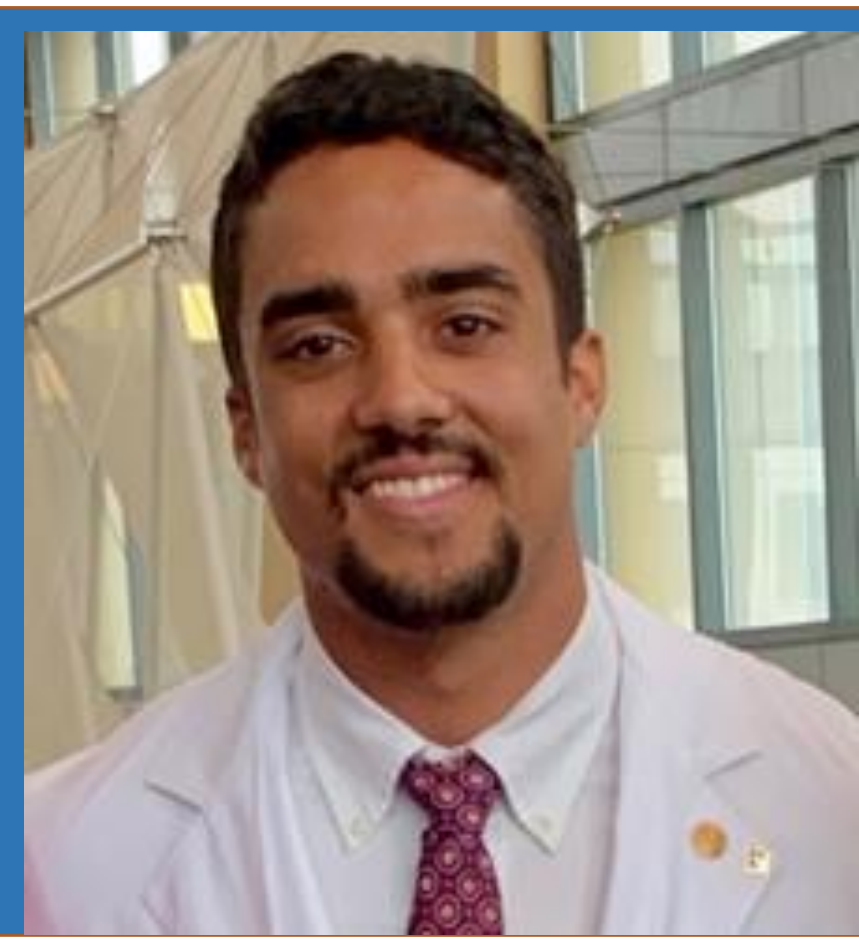


Association Between Parent-Reported Physical Activity and Caries

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INTRODUCTION

- Dental caries is the most prevalent preventable disease affecting children in the world today. In 2017, oral diseases affected approximately 47% of the world's population, with about 31% of people having untreated caries in permanent dentition and half a billion in primary dentition (Bernabe, et. al, 2020)
- Many factors have been proven to contribute to Early Childhood Caries (ECC), including diet, oral hygiene, and socioeconomic status. Years of research have demonstrated how caries experience in primary teeth is a predictor for future caries in permanent teeth. As permanent teeth begin to erupt into a child's oral cavity, the presence of primary teeth with carious lesions will place the newly erupting teeth in a "caries-promoting" environment (Skeie, et. al, 2006). Thus, ECC becomes a life-long compounding issue for our pediatric patients that may include future extensive dental restorations and financial investment.
- Obesity has many detrimental consequences physically; however, it also can negatively affect the psyche and self-esteem of a person leading to reduced willingness/receptiveness to health promoting behaviors, including oral health advice (Strauss, et. al, 2000)
- Caries and obesity are both multifactorial diseases sharing similar risk factors such as a harmful diet, socioeconomic conditions and lifestyle (i.e., physical activity)
- Although some studies have found a link between obesity and high caries prevalence, literature on this association has been contradictory; with both high and low Body Mass Index (BMI) showing an association with decaying teeth in children (Methuen et. al, 2021)
- A study by Tanner demonstrated that children who are overweight/obese have a high consumption of sugar sweetened beverages and fatty foods and subsequently develop dental problems (Tanner, et. al, 2019)
- The association between increased physical activity and decreased levels of obesity is believed not only to be due to an increased expenditure of calories, but also a reduction of negative behaviors that may associated with increased adipose tissue. It may also be theorized that these negative behaviors may also include oral health and caries promoting behaviors.
- The null hypothesis tested was that there is no association between reported physical activity and dental caries experience

PURPOSE

The aim of this study was to investigate the associations between self-reported physical activity and other health promoting behaviors as it relates to oral health in a population of pediatric patients in Lexington, Kentucky.

Survey questions and caries activity

Question	P-value
Hours of Daily Physical Activity vs. caries	P=.892
Participation in Team Sports vs. caries	P=.010
Hydration Beverage vs. caries	P=.210
Brushing Frequency vs. caries	P=.032
Screen Time vs. caries	P=.987

METHODS

Sample: 50 new or existing patients from the University of Kentucky Pediatric Dental Residency Clinic.

Design: Explanatory survey of new/existing patients receiving dental examination at the University of Kentucky Pediatric Dental Residency Clinic – KY Clinic Dentistry.

Eligibility Criteria: Eligibility criteria include: Children ages six-years-old to twelve-years-old, patients of record at the University of Kentucky Pediatric Dental Clinic, with unremarkable medical history (ASA I), up-to-date bitewing radiographs on file, and completed dental history on file, who visited the clinic for examination between January 1, 2023 to March 1, 2023. All patient data, including consent forms, are secured in UK's EHR system Epic.

Measures: Raw data that was extracted from the patient charts and dental history form including dmft/DMFT values and parent-reported survey regarding physical activity, recreational sports, methods of hydration, brushing/flossing frequency, screen time, etc.

Statistical analysis: A Quasi-Poisson regression model was performed. The significance level was set at $p=0.05$

Physical Activity Per Hour/Day

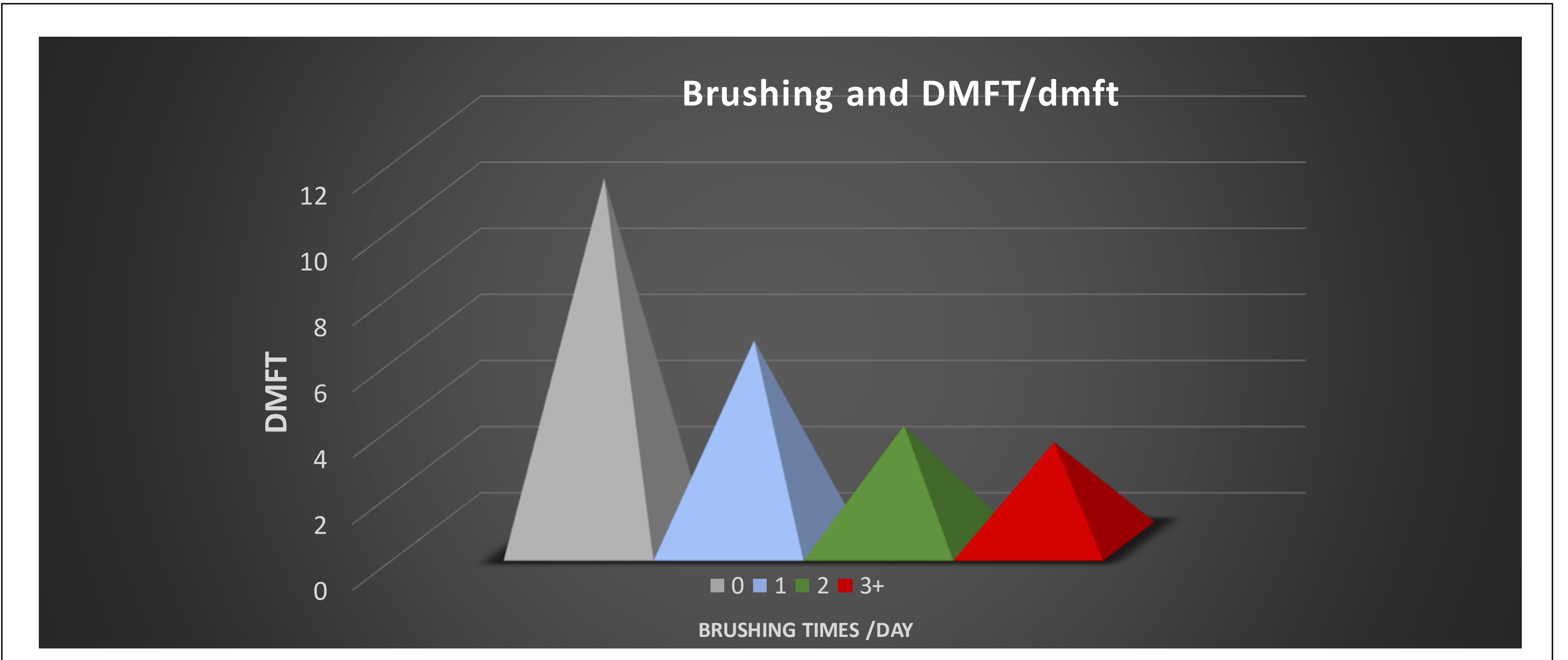
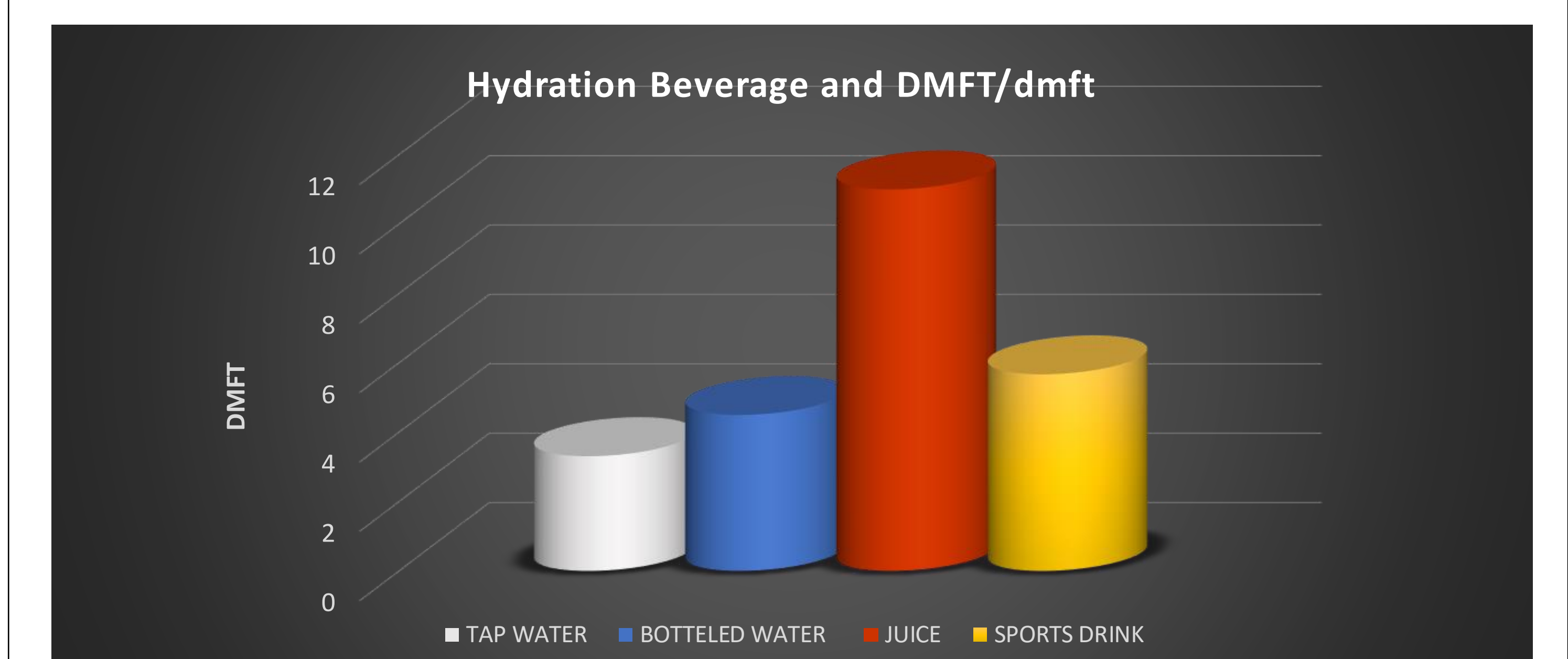
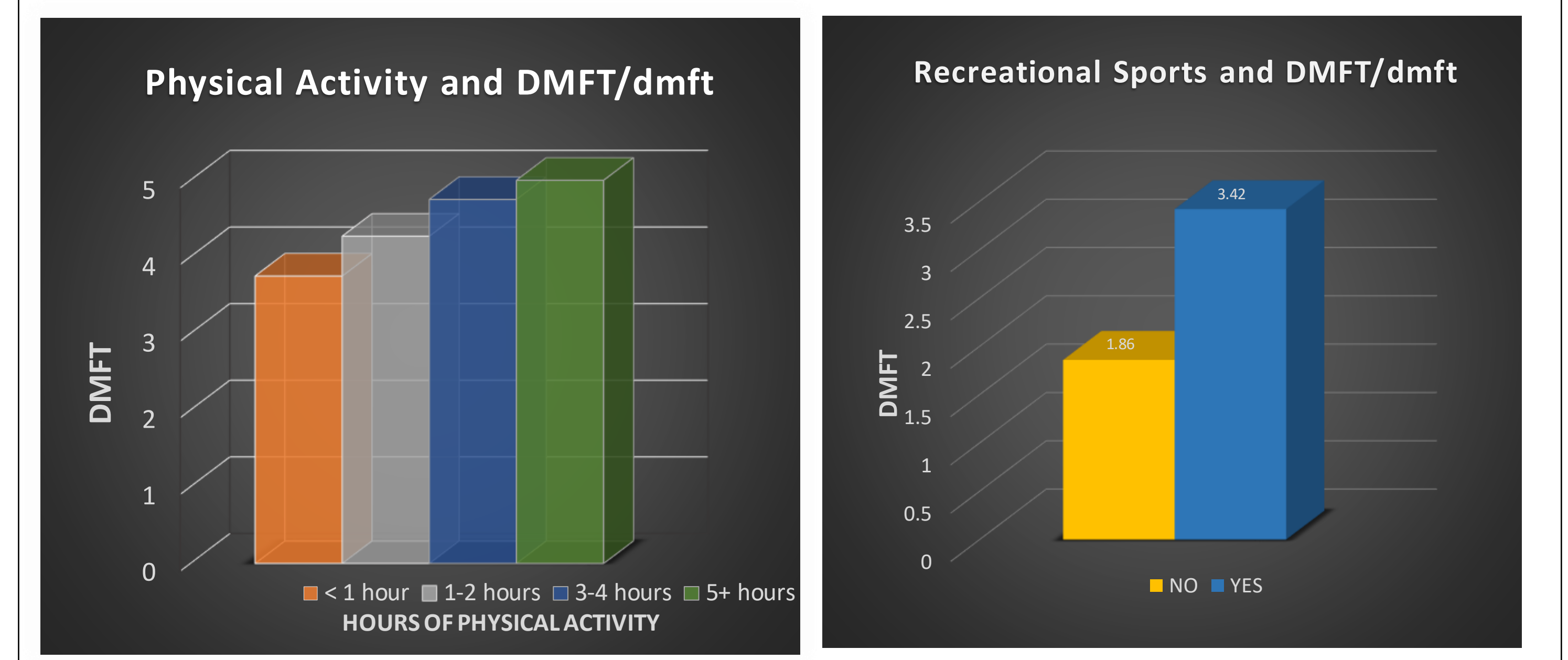
Hours/Day	Count	Mean	Percentage
< 1 hour	12	3.33	24%
1-2 hours	22	2.86	44%
3-4 hours	12	3.00	24%
5+ hours	4	2.50	8%



RESULTS

12 parents (24%) reported their child participated in less than 1 hour of physical activity per day, 22 (44%) reported 1-2 hours, 12 (24%) reported 3-4 hours, and 4 (8%) reported 5+ hours. There was a statistically significant relationship between DMFT/dmft score and participation in at least one team sport with a mean DMFT/dmft score of 2.43 in children who did not participate and 5.06 in children who did participate. ($p=.010$). A statistically significant relationship was found between number of times brushing per day and DMFT/dmft with patients reporting brushing 0 times a day having a mean score of 11, one time a day having a mean of 6.08, two times a day having a mean of 3.51 and 3+ times a day having a mean of 3.00 ($p=.032$).

DATA



CONCLUSION

The results show no statistical significance between frequency of physical activity and DMFT/dmft, in fact there were slightly higher mean scores for the more active groups (3-4 hours and 5+ hours). Another interesting finding was a statistically significant higher DMFT/dmft score for children participating in recreational sports. Possible explanations for these findings could be that other factors have more influence on DMFT/dmft such as diet and beverages, with more active children having less free time and higher caloric intake needs leading to increased snacking/meals containing highly processed foods.