Diet Quality, Added Sugar, and Dietary Fiber Intakes in American Preschoolers

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Abstract

Purpose: The purpose of this cross-sectional study was to examine the relationship between meeting the intake recommendations for added sugar (AS) and dietary fiber and overall diet quality in American preschoolers from different ethnic backgrounds.

Methods: Data from a nationally representative sample of preschoolers participating in the Continuing Survey of Food Intake by Individuals (CSFII) 1994-1996, and 1998 (n=5,437) were categorized into 3 groups: (1) meeting the recommendation for AS intake (≤10% of energy) and dietary fiber (14 g and 20 g in 2- to 3-year-olds and 4- to 5-year-olds, respectively; n=236); (2) meeting only 1 recommendation (n=1,502); and (3) meeting neither (n=3,699). Dietary AS and dietary fiber sources were ascertained. Mean energy intake, nutrient intake, and food group density were established within each category, and student's t test was employed to determine significant differences. Nutrient and food group density was also examined stratified by 4 distinct ethnic groups.

Results: Children meeting both recommendations had better diet quality but also higher energy intakes than children meeting only 1 or neither recommendation.

Conclusion: Most American preschoolers do not meet the dietary intake recommendations for AS and dietary fiber. Health professionals should work together to increase dietary fiber density and reduction of added sugar in the diets of preschoolers to improve diet quality and oral health. (Pediatr Dent 2006;28:164-171)

KEYWORDS: CHILD NUTRITION, DIET QUALITY, SUGAR INTAKE

Obesity and being overweight is a national epidemic. Overweight is defined as body mass index (BMI) of 25 to 29.9 BMI is calculated as weight in kilograms divided by the square of height in meters. Obesity is defined as a BMI of 30 or higher in adults. In children, overweight is represented by falling higher than the 85th percentile and obesity higher than the 95th percentile on the Center for Disease Control and Prevention (CDC) BMI-for-age growth charts.[1] Recent estimates based on the National Health and Nutrition Examination Survey (NHANES) 1999-2002 indicate that 65% of adults and 16% of children 6 to 18 years old are overweight or obese. This represents an increase of 16% in adults and 45% in children compared to prevalence rates from 1988-1994 (NAHNES III).[2,3] Although there is an overall increasing trend in overweight and obesity rates, certain ethnic groups appear to be at higher risk. More non-Hispanic African American and Hispanic children are overweight or obese compared to non-Hispanic Caucasian children.[4,5]

High body weight is the result of excessive energy intake along with inadequate energy expenditure. Sugar consumption has been suggested to contribute to high energy intakes[6,7] and is also associated with low diet quality[8] and dental caries.[9] It is estimated that 40% of children have tooth decay by the time they turn 6 years old.[10] Since most high sugar foods have low nutrient density, they are considered sources of "empty calories." Children from certain ethnic groups at high risk for becoming overweight or obese are also at higher risk for dental caries[11] and more likely to consume large amounts of added sugar.[12] Thus, limiting added sugar consumption in these children not only improves oral health, but also increases overall diet quality and prevents development of childhood obesity.

Total sugar in the diet is the sum of natural sugar and added sugar.[13] Natural sugars include all sugars occurring naturally in foods. Consequently, diets high in natural sugar could be expected to result in good diet quality. Added sugars are those added in the processing, cooking, or preparing of food and those added at the table. Much added sugar in the diet comes from foods that are also high in fat (eg, pastries and candies).

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National and international groups have issued recommendations for added sugar intake. The National Academy of Sciences (NAS) suggests limiting added sugar intake to 25% or less of total energy in the dietary reference intakes (DRIs) for macronutrients. This limit is based on evidence that added sugar consumption exceeding 25% of total calories may lead to dental caries, increased blood lipids, obesity, and coronary heart disease.[14] In the 1992 US Department of Agriculture's (USDA) Food Guide Pyramid, added sugar intake levels range between 6% to 10% of total energy.[15] The World Health Organization (WHO) also recommends limiting added sugar intake to less than 10% of total energy. In its most recent report from 2003, WHO suggests that sugar-sweetened beverages should be limited for children to reduce chronic diseases.[16]

The recently released MyPyramid includes added sugar in the framework of "discretionary calories."[17] This concept is based on the premise that individuals will satisfy their nutrient needs by choosing nutrient-dense foods. By doing so, they will have a variable amount of extra calories daily, which can be spent on "extra calories," such as consuming 2% milk instead of fat-free milk. The discretionary calories available for consumption of added sugar in an individual depend on the target total energy goal and the number of calories already spent on discretionary fat (eg, choosing dark meat over white poultry). Therefore, there is no set amount of added sugar that could be used to determine an appropriate added sugar intake limit in the MyPyramid. Based on the WHO recommendation for added sugar intake as well as previous studies on the effect of added sugar on diet quality,[8,18] the authors determined that limiting added sugar intake to less than 10% of total energy was the appropriate recommendation for added sugar intake in this study's preschool-age children.

In contrast to the effect of added sugar, dietary fiber consumption has been associated with decreased body weight status.[19] Children consuming large amounts of dietary fiber have been found to have better diet quality than children consuming less.[20] The DRIs for macronutrients recommend that American preschoolers consume 14 g of total fiber per 1,000 kilocalories (kcal) of total energy intake[14] to prevent cardiovascular disease and cancer as well as obesity and diabetes.[19,21-24]

Since very high dietary fiber intakes may result in constipation and decreased absorption of nutrients in the gut,[25] there have been discussions about children's fiber intake recommendations in the past. Suggested intakes range from 0.5 g per kg body weight[26] to the "age plus 5" rule,[27] endorsed by the American Academy of Pediatrics.[28] The "0.5g per kg body weight" and "age plus 5" rules are based on dietary fiber, while the DRIs were expressed as total fiber, the sum of dietary and functional fiber. Dietary fibers are naturally present, nondigestible carbohydrates and lignins found mainly in nutritious foods such as grains, legumes, fruits, and vegetables. Functional fibers, on the other hand, are fibers added to foods during the production process or provided as supplements. They are not found naturally in foods. One example for a substance that might be a dietary fiber as well as a functional fiber is inulin. Inulin naturally occurs in onions, but it is also synthetically produced and added to products, such as yogurt, as a functional fiber. On average, it is assumed that American adults and children consume about 5 g of functional fiber per day. According to their average energy intakes, the intake recommendation for dietary fiber in young children can be estimated to be 14 g per day (DRIs of 19 g per day minus 5 g of functional fiber) for 2- and 3-year-olds and 20 g per day (DRIs of 25 g per day minus 5 g functional fiber) in 4- and 5-year-olds.

To determine whether low added sugar and high dietary fiber intakes improved the diet quality of children from different ethnic backgrounds, the authors examined the dietary data of a nationally representative sample of American preschoolers age 2 through 5 stratified by ethnic group.

Methods

The 1994-1996 USDA CSFII survey data were collected using a stratified, multistage area probability sample to obtain a national representative sample of noninstitutionalized persons living in households. Day 1 of dietary intake was collected via a household interview, whereas day 2, which was collected 3 to 10 days after day 1 but not on the same day of the week, could be reported during a phone interview. Interview respondents reported diets of children under 6. In 1998, the same methods were used for a supplemental survey in children for a combined data set including all survey waves (CSFII 1994-1996 and 1998; N=21,662). A description of the study design can be found in Tippet et al.[29]

For the purpose of this study, the authors used average intake for children who provided 2 days of dietary intake data (N=5,686). Children that were breast-fed (N=10), those for whom no head of household information was provided (N=24), or who had missing sociodemographic variables (N=215) were excluded, resulting in a final sample size of 5,437. Sociodemographic information, such as age, race, gender, female head of household's education and employment status, children's daycare/school attendance, and total household income was ascertained during the survey. The head of household was the person identified by the interview respondent as the male or female person in charge of the house. In this study, education and employment data of the female head of household was used as a proxy for mothers, with the exception of 57 children who did not have a female head of household. In those cases, the information of the male head of household was substituted. Education was provided in years of schooling and categorized into less than high school (<12 years of school), high school (12 years of school), and more than high school (>12 years of school). Employment status was coded once as employed or not employed. To capture cultural differences, the variables race (black, white, and other) and Hispanic origin (from the Mexican, Puerto Rican, Cuban, other Spanish

subgroups, or not) were recoded to define 4 distinct ethnic groups: (1) non-Hispanic white; (2) non-Hispanic black; (3) non-Hispanic other; and (4) Hispanic. Referent were non-Hispanic other and Hispanic. Similar coding has been employed by other researchers.[30]

As described by Welsh et al,[15] an added sugar category was developed for the CSFII *Pyramid Servings* dataset to capture all caloric carbohydrate sweeteners (monosaccharides, disaccharides, and higher saccharides). Included were all sugars and sugar-containing ingredients added during processing or preparation, sugars eaten separately (candy), or sugars added at the table (syrups, white or brown sugar, etc.). Naturally occurring sugars (such as fructose in fruits) were excluded.[31]

Descriptive analysis, means, and standard errors, were ascertained to describe the sample. Main sources of added sugar consumption were acquired using the food grouping system developed by Popkin et al.[32] Analysis was conducted for 3 mutually exclusive groups of children:

1. Children meeting the recommendation for added sugar intake (≤10% of energy from added sugar) and dietary fiber (14 g or more per day in 2- to 3-year-olds and at least 20 g per day in 4- to 5-year-olds (N=236);
2. Children meeting either the recommendation for added sugar or dietary fiber (N=1,502); and
3. Children not meeting either recommendation (N=3,699). Descriptive analysis, means, and standard errors were ascertained to describe the sample. Mean and standard error of average nutrient and food group consumption as well as nutrient density (nutrient of food group consumption per 1,000 kcal average energy intake) was calculated. Average energy intake as well as nutrient and food group density was established for each category of meeting or not meeting the recommendations for added sugar and dietary fiber intakes. Significant differences between group means were determined using student's *t* test (significance level of $P<.01$). The statistical package used for analysis was STATA (version 8.2,[33] STATA Corp, College Station, Tex) Analyses were adjusted for sample design effect and weighted to maintain the national representative character of the data. Huber correction was employed to correct estimates for multiple children from one household.[34]

Results

Half the children in the sample were girls and approximately a quarter was in each age group. Approximately 48% were in the Special Supplemental Nutrition Program for Women Infants and Children (WIC)-eligible income group, and 35% were food stamp eligible. More than 60% of the children were non-Hispanic white, and lived in households with an income below the 185% poverty line (Table 1). Of the sample:

1. 236 children met the recommendations for added sugar and dietary fiber;
2. 1,092 met the recommendation for added sugar, but not for fiber;
3. 410 did not meet the recommendation for added sugar, but did meet it for dietary fiber; and
4. 3,699 did not meet either recommendation.

Although most of the children did not meet either recommendation, only 55% of the non-Hispanic others fell into this category, compared to 71% of the non-Hispanic whites. Of the whole population, the largest proportion of children meeting both of the recommendations were Hispanic (6.2%) compared to non-Hispanic black, white, and other (4%, 4%, and 4% respectively; data not shown).

Fruit drinks, high-fat desserts, and soft drinks accounted for 43% of the added sugar intake in children. Thirty-five percent of dietary fiber was from low-fiber fruits, soy and legumes, ready-to-eat cereals, mixed dishes (such as pizza), and

Table 1. Sociodemographic Characteristics of the Sample (N=5,437)

Sociodemographic variables		Total sample % (n=5,437)
Gender (n=5,437)	Girls	49
	Boys	51
Child's age (n=5,437)	2 ys	25
	3 ys	25
	4 ys	25
	5 ys	25
Ethnicity (n=5,437)	Hispanic	6
	Non-Hispanic Caucasian	62
	Non-Hispanic African Amercan	16
	Non-Hispanic other	16
Income level (n=5,427)	<185% of poverty	45
	185-350% of poverty	30
	>350% of poerty	25
Education (n= 5,623)*	<12 ys	18
	High school	32
	>12 ys	50
Employment (n=5,605)*	No	40
	Yes	60
Daycare/school (n=5,579)	No	50
	Yes	50

*Female head of household.

salty snacks (data not shown). Children meeting the added sugar and dietary fiber recommendation had significantly higher total energy intakes than children not meeting either recommendation. Children meeting only one of the recommendations also had significantly higher energy intakes than children not meeting either recommendation (Table 2).

Nutrient and food group density in the diets of children varied by ethnic group and whether they met both, one, or neither of the recommendations for added sugar and dietary fiber (Table 3). Children meeting both recommendations had better diet quality, in that they had lower added sugar and total and saturated fat intakes, but a higher density of nutrients (iron, folate, calcium) and food groups (grains, whole grains, fruits, vegetables, and dairy). Within the group of children meeting both recommendations, Hispanic children had the highest added sugar and dietary fiber intake, while consuming diets with the lowest density of grains and whole grains.

Discussion

This study examined a nationally representative sample of American preschoolers to determine the effect of meeting the dietary intake recommendation for added sugar and dietary fiber on diet quality in different ethnic groups of 2- to 5-year-old children. Significant differences were found in diet quality between children in those groups. Examination of the effect of ethnic background on diet quality revealed that children from minority populations were more likely to consume diets with lower diet quality than non-Hispanic white children.

The main sources of dietary fiber and added sugar were determined. This study's findings confirm those of others, who determined that American children derive large amounts of added sugar from sweetened beverages.7 Surprisingly, children did not consume high-fiber foods, but rather large amounts of low-fiber foods. Thus, children meeting the DRIs for fiber were eating more. Hence, they had a higher average energy intake compared to children who did not meet the fiber recommendation. Despite the increase in total energy, higher fiber intakes have been found to be associated with better diet quality in preschoolers.20

Contrary to others, the authors did not find that non-Hispanic black children consumed lower amounts of dietary fiber than non-Hispanic white children.35 Hispanic children consumed diets with the highest dietary fiber density—indicating the importance of cultural and traditional foods, which are large sources of fiber, such as rice and beans. To improve fiber density in the American preschool population, easy-to-prepare good fiber sources, such as high-fiber cereals, whole grain bread, pasta, or rice, or canned beans should be suggested to the caretakers of preschool-age children.

As expected, the authors observed that average consumption of fruits, vegetables, and grains significantly increased when at least one intake recommendation was met. Macro- and micronutrient density also changed with decreasing added sugar and increasing fiber intake. The consumption of carbohydrates increased and intake of fat significantly decreased. This reciprocal relationship, the "carbohydrate-

Table 2. Energy, Nutrient, and Food Group Intakes of Children by Categories of Meeting the Dietary Reference Intakes for Added Sugar and Dietary Fiber

	Meeting both recommendations (±SE) (n=236)	Meeting 1 recommendation (±SE) (n=1,502)	Meeting neither recommendation (±SE) (n=3,699)
Total energy (kcal/d)*	1,869.9±42.2	1,586.7±18.2	1,526.0±9.2
Protein density (g/1,000 kcal)†$	38.7±0.5	38.4±0.2	34.2±0.1
Fat density (g/1,000 kcal)†‡	34.8±0.5	36.8±0.2	35.6±0.1
Saturated fat density (g/1,000 kcal)*	12.8±0.2	14.2±0.1	13.4±0.1
Cholesterol density (mg/1,000 kcal)†	123.0±5.5	137.0±2.5	118.8±1.4
Iron density (mg/1,000 kcal)*	9.3±0.2	8.5±0.1	7.7±0.1
Folate density (µg/1,000 kcal)*	193.1±4.5	175.3±2.2	155.4±1.2
Calcium density (mg/1,000 kcal)†$	572.1±14.3	592.6±7.0	508.3±4.0
Grain servings/1,000 kcal*	4.8±0.1	4.3±0.0	3.9±0.0
Whole grain servings/1,000 kcal*	1.4±0.1	0.7±0.0	0.6±0.0
6 oz juice servings/1,000 kcal†$	0.9±0.1	0.8±0.0	0.5±0.0
Fruit servings/1,000 kcal*	1.3±0.1	1.0±0.0	0.7±0.0
Vegetable servings/1,000 kcal*	2.0±0.1	1.6±0.0	1.4±0.0
Dairy servings/1,000 kcal†‡	1.3±0.1	1.5±0.0	1.2±0.0

*Significant difference (P<.01) between all groups.
†Significant difference between children meeting one recommendation and children not meeting either recommendation.
‡Significant difference between children meeting both recommendations and those meeting only one recommendation.
$Significant difference between children meeting both recommendations and children meeting neither recommendation.

Table 3a. Nutrient and Food Group Density by Added Sugar, Fiber Recommendations, and Ethnicity

Children who met added sugar and fiber dietary reference intakes (DRIs)

Nutrient/food group density*	Non-Hispanic white	Non-Hispanic black	Hispanic	Non-Hispanic other
	Mean±SE	Mean±SE	Mean±SE	Mean±SE
Energy (kcal/d)	1898.1±59.8	1812.9±97.6	1825.6±74.0	1946.6±172.5
Added sugar	4.18±.15	3.92±.26	4.37±.23	4.19±.42
Protein	38.51±.69	39.53±1.28	38.82±.78	37.72±1.34
Total fat	35.03±.76	34.92±1.46	34.26±.82	34.02±1.92
Saturated fat	12.74±.34	13.16±.67	12.70±.35	12.49±.69
Cholesterol	108.66±6.67	131.16±13.29	140.78±13.12	169.54±21.87
Iron	9.29±.31	9.67±.75	9.16±.41	9.33±.57
Folate	184.69±5.95	177.78±10.86	218.90±9.31	212.85±14.74
Fiber	10.53±.27	10.48±.41	12.31±.56	10.23±.75
Calcium	597.95±21.21	529.56±30.87	566.25±21.67	450.40±59.07
Food groups				
Total grain	4.81±.12	5.55±.31	4.22±.21	4.55±.25
Whole grain	1.41±.12	1.72±.22	1.00±.12	1.28±.27
Juice	0.94±.11	1.00±.24	0.74±.13	0.40±.18
Fruits	1.33±.10	1.21±.18	1.29±.15	1.91±.48
Vegetables	1.91±.11	1.93±.24	2.36±.22	1.76±.26
Dairy	1.34±.08	1.17±.11	1.30±.06	0.90±.15

*Micrograms, milligrams, or grams of nutrient or number of servings per 1,000 kcal of total energy per day.

Table 3b. Nutrient and Food Group Density by Added Sugar, Fiber Recommendations, and Ethnicity

Children who met either added sugar or fiber DRIs

Nutrient/food group density*	Non-Hispanic white	Non-Hispanic black	Hispanic	Non-Hispanic other
	Mean±SE	Mean±SE	Mean±SE	Mean±SE
Energy (kcal/d)	1569.1±23.4	1717.3±50.9	1615.8±39.6	1366.8±56.7
Added sugar	6.07±.16	6.53±.35	5.60±.19	4.35±.32
Protein	37.63±.32	38.46±.64	39.80±.45	40.31±.76
Total fat	36.70±.34	38.27±.60	36.49±.43	35.00±.81
Saturated fat	14.26±.17	14.00±.32	14.43±.25	14.09±.37
Cholesterol	120.73±2.95	140.87±6.18	169.81±6.44	156.95±8.94
Iron	8.36±.13	9.07±.27	8.52±.19	7.94±.25
Folate	168.69±2.88	168.67±5.24	190.51±4.59	195.47±9.29
Fiber	7.60±.11	7.81±.27	8.04±.18	6.97±.29
Calcium	619.08±9.25	475.04±14.83	607.91±15.61	611.09±20.96
Food groups				
Total grain	4.36±.07	4.24±.10	3.99±.09	4.48±.16
Whole grain	0.85±.03	0.67±.05	0.54±.04	0.49±.07
Juice	0.94±.06	0.79±.12	0.60±.06	0.78±.12
Fruits	1.06±.03	0.86±.07	0.96±.05	1.05±.10
Vegetables	1.50±.04	1.79±.11	1.63±.07	1.64±.11
Dairy	1.54±.03	1.04±.05	1.53±.06	1.58±.08

*Micrograms, milligrams, or grams of nutrient or number of servings per 1,000 kcal of total energy per day.

Table 3c. Nutrient and Food Group Density by Added Sugar, Fiber Recommendations, and Ethnicity

(c) Children who met neither added sugar nor fiber DRIs

Nutrient/food group density*	Non-Hispanic white	Non-Hispanic black	Hispanic	Non-Hispanic other
	Mean±SE	Mean±SE	Mean±SE	Mean±SE
Energy (kcal/d)	1522.7±10.6	1548.7±25.7	1531.7±27.5	1469.6±44.0
Added sugar	11.90±.11	11.49±.21	11.68±.26	11.04±.40
Protein	33.83±.17	34.57±.35	35.28±.44	35.10±.69
Total fat	35.24±.16	37.08±.36	35.50±.40	34.65±.60
Saturated fat	13.33±.08	13.57±.16	13.55±.18	12.99±.30
Cholesterol	107.11±1.52	130.83±3.52	154.80±4.78	127.02±5.69
Iron	7.62±.06	8.06±.15	7.63±.14	7.26±.21
Folate	152.97±1.39	156.71±2.87	163.75±3.58	159.06±5.57
Fiber	6.35±.05	6.23±.11	6.49±.13	6.31±.21
Calcium	530.02±4.72	435.44±8.04	500.29±12.94	494.64±19.10
Food groups				
Total grain	4.01±.03	3.92±.07	3.67±.07	4.08±.12
Whole grain	0.60±.02	0.54±.04	0.42±.03	0.48±.05
Juice	0.53±.02	0.48±.05	0.38±.04	0.35±.06
Fruits	0.67±.01	0.60±.03	0.68±.04	0.71±.06
Vegetables	1.29±.02	1.53±.05	1.39±.05	1.53±.11
Dairy	1.27±.02	0.95±.03	1.19±.04	1.20±.07

*Micrograms, milligrams, or grams of nutrient or number of servings per 1,000 kcal of total energy per day.

fat see-saw" has been previously described.36-39 Intake of protein was only significantly different between the group that met both and the group that met neither of the recommendations.

As the authors have shown previously, children with added sugar intakes above 25% of total energy presented with lower diet quality compared with children who consumed less than 10% of total energy from added sugar. In particular, consumption levels of fat and calcium, as well as numbers of servings from grains, vegetables, fruits, and dairy, decreased with increasing added sugar intakes.[8]

Increasing added sugar consumption is likely to cause the dilution of nutrients,[40-42] due to the fact that the main food source of added sugar are foods with low micronutrient density.[38,43] The limitation of added sugar intake, however, could result in higher nutrient dense diets. Thus, children who met both intake recommendations were the most likely to present with the highest quality diets.

A study reporting estimates for dietary intake in a nationally representative US sample showed a steady decline in the quality of children's diets over 2 decades, from 1977 to 1996. There were increases in children's intake from salty snacks, soda, and pizza, as well as the number of meals eaten away from home.[44] In addition, children's consumption of sugar-sweetened beverages is steadily increasing. This may contribute to the decline in the quality of children's diets and has been postulated to contribute to the development of obesity in children.[45] This is problematic, as children's preferences for sugar and fat[46] are often at odds with dietary guidelines that recommend limited intakes of sugars and fats, and a larger proportion of foods from the fruit, vegetable, whole-grain, and low-fat dairy groups.[47,48] Children naturally prefer sweet and salty tastes and tend to reject bitter and sour foods such as vegetables.[49,50] Thus, parents and caretakers of children have the difficult task of bringing children's diets in line with recommendations while trying to contend with children's food preferences. Additionally, added sugars are not identified separately on food labels. Thus, it is currently still not possible to distinguish the natural and the added sugar content in food products.[51]

Dietary intake behaviors established in childhood track over time, thus establishing a diet high in added sugar and low in dietary fiber during childhood might affect oral health and the development of chronic diseases later in life.[52] This development is likely confounded by sociodemographic variables in 2 distinct ways. First ethnic background is a predictor for dietary intake habits.[47] For instance, non-Hispanic children have been found to consume higher levels of added sugar than Hispanic children.[12] Secondly, individuals of certain ethnic and socioeconomic backgrounds are at higher risk for dental caries or chronic diseases, due to genetic factors or lack of education on oral health practices.[11]

This study was limited by the fact that children's diets were reported by proxy and were, therefore, prone to incomplete or biased information. This limitation in the

data collection in preschool children has been acknowledged by the research community and is tolerated until more accurate measurement methods have been developed for free-living children.[53] The authors used a large, nationally representative sample of American preschoolers, however, and only included children with 2 days of dietary intake, which increased the precision of this study's average intake estimates.

This study's results strongly indicate that children with diets meeting the WHO recommendation for added sugar and the DRIs for dietary fiber have better diet quality and might be at lower risk for dental caries and chronic diseases later in life than children who met only one or neither of the recommendations. Children from certain ethnic groups appear to be at especially higher risks for not meeting recommendations for added sugar and dietary fiber intake and might be more prone to adverse health effects.

Conclusion

There is an urgent need to develop public health messages to provide information, especially to minority families, on high-fiber sources and possible ways to introduce high-fiber foods into their preschooler's diets while reducing the amount of added sugar in their diets simultaneously.

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