



Introduction

- Dental caries is the most common chronic disease of childhood in the U.S., and significant research has shown caries to be associated with sugar consumption.¹
- Children consuming more than 32.6g of sugar daily are 3.0 times more likely to have caries², and there is a 4.3 times risk of caries formation in children who prefer sugary beverages.³
- The American Academy of Pediatrics recommends nutritional drink supplements for children who are unable to receive adequate nutrition from their diets⁴, with Pediasure advertised as the number one pediatrician recommended brand.⁵
- An 8-ounce Pediasure supplement contains 13g of added sugar. Pediasure states that two full servings must be consumed daily for favorable results, however, two servings provide 104% of the recommended daily added sugar intake of no more than 25 grams for a child two years and under.⁵
- Parents may receive limited information regarding infant oral health and hygiene from pediatricians, and medical professionals are often unaware of the prevalence of early childhood caries.⁶

The purpose of this study is to determine if there is an association between pediatric nutritional supplement drink consumption with dental decay in children under age 6.

Methods

- Study population:**
- A retrospective chart review was conducted of pediatric patients at Boston Medical Center (BMC) from June 2015 to June 2023.
 - Subjects were included if they were: Under 6 years old, consume Pediasure (or similar formulation e.g. "Ensure"), and had a completed medical and dental visit at BMC
 - Patients were excluded if they do not consume food orally.
- Data collection and analysis:**
- Data was obtained through the Boston Medical Center Clinical Data Warehouse (CDW) and through manual chart review via two reviewers.
 - 173** qualifying subjects were included
 - The Pediatric Complex Chronic Condition Classification system (PCCC) was used to determine the number of complex chronic conditions that each patient had.⁷
- Data analysis:**
- Chi square tests were used to assess the relationship between covariates and caries status.
 - Tables and histograms constructed using Microsoft Excel.

Results

Table 1. Description of sample (n=173 pediasure users)

Average age started Pediasure or Ensure (years, +/- 1 SD)	2.60 +/- 1.26
Dental caries status (% , n)	
No caries	55.5% (n=96)
Early childhood caries (ECC)	44.5% (n=77)
Average age initial ECC diagnosis (years)	4.34 +/- 1.44
Severe early childhood caries (S-ECC)	32.9% (n=57)
Average age initial S-ECC diagnosis (years)	4.08 +/- 1.32
Preferred language (% , n)	
English	57.2% (n=99)
Haitian Creole	19.7% (n=34)
Spanish	10.4% (n=18)
Other	12.7% (n=22)
Gender (% , n)	
Female	34.7% (n=60)
Male	65.3% (n=113)
Number of complex chronic health conditions (% , n)	
0	75.1% (n=130)
1	19.7% (n=34)
2	5.2% (n=9)

Note that language spoken, gender, and presence of chronic health conditions were not found to be significantly related to caries risk.

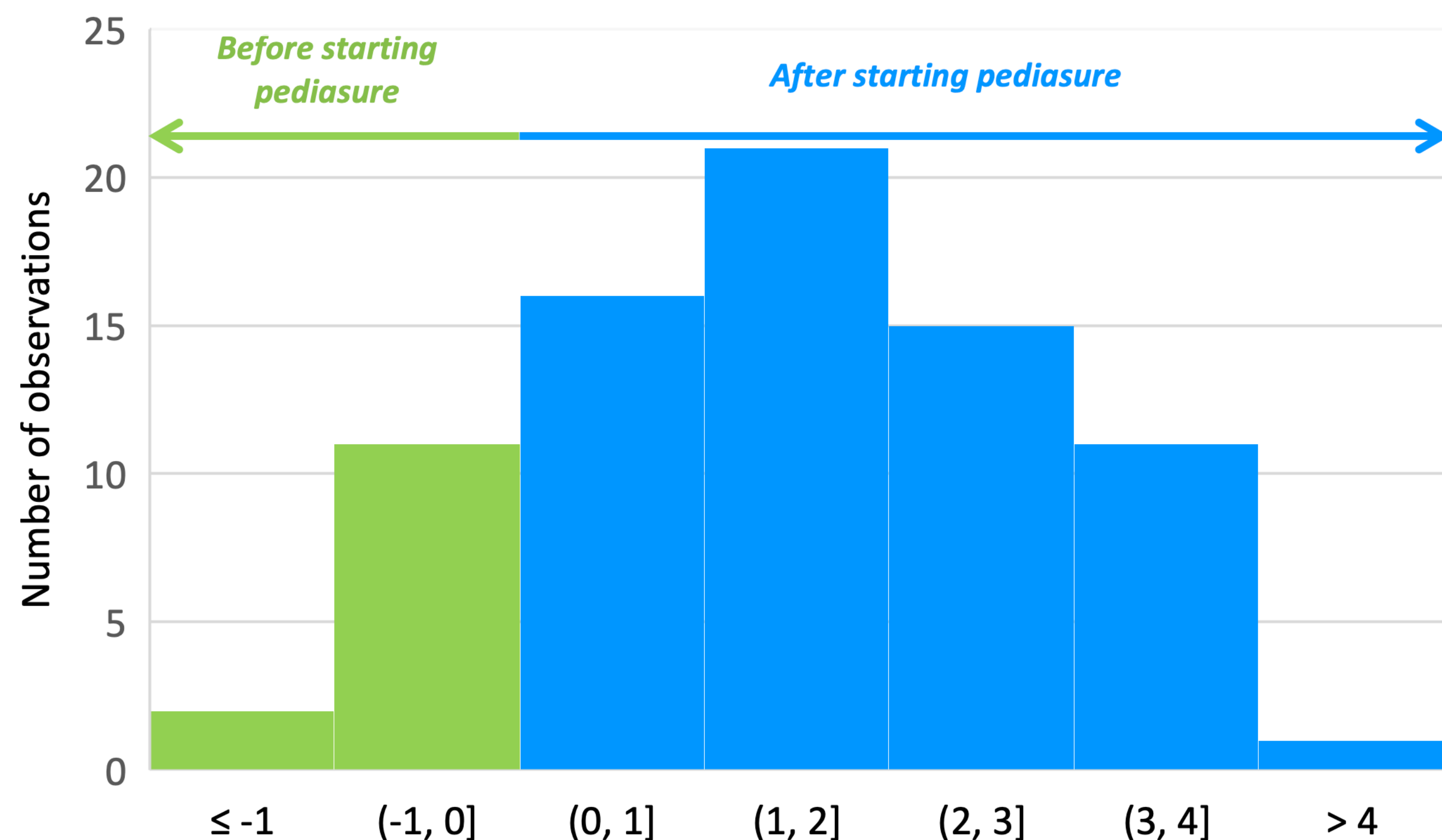


Figure 1. Time of ECC diagnosis (years) relative to starting pediasure (n=77)

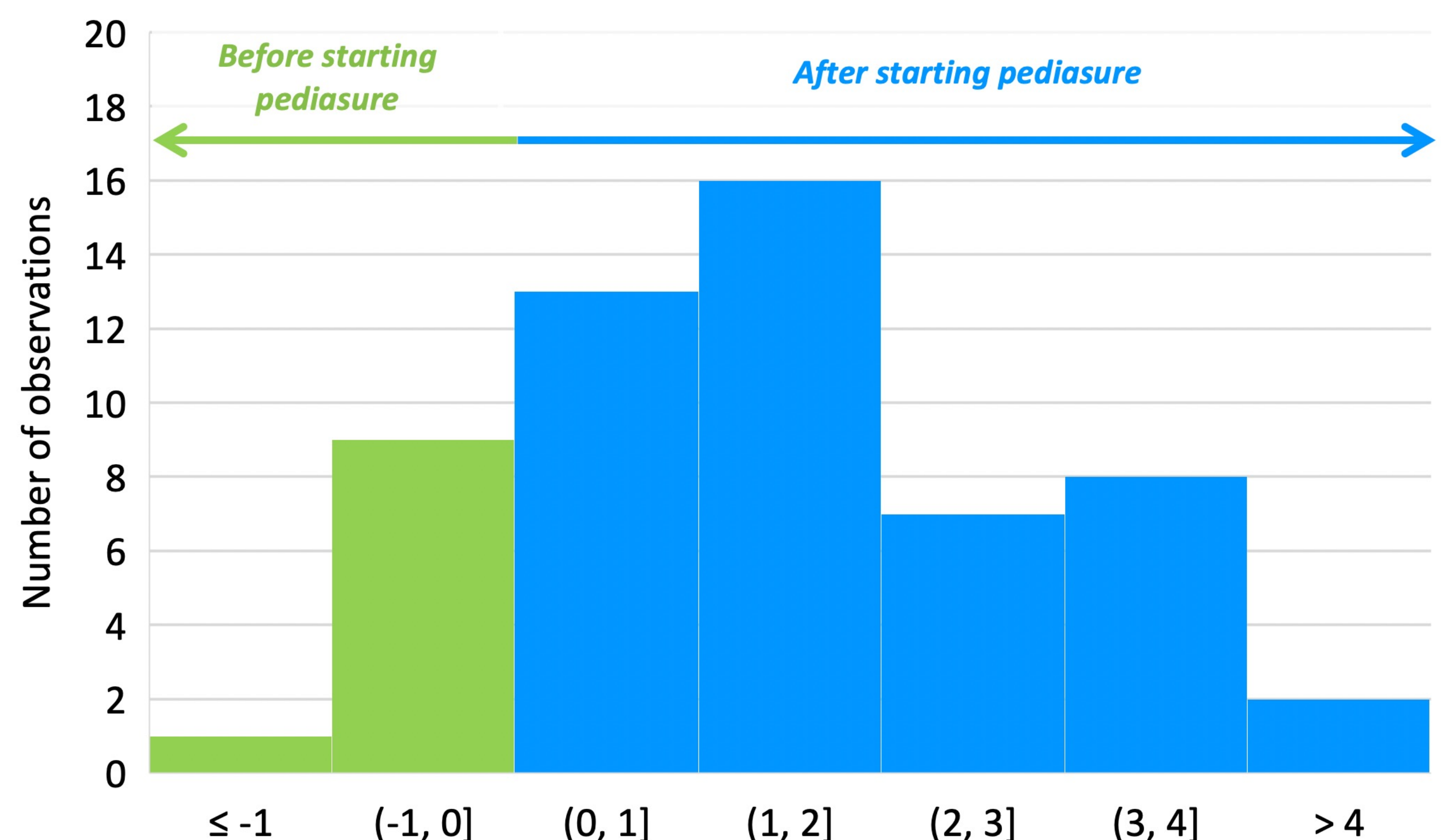


Figure 2. Time of S-ECC diagnosis (years) relative to starting pediasure (n=57)

Discussion

- The **prevalence** of ECC among pediasure users was **44.5%**; while the prevalence of S-ECC was **32.9%**.
- Figure 1 and Figure 2 show a trend for both ECC and S-ECC to occur *after* patients began pediasure usage, with a peak incidence between **1 to 2 years** following initial pediasure use. These preliminary results suggest that caries usually develop subsequent to pediasure; however, it is important to note that the average age of starting pediasure was at just 2.6 years.
- Limitations of the present analysis include lack of a control group to compare caries prevalence, and also inconsistent follow up (varying patients had varying frequency of dental follow up).

Conclusions

- It is important to consider the potential cariogenic effect of added sugars in nutritional supplement drinks to prevent the progression of caries in children and to educate physicians and patients on the potential cariogenic effects of these products.
- More well-designed studies with adequate sample size are needed to understand the potential role of pediatric nutritional drink supplements as a risk factor for developing caries.

References



Please scan for references