Body Mass Index and Caries Experience in Children 2-3 Years-old

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BACKGROUND

- ❖ Early childhood caries (ECC) and childhood obesity are two of the most prevalent health conditions affecting children globally with one third affected.
- ❖ Childhood overweight or obesity is a body mass index (BMI) at or above the 85th percentile for age and sex.
- ❖ This large-scale study at Children's Hospital Colorado Dental Center, Cavity-Free at Three clinic retrospectively evaluated the association between BMI and caries experience in children 2-3 years old.

METHODS

- ❖ New patient charts (N=278) from 2010-2012 were analyzed and BMI z-scores/percentiles calculated using 2000 CDC growth charts; very high BMIs were calculated using 2022 CDC Extended BMI-for age growth charts.
- ❖ BMI percentiles: underweight (< 5th), healthy weight (≥ 5th and < 85th), overweight (≥ 85th and < 95th), obese (≥ 95th).
- ❖ At the initial visit, parents completed a caries risk questionnaire; children were visually examined for caries experience defined as decayed and filled primary teeth (dft).
- ❖ Univariate logistic regression predicted ≥1 dft based on child demographics, BMI class, BMI z-score, and dietary habits. Multivariate logistic regression was fit for each dietary habit using a BMI class or BMI z-score interaction term.

RESULTS

Interaction between overweight and obese BMI classes and dft

- ❖ BMI class and BMI z-score not significantly associated with ≥1 dft and did not significantly affect the relationship between these behaviors and having ≥1 dft.
- ❖ Drinking from a bottle or breastfeeding on demand/at will, drinking sugar-sweetened beverages, and eating between meals > 2 times per day was significantly (p-value < 0.05) associated with increased odds of having ≥1 dft.
- ❖ Assessed dietary habits were associated with having ≥1 dft independent of BMI.

	≥1 dft (N=111)	No dft (N=167)	Overall (N=278)
Age (years) at initial visit			
Mean (SD)	2.52 (0.290)	2.47 (0.279)	2.49 (0.284)
Sex			
Female	55 (49.5%)	84 (50.3%)	139 (50.0%)
Male	56 (50.5%)	83 (49.7%)	139 (50.0%)
BMI class			
Underweight	4 (3.6%)	7 (4.2%)	11 (4.0%)
Healthy weight	81 (73.0%)	126 (75.4%)	207 (74.5%)
Overweight	16 (14.4%)	15 (9.0%)	31 (11.2%)
Obese	10 (9.0%)	19 (11.4%)	29 (10.4%)
BMI z-score			
Mean (SD)	0.306 (1.24)	0.208 (1.19)	0.247 (1.21)

CONCLUSIONS

- ❖ In our study, overweight and obese BMI classes were not associated with increased risk of ECC in 2-3 year-olds.
- ❖ Both conditions are pediatric comorbidities:
  - ❖ Overweight/Obese - type II diabetes, cardiovascular diseases, musculoskeletal disorders, and certain cancers
  - ❖ ECC - discomfort, pain, altered sleeping habits, increased hospitalizations, poor nutrition
- ❖ Experiencing overweight or obesity and/or dental caries in childhood is a good indication that the same conditions will be experienced in adulthood.