



Food Surveys Research Group
Dietary Data Brief No. 18
May 2017

Added Sugars Intake of Americans: What We Eat in America, NHANES 2013-2014

Shanthy A Bowman, PhD; John C Clemens, MS; Carrie L Martin, MS, RD;
Jaswinder Anand, BS; Lois C Steinfeldt, MPH; and Alanna J Moshfegh, MS, RD

Highlights

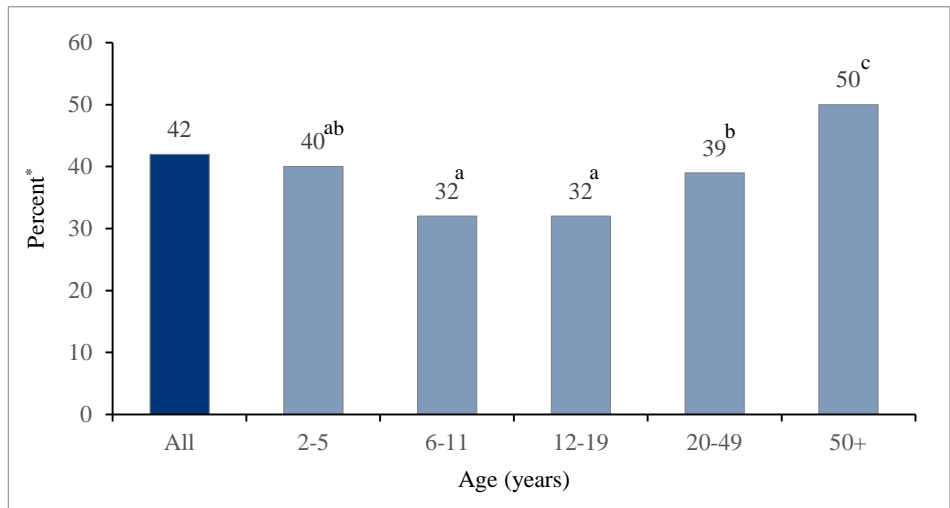
- Forty-two percent of Americans, 2 years and over, met the 2015-2020 DGA recommendation for added sugars by limiting added sugars intake to less than 10% of daily calories.
- Adults are more likely than children to meet the added sugars recommendation (44% vs. 33%).
- On average, those who met the DGA recommendation consumed 6.7 tsp. eq. (28 g) of added sugars, and those who did not consumed 25.1 tsp. eq. (105 g). [1 tsp. eq. of added sugars=4.2 grams of sugars]
- A high percentage (60%) of Asians and a low percentage (31.8%) of non-Hispanic Blacks met the recommendation.
- Household income status did not affect the percentage of children meeting the recommendation.

The Dietary Guidelines for Americans 2015-2020 (DGA) recommend that Americans limit their added sugars intake to less than 10 percent of daily calories and increase their fruit, vegetables, and whole grains intakes [1]. This report compares the intakes of selected USDA Food Patterns food groups by Americans who meet the DGA recommendation for added sugars with that of those who do not meet the recommendation, using What We Eat in America (WWEIA), NHANES 2013-2014, day 1 dietary data and the Food Patterns equivalents data (N=8066) [2, 3].

What percent of Americans meet the DGA added sugars recommendation?

Forty-two percent of Americans, 2 years and over, met the DGA added sugars recommendation. Overall, significantly more adults, 20 years and over, met the recommendation than children 2-19 years (44% vs. 33%, $p < 0.01$) (data not shown in Figure 1).

Figure 1. Estimated percentage* of Americans meeting the DGA 2015-2020 added sugars¹ recommendation by age, WWEIA, NHANES 2013-2014



¹ Limiting added sugars intakes to less than 10 percent of daily calories

*Percentages rounded to integers

Means with same superscripts are not significantly different from each other at $p < 0.01$; Superscript *a* is used for children comparisons and *b* and *c* are used for comparison between adult age groups.

DATA SOURCE: WWEIA, NHANES 2013-2014, day 1, individuals 2+ years and FPED 2013-2014



U.S. DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Beltsville Human Nutrition Research Center
Food Surveys Research Group

www.ars.usda.gov/nea/bhnrc/fsrg

How do the USDA Food Patterns intakes compare by added sugars intake status?

The estimated mean intake of added sugars was 17.4 teaspoon equivalents (tsp. eq.) or 73 grams, for all individuals 2+ years (data not shown in table). The estimated mean intakes of added sugars was 6.7 tsp. eq. or 28 grams for those meeting the DGA recommendation and 25.1 tsp. eq. or 105 grams for those who did not meet the recommendation (Table 1).

Among children, those who met the recommendation had higher intakes of total fruit and whole grains, compared with those who did not meet the recommendation. Among adults, those who met the recommendation had a lower energy intake but higher intakes of total vegetables, total fruit and whole grains, compared with those who did not meet the recommendation. This finding showed that the adults who met the recommendation consumed more of nutritious foods such as vegetables, fruit, and whole grains per calorie than the other group that consumed lower amounts of these foods, but more calories.

Table 1. Estimated mean intakes of energy, added sugars, and selected Food Patterns food groups by age and added sugars intake status, WWEIA, NHANES 2013-2014

Age Group (years)	Food Patterns Group	Added sugars intake status	
		< 10% total calories	≥10 % total calories
2-19	Energy (calories)	1812	1922
	Added sugars (tsp. eq.)	6.7	22.1*
	Total vegetables (cup eq.)	1.0	0.9
	Total fruit (cup eq.)	1.4	0.8*
	Whole grains (oz. eq.)	1.0	0.8*
20 and over	Energy (calories)	2045	2218*
	Added sugars (tsp. eq.)	6.6	26.3*
	Total vegetables (cup eq.)	1.7	1.4*
	Total fruit (cup eq.)	1.1	0.7*
	Whole grains (oz. eq.)	1.1	0.7*
All	Energy (calories)	2000	2136*
	Added sugars (tsp. eq.)	6.7	25.1*
	Total vegetables (cup eq.)	1.6	1.2*
	Total fruit (cup eq.)	1.2	0.8*
	Whole grains (oz. eq.)	1.1	0.7*

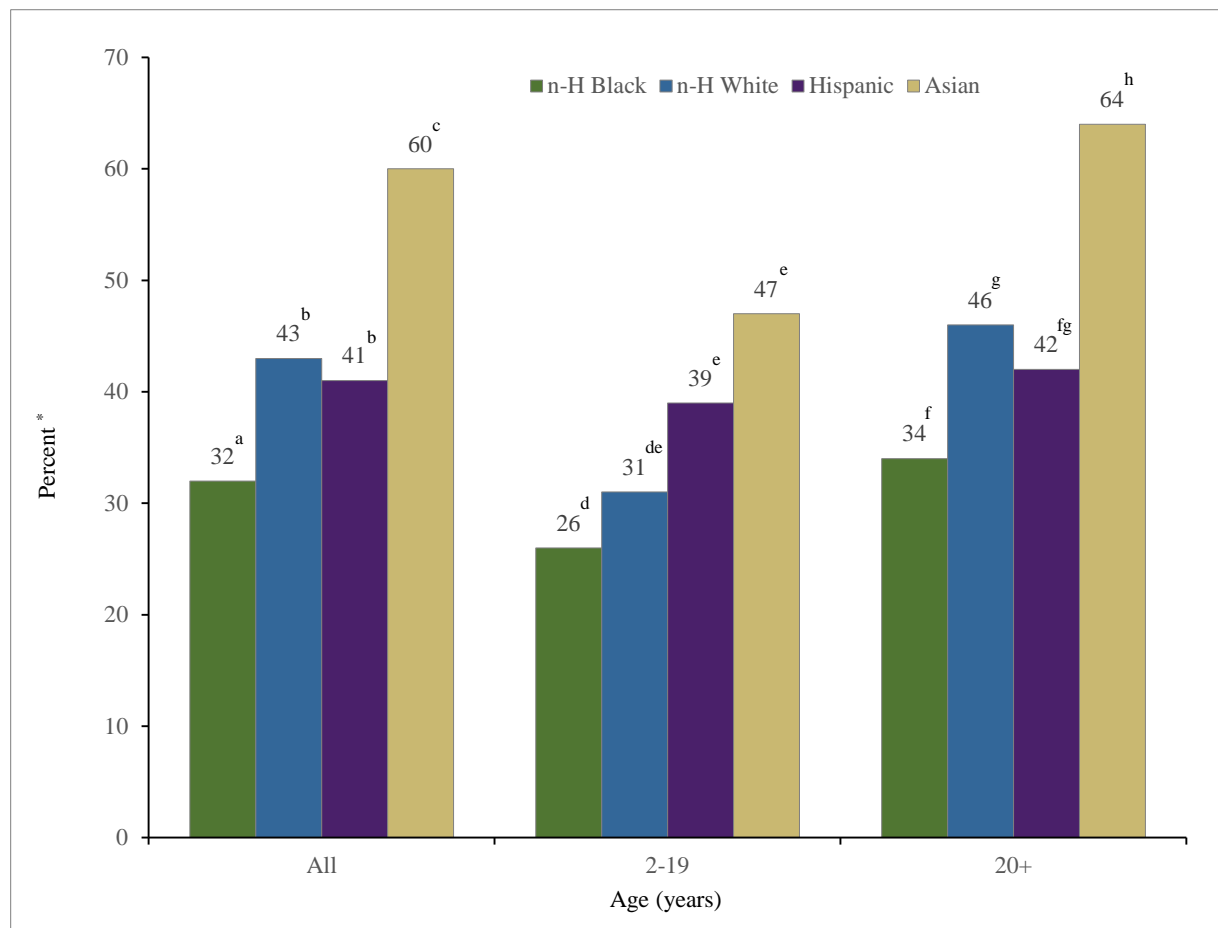
* Means significantly different from those consuming < 10% of total calories from added sugars (p<0.01)
 tsp. eq.= teaspoon equivalents; cup eq.=cup equivalents; oz. eq.=ounce equivalents. 1 tsp. eq. of added sugars=4.2 grams of sugars
 DATA SOURCE: WWEIA, NHANES 2013-2014, day 1, individuals 2+ years and FPED 2013-2014

How do the race-ethnic groups fare in meeting the recommendation?

Asians had the highest percentage (60%) and non-Hispanic Blacks had the lowest percentage (32%) of individuals 2+ years meeting the added sugars recommendation; and no significant differences were noted between non-Hispanic Whites and Hispanics. A lower percentage of non-Hispanic Black (n=753) children met the recommendation as compared with Hispanic and Asian children. No statistical differences were seen among non-Hispanic White (n=811), Hispanic (n=997), and Asian (n=264) children, which may be due to the small sample size of Asian children. A lower percentage of non-Hispanic Black adults met the recommendation as compared with non-Hispanic White and Asian adults.

Further comparisons between adults and children within each race-ethnic group showed, except for Hispanics, significantly ($p < 0.01$) smaller percentage of children than adults met the recommendation (data not shown in Figure.2), underscoring the need to limit added sugars intake, starting at childhood.

Figure 2. Estimated percentage* of children and adults meeting the DGA 2015-2020 added sugars recommendation¹, by race-ethnicity, WWEIA, NHANES 2013-2014



¹ Limiting added sugars intakes to less than 10 percent of daily calories

* Percentages rounded to integers.

Means with same superscripts are not significantly different from each other at $p < 0.01$; superscripts: All (a,b,c); 2-19 (d,e); 20+ (f,g,h)

DATA SOURCE: WWEIA, NHANES 2013-2014, day 1, individuals 2+ years and FPED 2013-2014

How do the USDA Food Patterns intakes compare within race-ethnic groups?

Table 2 compares selected Food Patterns intakes within race-ethnicity based on added sugars intake status. Non-Hispanic Whites who met the recommendation had higher intakes of vegetables, fruit, and whole grains than their counterparts. Non-Hispanic Blacks who met the recommendation had more total fruit; Hispanics had more total fruit and whole grains; and Asians had more total vegetables and whole grains than those who did not meet the recommendation.

Hispanics and non-Hispanic Blacks who did not meet the recommendations had a more energy dense eating pattern than their counterparts by consuming significantly more calories but less of nutritious foods such as fruit, vegetables, and whole grains.

Table 2. Estimated mean intakes of energy, added sugars, and selected Food Patterns food groups by race-ethnicity and added sugars intake status, WWEIA, NHANES 2013-2014

Race-Ethnicity	Food Patterns Group	Added sugars intake status	
		< 10% total calories	≥10 % total calories
non-Hispanic White	Energy (calories)	2028	2119
	Added sugars (tsp. eq.)	6.8	25.2*
	Total vegetables (cup eq.)	1.6	1.3*
	Total fruit (cup eq.)	1.1	0.7*
	Whole grains (oz. eq.)	1.1	0.8*
non-Hispanic Black	Energy (calories)	1962	2213*
	Added sugars (tsp. eq.)	6.6	26.8*
	Total vegetables (cup eq.)	1.3	1.1
	Total fruit (cup eq.)	1.1	0.8*
	Whole grains (oz. eq.)	0.9	0.7
Hispanic	Energy (calories)	1989	2183*
	Added sugars (tsp. eq.)	6.7	24.4*
	Total vegetables (cup eq.)	1.4	1.3
	Total fruit (cup eq.)	1.4	0.9*
	Whole grains (oz. eq.)	0.9	0.5*
Asian	Energy (calories)	1786	1955
	Added sugars (tsp. eq.)	5.0	18.8*
	Total vegetables (cup eq.)	1.8	1.3*
	Total fruit (cup eq.)	1.2	1.1
	Whole grains (oz. eq.)	1.4	0.7*

* Means significantly different from those consuming < 10% of total calories from added sugars (p<0.01)

tsp. eq.= teaspoon equivalents; cup eq.=cup equivalents; oz. eq.=ounce equivalents. 1 tsp. eq. of added sugars=4.2 grams of sugars

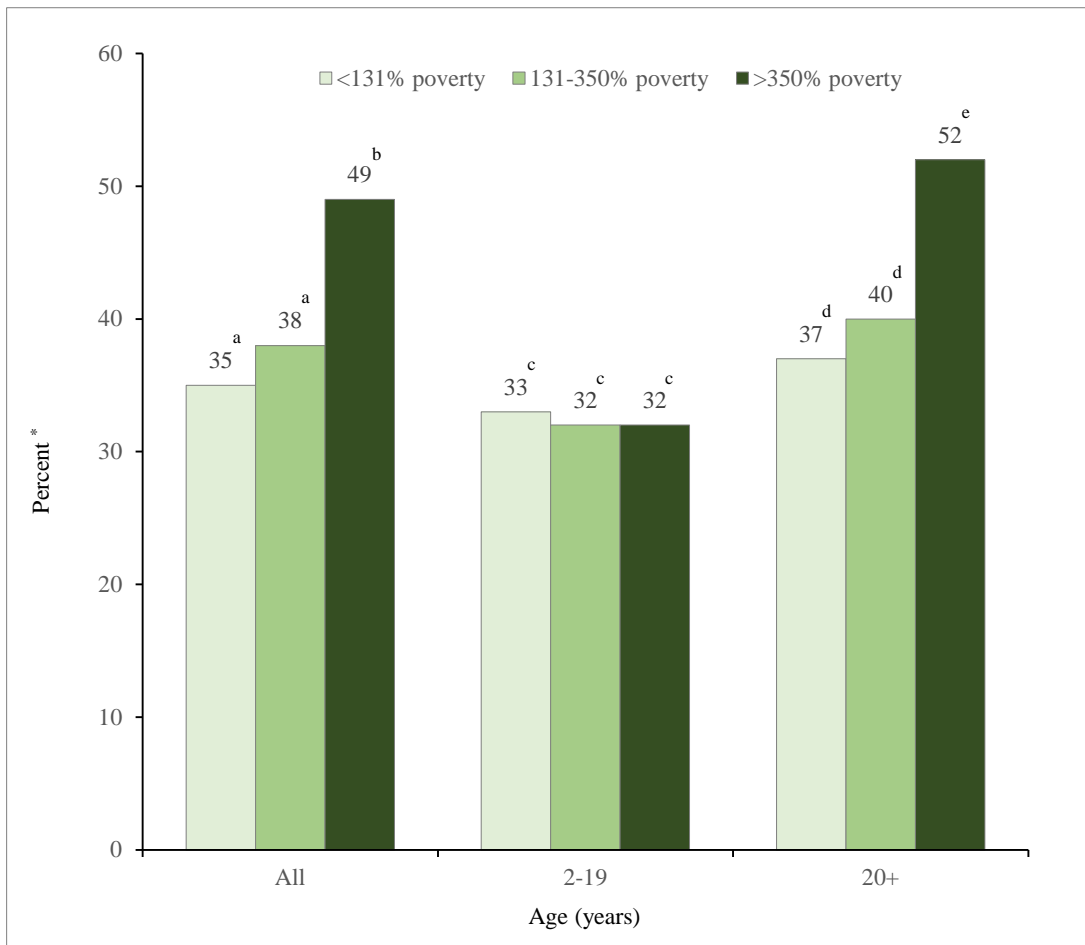
DATA SOURCE: WWEIA, NHANES 2013-2014, day 1, individuals 2+ years and FPED 2013-2014

What is the impact of household income on meeting the recommendation?

Household income status did not affect the percent of children meeting the recommendation. Irrespective of the household income status, only about one-third of children met the added sugars recommendation (Figure 3).

About one-half of the adults living in the highest household income category (> 350% poverty) met the recommendation compared with 37-40 percent living in the lower household income categories.

Figure 3. Estimated percentage* of children and adults meeting the DGA 2015-2020 added sugars recommendation¹, by household income as percentage of poverty, WWEIA, NHANES 2013-2014



¹ Limiting added sugars intakes to less than 10 percent of daily calories

* Percentages rounded to integers

Means with same superscripts are not significantly different from each other at p<0.01
superscripts: All (a,b); 2-19 (c); 20+ (d,e)

DATA SOURCE: WWEIA, NHANES 2013-2014, day 1, individuals 2+ years and FPED 2013-2014

How do the USDA Food Patterns intakes compare within household income groups?

Among all three household income groups, those who met the added sugars recommendation had an eating pattern higher in vegetables, fruit, and whole grains than those who did not meet the recommendation, irrespective of their household income status (Table 3). Also, those living in households with income 131-350 percent of poverty and did not meet the recommendation had an energy dense eating pattern; they had significantly higher energy intake and lower vegetables, fruit, and whole grains intakes than their counterparts.

Table 3. Estimated mean intakes of energy, added sugars, and selected Food Patterns food groups by household income and added sugars intake status, WWEIA, NHANES 2013-2014

Household income as % Poverty	Food Patterns Group	Added sugars intake status	
		< 10% total calories	≥10 % total calories
Less than 131%	Energy (calories)	1953	2108
	Added sugars (tsp. eq.)	6.5	27.6*
	Total vegetables (cup eq.)	1.3	1.1*
	Total fruit (cup eq.)	1.1	0.7*
	Whole grains (oz. eq.)	0.9	0.6*
131%-350%	Energy (calories)	1975	2169*
	Added sugars (tsp. eq.)	6.5	25.3*
	Total vegetables (cup eq.)	1.6	1.2*
	Total fruit (cup eq.)	1.2	0.8*
	Whole grains (oz. eq.)	1.0	0.7*
Greater than 350%	Energy (calories)	2068	2120
	Added sugars (tsp. eq.)	6.9	22.5*
	Total vegetables (cup eq.)	1.7	1.4*
	Total fruit (cup eq.)	1.2	0.8*
	Whole grains (oz. eq.)	1.3	0.9*

* Means significantly different from those consuming < 10% of total calories from added sugars (p<0.01)

tsp. eq.= teaspoon equivalents; cup eq.=cup equivalents; oz. eq.=ounce equivalents

1 tsp. eq. of added sugars=4.2 grams of sugars

DATA SOURCE: WWEIA, NHANES 2013-2014, day 1, individuals 2+ years and FPED 2013-2014

What are the implications of the study?

In general, children and adults who met the Dietary Guidelines for Americans 2015-2020 recommendation for added sugars, by consuming less than 10 percent of the total calories from added sugars, had better eating patterns than those who did not meet the recommendation. This finding was also true across all household income groups.

Children are less likely, than adults, to meet the added sugars recommendation underscoring the importance of good nutrition at a young age.

Non-Hispanic Blacks and Hispanics who did not meet the added sugars recommendation had a more energy-dense eating pattern than those who met the recommendation by eating significantly more calories and less of nutritious foods such as vegetables, fruit, and whole grains.

Definitions, Computations, and Units of Measurement Used in the Food Patterns Equivalents Database 2013-2014

Added sugars are defined as caloric sweeteners that are added to foods as an ingredient during preparation, processing, or at the table. Added sugars do not include naturally occurring sugars such as lactose present in milk and fructose present in fruit and 100% fruit juice. Examples of added sugars include brown sugar, cane sugar, confectioners sugar, dextrose, granulated sugar, white sugar, corn syrup and corn syrup solids, undiluted fruit juice concentrates, honey, molasses, and all types of caloric syrups such as maple syrup, table syrups, and pancake syrup. One teaspoon equivalent of added sugars is defined as 4.2 grams of sugars, the amount present in one teaspoon of granulated sugar. For details on the computation of added sugars and other Food Patterns food groups, see reference #3.

USDA Food Patterns include the five food groups, vegetables, fruit, grains, dairy, and protein foods; and oils, solid fats, alcoholic drinks, and added sugars.

Units of measurement: For further details on the units of measurement such as ounce and cup equivalents for specific foods and food groups, see reference #3.

Data sources

(1) What We Eat in America, NHANES 2013-2014, day 1 dietary data were used to estimate Food Patterns equivalents intakes. Study sample included 8066 individuals, aged 2 years and over (excluding breast-fed children) with complete and reliable intake records in the survey. Sample weights were applied in the analysis to produce nationally representative estimates.

(2) Food Patterns Equivalents Database and the corresponding data sets 2013-2014 provided USDA Food Patterns equivalents intake data, which included added sugars data.

References

1. U.S. Department of Health and Human Services and U.S. Department of Agriculture. 2015-2020 Dietary Guidelines for Americans. 8th Edition. December 2015. Available at <http://health.gov/dietaryguidelines/2015/guidelines/>. Accessed May 18, 2017.
2. U.S. Department of Agriculture, Agricultural Research Service, Beltsville Human Nutrition Research Center, Food Surveys Research Group, Beltsville, Maryland, 2013-2014 Food Patterns Equivalents Databases and Datasets. Available at: <http://www.ars.usda.gov/nea/bhnrc/fsrg>. Accessed May 18, 2017.
3. Bowman SA, Clemens JC, Friday JE, Lynch KL, and Moshfegh AJ. 2017. *Food Patterns Equivalents Database 2013-14: Methodology and User Guide* [Online]. Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, Maryland. Available at: <http://www.ars.usda.gov/nea/bhnrc/fsrg> Accessed May 18, 2017.

About the authors

Shanthy A. Bowman, John C. Clemens, Carrie L. Martin, Jaswinder Anand, Lois C. Steinfeldt, and Alanna J. Moshfegh are with the Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, MD.

Suggested citation

Bowman SA, Clemens JC, Martin CL, Anand J, Steinfeldt LC, and Moshfegh AJ. Added Sugars Intake of Americans: What We Eat in America, NHANES 2013-2014. Food Surveys Research Group. Dietary Data Brief No. 18. May 2017.

Copyright information

All material appearing in this report is in the public domain and may be reproduced or copied without permission. However, citation as to source is appreciated.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

