Prevalence of Sugar-Sweetened Beverage Intake Among Adults — 23 States and the District of Columbia, 2013

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The 2015–2020 Dietary Guidelines for Americans recommend that the daily intake of calories from added sugars not exceed 10% of total calories.* Sugar-sweetened beverages (SSBs) are significant sources of added sugars in the diet of U.S. adults and account for approximately one third of added sugar consumption (*1*). Among adults, frequent (i.e., at least once a day) SSB intake is associated with adverse health consequences, including obesity, type 2 diabetes, and cardiovascular disease (*2*). According to the 2009–2010 National Health and Nutrition Examination Survey (NHANES), an in-person and phone follow-up survey, 50.6% of U.S. adults consumed at least one SSB on a given day (*3*). In addition, SSB intake varies by geographical regions (*4,5*): the prevalence of daily SSB intake was higher among U.S. adults living in the Northeast (68.4%) and South (66.7%) than among persons living in the Midwest (58.8%). In 2013, the Behavioral Risk Factor Surveillance System (BRFSS), a telephone survey, revised the SSB two-item optional module to retain the first question on regular soda and expand the second question to include more types of SSBs than just fruit drinks. Using 2013 BRFSS data, self-reported SSB (i.e., regular soda, fruit drinks, sweet tea, and sports or energy drinks) intake among adults (aged ≥18 years) was assessed in 23 states and the District of Columbia (DC). The overall age-adjusted prevalence of SSB intake ≥1 time per day was 30.1% and ranged from 18.0% in Vermont to 47.5% in Mississippi. Overall, at least once daily SSB intake was most prevalent among adults aged 18–24 years (43.3%), men (34.1%), non-Hispanic blacks (blacks) (39.9%), unemployed adults (34.4%), and persons with less than a high school education (42.4%). States can use the data for program evaluation and monitoring trends, and information on disparities in SSB consumption could be used to create targeted intervention efforts to reduce SSB consumption.

* http://health.gov/dietaryguidelines/2015.

BRFSS is a state-based, random-digit–dialed telephone survey of U.S. adults aged ≥18 years, conducted annually by CDC and state health departments to monitor health conditions and behaviors related to public health concerns.† BRFSS uses multistage, stratified sampling to select a representative sample of the noninstitutionalized adult population in each state, DC, and three U.S. territories (American Samoa, the Federated States of Micronesia, and Guam). In 2013, the median response rate across all states was 46.4% from

† http://www.cdc.gov/brfss/annual_data/annual_2013.html.

Continuing Education examination available at http://www.cdc.gov/mmwr/cme/conted_info.html#weekly.

combined landline and cell phone data. Each year, BRFSS offers several optional modules to states on additional specific topics. In 2013, the BRFSS included an optional module with two SSB intake questions: 1) "During the past 30 days, how often did you drink regular soda or pop that contains sugar? Do not include diet soda or diet pop." and 2) "During the past 30 days, how often did you drink sugar-sweetened fruit drinks (such as Kool-Aid and lemonade), sweet tea, and sports or energy drinks (such as Gatorade and Red Bull)? Do not include 100% fruit juice, diet drinks, or artificially sweetened drinks." Respondents answered number of times per month, week, or day, and responses were converted to daily intake. To calculate daily SSB intake, daily intake frequency from both questions was summed and categorized as none, >0 to <1 (coded as <1), and ≥1 time per day.[§] During 2013, 23 states and DC offered the SSB optional module, and 157,668 adults answered both SSB questions. Prevalence estimates are presented as percentages with 95% confidence intervals. Because age has been associated with SSB intake and age distribution varies by state, both crude and age-adjusted prevalences (standardization according to 2000 U.S. projected population) were provided for each state. Chi-square tests were used to examine whether state SSB intake varied by age, sex, race/ethnicity, employment status, or education (statistically significant at $p<0.05$). All analyses took complex survey design and sampling weight into account.

During 2013, after direct age adjustment, 30.1% of respondents reported consuming SSBs at least once per day. At least once daily SSB intake was most common among persons aged 18–24 years (43.3%), men (34.1%), blacks (39.9%), persons who reported being unemployed (34.4%), and persons with less than a high school education (42.4%). The lowest prevalences were reported by adults aged ≥55 years (19.1%), non-Hispanic persons of other races (21.2%), retired persons (18.0%), and college graduates (15.5%). By state, the age-adjusted prevalence of daily SSB intake was highest in Mississippi (47.5%), followed by Louisiana (45.5%), and West Virginia (45.2%) (Table 1). The prevalence of SSB intake of ≥2 times per day ranged from a low of 8.1% in Vermont to 27.3% in Mississippi (pooled mean for 23 states and DC = 14.8%) (data not shown).

When examined by state of residence, SSB intake was most common among younger adults (aged 18–24 years) in most states and among men in all states. Overall, the prevalence of SSB intake ≥1 time per day among the youngest group of adults (persons aged 18–24 years) was 2.3 times the prevalence among the oldest age group (persons aged ≥55 years), ranging from 1.6-fold higher in New York to 3.4-fold higher in New Jersey. The overall prevalence among men was approximately 1.4 times the prevalence among women, ranging from 1.1 times higher in Mississippi to 2.0 times higher in Minnesota. Similarly, when prevalence of at least once daily SSB intake among blacks and Hispanics was compared with at least once daily intake prevalence among non-Hispanic whites (whites), the prevalence among blacks was 1.5 times the prevalence among whites (ranging from 0.9 in West Virginia to

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[§] http://www.cdc.gov/brfss/data_documentation/pdf/brfss_ssb-userguide.pdf.

TABLE 1. Prevalence* of sugar-sweetened beverage[†] consumption among adults, by state — Behavioral Risk Factor Surveillance System, 23 states and District of Columbia, 2013

State	No. respondents	Crude prevalence, % (95% CI)			Adjusted prevalence,[§] % (95% CI)		
		None	<1 time/day	≥1 time/day	None	<1 time/day	≥1 time/day
Overall	157,668	26.2 (25.7–26.6)	44.7 (44.1–45.3)	29.1 (28.6–29.6)	24.7 (24.2–25.2)	45.2 (44.6–45.8)	30.1 (29.6–30.7)
Alaska	4,102	25.5 (23.8–27.4)	48.0 (45.8–50.2)	26.5 (24.4–28.6)	25.2 (23.5–27.0)	48.2 (46.0–50.4)	26.6 (24.6–28.7)
Arizona	3,491	28.6 (26.1–31.1)	43.9 (41.0–46.9)	27.6 (24.8–30.6)	25.9 (23.5–28.5)	44.6 (41.4–47.8)	29.6 (26.5–32.8)
California	5,871	26.8 (25.4–28.3)	49.4 (47.6–51.1)	23.8 (22.3–25.4)	25.8 (24.4–27.2)	49.9 (48.1–51.7)	24.3 (22.8–25.9)
Connecticut	5,871	33.4 (31.8–35.0)	47.1 (45.3–48.9)	19.5 (18.1–21.1)	30.8 (29.3–32.5)	48.6 (46.7–50.5)	20.6 (19.0–22.2)
District of Columbia	4,152	26.6 (24.6–28.7)	50.7 (48.2–53.2)	22.7 (20.4–25.1)	26.4 (24.5–28.4)	50.2 (47.7–52.8)	23.4 (21.1–25.8)
Indiana	4,486	23.1 (21.7–24.5)	42.0 (40.1–43.9)	34.9 (33.1–36.9)	21.5 (20.2–22.9)	42.3 (40.3–44.3)	36.2 (34.2–38.2)
Iowa	3,696	27.4 (25.7–29.2)	42.7 (40.6–44.8)	29.9 (27.9–32.1)	25.6 (24.0–27.4)	42.9 (40.7–45.1)	31.5 (29.3–33.7)
Kansas	11,121	26.3 (25.4–27.2)	43.6 (42.4–44.7)	30.1 (29.0–31.3)	24.9 (24.0–25.8)	43.8 (42.6–45.0)	31.3 (30.1–32.4)
Kentucky	9,818	21.8 (20.7–23.0)	36.8 (35.3–38.2)	41.4 (39.9–42.9)	20.3 (19.2–21.4)	36.6 (35.1–38.1)	43.2 (41.6–44.7)
Louisiana	4,759	19.1 (17.7–20.6)	36.8 (34.6–39.0)	44.1 (41.8–46.4)	17.8 (16.4–19.3)	36.6 (34.4–39.0)	45.5 (43.1–48.0)
Maryland	11,759	28.1 (27.0–29.3)	44.4 (43.0–45.8)	27.5 (26.1–28.9)	26.2 (25.1–27.4)	45.3 (43.8–46.8)	28.5 (27.0–30.0)
Minnesota	12,704	30.6 (29.2–32.1)	48.1 (46.5–49.8)	21.2 (19.9–22.6)	28.7 (27.4–30.1)	49.0 (47.3–50.6)	22.3 (21.0–23.8)
Mississippi	6,692	16.4 (15.3–17.5)	37.4 (35.7–39.1)	46.2 (44.5–48.1)	15.4 (14.3–16.5)	37.1 (35.3–38.9)	47.5 (45.7–49.4)
Nebraska	7,822	24.4 (23.0–25.8)	47.1 (45.4–48.9)	28.5 (26.8–30.3)	23.2 (21.8–24.6)	47.0 (45.2–48.9)	29.8 (28.0–31.7)
New Jersey	3,842	34.0 (31.9–36.2)	43.0 (40.6–45.4)	23.0 (20.9–25.1)	32.0 (30.1–34.1)	43.8 (41.3–46.3)	24.2 (22.1–26.4)
New York	3,751	30.2 (28.5–32.1)	47.3 (45.2–49.4)	22.5 (20.7–24.3)	29.1 (27.3–30.8)	47.9 (45.8–50.0)	23.0 (21.2–25.0)
North Carolina	3,926	19.6 (18.1–21.2)	40.1 (38.0–42.3)	40.3 (38.1–42.5)	18.3 (16.9–19.9)	40.2 (38.0–42.4)	41.5 (39.3–43.7)
Ohio	7,316	25.4 (24.1–26.8)	43.4 (41.7–45.1)	31.2 (29.6–32.9)	23.7 (22.4–25.0)	43.5 (41.7–45.4)	32.8 (31.1–34.6)
Oklahoma	3,638	19.0 (17.5–20.5)	37.9 (35.9–40.0)	43.1 (40.9–45.3)	17.9 (16.4–19.4)	37.6 (35.5–39.7)	44.6 (42.4–46.8)
South Carolina	9,590	19.8 (18.4–20.9)	39.8 (38.4–41.2)	40.4 (39.0–41.9)	18.0 (17.1–19.1)	39.9 (38.4–41.4)	42.1 (40.6–43.6)
Utah	11,428	20.9 (20.1–21.8)	51.6 (50.4–52.8)	27.5 (26.4–28.6)	21.8 (20.9–22.6)	51.2 (50.0–52.4)	27.0 (26.0–28.1)
Vermont	5,784	35.8 (34.3–37.4)	47.5 (45.8–49.2)	16.7 (15.4–18.1)	32.7 (31.2–34.2)	49.3 (47.5–51.1)	18.0 (16.5–19.6)
West Virginia	5,630	22.4 (21.2–23.6)	35.9 (34.4–37.4)	41.8 (40.2–43.4)	19.7 (18.6–20.9)	35.1 (33.5–36.7)	45.2 (43.5–46.9)
Wisconsin	5,500	26.4 (24.7–28.2)	46.9 (44.8–49.0)	26.7 (24.8–28.7)	24.0 (22.4–25.8)	47.4 (45.2–49.7)	28.5 (26.5–30.6)

Abbreviation: CI = confidence interval.
* Weighted percentages might not sum to 100% because of rounding.
[†] Included regular soda, fruit drinks, sweet tea, and sports or energy drinks.
[§] Age standardization according to 2000 U.S. projected population.

4.9 in DC), and among Hispanics, was 1.4 times the prevalence among whites (ranging from 0.7 in Vermont to 2.2 in California). Overall, the prevalence of at least once daily SSB consumption among adults with less than a high school education was 2.7 times the prevalence among college graduates, ranging from 1.5 times higher in Mississippi to 5.4 times higher in DC.

The states with the highest prevalences of at least once daily consumption of SSBs among persons aged 18–24 years were Oklahoma (66.4%) and West Virginia (63.8%). The highest prevalences among men were in Louisiana (50.6%) and Mississippi (48.7%). At least once daily SSB intake was most prevalent among blacks in approximately half of states; states with the highest prevalence among blacks were Louisiana (50.7%) and Iowa (49.0%) (Table 2). Among persons who were unemployed, the highest prevalences of consuming SSBs ≥1 time per day were reported in Mississippi (49.5%) and Louisiana (48.4%). The states with the highest prevalence among persons with less than a high school education were Louisiana (60.0%) and South Carolina (55.6%) (Table 3).

Discussion

The frequency of daily SSB intake remains high in some states and within certain populations. During 2013, approximately one

in three adults reported consuming SSBs at least once daily in DC and the 23 states surveyed. Adults in Louisiana, Mississippi, and West Virginia reported the highest prevalence of at least once daily SSB intake. Daily SSB intake was most frequently reported among persons aged 18–24 years, men, blacks, adults who were not employed, and persons with less than a high school education.

The prevalence of daily SSB intake in this study was somewhat lower than that reported by the 2009–2010 NHANES data, which found that 50.6% of U.S. adults reported consuming at least one SSB on a given day (3). Potential reasons for this discrepancy might be accounted for by differences in modes of survey administration, methods of collecting dietary intake data, survey year, representativeness, and usual intake assessment. NHANES is an in-person and phone follow-up survey using 24-hour dietary recalls with USDA's Automated Multiple-Pass Method that captures all forms of SSBs. In contrast, the BRFSS is a telephone survey using a short dietary screener about usual intake during the past 30 days.

As has been reported in other studies that used National Health Interview Survey and BRFSS (4,6) data, the prevalence of at least once daily SSB intake in this analysis was higher in southern states. Higher SSB intake frequency in certain states could result, in part, from variations in beverage retail

TABLE 2. Crude prevalence* of sugar-sweetened beverage† consumption ≥1 time/day among adults, by age group, sex, race/ethnicity, and state — Behavioral Risk Factor Surveillance System, 23 states and District of Columbia, 2013

State	No. respondents	Crude prevalence of sugar-sweetened beverage consumption ≥1 time/day, % (95% CI)									
		Age group (yrs)§				Sex§		Race/Ethnicity§			
		18–24	25–34	35–54	≥55	Male	Female	White, non-Hispanic	Black, non-Hispanic	Hispanic	Other, non-Hispanic
Overall¶	157,668	43.3 (41.2–45.5)	38.2 (36.7–39.7)	30.1 (29.3–31.0)	19.1 (18.5–19.7)	34.1 (33.3–35.0)	24.4 (23.8–25.0)	26.7 (26.2–27.2)	39.9 (38.1–41.7)	36.3 (34.4–38.3)	21.2 (19.2–23.4)
Alaska	4,102	45.9 (38.7–53.3)	31.3 (26.3–36.7)	25.1 (22.0–28.4)	17.1 (14.5–20.1)	31.2 (28.3–34.3)	21.5 (18.8–24.4)	21.1 (19.0–23.3)	31.5 (18.7–47.8)	26.4 (16.3–39.8)	41.4 (36.5–46.6)
Arizona	3,491	48.8 (38.1–59.7)	41.5 (32.4–51.1)	27.9 (23.2–33.0)	15.7 (13.0–18.9)	34.4 (29.9–39.2)	21.6 (18.3–25.3)	21.5 (18.9–24.5)	32.9 (18.3–51.8)	39.4 (32.0–47.3)	39.1 (28.0–51.4)
California	5,871	36.4 (30.8–42.4)	31.5 (27.5–35.9)	23.9 (21.5–26.4)	14.9 (13.1–17.0)	28.2 (25.8–30.7)	19.4 (17.6–21.5)	16.3 (14.6–18.1)	33.5 (25.3–43.3)	36.0 (33.1–39.0)	14.4 (11.2–18.4)
Connecticut	5,871	30.4 (23.9–37.8)	29.1 (24.5–34.2)	18.0 (15.8–20.4)	14.3 (12.7–16.0)	24.2 (22.0–26.6)	15.3 (13.5–17.3)	16.6 (15.1–18.2)	30.3 (24.8–36.4)	31.1 (25.4–37.4)	18.4 (12.0–27.0)
District of Columbia	4,152	43.0 (32.1–54.7)	20.8 (15.9–26.7)	20.3 (17.0–24.0)	20.5 (18.1–23.1)	24.7 (21.1–28.6)	20.9 (18.2–23.9)	7.5 (5.6–10.0)	37.2 (33.4–41.1)	16.5 (9.6–26.9)	12.7 (7.6–20.3)
Indiana	4,486	45.2 (37.7–52.9)	45.4 (39.8–51.1)	37.5 (34.4–40.7)	24.6 (22.5–26.7)	39.3 (36.5–42.3)	30.9 (28.5–33.4)	33.5 (31.5–35.5)	39.7 (32.4–47.6)	43.1 (33.5–53.3)	45.6 (33.4–58.3)
Iowa	3,696	52.5 (44.1–60.6)	40.2 (34.2–46.5)	31.7 (28.3–35.4)	16.3 (14.4–18.3)	38.2 (34.9–41.5)	22.0 (19.5–24.8)	28.3 (26.2–30.4)	49.0 (31.0–67.2)	37.1 (25.5–50.4)	63.0 (43.9–78.7)
Kansas	11,121	45.3 (41.0–49.6)	39.4 (36.2–42.7)	32.1 (30.2–33.9)	18.7 (17.6–19.9)	36.0 (34.3–37.7)	24.6 (23.2–26.0)	28.8 (27.7–30.0)	32.0 (26.3–38.2)	42.5 (37.7–47.5)	28.2 (23.1–34.1)
Kentucky	9,818	56.8 (51.2–62.3)	55.5 (51.0–59.9)	44.1 (41.5–46.7)	27.9 (26.1–29.8)	46.8 (44.4–49.1)	36.5 (34.5–38.5)	41.4 (39.8–42.9)	44.2 (36.7–52.0)	36.3 (24.1–50.7)	34.6 (26.3–44.1)
Louisiana	4,759	58.2 (49.4–66.6)	55.7 (48.4–62.7)	47.0 (43.1–51.0)	31.3 (28.9–33.7)	50.6 (46.9–54.4)	38.3 (35.5–41.2)	41.0 (38.3–43.8)	50.7 (46.1–55.2)	41.2 (26.0–58.3)	41.2 (27.5–56.5)
Maryland	11,759	40.8 (34.7–47.2)	32.5 (28.6–36.8)	28.7 (26.6–30.9)	20.0 (18.6–21.5)	32.2 (30.0–34.5)	23.3 (21.7–25.0)	24.6 (23.1–26.3)	34.1 (31.1–37.3)	29.8 (24.2–36.2)	22.9 (18.2–28.5)
Minnesota	12,704	33.1 (28.2–38.4)	33.8 (30.2–37.7)	21.1 (18.9–23.4)	11.9 (10.3–13.8)	28.3 (26.2–30.6)	14.5 (13.0–16.2)	20.0 (18.6–21.5)	28.9 (21.1–38.1)	38.9 (30.4–48.1)	20.5 (15.2–27.2)
Mississippi	6,692	62.5 (55.9–68.8)	57.3 (52.1–62.2)	48.1 (45.1–51.2)	33.8 (31.8–36.0)	48.7 (45.8–51.6)	44.1 (41.9–46.3)	45.0 (42.7–47.2)	48.7 (45.5–51.9)	54.9 (39.7–69.3)	39.2 (27.3–52.6)
Nebraska	7,822	42.0 (35.6–48.7)	40.7 (35.7–45.8)	31.3 (28.3–34.5)	15.4 (13.8–17.1)	35.8 (33.1–38.5)	21.7 (19.7–24.0)	26.4 (24.7–28.2)	36.7 (24.7–50.7)	48.7 (40.1–57.4)	31.3 (22.1–42.3)
New Jersey	3,842	46.2 (36.5–56.2)	28.6 (23.2–34.7)	22.6 (19.6–25.9)	13.8 (11.6–16.2)	28.0 (24.8–31.5)	18.2 (15.8–20.9)	19.9 (17.6–22.5)	38.3 (31.8–45.4)	29.8 (23.9–36.3)	11.0 (6.8–17.3)
New York	3,751	25.1 (18.7–32.9)	29.6 (24.9–34.7)	24.3 (21.3–27.6)	16.2 (14.2–18.5)	27.1 (24.3–30.1)	18.2 (16.1–20.4)	17.9 (15.9–20.1)	33.7 (28.1–39.8)	32.9 (27.9–38.3)	17.1 (11.9–24.0)
North Carolina	3,926	61.7 (53.3–69.4)	46.5 (40.5–52.5)	42.8 (39.3–46.5)	27.4 (24.8–30.1)	44.2 (40.9–47.6)	36.6 (33.8–39.5)	38.5 (35.9–41.1)	46.0 (41.0–51.1)	49.9 (41.9–57.8)	26.4 (17.7–37.5)
Ohio	7,316	49.4 (42.5–56.3)	44.1 (39.1–49.2)	31.9 (29.3–34.6)	19.5 (17.8–21.3)	37.1 (34.6–39.8)	25.7 (23.7–27.8)	29.9 (28.2–31.6)	41.6 (35.8–47.6)	38.1 (25.0–53.1)	30.3 (21.6–40.7)
Oklahoma	3,638	66.4 (58.0–73.9)	57.4 (51.4–63.1)	45.1 (41.4–48.8)	25.9 (23.6–28.4)	45.8 (42.5–49.2)	40.5 (37.7–43.3)	40.9 (38.4–43.5)	39.7 (31.4–48.7)	53.8 (45.0–62.5)	50.5 (44.5–56.4)
South Carolina	9,590	58.7 (53.0–64.1)	51.9 (47.8–56.0)	41.4 (38.9–43.9)	29.4 (27.6–31.2)	46.4 (44.2–48.6)	35.1 (33.2–37.0)	38.6 (36.9–40.4)	45.1 (42.2–48.1)	38.5 (28.4–49.6)	40.7 (33.0–48.8)
Utah	11,428	32.6 (29.1–36.3)	35.4 (32.7–38.2)	27.2 (25.4–29.0)	19.0 (17.6–20.5)	34.3 (32.6–36.0)	20.9 (19.5–22.3)	25.3 (24.2–26.4)	36.4 (21.5–54.5)	42.1 (37.8–46.6)	28.7 (23.1–35.1)
Vermont	5,784	25.5 (19.5–32.6)	24.5 (20.2–29.4)	18.0 (15.8–20.4)	10.6 (9.4–12.0)	21.7 (19.5–24.1)	12.2 (10.7–13.9)	16.3 (15.0–17.8)	31.9 (11.5–63.0)	11.2 (4.1–27.0)	29.7 (21.7–39.3)
West Virginia	5,630	63.8 (57.4–69.9)	56.5 (51.8–61.2)	48.0 (45.4–50.7)	25.7 (24.0–27.6)	47.3 (44.9–49.8)	36.5 (34.5–38.5)	42.0 (40.4–43.6)	37.1 (26.4–49.2)	40.0 (25.1–57.0)	40.3 (30.6–50.8)
Wisconsin	5,500	44.1 (36.8–51.7)	41.6 (35.6–47.9)	27.8 (24.7–31.2)	14.2 (12.3–16.4)	33.1 (30.2–36.2)	20.4 (17.9–23.0)	24.9 (23.0–26.9)	48.2 (36.4–60.2)	40.4 (27.3–55.0)	25.2 (17.1–35.6)

Abbreviation: CI = confidence interval.
* Weighted percentages might not sum to 100% because of rounding.
† Includes regular soda, fruit drinks, sweet tea, and sports or energy drinks.
§ Values for all states were significantly different at p<0.05 by chi-square test except for Virginia, where differences in SSB intake by race/ethnicity were not statistically significant.
¶ Missing data: 1.2% for race/ethnicity.

TABLE 3. Crude prevalence* of sugar-sweetened beverage[†] consumption ≥1 time/day among adults, by employment status, education, and state — Behavioral Risk Factor Surveillance System, 23 states and District of Columbia, 2013

State	No. respondents	Crude prevalence of sugar-sweetened beverage consumption ≥1 time/day (95% CI)						
		Employment status[§]			Education[§]			
		Employed	Not employed	Retired	<High school	High school	Some college	College graduate
Overall[¶]	157,668	30.0(29.3–30.7)	34.4(33.2–35.5)	18.0(17.2–18.9)	42.4(40.6–44.3)	35.8(34.8–36.8)	28.5(27.6–29.5)	15.5(14.9–16.2)
Alaska	4,102	26.2 (23.6–28.9)	32.1 (27.8–36.8)	16.0 (12.6–20.2)	47.1 (37.8–56.5)	34.9 (31.1–38.9)	24.2 (21.0–27.8)	12.9 (10.5–15.7)
Arizona	3,491	33.0 (28.5–37.8)	28.7 (23.5–34.5)	13.8 (10.8–17.5)	40.4 (30.9–50.7)	36.5 (30.7–42.7)	24.4 (19.9–29.4)	14.6 (11.6–18.3)
California	5,871	22.9 (20.9–25.1)	30.2 (27.1–33.4)	15.0 (12.2–18.2)	38.5 (34.2–43.0)	29.9 (26.5–33.7)	21.4 (18.8–24.2)	11.5 (9.8–13.5)
Connecticut	5,871	18.9 (17.1–20.9)	24.3 (20.8–28.2)	15.0 (12.7–17.7)	27.8 (22.4–33.9)	26.9 (23.7–30.3)	19.9 (17.2–23.0)	10.2 (8.7–12.0)
District of Columbia	4,152	18.5 (15.7–21.7)	34.6 (29.5–40.1)	18.5 (15.3–22.1)	45.6 (36.4–55.2)	39.0 (33.1–45.2)	28.9 (23.4–35.0)	8.4 (7.0–10.1)
Indiana	4,486	35.9 (33.3–38.6)	40.5 (36.5–44.5)	23.3 (20.5–26.3)	50.7 (44.3–57.0)	39.6 (36.4–42.9)	33.0 (29.6–36.6)	20.9 (18.1–23.9)
Iowa	3,696	34.2 (31.4–37.1)	33.1 (28.1–38.6)	12.0 (9.9–14.6)	49.2 (40.0–58.5)	34.6 (31.1–38.3)	28.8 (25.2–32.6)	17.6 (14.9–20.6)
Kansas	11,121	32.4 (31.0–33.9)	35.3 (32.6–38.0)	15.4 (14.0–17.0)	45.2 (40.9–49.7)	37.0 (34.8–39.2)	30.6 (28.6–32.6)	17.2 (15.8–18.7)
Kentucky	9,818	43.4 (41.3–45.5)	46.1 (43.0–49.3)	27.3 (24.7–30.0)	53.4 (48.6–58.1)	47.0 (44.4–49.6)	39.7 (37.1–42.4)	24.0 (21.9–26.2)
Louisiana	4,759	46.9 (43.5–50.3)	48.4 (43.8–53.0)	29.3 (26.4–32.5)	60.0 (53.3–66.5)	48.6 (44.8–52.5)	40.7 (36.6–44.9)	26.3 (23.1–29.8)
Maryland	11,759	28.0 (26.2–29.9)	31.5 (28.3–34.9)	20.8 (18.7–23.1)	40.7 (35.2–46.5)	36.9 (34.1–39.0)	27.2 (24.7–29.9)	15.5 (14.1–17.0)
Minnesota	12,704	23.5 (21.8–25.3)	25.0 (21.5–28.9)	8.9 (6.8–11.7)	30.6 (24.6–37.3)	27.1 (24.2–30.1)	21.9 (19.6–24.4)	12.7 (11.2–14.5)
Mississippi	6,692	49.7 (47.1–52.3)	49.5 (46.1–52.9)	29.7 (27.0–32.5)	51.1 (46.6–55.6)	49.2 (46.0–52.4)	47.2 (43.8–50.6)	34.9 (31.9–38.0)
Nebraska	7,822	31.1 (28.9–33.4)	30.5 (26.3–35.1)	14.9 (12.5–17.6)	52.3 (45.0–59.5)	37.0 (33.8–40.3)	25.9 (23.2–28.8)	14.3 (12.2–16.6)
New Jersey	3,842	22.7 (20.1–25.6)	30.1 (25.3–35.3)	13.3 (10.4–17.0)	40.0 (32.2–48.3)	29.5 (25.4–33.9)	22.2 (18.6–26.4)	11.5 (9.5–13.8)
New York	3,751	23.1 (20.7–25.7)	24.6 (21.0–28.7)	16.1 (13.4–19.3)	31.3 (25.2–38.1)	26.1 (22.4–30.2)	24.2 (21.0–27.8)	13.6 (11.6–15.9)
North Carolina	3,926	42.1 (39.2–45.1)	46.0 (41.5–50.7)	25.9 (22.4–29.8)	52.1 (46.2–57.9)	47.2 (43.0–51.3)	41.5 (37.4–45.7)	23.5 (20.4–26.9)
Ohio	7,316	32.0 (29.9–34.3)	39.0 (35.3–42.8)	18.1 (15.7–20.8)	44.4 (38.0–50.9)	36.6 (33.8–39.5)	31.8 (28.9–34.9)	16.0 (14.0–18.2)
Oklahoma	3,638	46.5 (43.5–49.6)	48.2 (43.8–52.6)	21.9 (19.0–25.1)	51.5 (44.5–58.3)	50.8 (46.9–54.6)	43.5 (39.7–47.4)	24.9 (21.8–28.3)
South Carolina	9,590	42.0 (40.0–44.1)	46.5 (43.6–49.4)	26.2 (23.8–28.6)	55.6 (51.3–59.7)	46.5 (43.9–49.1)	39.1 (36.5–41.8)	23.5 (21.4–25.7)
Utah	11,428	30.3 (28.9–31.8)	25.6 (23.3–27.9)	17.4 (15.5–19.5)	48.5 (43.1–53.8)	36.4 (34.2–38.6)	25.0 (23.3–26.7)	15.1 (13.8–16.5)
Vermont	5,784	16.7 (15.0–18.6)	21.5 (18.0–25.5)	11.2 (9.4–13.4)	32.9 (26.0–40.6)	21.5 (19.0–24.2)	16.9 (14.3–19.8)	7.8 (6.6–9.3)
West Virginia	5,630	46.1 (43.7–48.4)	47.7 (44.7–50.8)	22.3 (20.0–24.9)	47.5 (43.1–51.8)	46.6 (44.1–49.1)	40.7 (37.6–43.9)	26.1 (23.4–29.0)
Wisconsin	5,500	29.7 (27.1–32.3)	30.8 (26.1–35.8)	12.5 (10.0–15.5)	35.5 (27.5–44.5)	32.6 (29.2–36.2)	27.6 (24.2–31.3)	13.6 (11.5–16.1)

Abbreviation: CI = confidence interval.
* Weighted percentages might not sum to 100% because of rounding.
[†] Includes regular soda, fruit drinks, sweet tea, and sports or energy drinks.
[§] Values for all states were different by chi-square test (p<0.05).
[¶] Missing data: 0.4% for employment status and 0.2% for education.

environments, including access and availability, cultural norms (7,8), and advertising.[¶] This study found higher prevalences of daily SSB intake among younger adults, men, blacks, and persons with lower levels of education, which is consistent with previous reports that used data from the 2009–2010 NHANES (3) and 2011 and 2012 BRFSS (6,9). Adults with less knowledge about the adverse health consequences of SSB intake (5) might in part account for the higher reported consumption in some populations. Daily SSB intake was higher among young adults and unemployed adults but lower among older adults and retired adults in this analysis; previous studies based on NHANES and BRFSS data have found that older adults have lower SSB intake (3,6,9).

The findings in this report are subject to at least three limitations. First, because BRFSS data are self-reported, they are subject to recall and social desirability bias, which might have underestimated or overestimated SSB intake. Second, only half of states elected to use the module; thus the

findings might not be generalizable to the entire U.S. adult population. Finally, SSB intake was measured in frequency rather than volume of consumption; therefore, estimating the amount of SSBs consumed or the caloric intake from SSBs was not possible.

The frequency of daily SSB intake is high among adults, especially among certain subpopulations, as well as persons living in southern states. SSBs can contribute to obesity, type 2 diabetes, and cardiovascular disease related to excess intake of added sugars and calories from SSBs (2). SSB intake has been positively associated with markers of inflammation and insulin resistance, which might increase risk for cardiovascular disease and diabetes independently of obesity (2). Considering potential adverse health effects of SSB intake and the substantial contribution that SSBs make to excess dietary sugar, continuation of public health efforts aimed at decreasing high SSB intake is important. Actions can include education and awareness initiatives, increasing access to and promotion of healthier options through nutrition standards,

Summary

What is already known about this topic?

Sugar-sweetened beverages (SSBs) are significant sources of added sugars among U.S. adults. SSB intake differs by geographical region and sociodemographic characteristics.

What is added by this report?

Data from the SSB intake module in the 2013 Behavioral Risk Factor Surveillance System provide the most recent state-specific data on consumption of SSBs. Among the 23 states surveyed and the District of Columbia, adult SSB intake was highest in Mississippi (47.5%), followed by Louisiana (45.5%) and West Virginia (45.2%). At least once daily SSB intake was most common among persons aged 18–24 years (43.3%), men (34.1%), non-Hispanic blacks (39.9%), persons who reported not being employed (34.4%), and persons with less than high school education (42.4%).

What are the implications for public health practices?

Because of the potential adverse health outcomes associated with SSB intake, including obesity, type 2 diabetes, and cardiovascular disease, public health practitioners should continue efforts aimed at decreasing SSB intake among demographic groups with the highest reported consumption. Strategies can include education initiatives, increasing access to healthier options through nutrition standards, increasing availability of drinking water in schools and public venues, screening and counseling patients on SSB reduction, and facility food and beverage changes in clinic or hospital settings for employees, families, and patients.

including food service guidelines,** and increasing the availability and promotion of drinking water in schools and public venues.†† In addition, health care providers can screen and counsel patients on SSB reduction and support facility food and beverage changes in their clinic or hospital settings for employees, families, and patients.§§

** http://www.cdc.gov/obesity/strategies/food-serv-guide.html.
†† https://www.planning.org/research/publichealth/pdf/wateraccessreport.pdf.
§§ http://www.cdc.gov/obesity/strategies/healthy-hospital-environment-toolkit/index.html.

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