

BACKGROUND

The American Thoracic Society and the American Academy of Pediatrics define obstructive sleep apnea in children as a sleep-related breathing disorder with intermittent upper airway obstruction that disrupts normal sleep patterns. [1] Clinical markers and screening tools are important to determine if patients are at risk for OSA. Early identification of risk factors, evaluation, and review of management options is important to improve outcomes and prevent long-term consequences.

It has been estimated that 90% of pediatric OSA goes undiagnosed, due to symptoms such as behavior problems being misdiagnosed as of psychological or emotional origin. [2] This study seeks to determine if attrition of the dentition is a good potential clinical indicator of patients who should be screened for OSA, so that proper referrals can be made. Sleep bruxism has been shown to be a comorbid condition alongside obstructive sleep apnea. [3]

Scan QR Code for OSA screening form we used and references



OBJECTIVE

To determine if there is a correlation between attrition, a clinically measurable finding, and significant scoring on an obstructive sleep apnea screening form that determines whether an ENT referral is indicated.

MATERIALS & METHODS

A retrospective chart review was conducted starting in March on all patients who are patients of record at Pedodontics PC clinic whose parents had filled out an OSA screening form and had attrition levels documented during the time period from 10/1/22 to 1/30/23.

Data was collected from the patient's dental recall notes in Eaglesoft as well as the practice's Obstructive Sleep Apnea screening form. Data was compiled by a staff member at Pedodontics PC in an Excel file listing the patients record number, age, attrition level, and OSA screening score.

RESULTS

A total of 73 subjects were reviewed. The age ranges of the subjects were from 3-7.9 with a mean age of 5.1. The Pearson correlation between OSA screening score and attrition index was 0.012 indicating no correlation. When the age was changed to 7 and up, the correlation coefficient increased to 0.388 indicating that there may be an increase in correlation with increasing age. However, neither were statistically significant. A Chi-squared analysis was done in SPSS to determine if there was a significant correlation between attrition index and scoring on the obstructive sleep apnea form. The correlation was not statistically significant ($P = .303$).

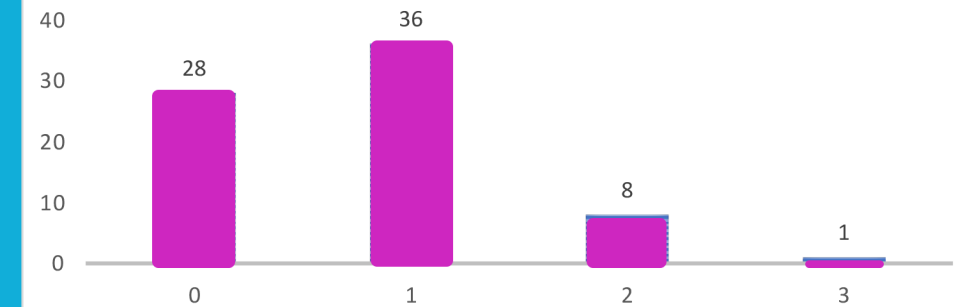
DISCUSSION

In this sample the clinically observable trait of attrition was not a statistically significant predictor of the need to do an obstructive sleep apnea screening. Studies have shown there to be a correlation between tooth wear severity and apnea-hypoxia index in adults. [4][5] This study did not find a correlation between tooth wear severity and OSA screening in its pediatric population. There were several limitations of this study. The sample size was 73, but only 2 of the respondents had an OSA score over 5. A screening form does not necessitate a referral to ENT unless the it is over 5. If we had looked at tooth wear indices in a sample of children who had diagnosed OSA it may have had a different result. This study was done in a very healthy patient population. Another limitation is the age of the samples. The average age was 5.1 with a range from 3-7.9. It takes time for dentition to wear down, and you may not yet see significant wear manifest in a 3 year old with bruxism. However, when the age range was changed to be 7+ instead of 3-7.9 there was a greater correlation coefficient indicating that the correlation may increase with age.

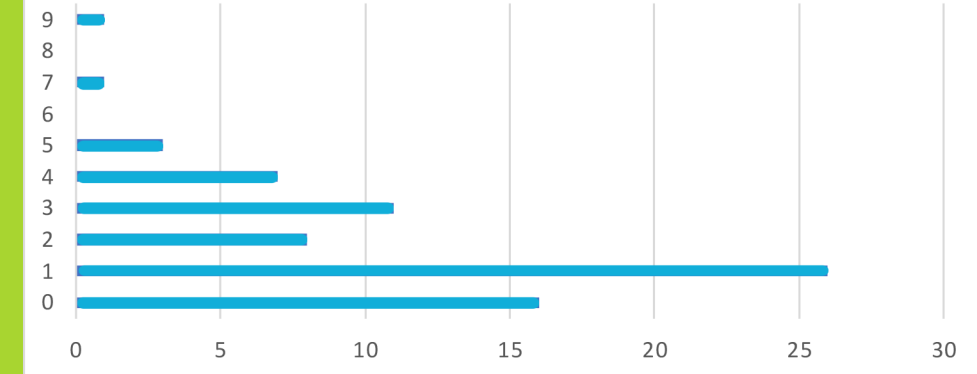
CONCLUSION

There was not a statistically significant correlation between tooth wear indices and OSA screening scoring in this sample of pediatric patients

Attrition Scores



OSA Screening Scores



INDEX DEFINED

Modified Knight Tooth Wear Index

Score	Criteria
0	No loss of enamel surface characteristics
1	Loss of enamel surface characteristics
2	Dentin exposure less than 1/3 of surface
3	Dentin exposure greater than 1/3 of surface
4	Exposure of pulp or secondary dentin