crit Care Med.* 2002;165(9):1217-1239.