

Background

- Oral health, overall health, and the quality of life for children under the age of 6 are significantly impacted by the presence of **Early Childhood Caries (ECC)**.
- Breastfeeding **up until one year of age** is considered **protective** against the development of ECC, but there is no clear research evaluating the development of ECC and **extended breastfeeding** (breastfeeding beyond one year of age).^{1,2}
- Current Policies:**
 - American Academy of Pediatric Dentistry (AAPD):** There are benefits to breastfeeding during a child's first year of life, but breast and bottle feeding beyond one year of age are associated with ECC.³
 - American Academy of Pediatrics (AAP):** Recommends exclusive breastfeeding for about 6 months, with complementary food introduction at about 6 months, and as mutually desired by mother and child, supports continued breastfeeding until 2 years or beyond.⁴
- No clear guidelines exist** for pediatric dentists and other healthcare professionals to guide mothers/caregivers on optimal oral health and caries prevention with extended breastfeeding. To date, there is very little research surrounding which lifestyle factors aside from breastfeeding are most associated with the development of ECC.

Purpose

- To determine which lifestyle factors contribute most significantly to the development of early childhood caries in children who are breastfed beyond 1 year of age
- To develop a better understanding of how mothers/caregivers' opinions on the different factors are associated with ECC prevalence in their children.

Methods

- The protocol received approval from the University of Pennsylvania International Review Board.
- A survey of 30 questions was created and given to consented mothers and/or caregivers of children between the ages of 1 and 6 years with ASA 1 classification who were either currently breastfeeding or had breastfed beyond 1 year of age.
 - Population:** Children with **DMFT (decayed, missing, and filled primary teeth) ≥1**
 - Control:** Children with DMFT 0
- The survey included questions in the following categories:**
 - Diet, Breastfeeding Habits, Oral Hygiene, Sleep/Airway, Family History of Caries, and parent's perception on Breastfeeding.
- Chart review of demographic information included age, insurance (Medicaid/non-Medicaid) and allergies, in addition to the calculation of the patient's decayed, missing, filled teeth (DMFT) score.
- Descriptive statistics including means, standard deviations, and proportions were calculated to analyze data and potential correlation between survey responses and DMFT score.

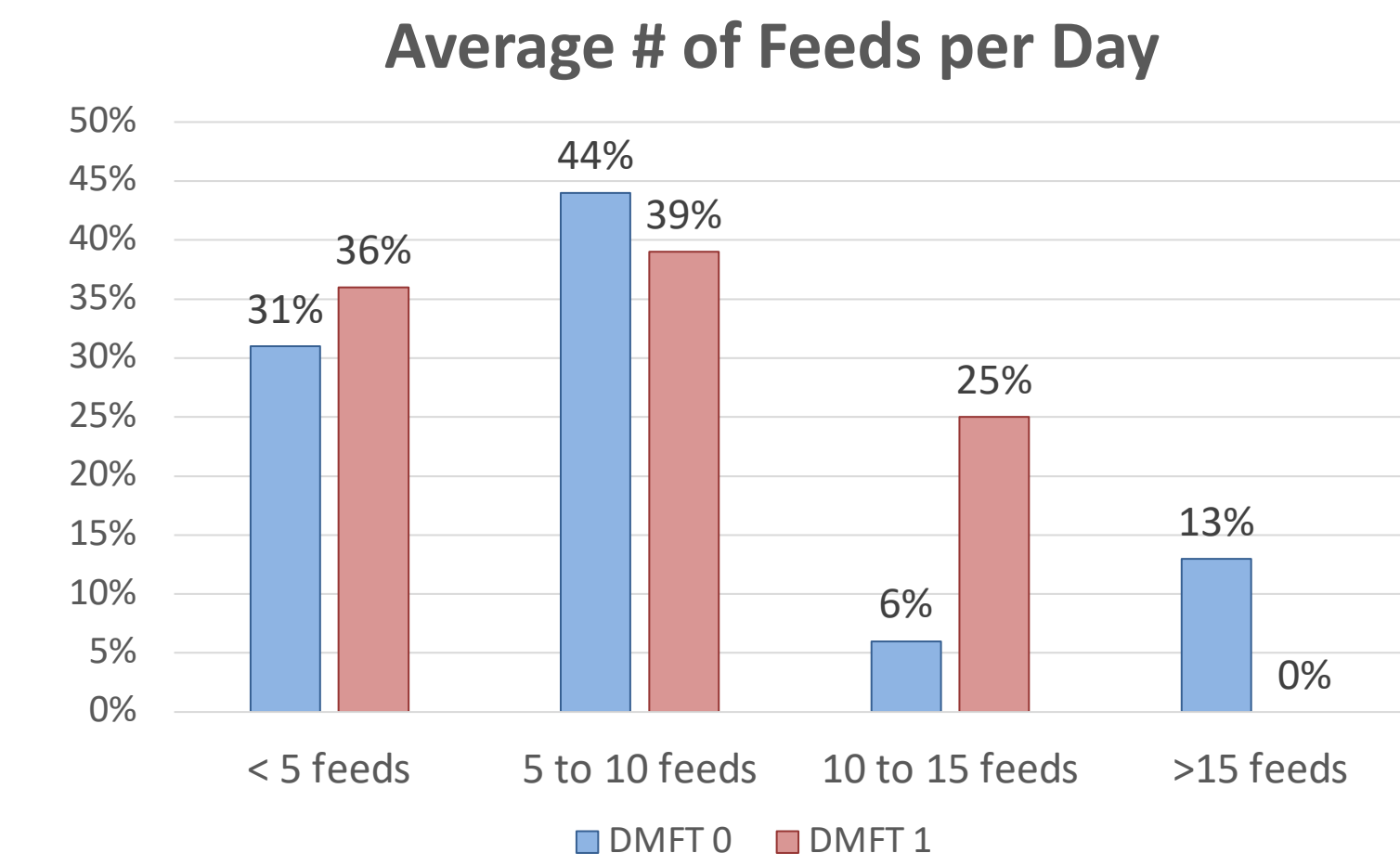
Results

- A total of **44** survey responses were recorded and analyzed:
 - Population:** 28 survey responses corresponded to subjects with DMFT ≥1 (63.6%)
 - Control:** 16 survey responses corresponded to subjects with DMFT 0 (36.3%)
 - The average DMFT score of the total population (n=44) was **5.5**.

Table 1. Demographics

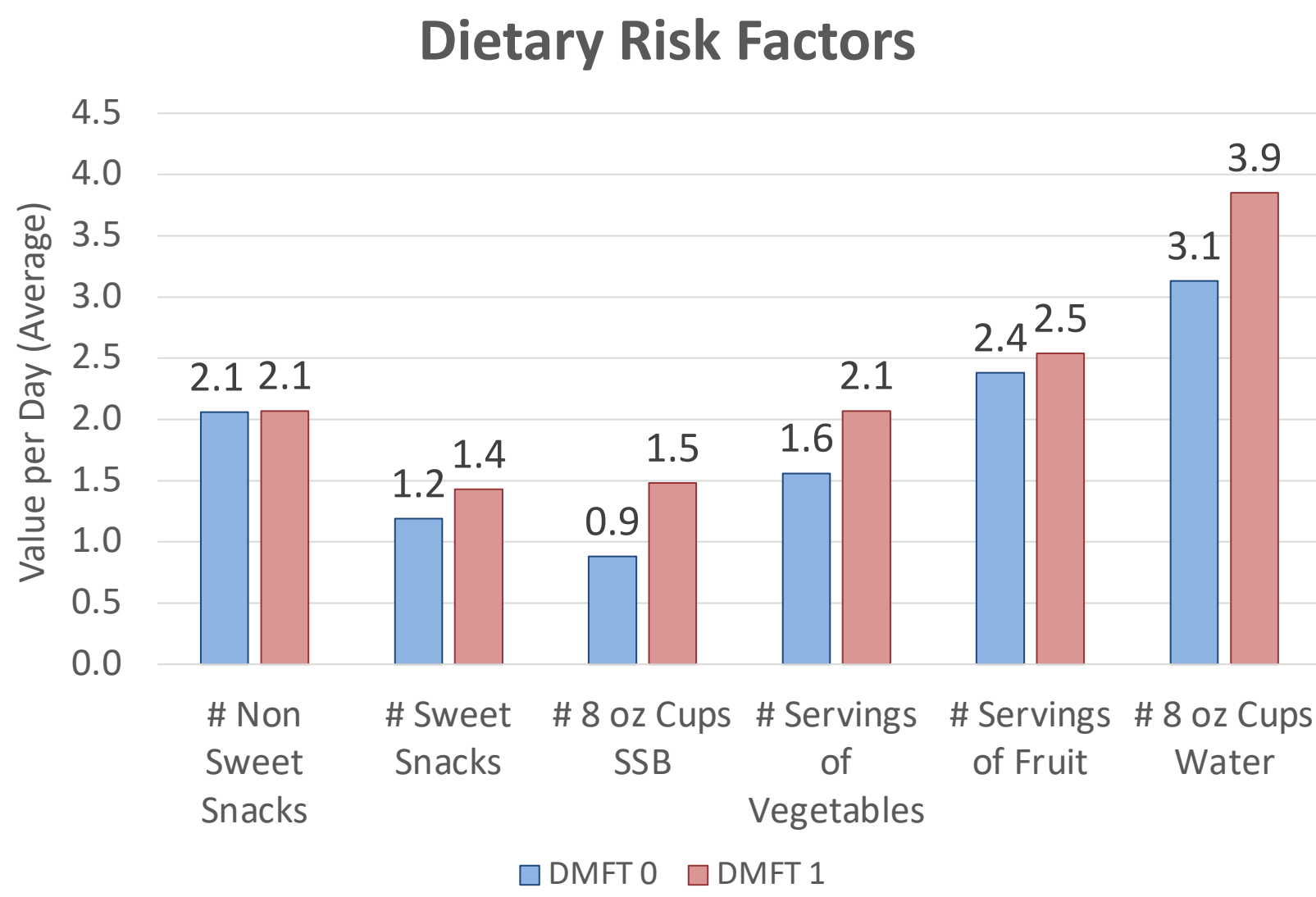
DMFT SCORE	Total # Subjects	Average Age (Years)	% Medicaid Insurance	% Non-Medicaid Insurance
DMFT 0	16	2.8	62.5%	37.5%
DMFT ≥1	28	3.9	85.7%	14.3%

Results (Continued)



Breastfeeding Habits

- Children with DMFT ≥1 were more often reported by their mothers/caregivers to having 10-15 feeds per day.
- More mothers/caregivers of children with DMFT ≥1 reported having had an overnight feed **every night of the week**.

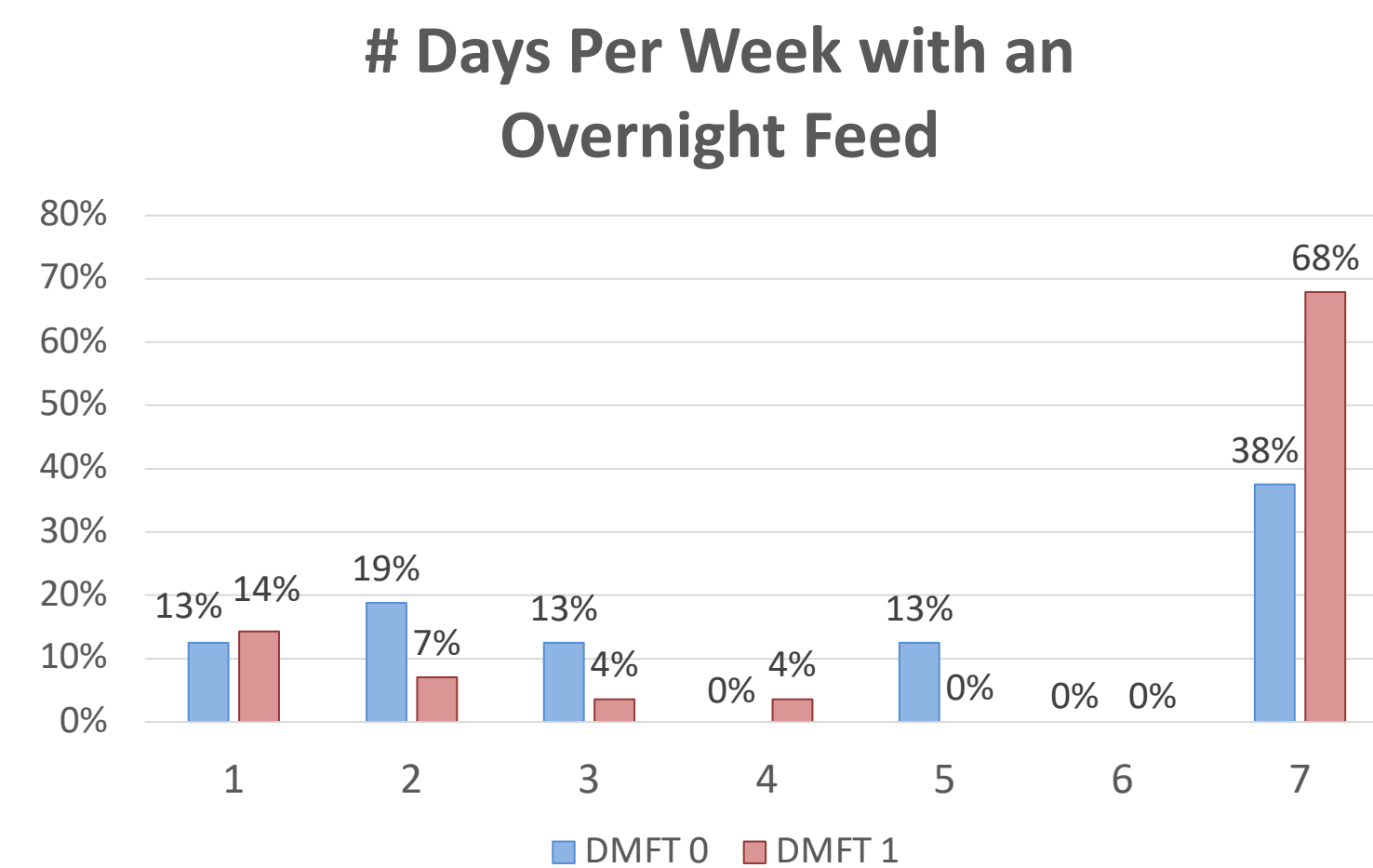


- There were **no significant differences** detected between the control and population groups.
- On average, children with DMFT ≥1 consumed **more 8 oz cups of sugar sweetened beverages (SSB)** per day.

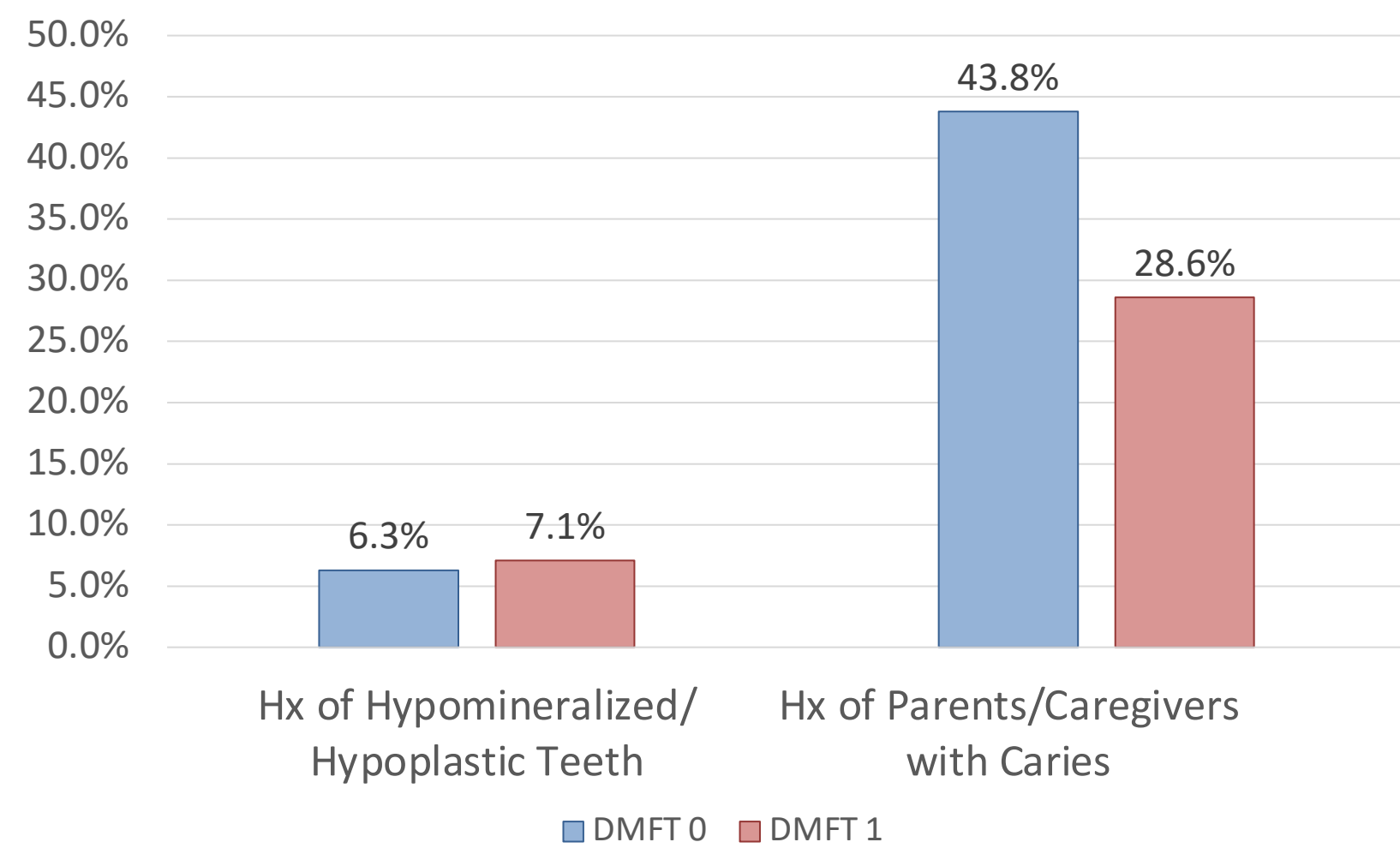
Table 2. Oral Hygiene Habits

Survey Question	DMFT 0	DMFT 1
Average # of Nights Toothbrushing Took Place	6.44	6.54
# of Days where Teeth were Brushed 2x per Day	More than half	More than half
# of Nights Where Something was Eaten/Drank Between Brushing and Bed	1.44	1.04
Percent Using Fluoridated Toothpaste	75%	71%

- No significant differences** were noted in the oral hygiene habits between the population and control groups
- On average, **more children with DMFT 0** use **fluoridated** toothpaste



Family History



- No significant differences** were noted between the population and control groups for having a history of hypomineralized/hypoplastic teeth.
- Children with DMFT 0 were **more likely** to have a history of parents or caregivers with caries.

Table 3. Sleep/Airway Habits

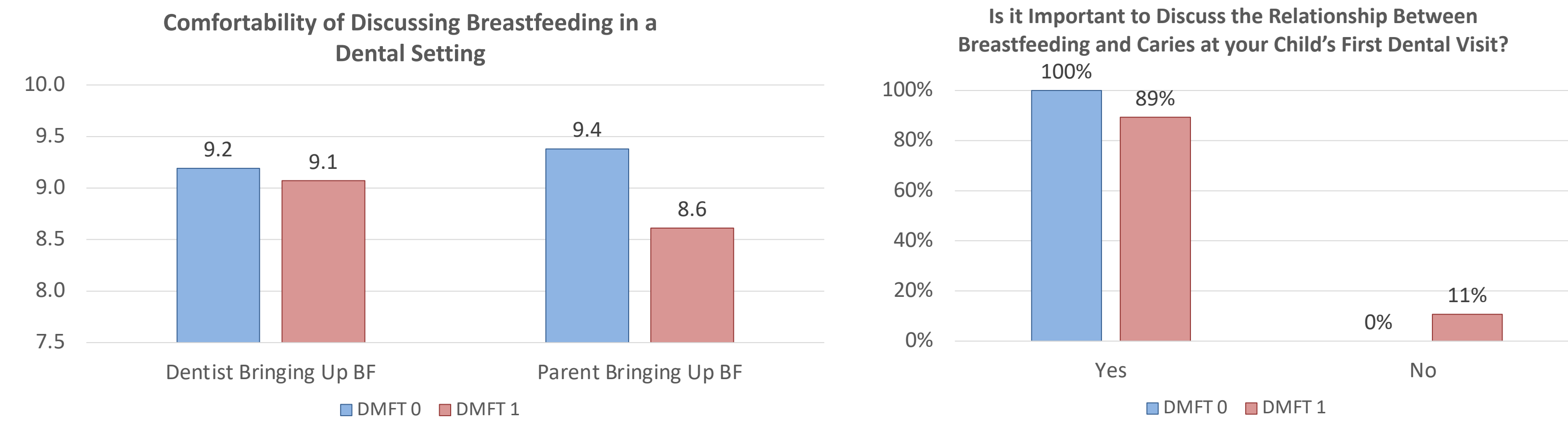
Survey Question	DMFT 0	DMFT 1
Snoring	37.5%	25.0%
Sleep Apnea	12.5%	0.0%
Mouth Breathing > Nasal Breathing	6.3%	21.4%

- On average, **more children with DMFT 0** either had a snoring habit or sleep apnea
- On average, **more children with DMFT ≥1** were found to breathe through their mouth more than their nose throughout the day

Results (Continued)

Opinions on Breastfeeding

- Both population and control groups** rated **high comfortability** with the pediatric dentist bringing up a discussion about breastfeeding
- Parents/caregivers of children with DMFT ≥1 were **slightly less comfortable** bringing up a discussion about breastfeeding in the dental setting
- Fewer** parents/caregivers of children with DMFT ≥1 felt it was important to discuss the relationship between breastfeeding and caries at the child's **first dental visit**



Discussion & Conclusions

- The findings from this study suggest that there remains considerable uncertainty regarding which lifestyle factors predominantly influence ECC development in children who breastfeed beyond age 1.
- This study population had a higher proportion of children with DMFT ≥1 (63.6%) compared to those with DMFT 0 (36.3%) with a majority of both groups having Medicaid insurance (23.2% more in the DMFT ≥1 group).
- Though no statistical significance could be measured due to the limited sample size, certain observations can be drawn regarding the different lifestyle factors:
 - Diet:** No conclusions can be drawn regarding a correlation between specific dietary pattern and DMFT score. Children with DMFT ≥1 drink almost a half a cup more SSBs, on average, per day, in comparison to the other group.
 - Breastfeeding:** More mothers and/or caregivers reported having an overnight feed **every night of the week** in the DMFT ≥1 group when compared to the DMFT 0 group.
 - Oral Hygiene:** No significant differences were noted in the hygiene habits between both groups
 - Sleep/Airway:** An increase in reported mouthbreathing was seen in children with DMFT ≥1 (15.1%) in comparison to DMFT 0 group (6.3%).
 - Family History:** More children with DMFT 0 reported having a family history of caries, but there was no significant difference between the groups for history of hypomineralized or hypoplastic teeth.
 - Opinions on Breastfeeding:** Both groups were comfortable with the idea of the dentist bringing up the discussion of breastfeeding, though parents of the DMFT ≥1 group were slightly less comfortable bringing it up on their own.
- This study is still limited by the small sample size which restricted the ability to conduct advanced statistical analyses.
- Exact breastfeeding duration beyond one year was not quantified, highlighting the need for more comprehensive data collection.
- Future objectives entail expanding the dataset through ongoing data collection efforts and advocating for the integration of discussions regarding the breastfeeding-dental caries relationship into routine dental visits.

References & Acknowledgements

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