

Junk Food Intake Among Adults in the United States

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ABSTRACT

Background: There is no consensus on how to define “junk food.” In 2016, Chile implemented the most comprehensive set of obesity-preventive regulations in the world, including criteria to define unhealthy foods.

Objectives: The objective of this study was to examine the amount of energy, sodium, sugar, and saturated fat consumed by US adults defined as junk food using the Chilean criteria.

Methods: We used 2 nationally representative surveys of food intake in 10,001 US adults: NHANES 2015–2016 and NHANES 2017–2018. The main outcome measures were the contributions of energy, total sugars, saturated fat, and sodium deriving from junk food sources. Mean intake and proportion of energy, sugar, saturated fat, and sodium for junk food overall and each food category were calculated.

Results: Overall, 47% of energy, 75% of total sugar, 46% of sodium, and 48% of saturated fat consumed by US adults derived from junk food sources. Sugar-sweetened beverages (SSBs) were responsible for more than 40% of total sugar intake deriving from junk foods. Non-Hispanic black adults had the highest mean energy, total sugar, and sodium intake deriving from junk foods, with non-Hispanic white adults having the highest saturated fat intake. Non-Hispanic black adults had the highest intake of total sugar deriving from junk food sources of SSBs (26.7 g/d), with SSBs representing >40% of total sugar intake deriving from junk food sources for all race/ethnic groups.

Conclusions: Foods that meet the Chilean criteria for junk food provide approximately half or more daily energy and food components to limit in the diet of US adults, with important differences observed between race/ethnic groups. Policy efforts to reduce junk food intake, particularly the intake of SSBs, must be expanded to improve the cardiometabolic health equitably in the United States. *J Nutr* 2022;152:492–500.

Keywords: junk food, dietary intake, sugar-sweetened beverages, NHANES, food policy

Introduction

Large disparities have been documented in nutrition-related noncommunicable diseases (NCDs) such as obesity, diabetes, and hypertension across racial/ethnic and socioeconomic groups in the United States (1–3). Overweight and obesity as well as nutrition-related NCDs remain the top health problems and causes of death and disability in the country (4). Hispanic and non-Hispanic black adults have significantly higher prevalence of obesity and nutrition-related NCDs (1, 5), and recent research has demonstrated that overweight and

obese patients are at a higher risk of mortality from COVID-19 infection (6, 7).

Diet quality can heavily influence health outcomes, particularly nutrition-related NCDs (8–11). A recent landmark crossover randomized controlled trial showed that subjects had an average weight loss of ~1 kg when switching from an ultraprocessed to minimally processed diet (12), which supports prior research linking ultraprocessed foods with lower dietary quality; increased weight gain; and risks of obesity, diabetes, hypertension, and all-cause mortality (13–18).

The US food supply is dominated by packaged food and beverages, contributing ~75% of daily calorie intake in the US population (19). In the United States, studies have shown that a large proportion of daily energy derives from foods commonly viewed as “junk foods,” such as salty snacks, desserts, and sweets, and that disparities in diet quality exist in demographic subgroups (20–22). For example, a recent US study found that >70% of daily calorie intake and >90% of total sugar

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intake in children and adolescents derived from junk foods, with differences seen between demographic subgroups (23).

In the academic literature, there is no consistent definition for junk foods, and most studies assume that only products within categories such as salty snacks, desserts, and sweets are considered junk foods. Consequently, products containing excessive amounts of saturated fat, energy, added sugar, or salt but that are not in these junk food categories (e.g., sandwiches with less healthy ingredients, juice drinks, and bakery products) have been excluded from such a definition. In recognizing these gaps, studies have started using alternative methods such as degree of food processing to define unhealthy foods and operationalize these definitions in available data. In 2016, Chile implemented the Chilean law of food labeling and advertising, including the most comprehensive set of obesity-preventive regulations in the world (24, 25). The law applies marketing and sales restrictions to foods and beverages with high levels of energy density and added saturated fats, sodium, and sugar ingredients. Thresholds to be considered high in these nutrients and food components have become more restrictive according to 3 phases of implementation of the law. Since Chile's groundbreaking regulations, similar approaches have been adopted in Israel (26), Peru (27), Mexico (28), and Brazil (29).

In this study, we aimed to determine the proportion of energy, nutrients, and food components consumed by US adults by race/ethnic, age, and income groups that would be considered junk food using the Chilean regulation criteria. In particular, we examined heterogeneity in the prevalence of junk food consumption for key subgroups.

Methods

Survey population

Data were obtained from 2 nationally representative surveys of food intake in 10,001 US adults (defined as age >18 y): NHANES 2015–2016 and NHANES 2017–2018 (NHANES 15–18) (Table 1). NHANES is based on a multistage, stratified area probability sample of noninstitutionalized US households. Detailed information about each survey and its sampling design has been published previously (30). By utilizing secondary deidentified NHANES data, we were exempted from institutional review board concerns.

Junk food definition

Typically, food groups are used rather than added nutrients and food components to identify junk foods. The Chilean nutrient profile model is one approach that uses nutrients and food components to define junk foods, but there are many other definitions in the literature (31, 32), most of which identify food groups of concern. Although the Chilean regulation was implemented in 2016, the nutrient thresholds were set to become increasingly stringent over a series of 3 implementation dates. The phase 2 criteria were utilized for this analysis on the basis that these criteria are most widely used in the literature and were adopted by Israel and Peru as their first of 2 phases (26, 33, 34). The nutritional content of each food consumed in NHANES was compared to the phase 2 thresholds from the Chilean regulation for energy, saturated fat, total sugars, and sodium per 100 g (25) (Supplemental Table 1). Products that exceeded the nutrient thresholds were considered junk foods in this analysis. The Chilean regulation also includes an ingredient criterion, with products containing added sugars, saturated fat, or sodium ingredients as well as exceeding the nutrient and/or food component criteria considered junk foods (Supplemental Figure 1). Steele et al. (22, 35, 36), along with collaborators at the CDC, provided data for this study identifying products from NHANES 2015–2018 that have added sugar, saturated fat, and/or sodium ingredients.

TABLE 1 Sociodemographic characteristics for US adults aged >18 y, NHANES 2015–2018

Characteristic	2015–2018
Participants, <i>n</i>	10,001
% men	48.5
Age group, %	
19–29 y	17.7
30–59 y	47.4
≥60 y	35.0
BMI, ¹ %	
Underweight	1.5
Normal weight	25.2
Overweight	31.9
Obese	41.4
Race/ethnicity, %	
Mexican American	15.5
Other Hispanic	11.3
Non-Hispanic white	34.7
Non-Hispanic black	22.4
Other race	16.1
Household income, %	
<185% federal poverty level	45.5
185–350% federal poverty level	25.4
>350% federal poverty level	29.1
Head of household education, %	
Less than high school diploma	20.9
High school diploma	23.7
More than high school diploma	55.4

¹BMI categories were defined as underweight (<18.5), normal weight (18.5 to <25.0), overweight (25.0 to <30.0), and obese (≥30.0).

Dietary data

The first day's data (a single, interviewer-administered 24-h dietary recall) collected from each individual was used (as recommended by the USDA). Appropriate weights and adjustments were used for the sample design (37).

Food groupings

All foods reported in NHANES surveys were assigned to 1 of 10 food categories (Supplemental Table 2). Food categories were those used in a previous similar analysis examining changes in junk food consumption in US children and adolescents (23). In brief, to focus on food categories of interest, analysis was limited to categories with >50% of products exceeding the Chilean phase 2 nutrient criteria. All remaining food categories were grouped together.

Statistical analysis

Junk food intake was examined using 3 age groups (19–29 y, 30–59 y, and ≥60 y), 5 race/ethnic groups (Mexican American, other Hispanic, non-Hispanic white, non-Hispanic black, and other race), 2 genders (male and female), and 3 income groups (<185%, 185–350%, and >350% of the federal poverty level). Mean intake and proportion of energy, sugars, saturated fat, and sodium deriving from junk food overall and within each food category were calculated. Analyses were done overall and by demographic subgroup. The number of junk food items per day was calculated by dividing the number of items consumed that were classified as junk food items using the Chilean criteria by the total number of food items consumed.

Survey methods were used within Stata to account for the clustering that is inherent in the NHANES sampling methodology. Linear regression models were also used to examine differences within subgroups, with adjustment for gender, age, race/ethnicity, income, head of household educational level, BMI, and activity level. A *P* value <0.01 was considered significant. Stata version 16 (StataCorp) was used for all analyses.

Results

Overall intake of junk foods

Overall in 2015–2018, US adults consumed an average of 4.8 junk food items daily. Mean intake of energy deriving from junk food sources was 1043 kcal/d (47.1% of total energy intake). Total sugar intake deriving from junk foods was 54.4 g/d (75.0% of total sugar intake), saturated fat was 14.4 g/d (48.0% of total saturated fat intake), and sodium was 1669 mg/d (45.5% of total sodium intake) (Table 2). Overall, sugar-sweetened beverages (SSBs) were the highest contributor to total sugar intake from junk foods in 2015–2018 (22.2 g/d; 41% of total sugar deriving from junk foods; Table 3). Sandwiches, burgers, and pizzas were the highest food group contributor to energy [221 kcal/d (21%); Table 4], saturated fat [4.4 g/d (31%); Supplemental Table 3], and sodium intake [465 mg/d (28%); Supplemental Table 4] deriving from junk foods. Collectively, confectionery, desserts, and SSBs contributed ~75% of total sugar intake deriving from junk foods (Table 3). Bread, ready-to-eat cereals, and processed meat, poultry, and fish contributed 25% of sodium intake collectively (Supplemental Table 4).

Findings by demographic subgroups

Race/ethnic groups.

Non-Hispanic black adults had the highest mean energy, total sugar, and sodium intake deriving from junk foods, with non-Hispanic white adults reporting the highest saturated fat intake (Table 2). Mexican American adults had significantly lower energy intake (982 kcal/d) and total sugar intake (48.9 g/d) deriving from junk foods compared with non-Hispanic whites (1081 kcal/d and 56.6 g/d, respectively) and non-Hispanic blacks (1132 kcal/d and 62.3 g/d, respectively) ($P < 0.01$; Table 2). Differences between race/ethnic groups were driven by a few key food categories, namely SSB and salty snacks. Mexican Americans had significantly lower calorie and sodium intake deriving from junk food sources of salty snacks [71 kcal/d (7%) and 93 mg/d (6%)] compared with non-Hispanic whites [91 kcal/d (8%) and 129 mg/d (7%)] and non-Hispanic blacks [93 kcal/d (8%) and 122 mg/d (7%)] ($P < 0.01$ for all). Non-Hispanic black adults had the highest intake of total sugar deriving from junk food sources of SSBs [26.7 g/d (43%)], with SSBs representing >40% of total sugar intake deriving from junk food sources for all race/ethnic groups, while desserts were the other larger food group with 23% of overall sugar daily intake (Figure 1). Significant race/ethnic differences were observed in other sources of energy from junk food sources. Mexican Americans had a lower intake of total energy from desserts and salty snacks, whereas non-Hispanic black adults had a lower amount of energy deriving from desserts and a higher amount from sandwiches, burgers, and pizzas compared with non-Hispanic white adults (Figure 2).

Age groups.

The ≥ 60 y age group had significantly lower intake of energy, total sugar, saturated fat, and sodium deriving from junk foods compared with the 19–29 y and 30–59 y age groups ($P < 0.01$ for all; Table 2). Total sugar intake from SSBs was significantly lower in the ≥ 60 y age group compared with other age groups ($P < 0.01$; Table 3). Desserts was the only category for which the ≥ 60 y age group had a higher intake of energy [225 kcal/d (25%)], total sugar [16.2 g/d (36%)], and saturated fat [3.8 g/d (30%)] deriving from junk food sources compared with the other age groups.

Gender.

Overall, females compared with males had significantly lower intakes of energy (880 compared with 1218 kcal/d), total sugar (46.8 compared with 62.6 g/d), saturated fat (12.0 compared with 17.0 g/d), and sodium (1356 compared with 2004 mg/d) ($P < 0.01$ for all; Table 2). The same trends were observed when examining results by food category.

Income groups.

Few differences were observed between household income groups. No significant differences in intake of energy, saturated fat, or sodium deriving from junk food sources were observed (Table 2). The highest income group (>350% of the federal poverty level) had significantly lower intake of sugar deriving from junk food sources (49.2 g/d) compared with the lowest income group (<185% federal poverty level; 57.9 g/d) and the middle-income group (185–350% of the federal poverty level; 58.9 g/d) ($P < 0.01$ for all). This trend was driven solely by SSBs, with the highest income group having significantly lower intake of total sugar deriving from SSBs [16.4 g/d (33%)] compared with the lowest income group [27.7 g/d (48%)] and the middle-income group [25.0 g/d (42%)] ($P < 0.01$ for all; Figure 1).

Discussion

We found that in 2015–2018, 47% of energy, 75% of total sugar, 46% of sodium, and 48% of saturated fat consumed by US adults derived from junk foods. SSBs were responsible for >40% of total sugar intake deriving from junk foods. Our results mirror those observed in a recent study in US children and adolescents which found that 56% of energy, 82% of total sugar intake, 55% of sodium, and 43% of saturated fat derived from junk food sources (23). These findings are also in line with other US studies showing a large proportion of energy intake derives from foods generally considered unhealthy (38–41). These results are important given that the US Dietary Guidelines identify sodium, saturated fat, and added sugars as food components of public health concern, as does WHO (42, 43).

Differences were observed between race/ethnic groups, with non-Hispanic black adults consuming the highest amount of energy, total sugar, and sodium from junk food sources compared with Mexican Americans and non-Hispanic whites. Non-Hispanic blacks also had the highest intake of energy and sugar deriving from SSBs in the current study. This is in line with existing US research showing that non-Hispanic black adults generally purchase and consume a higher amount of sugar compared with other race/ethnic groups in the United States (44, 45) and that non-Hispanic blacks have been shown to have a higher consumption of SSBs compared with other race/ethnic groups (38, 46). Few differences were observed between different age and income groups. One other notable difference observed was that the highest income group (>350% of the federal poverty level) had significantly lower intake of total sugar from junk foods compared with the other income groups, driven solely by the highest income group having significantly lower intake of SSBs.

An important finding in this study was that it is not only foods commonly considered junk food (e.g., confectionery, snack foods, and SSBs) that were not considered healthy using the Chilean criteria but also foods from other categories, such as sandwiches, processed meats, ready-to-eat cereals, and bread products that contributed to junk food intake

TABLE 2 Nutrient intake in US adults deriving from junk food sources overall and by demographic subgroup, NHANES 2015–2018¹

	<i>n</i>	No. junk food items/d	Per capita energy intake from junk food		Per capita total sugar intake from junk food		Per capita sodium intake from junk food		Per capita saturated fat intake from junk food	
			Mean intake (kcal/d)	% total energy intake	Mean intake (g/d)	% total sugar intake	Mean intake (mg/d)	% total sodium intake	Mean intake (g/d)	% total saturated fat intake
All adults, ≥19 y	10,001	4.8	1043	47.1	54.4	75.0	1669	45.5	14.4	48.0
Age group										
19–29 y	1771	4.7	1122	50.1	56.2	79.5	1887	48.6	15.8	51.3
30–59 y ²	4735	4.9	1082	47.0	58.5	74.3	1721	45.8	14.7	47.7
≥60 y	3495	4.9	911 ³	45.1 ³	45.2 ³	73.2 ³	1408 ³	42.4 ³	12.9 ³	46.0 ³
Sex										
Male ²	4850	5.0	1218	48.3	62.6	76.5	2004	47.1	17.0	49.6
Female	5151	4.7	880 ⁴	46.0 ⁴	46.8 ⁴	73.7 ⁴	1356 ⁴	43.9 ⁴	12.0 ⁴	46.4 ⁴
Household income										
<185% federal poverty level ²	4062	4.7	1039	47.2	57.9	75.0	1651	45.7	14.0	47.6
185–350% federal poverty level	2273	4.9	1066	48.2	58.9	75.7	1692	46.2	14.7	48.8
>350% federal poverty level	2598	4.9	1033	46.4	49.2 ⁴	74.6 ⁴	1668	44.9	14.6	47.7
Race/ethnicity										
Mexican American	1554	4.6	982 ³	43.6 ³	48.9 ³	77.7	1576	40.5	13.4	45.0
Non-Hispanic white ²	3467	5.0	1081	48.8	56.6	75.0	1734	47.7	15.1	49.0
Non-Hispanic black	2238	5.1	1132	52.1	62.3	80.4	1755	49.3	15.0	53.4

¹ Results have been weighted to be nationally representative.

² Reference group.

³ Different to all groups ($P < 0.01$).

⁴ Different to reference group ($P < 0.01$).

TABLE 3 Mean total sugar intake (g/d) and proportion of total sugar intake deriving from junk foods consumed by US adults in NHANES 2015–2018

	All adults (n = 10,001)	Male (n = 4850)	Female (n = 5151)	Mexican American (n = 1554)	Non-Hispanic		Age 19–29 y (n = 1771)	Age 30–59 y (n = 4735)	Age ≥60 y (n = 3495)	185–350% federal		>350% federal poverty level (n = 2598)
					white (n = 3467)	black (n = 2238)				<185% federal poverty level (n = 4062)	185–350% federal poverty level (n = 2273)	
Breads	0.6 (1.1%)	0.7 (1.1%)	0.6 (1.3%)	0.7 (1.4%)	0.6 (1.1%)	0.9 (1.4%)	0.5 (0.9%)	0.6 (1.0%)	0.9 (2.0%) ¹	0.6 (1.0%)	0.6 (1.0%)	0.7 (1.4%)
Cheese and cheese products	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)	0.0 (0.0%)
Confectionery	4.8 (8.8%)	5.0 (8.0%)	4.7 (10.0%)	4.7 (9.6%)	5.3 (9.4%)	5.0 (8.0%)	4.8 (8.5%)	5.1 (8.7%)	4.4 (9.7%)	4.3 (7.4%)	4.4 (7.5%)	5.5 (11.2%)
Dairy with added sugar	0.5 (0.9%)	0.5 (0.8%)	0.6 (1.3%)	0.5 (1.0%)	0.6 (1.1%)	0.1 (0.2%) ²	0.6 (1.1%)	0.6 (1.0%)	0.5 (1.1%)	0.7 (1.2%)	0.5 (0.8%)	0.4 (0.8%)
Desserts	12.6 (23.2%)	13.5 (21.6%)	11.8 (25.2%) ³	12.4 (25.4%)	12.8 (22.6%)	12.9 (20.7%)	9.0 (16.0%) ⁴	12.1 (20.7%)	16.2 (35.8%) ¹	12.1 (20.9%)	14.5 (24.6%)	11.9 (24.2%)
Processed meat, poultry, and fish	0.3 (0.6%)	0.4 (0.6%)	0.2 (0.4%) ³	0.2 (0.4%)	0.3 (0.5%)	0.2 (0.3%)	0.2 (0.4%)	0.3 (0.5%)	0.4 (0.9%)	0.3 (0.5%)	0.3 (0.5%)	0.2 (0.4%)
Ready-to-eat cereals	2.0 (3.7%)	2.3 (3.7%)	1.8 (3.8%)	1.3 (2.7%) ⁵	2.3 (4.1%)	2.2 (3.5%)	2.2 (3.9%)	2.1 (3.6%)	1.7 (3.8%)	2.3 (4.0%)	2.4 (4.1%)	1.6 (3.3%)
Salty snacks	0.2 (0.4%)	0.3 (0.5%)	0.2 (0.4%)	0.2 (0.4%)	0.3 (0.5%)	0.2 (0.3%)	0.3 (0.5%)	0.2 (0.3%)	0.2 (0.4%)	0.2 (0.3%)	0.2 (0.3%)	0.3 (0.6%)
Sandwiches, burgers, and pizzas	1.4 (2.6%)	1.9 (3.0%)	1.0 (2.1%) ³	1.0 (2.0%) ²	1.6 (2.8%)	1.5 (2.4%)	1.8 (3.2%)	1.5 (2.6%)	1.2 (2.7%)	1.5 (2.6%)	1.5 (2.5%)	1.3 (2.6%)
Sugar-sweetened beverages	22.2 (40.8%)	27.6 (44.1%)	17.1 (36.5%) ³	20.7 (42.3%)	22.9 (40.5%)	26.7 (42.9%)	26.0 (46.3%)	25.7 (43.9%)	12.6 (27.9%) ¹	27.7 (47.8%)	25.0 (42.4%)	16.4 (33.3%) ⁶
All other foods	9.4 (17.3%)	10.3 (16.5%)	8.6 (18.4%)	6.7 (13.7%) ⁵	9.8 (17.3%)	12.4 (19.9%)	10.8 (19.2%)	10.1 (17.3%)	7.1 (15.7%) ¹	8.1 (14.0%)	9.0 (15.3%)	10.7 (21.7%) ⁶
All food	54.4	62.6	46.8	48.9	56.6	62.3	56.2	58.5	45.2	57.9	58.9	49.2

¹Different to age 19–29 y and age 30–59 y ($P < 0.01$).

²Different to non-Hispanic white ($P < 0.01$).

³Different to males ($P < 0.01$).

⁴Different to age 30–59 y and age ≥60 y ($P < 0.01$).

⁵Different to non-Hispanic white and non-Hispanic black ($P < 0.01$).

⁶Different to <185% federal poverty level and 185–350% federal poverty level ($P < 0.01$).

TABLE 4 Mean energy intake (kcal/d) and proportion of energy intake deriving from junk foods consumed by US adults in NHANES 2015–2018

	All adults (n = 10,001)	Male (n = 4850)	Female (n = 5151)	Mexican American (n = 1554)	Non- Hispanic white (n = 3467)	Non- Hispanic black (n = 2238)	Age 19–29 y (n = 1771)	Age 30–59 y (n = 4735)	Age ≥60 y (n = 3495)	<185% federal poverty level (n = 4062)	185–350% federal poverty level (n = 2273)	>350% federal poverty level (n = 2598)
Breads	62 (5.9%)	68 (5.6%)	56 (6.4%) ¹	70 (7.1%)	58 (5.4%)	70 (6.2%)	49 (4.4%)	61 (5.6%)	74 (8.1%)	60 (5.8%)	57 (5.3%)	66 (6.4%)
Cheese and cheese products	8 (0.8%)	9 (0.7%)	6 (0.7%)	5 (0.5%) ²	9 (0.8%)	7 (0.6%)	8 (0.7%)	9 (0.8%)	6 (0.7%)	8 (0.8%)	9 (0.8%)	7 (0.7%)
Confectionery	52 (5.0%)	54 (4.4%)	50 (5.7%)	49 (5.0%)	56 (5.2%)	48 (4.2%)	53 (4.7%)	55 (5.1%)	45 (4.9%)	46 (4.4%)	46 (4.3%)	60 (5.8%)
Dairy with added sugar	7 (0.7%)	7 (0.6%)	7 (0.8%)	6 (0.6%)	9 (0.8%)	1 (0.1%) ²	8 (0.7%)	7 (0.6%)	6 (0.7%)	9 (0.9%)	7 (0.7%)	6 (0.6%)
Desserts	175 (16.8%)	188 (15.4%)	164 (18.6%) ¹	186 (18.9%)	177 (16.4%)	175 (15.5%)	124 (11.1%) ³	169 (15.6%)	225 (24.7%) ⁴	171 (16.5%)	195 (18.3%)	167 (16.2%)
Processed meat, poultry, and fish	47 (4.5%)	60 (4.9%)	35 (4.0%) ¹	28 (2.9%) ²	55 (5.1%)	42 (3.7%)	47 (4.2%)	47 (4.3%)	48 (5.3%)	44 (4.2%)	55 (5.2%)	46 (4.5%)
Ready-to-eat cereals	38 (3.6%)	43 (3.5%)	33 (3.8%)	26 (2.6%) ²	43 (4.0%)	32 (2.8%) ²	34 (3.0%)	38 (3.5%)	40 (4.4%)	41 (3.9%)	41 (3.8%)	33 (3.2%)
Salty snacks	86 (8.2%)	96 (7.9%)	77 (8.8%) ¹	71 (7.2%) ⁵	91 (8.4%)	93 (8.2%)	96 (8.6%)	90 (8.3%)	70 (7.7%) ⁴	79 (7.6%)	96 (9.0%)	85 (8.2%)
Sandwiches, burgers, and pizzas	221 (21.2%)	288 (23.6%)	158 (18.0%) ¹	239 (24.3%)	234 (21.6%)	200 (17.7%)	297 (26.5%) ³	228 (21.1%)	152 (16.7%) ⁴	225 (21.7%)	226 (21.2%)	215 (20.8%)
Sugar-sweetened beverages	98 (9.4%)	122 (10.0%)	76 (8.6%) ¹	94 (9.6%)	101 (9.3%)	119 (10.5%)	113 (10.1%)	114 (10.5%)	56 (6.1%) ⁴	119 (11.5%)	108 (10.1%)	77 (7.5%) ⁶
All other foods	249 (23.9%)	283 (23.2%)	217 (24.7%) ¹	203 (20.7%)	247 (22.8%)	343 (30.3%) ⁷	292 (26.0%)	263 (24.3%)	190 (20.9%) ⁴	237 (22.8%)	227 (21.3%)	271 (26.2%) ⁶
All food	1043	1218	880	982	1081	1132	1122	1082	911	1039	1066	1033

¹Different to males ($P < 0.01$).

²Different to non-Hispanic white ($P < 0.01$).

³Different to age 30–59 y and age ≥60 y ($P < 0.01$).

⁴Different to age 19–29 y and age 30–59 y ($P < 0.01$).

⁵Different to non-Hispanic white and non-Hispanic black ($P < 0.01$).

⁶Different to <185% federal poverty level and >350% federal poverty level ($P < 0.01$).

⁷Different to Mexican American and non-Hispanic white ($P < 0.01$).

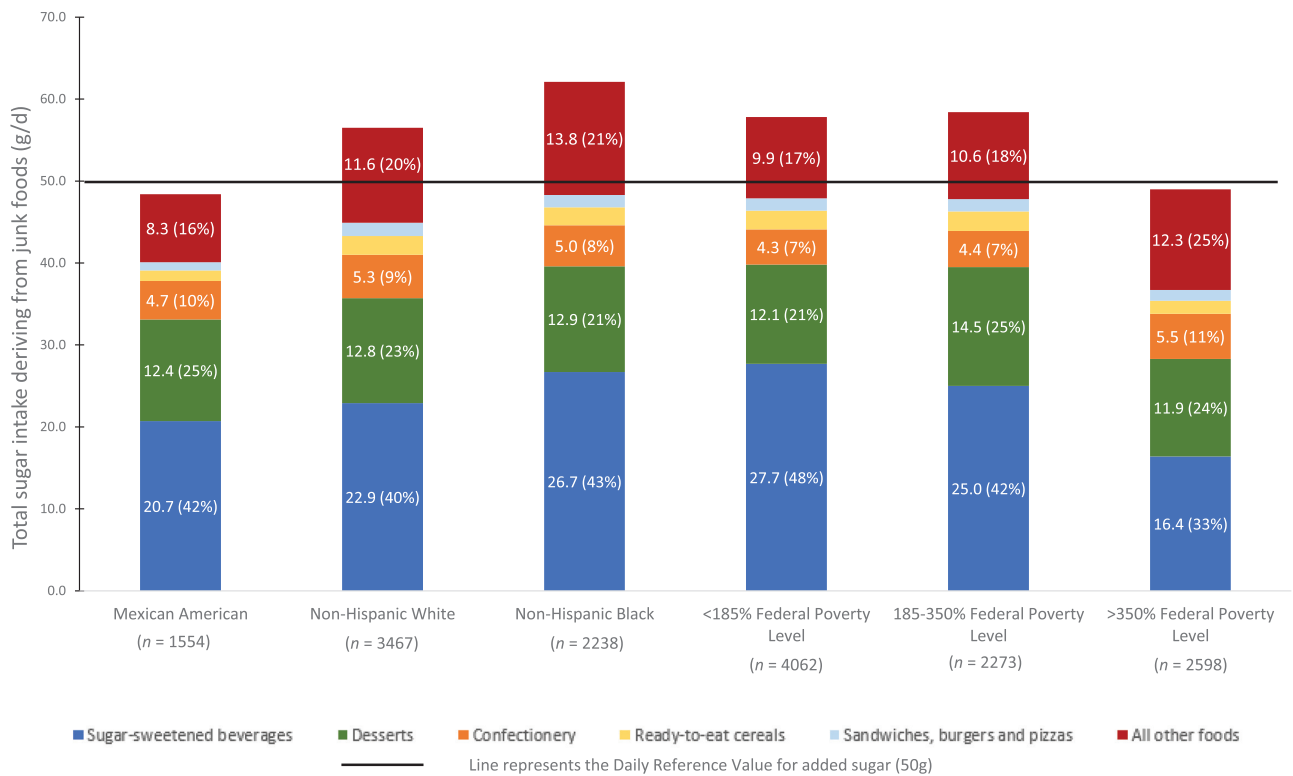


FIGURE 1 Mean total sugar intake deriving from junk foods consumed by 10,001 US adults in NHANES 2015–2018.

(particularly sodium intake) in this sample of US adults. Much of the research to date has focused primarily on food and beverage categories generally considered to be junk food (e.g., confectionery, savory snacks, and grain-based desserts) (47),

which given the results from the current study may not provide the full picture of where US consumers are deriving added sugars, sodium, and saturated fats. The Chilean regulation was implemented in 2016. Early research on the regulation

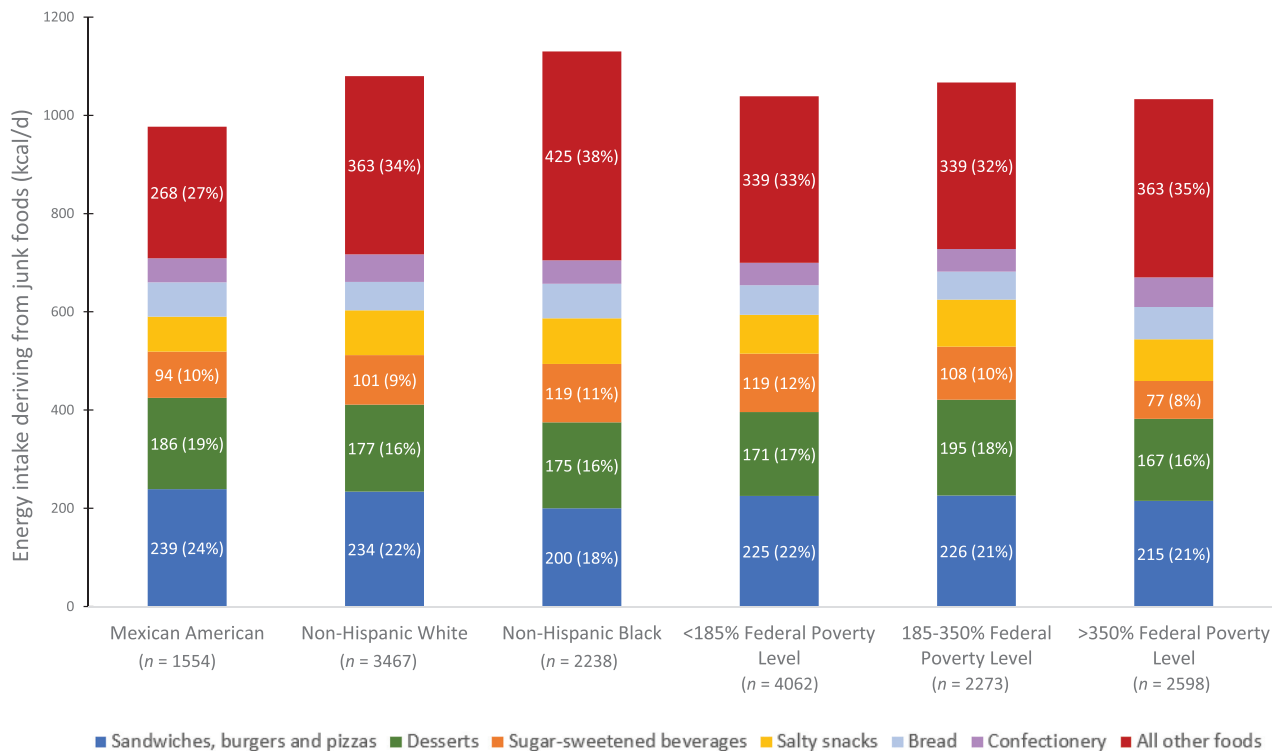


FIGURE 2 Mean total energy intake deriving from junk foods consumed by 10,001 US adults in NHANES 2015–2018.

showed that there was a decrease in the amount of sugars and sodium in a number of packaged food and beverage categories after its initial implementation (34). There is likely a need for a similar approach to be taken in the United States given the results from the current study showing not only that a large proportion of energy and nutrient intake derives from junk food sources but also that many food sources that are not commonly considered junk food may not be addressed under existing policies. Currently, there are many state-based policies attempting to reduce the purchase of, and hence consumption of, less healthy ultraprocessed products, especially SSBs (48). Despite evidence in the literature of consumption decreasing in recent years, intake of SSBs remains high and clear disparities exist between subgroups. The need exists for comprehensive national-level policies that help reduce amounts of added sugars, sodium, and saturated fat in packaged food and beverage products but that do not increase disparities between race/ethnic groups in the United States and that do not focus solely on food categories commonly thought of as junk foods. Such solutions may include a consistent easy-to-understand front-of-pack label (due to potential language difficulties in some subpopulations), advertisements/marketing regulations including warnings (along with enforcement), policies regarding what is allowed to be sold or to be available in schools, and even regulations regarding whether such products can be sold at checkouts of stores or take up more than a certain amount of shelf space (49–51).

This analysis had some limitations. Because our study was cross-sectional in nature, we cannot make robust conclusions about causality in the observed associations. Reported dietary data have limitations in misreporting, and they can vary by demographic variables such as gender and race/ethnicity (52). In addition, unhealthy foods, such as SSBs (53), are particularly prone to underreporting, so it is possible that some of the associations observed here might have been underestimated due to systematic measurement error associated with this. Another important point is that nutrient-based criteria such as those used in the Chilean model do not take into account all aspects of a food or beverage product (e.g., protein or dietary fiber), and the Chilean model is one of many approaches to support consumers in the identification of what would be considered junk food. The Chilean model also does not address alcohol, and given that the latest data suggest almost three-fourths of all US adults reported consuming alcohol in the past year (54), it would be important for future policymakers to also include guidance and policies in relation to alcohol consumption.

In conclusion, US adults are consuming a large proportion of energy and sugar from junk food sources. In 2015–2018, 47% of total energy, 48% of saturated fat intake, 75% of sugar intake, and 46% of sodium intake among US adults derived from junk food. Future research should examine how other factors influence junk food intake, such as social and family aspects, exposure to unhealthy food marketing, and physical activity levels. This study found differences between sociodemographic subgroups, highlighting the need for policies or programs that both help reduce junk food consumption for the US population overall and also consider race/ethnic disparities in the population. Continued efforts to reduce intake of SSBs should be encouraged to improve the cardiometabolic health of the US population.

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