Caries Prevalence in Pediatric Dental Patients diagnosed with Obstructive Sleep Apnea and Sleep-Disordered Breathing

NYU Langone Dental Medicine
Advanced Education in Pediatric Dentistry

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INTRODUCTION

Numerous studies have discussed the oral health of patients with obstructive sleep apnea (OSA) and sleep-disordered breathing (SDB). Some studies have concluded that both OSA and SDB cause poor oral health quality of life in children.[1,2,3] Conversely, others suggest that pediatric patients with OSA had less dental caries, plaque deposition, gingival inflammation, and better oral hygiene.[4] It is known that mouth breathing, a classic clinical presentation of OSA and SDB, has been associated with dental caries when compared to nose breathing.[5,6,7] If there is a difference between caries prevalence in pediatric patients with OSA and SDB, the extent to which the caries burden differs has not been identified and confirmed.

PURPOSE

To determine if the caries risk of pediatric dental patients diagnosed with Obstructive Sleep Apnea (OSA) and Sleep-Disordered Breathing (SDB) differs from pediatric dental patients without OSA and SDB diagnoses.

METHODS

A retrospective chart review of pediatric dental patients was conducted at The Community Health Center of Southeast Kansas dental clinic between January 1, 2016 and September 30, 2022. A decayed, missing, filled teeth (DMFT) index[8] was calculated for each patient to compare caries prevalence between randomly selected pediatric dental patients diagnosed with either OSA or SDB and randomly selected, age- and gender-matched controls.

RESULTS

- A total of 76 patients were included in the study, 38 (50%) had a diagnosis of either SDB or OSA and 38 (50%) were control patients.
- The mean age was 6.5 years (± 2.5), 40 (52.6%) were female, and 45 (59.2%) were White.
- Most of the patients had a normal BMI (40, 52.6 %), while 6 (7.9%) were underweight, 9 (11.8%) were overweight, and 21 (27.6%) were obese.
- There was no significant difference in the mean DMFT index between patients with (0.21 ± 0.20) or without (0.20 ± 0.17) OSA/SDB (P =.89).
- There were more obese patients in the OSA/SDB group (19, 50%) compared to the control group (2, 5.3%) (P<.001).

Table 1: Demographic Results

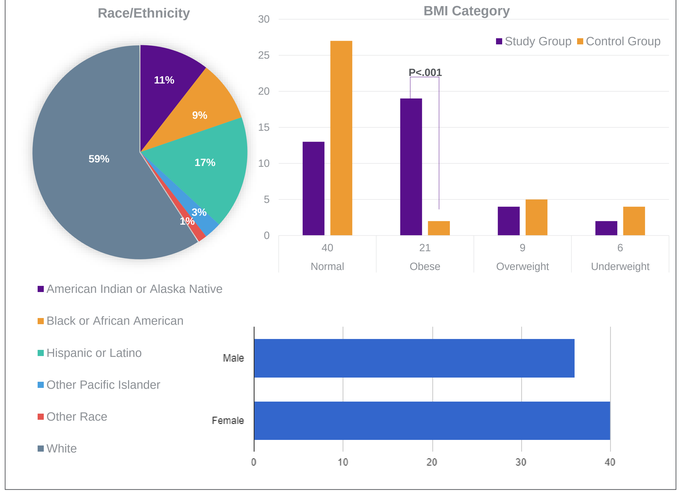

Table 2: DMFT Index

Total Count (N)	Missing*	Unique	Min	Max	Mean	StDev	Sum	Percentile						
								0.05	0.10	0.25	0.50 Median	0.75	0.90	0.95
76	0 (0.0%)	29	0	0.710	0.210	0.180	15.76	0	0	0.050	0.170	0.330	0.480	0.510

Lowest values: 0,00; 0,00; 0,00; 0,00; 0,00
Highest values: 0,50; 0,52; 0,55; 0,70; 0,71

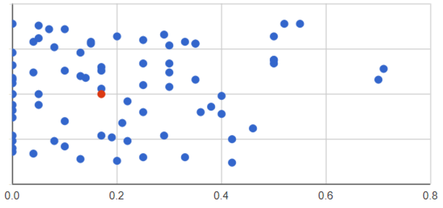

Table 3: Comparison of the Mean DMFT Index for Control vs. OSA/SDB patients

Group	n	DMFT Index Mean (SD)	P-value
Control	38	0.20 (0.17)	0.89
OSA/SDB	38	0.21 (0.20)	

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STRENGTHS AND LIMITATIONS

Strengths:

- We were able to age and gender match control patients to investigative patients due to the large patient population seen at our dental/medical clinics.
- Our integrated electronic health record allowed for easy access to medical information.

Limitations:

- A small sample size and the study being completed at only one site limits our ability to generalize the study conclusions to other patient populations.
- A potential confounding factor is that patients with guardians motivated enough to seek testing for SDB or OSA may have higher parent involvement with homecare/oral hygiene, potentially skewing results.

CONCLUSIONS

Although pediatric dental patients diagnosed with either obstructive sleep apnea or sleep disordered breathing had higher BMIs compared to control patients without these diagnoses, there was no statistically significant difference in caries incidence between these two patient populations.

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