



Caries and Obesity Linked with Children Age’s First Sugary Intake

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Introduction

Early consumption of sugary foods and beverages is linked to childhood obesity and dental caries, with significant long-term health implications. Childhood obesity and dental caries are common chronic conditions with multiple contributing factors related to adverse health consequences and significant expenses in healthcare. Sugars and other fermentable carbohydrates, after being hydrolyzed by salivary amylase, provide a substrate for the actions of oral bacteria, which in turn lower plaque and salivary pH. The resultant action is the beginning of tooth demineralization. Many factors, in addition to sugars, affect the caries process, including the form of food or fluid, the duration of exposure, nutrient composition, sequence of eating, salivary flow, presence of buffers, and oral hygiene. Studies have found that many preschool-aged children consume sugary drinks daily. One national survey indicated that about 50% of children aged 2 to 5 years consumed sugary drinks on any given day. Introduction Assess the association between obesity and dental caries with the initial age of consumption of sugary foods or drinks before the age of three.

Objectives

Assess the association between obesity and dental caries with the initial age of consumption of sugary foods or drinks before the age of three.

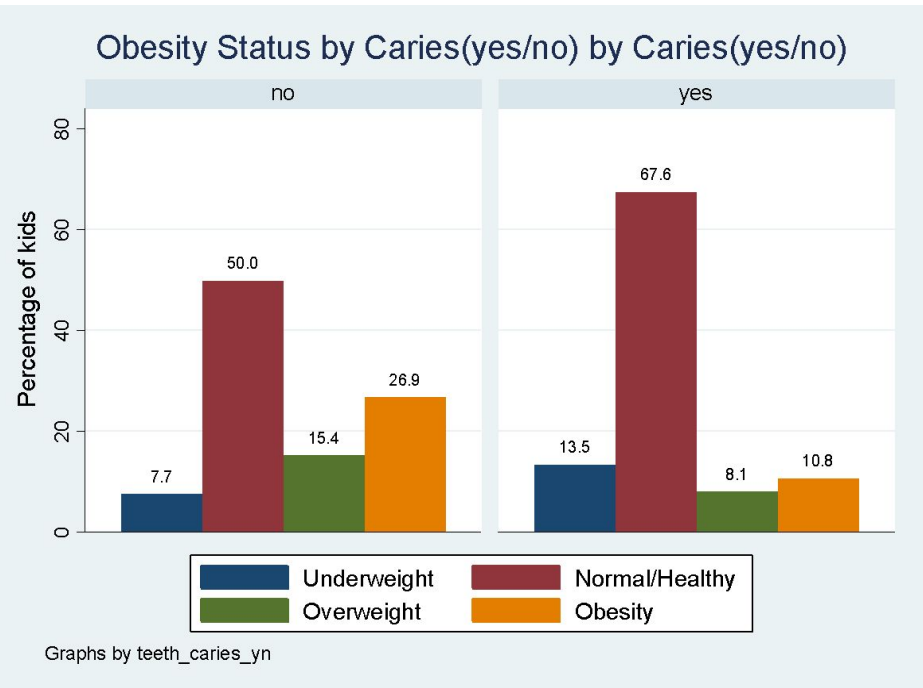
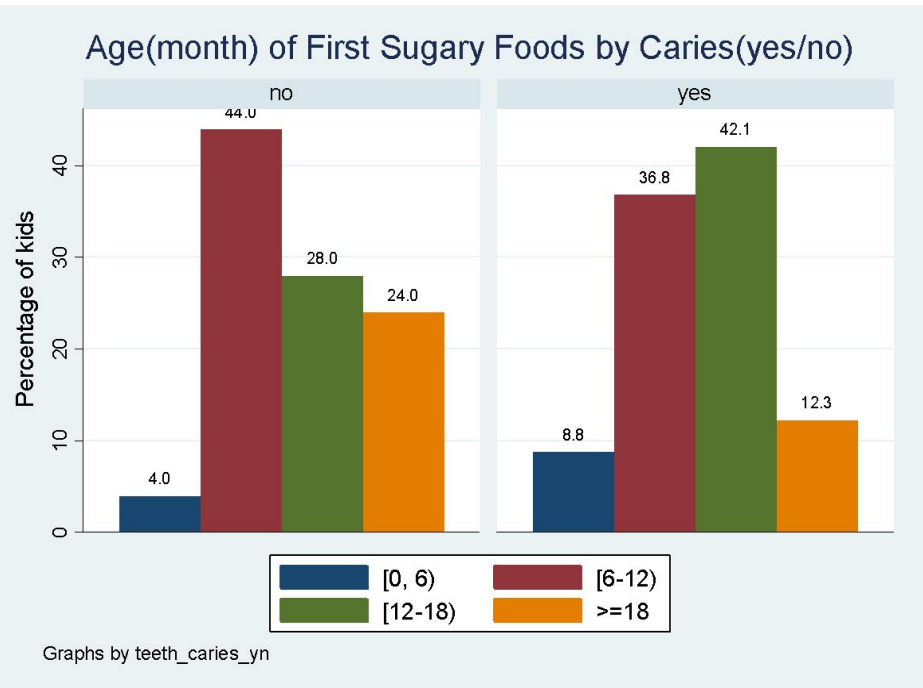
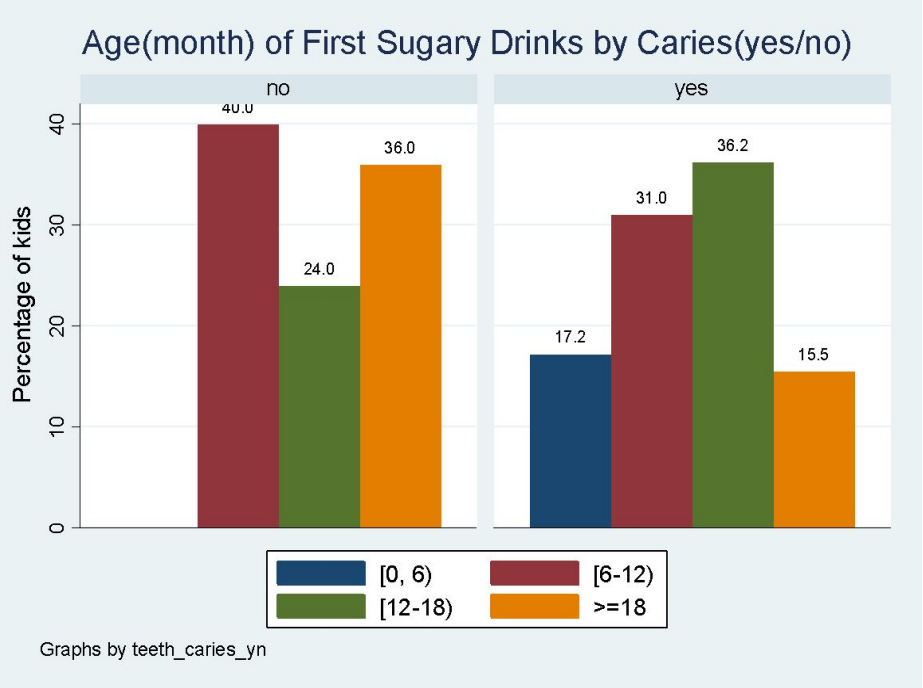
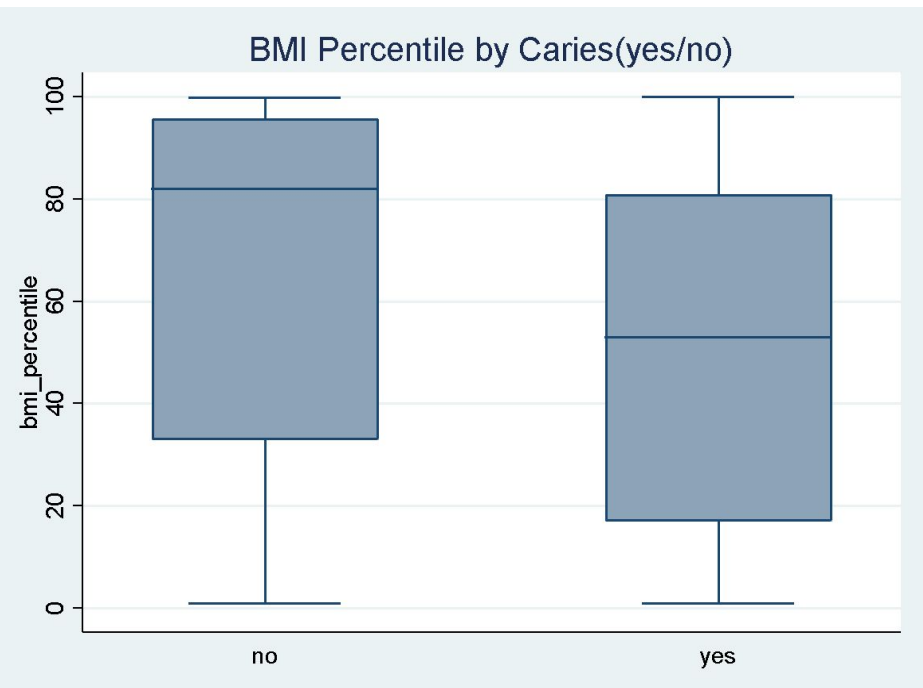
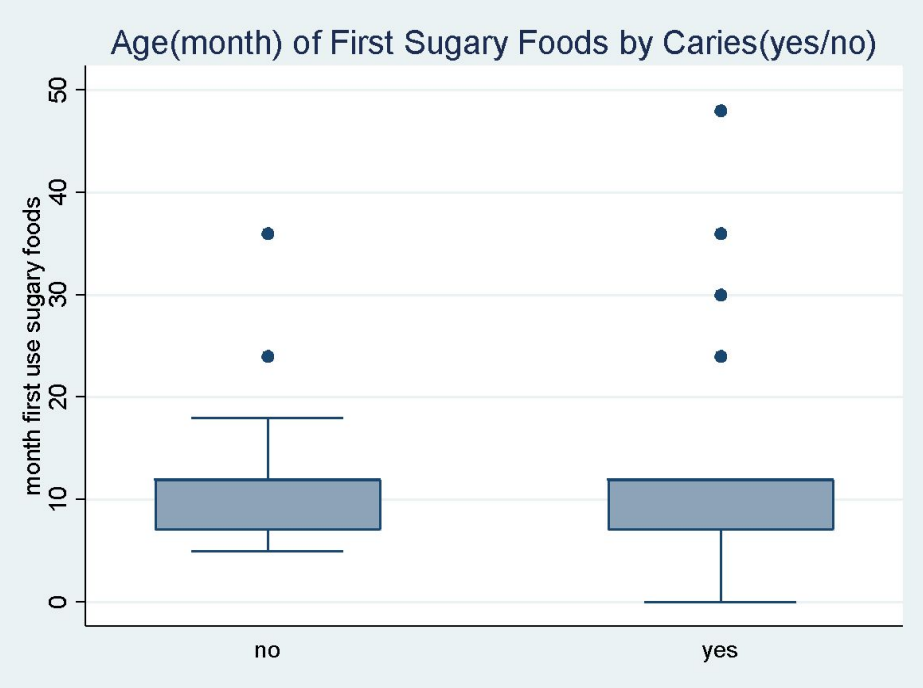
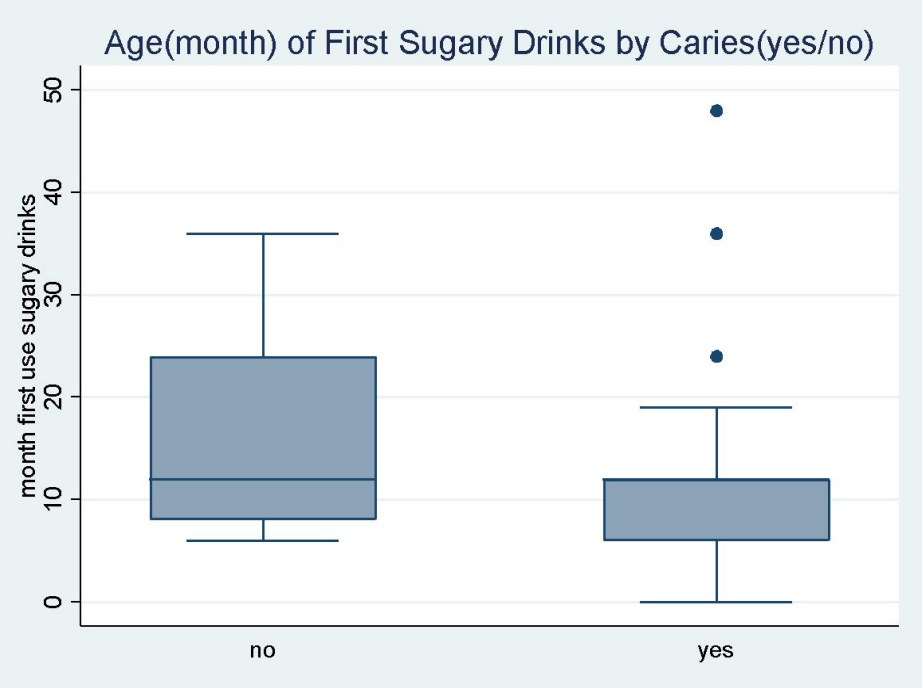
Material and Methods

This study includes children aged 3 to 5 years enrolled in the Head Start Program in Puerto Rico. Data collection consists of two main components:

- Caregiver Questionnaire A structured questionnaire completed by the child's parent or caregiver, which gathers information on medical and dental history, sociodemographic characteristics, and dietary habits, with a focus on sugar consumption using the Food Intake Frequency Questionnaire (OICAL).
- Clinical Assessments Participants undergo a comprehensive dental examination using the International Caries Detection and Assessment System (ICDAS), along with anthropometric measurements (height and weight) to calculate Body Mass Index (BMI) percentiles according to CDC.

Results

The relationship between the age of first exposure to sugary beverages and the presence of dental caries was examined using both continuous and categorical analyses. In the continuous analysis, the Wilcoxon rank-sum test showed that children with caries had a lower mean age of first exposure (10.97 months) compared to children without caries (14.84 months), and the median is the same (12 months) for both groups; however, this difference did not reach statistical significance ($z = 1.745$, $p = 0.082$). When the data were analyzed categorically by dividing the age of exposure into four groups, a statistically significant association was found between earlier exposure and the presence of caries (Fisher’s exact test, $p = 0.023$). These findings suggest that earlier introduction of sugary beverages may be associated with an increased risk of dental caries. No statistically significant association was found between the age of first exposure to sugary foods and the presence of dental caries. The Wilcoxon rank-sum test showed no meaningful difference between the two groups, with children with and without caries having a similar mean age of first exposure (approximately 12 months) ($z = 0.504$, $p = 0.619$). A categorical analysis dividing the age of exposure into four groups also failed to show statistical significance (Fisher’s exact test, $p = 0.390$). In contrast, analysis of the BMI percentile revealed a statistically significant difference. Children without caries had a higher mean BMI percentile (64.56) compared to those with caries (50.58) (Wilcoxon rank-sum test: $z = 1.977$, $p = 0.0480$). Children without caries had a higher median BMI percentile (82) than those with caries (53). However, when BMI was analyzed categorically (underweight, healthy weight, overweight, obese), no statistically significant association was observed between BMI category and caries presence (Fisher’s exact test, $p = 0.128$). This suggests that while BMI percentile may differ between groups, categorical BMI status may not predict caries development.



Conclusions

The findings of this study highlight the potential role of early exposure to sugary beverages in the development of dental caries in preschool-aged children. Children with caries were more likely to have been introduced to sugary drinks before 12 months. In contrast, no significant relationship was observed between the age of introduction to sugary foods and caries. Additionally, although children without caries had higher BMI percentiles, obesity status was not significantly associated with caries status. These results suggest that the timing of sugary beverage introduction may be a more critical factor in caries risk than general dietary sugar intake or obesity status. The data support the importance of early preventive guidance for parents and caregivers, especially regarding beverage choices during infancy, as part of comprehensive strategies to reduce early childhood caries and promote overall health.

Reference

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