A cross-sectional survey of current nutritional counseling practices and attitudes towards dairy among pediatric dentists.

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Abstract

Aims: This study sought to explore current dietary recommendations by pediatric dentists and to examine their attitudes toward sugar-sweetened milk.

Methods: A cross-sectional 13-item survey instrument was developed by an expert team and disseminated to 7,783 emails through Qualtrics from February 2-27, 2023. The question topics included 3 domains: nutritional guidelines, types of foods recommended, and the level of dairy counseling given to parents for their children. Descriptive statistics were used to evaluate responses.

Results: Out of 304 responses, 96.3% of pediatric dentists consider flavored milk to be a sugar-sweetened beverage (SSB). Nearly 65% of pediatric dentists refer to a USDA-published resource for nutritional recommendations. Only 12% of pediatric dentists routinely offer obesity counseling.

Conclusions: While pediatric dentists continue to provide nutritional counseling at a high capacity, they do not have a universal resource on which to base their recommendations. The majority of pediatric dentists also consider flavored milk to be a SSB, despite the current exclusion of flavored milk from SSB classification.

Keywords: Pediatric Dentist, Milk, Nutrients, Flavored milk

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Introduction

Nutritional counseling is an important tenet of care for pediatric healthcare providers. Likewise, pediatric dentists play a key role in providing parents with anticipatory guidance and preventative guidelines to combat dental caries. A large contributor to dental caries are sugar beverages. [1] Interestingly, milk is not considered an added-sugar or sugar-sweetened beverage (SSB) by the United States Department of Agriculture (USDA) nor the American Academy of Pediatric Dentistry (AAPD) even though it is one of the top contributors of added-sugar beverages in children ages 2-11 years old. [2-4] with this in mind, this study seeks to explore current nutritional counseling trends and attitudes toward milk beverages by pediatric dentists.

Currently, the dietary guidelines set forth by the USDA recommend children receive 2-3 cups of dairy milk per day, regardless of sugar content. Dairy milk has been made a nutritional requirement since it contains calcium, Vitamin A, and Vitamin D.[3] Milk starts to lose its nutritional value and flavor quality after just 2 hours of light exposure when packaged in clear high-density polyethylene (HDPE) containers.[5] It is important to note that dairy milk is not a major source of docosahexaenoic acid (DHA), the nutrient provided by human breast milk necessary for brain development in babies.[6,7] White milk is considered to have extrinsic sugar, but it does not fall under the “extrinsic sugar” category because it also contains casein protein, a protective factor against dental caries.[8] The casein content may have explained why a previous study of white bovine milk with 5% sucrose did not show a statistically significant cariogenic effect when compared to water. Despite insignificant results, the authors determined that white milk resulted in cariogenic changes to the enamel.[9] Comparatively, chocolate milk has been found to have as much as 13 teaspoons of added sugar per serving.[10] Therefore, one serving exceeds the recommendations by the American Academy of Pediatrics (AAP) for less than 6 teaspoons of added sugar per day for children.[11] A study based on NHANES 1999-2002 data found that the added sugar intakes were significantly higher in children ages 2-5 years who drank flavored milk compared to their peers who only drank plain milk.[12] Despite the high sugar content of chocolate milk, any type of milk is not considered an “added sugar beverage” by the USDA.[3] School-aged children choose flavored milk over white milk 70% of the time.[13] According to Al-Jobair and Khounganian[13] flavored milk is one of the top sources of added sugar among American children ages 2-11 years old. Likewise, flavored milk has been found to have significantly higher caries scores compared to plain milk in a murine model.

Other studies have also confirmed that flavored milk is associated with dental caries.[14] Pediatric dentists and pediatricians both play an important role in the care team of a child. Health professionals, including pediatric dentists, are trusted by American patients to be the most trustworthy source of nutritional information.[15] A study from 2005 found that pediatric dentists see more patients daily than pediatricians which creates many opportunities for pediatric dentists to engage in nutritional counseling with patients. Additionally, Sajnani-Oommen et al [8] found that 71% of pediatric dentists provided nutritional counseling during their patient visits. According to the Dietary Guidelines for Americans 2020-2025, children ages 2 through 4 years are not meeting the daily intake recommendations for vegetables, whole grains, seafood, nor dairy. At the same time, they are exceeding the daily intake recommendations for added sugar, saturated fat and sodium. In addition to the previous discrepancies, children ages 5 through 8 are not meeting the daily requirements for fruits.[3] Subsequently, pediatric dentists have a unique opportunity to influence and improve the diets of American children.[15] The objective of this study was to document current nutritional counseling practices by pediatric dentists in the United States. Beyond this, the study also assessed which resources are used to make dietary recommendations and it highlighted the role of dairy in the diets of patients and providers.

Methods:

This study was approved by the Institutional Review Board (IRB) of Augusta University (IRB #1935764-2). A listerv was obtained from the AAPD with 7,783 emails for the continental United States. An online cross-sectional survey questionnaire published by Qualtrics was sent to the emails with thirteen questions to evaluate nutritional counseling practices and attitudes toward dairy beverages. The demographicdata collected from this study included the location of residency and year of graduation from residency of the subjects. There were two questions to ascertain if the subject has provided direct patient care since residency and if they currently supervise patient care. Additional questions asked if the subject provides nutritional counseling to patients and if so, which guideline they refer to (USDA Healthy Plate, Dietary Guidelines for Americans, Bright Futures Guidelines, or “Other”).
The next question asked about the level of difficulty the subject has providing recommendations based on the guideline they use. A quantitative question asked what percentage of patients the subject provides nutritional counseling to (<20%, 40%, 60%, 80% or 100%). The subjects were asked about which types of dietary recommendations they provide, such as limiting SSBs or adding vitamin-rich foods to a child’s diet. Moreover, the subjects were asked to select which beverages they considered to be sugar-sweetened from a selection of sweet tea, fruit juice, soda, flavored dairy milk, white milk, or none of the options. Finally, the subjects were asked if they drink milk every day (dairy or non-dairy) and if they counsel parents on the amount of dairy given to their children. The survey was wrapped up with an inquiry into how effective the subject feels nutritional counseling is in reducing dental caries in their patients.

Both residents and pediatric dentists were included in this study, but those not actively practicing clinical Pediatric dentistry were excluded from it. The first email was sent on February 2, 2023 and a second reminder email was sent on February 16, 2023. The survey was closed on February 27, 2023. Statistics and graphic production were completed using JMP and Microsoft Excel. Responses that answered “no” to actively providing direct patient care or having a history of providing direct patient care were excluded from the results.

Results:

Figure 1 shows the number of respondents per geographic region. Most respondents were from the Northeast at 105 responses. The region with the fewest responses was the Southwest with twenty-three. Fifty-two percent of respondents graduated residency in 2010 or later. Moreover, 93% of the pediatric dentists are currently supervising patient care.

Among the different nutritional counseling services provided by all practicing pediatric dentists, direct counseling was the most popular type delivered to pediatric patients at an average of 84.8%. On average, 33.4% of pediatric dentists offered referrals to pediatricians or registered dietary nutritionists (RDN’s). Twenty-two percent provided nutritional counseling information through their website, while only 12% offered obesity screening. Only 11% of pediatric dentists did not provide any type of nutritional counseling services. Providers in the Southwest were providing the highest levels of referrals to physicians/dietitians and obesity screening.
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Figure 2: Types of nutritional counseling services provided by region.

*MD: Medical Doctor; RDN: Registered Dietician Nutritionist

Among the variety of publicly available nutritional guidelines, there was not a centrally agreed upon resource that pediatric dentists utilize. The most popular choice was “Healthy Plate” published by the USDA, with almost 35% of respondents claiming to use it. Considering that Both the Dietary Guidelines for Americans and Healthy Plate are published by the USDA, pediatric dentists refer to USDA-authored material for help 64.8% of the time.

Figure 3: Nutritional guidelines pediatric dentists refer to for their nutritional recommendations

One survey question assessed attitudes towards SSBs. Soda was the most popular answer choice with 98.3% of respondents agreeing that soda is an SSB. Ninety-seven percent agreed that sweet tea is an SSB. Fruit juice was also a top choice for an SSB at 96.3%. Most interestingly, flavored dairy milk was considered to be an SSB by 96.3% of pediatric dentists. Finally, 40.1% believe that white milk is an SSB.
Figure 4: Beverages considered sugar-sweetened beverages by pediatric dentists.

For the category of types of dietary recommendations given to pediatric patients and their caregivers, 97.5% of pediatric dentists recommend limiting added sugar snacks. The second-most common recommendation was to limit sugar-sweetened beverages (SSBs) at 95.5%. Forty-five percent would suggest adding vitamin-rich foods to patients’ diets.

Table 1: Types of dietary recommendations made by pediatric dentists

<table>
<thead>
<tr>
<th>What dietary recommendations do you make?</th>
<th>Percentage of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limit added sugar snacks</td>
<td>97.5%</td>
</tr>
<tr>
<td>Limit sugar-sweetened beverages</td>
<td>95.5%</td>
</tr>
<tr>
<td>Add vitamin-rich foods to child’s diet</td>
<td>45.5%</td>
</tr>
<tr>
<td>Other</td>
<td>19.0%</td>
</tr>
</tbody>
</table>

Discussion:

This study explored the current practices of nutritional counseling by pediatric dentists and revealed areas for overall improvement. Since nutrition arrives at a crossroads for dentistry and the general health of a patient, it is important to make sure guidelines are backed by high-quality evidence. Taking the time to document and analyze a child’s diet can reduce health disparities and improve long-term dental outcomes. Results of this study have shown that the majority of pediatric dentists are routinely evaluating nutrition. A study in 2006 found that 71% of pediatric dentists routinely provided nutritional counseling, while this study found that 84.8% of pediatric dentists currently offered nutritional counseling. Even though these results are promising, they do not show if dietary counseling is effective enough to cause dietary modifications by children and their caregivers. Current literature has inconclusive evidence concerning the effectiveness of nutritional counseling. A previous study demonstrated that a dietary counseling intervention was effective at reducing...
In-between meals and SSBs. Regardless of the success of nutritional counseling, the current national level of nutritional counseling indicates that pediatric dentists still value it as an important component of a patient’s treatment plan.

This study also highlighted that there is not a centrally agreed-upon resource that pediatric dentists use to make their nutritional recommendations. This study found that most of the nutritional materials that pediatric dentists use is based on recommendations from the USDA. Despite recommending Americans consume dairy every day, the guidelines fail to take into account that dairy has been linked to worsened asthma symptoms, elevated cholesterol, digestive issues, and an increased risk of cancer. [17–20] Again, the most surprising finding from this study was that most pediatric dentists consider flavored milk to be an SSB. This finding contrasts the current classification of flavored milk by the USDA which considers regular chocolate milk to not be SSB. [3] The findings of this study and the current classification by the USDA are not synchronous. Beyond the issue of the amount of added sugar in the diet of children, pediatric dentists could show improvement in recommending nutrient-dense and vitamin-rich foods. More marketing money is spent on promoting unhealthy foods in America ($1.7 billion) versus healthy foods ($80 million). [21] What’s more, 70% of the commercials that American children watch are for fast food, cereal, or candy. [22]

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Most notably, this survey highlighted a stark contrast between the national classification of milk and the current perceived cariogenicity of flavored milk by American pediatric dentists. The survey also collected a respectable amount of insight into the specific recommendations currently being delivered by pediatric dentists. On the other hand, the limitations of this study included a low response rate of 4%. Additionally, this study did not take into account the attitudes of non-clinical pediatric dentists. Responder bias may have been present in the questions which only accepted answers on a percentage spectrum. Future studies should explore the level of nutritional training that residents and pediatric dentists have acquired. Interventional studies could investigate the effect of nutritional counseling on modifying the consumption of SSBs in children’s diets. Additional clinical studies could also investigate the cariogenic potential of flavored milk.

Conclusion:

The following conclusions may be drawn from this study’s findings:
1. Pediatric dentists are continuing to provide nutritional counseling at a high frequency.
2. This study found that there is no central-agreed-upon resource for nutritional counseling.
3. A large majority of pediatric dentists believe that flavored milk is a SSB. The exclusion of flavored milk from the category of sugar-sweetened beverages may need to be reconsidered.
4. Pediatric dentists have room for improvement in regards to recommending vitamin-rich foods and obesity counseling.

The Authors:
References:


