# Research Watch

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## POLICY

### Impact of different front-of-pack nutrition labels on consumer purchasing intentions: a randomized controlled trial

Ducrot P, Julia C, Méjean C, Kesse-Guyot E, Touvier M, Fezeu LK, et al. *Am J Prev Med.* 2016;50(5):627–636.

*A France-based randomized controlled trial tested how four different front-of-package (FOP) labels – the Five-Color Nutrition Label, Multiple Traffic Lights, Green Tick, and Guideline Daily Amounts – affected customer shopping behaviors. Each customer saw a different label in a virtual, web-based supermarket. Consistently, the Five-Color Nutrition Label group chose the healthiest products.*

This study extended previous research by comparing a variety of FOP labels, using four formats commonly found in Europe. Two of the labels (Multiple Traffic Lights and Guideline Daily Amounts) were more detailed and nutrient-specific, while the other two were general summary measures.

The study sample included 11,981 adults who were participating in the NutriNet-Santé, an ongoing, web-based cohort study started in 2009. Each participant was asked to select a week's worth of food for their household while shopping in a web-based supermarket. The supermarket included 269 products that each contained the name, price, and FOP label.

The authors analyzed the overall health and specific nutrient measures of participants' shopping carts (overall health was measured using the United Kingdom Food Standards Agency, FSA, score.) The Five-Color Nutrition Label group had healthier FSA scores compared to any other group. The Green Tick and Multiple Traffic lights also had healthier FSA scores than the control group overall, but the Guideline Daily Amounts group, which is more comparable to FOP labels in the US, did not.

Only the Five-Color Nutrition Label group had healthier carts in terms of lipids, saturated fatty acids, and sodium. Interestingly, though, no FOP label led to lower sugar content. Results were generally similar regardless of sex, age, educational level, monthly income, perceived nutritional knowledge, and BMI, although effect sizes were smaller in low-income individuals. ■

Limitations: The study was conducted in a web-based supermarket and did not measure actual shopping behavior, let alone health outcomes. Study participants tended to be more knowledgeable about nutrition and more involved in grocery shopping, and thus results may not generalize to others. Products without FOP labels, such as fruits and vegetables, were not included.

## Modelling the potential impact of a sugar-sweetened beverage tax on stroke mortality, costs and health adjusted life years in South Africa

Manyema M. Veerman LJ, Tugendhaft A, Labadarios D, Hofman KJ. *BMC Public Health.* 2016; 16(1):405.

*This modeling study projected that a 20 percent sugary drink tax would have substantial impact on stroke-related mortality, quality of life, and health care expenditures in South Africa. The results have immediate relevance, as South Africa has discussed implementing a sugary drink tax in 2017.*

According to model estimates, the 20 percent tax would result in 100,000 fewer stroke cases, 72,000 fewer stroke deaths, and a reduction in health care costs of ZAR5 billion (equivalent to USD 400 million) over a 20-year span. The number of stroke cases and deaths would stabilize over the 20 years, but quality of life would continuously improve. Collectively, quality of life would improve by 550,000 disability-adjusted life years over the 20-year period.

Previous modeling studies have not focused on stroke-related outcomes even though stroke is a major cause of disease and disability. In South Africa, in particular, stroke was the third leading cause of death in 2000 (after HIV/AIDS and ischemic heart disease.)

The authors' model consisted of two stages. First, they estimated the impact of a 20% tax on South Africa's body mass index (BMI) distribution, and subsequently they used a life-table based Markov model to estimate the impact of BMI change on stroke-related outcomes. They compared outcomes in a 20 percent tax scenario to a reference population that represented the BMI distribution and disease patterns of South African adults (age 15 and higher) in 2012.

Their analysis included several uncertainty and sensitivity analyses to represent different scenarios (e.g., tax rates, elasticity, tax pass-through rates.) Although the precise estimates varied by scenario, the general conclusions were similar. ■

Limitations: The authors' estimates of BMI change were based on relatively simple energy balance equations that may not reflect how humans adapt to changes in energy intake. The authors also relied on elasticity and relative risk estimates that were not specific to South Africa. Some drink categories (e.g., coffee/tea) were excluded due to data limitations.

### The effect of price and socio-economic level on the consumption of sugar-sweetened beverages (SSB): the case of Ecuador

*Paraje G. PLoS ONE. 2016;11(3):e0152260.*

Paraje used data from Ecuador's 2011-12 National Urban and Rural Household Income and Expenditures Survey to estimate price elasticity for sugary drinks and non-sugary drinks. Price elasticity represents how much consumption may decrease as price increases. Paraje found that elasticity for sugary drinks was -1.20, which is similar to estimates in other countries, and -1.33 in low-socioeconomic households. An estimate of -1.20 overall means that a 10 percent tax could lead to a 12 percent decrease in consumption overall. The price elasticity of non-sugary drinks was approximately the same (-1.19 overall).

## CONSUMPTION PATTERNS

### Youth risk behavior surveillance - United States, 2015.

Kann L, McManus T, Harris WA, Shanklin SL, Flint KH, Hawkins J, et al. *MMWR Surveill Summ.* 2016; 65(6):1-174.

*New data on youth and sugary drinks show soda consumption declining but with persistent disparities by sex and geography. Estimates for sports drinks consumption point to important racial disparities. Advocates should use these data to tailor interventions aimed at reducing consumption to diminish disparities.*

New in 2015 are estimates for consumption of sports drinks at the national level in addition to estimates for soda consumption at the national, state, and local levels from the Youth Risk Behavior Surveillance System (YRBSS). The YRBSS includes a national school-based survey conducted by CDC, and state and large urban school district school-based surveys conducted by state and local education and health agencies. In 2015 there were 37 state surveys, and 19 large urban school district surveys conducted among students in grades 9-12. The surveys monitor a range of health behaviors, including diet.

Soda Consumption Trends

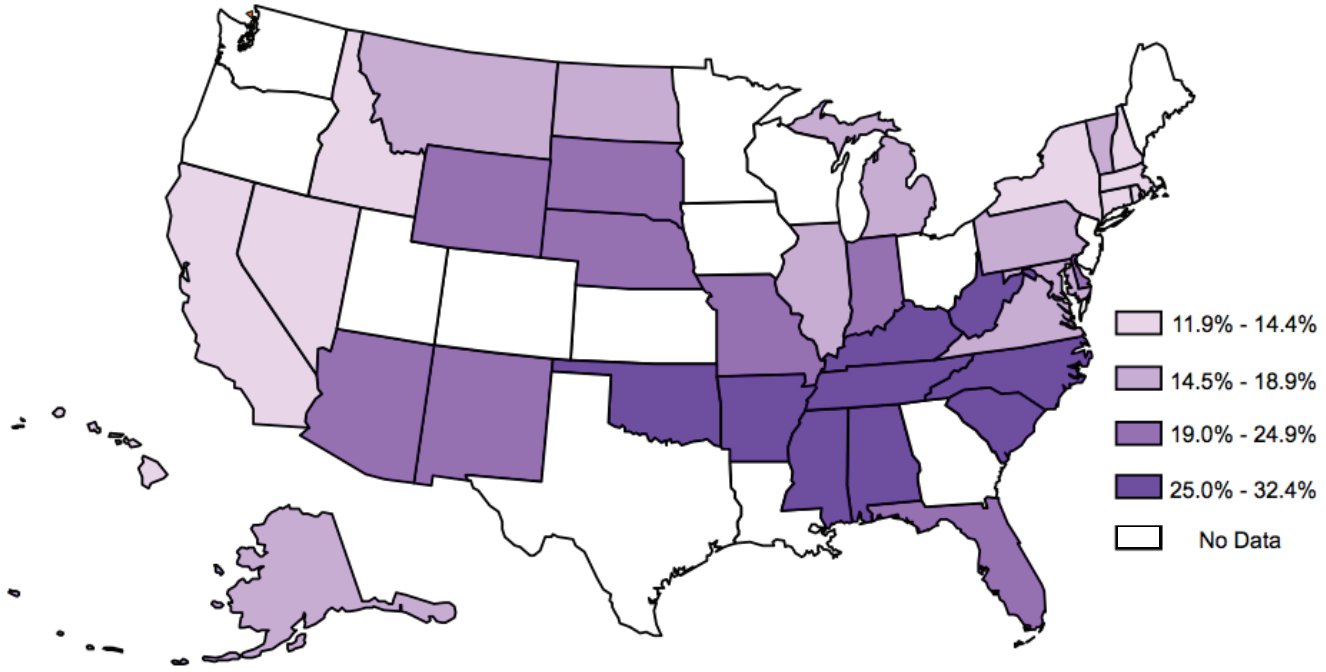
- More than two-thirds (73.8%) of high school youth drink soda weekly, and one in five youth drink these beverages daily. Daily soda consumption declined seven percentage points from 2013 (27.0%) to 2015 (20.4%).
- More male youth (24.3%) reported daily consumption compared with female (16.4%).
- More black, non-Hispanic youth (9.5%) reported three or more sodas per day compared with white (5.9%) and Hispanic (8.1%) youth.
- State estimates for daily soda consumption ranged from 11.9% to 32.4% (median: 19.0%). Among large urban school districts, the daily consumption ranged from 9.6% to 27.5% (median: 18.9%).

Sports Drinks Consumption Trends

- More than half of youth (57.6%) drink sports drinks weekly and 13.8% drink these beverages daily. Daily consumption is more common among male students (18.7% versus 8.8% among female) and black, non-Hispanic students (19.7% versus Hispanic, 15.7%, and white, 12.4%).
- Three or more sports drinks per day was reported more often by black, non-Hispanic students (9.2%) compared with white (3.1%) and Hispanic students (7.1%). ■

Limitations: Data are self-reported and students might over or under report based on social desirability. State and local surveys did not ask about other sugary drink consumption such as fruit drinks, energy drinks, and sports drinks.

**Percentage of High School Students Who Drank a Can, Bottle, or Glass of Soda or Pop One or More Times Per Day***




*State Youth Risk Behavior Surveys, 2015*

*Not counting diet soda or diet pop, during the 7 days before the survey

## Macronutrient composition of menu offerings in fast food restaurants in the U.S.

Jarlenski, Wolfson, & Bleich. *Am J Prev Med.* 2016. Epub ahead of print

*In recent years, chain restaurants in the U.S. have reduced the average number of calories in menu items. However, this study found that the macronutrient composition (fat, carbohydrates and protein) of fast food menu items has not shifted to a healthier profile.*

Authors assessed the calorie and macronutrient content of meals offered in 37 U.S. fast food restaurant chains to identify trends from 2012 to 2014. Data on the content of fast food meals came from the MenuStat project, which includes a census of menu items offered in most of the 200 largest U.S. restaurant chains. MenuStat includes total calories, as well as grams of carbohydrates, sugar, total fat (saturated and unsaturated), and protein, for each menu item.

The authors analyzed 11,737 menu items from 37 fast food chain restaurants where data were available in 2012-2014. They analyzed changes in calorie and macronutrient content as well as how newly introduced items in 2013 or 2014 compared with items on menus in 2012.

Overall, no large changes in caloric content or macronutrient composition were observed. Food items declined by 22 calories, on average, due to modest declines in non-sugar carbohydrates, unsaturated fat, and protein. Beverage items increased by 46 calories, on average, due to increases in sugar and saturated fat.

There were greater compositional differences between newly introduced items in 2013-14 versus items on the menu in 2012 only. New food items had 52 fewer calories, on average, due mostly to declines in unsaturated fat, and new beverage items had 36 fewer calories, on average, due mostly to declines in saturated fat. In contrast, newly introduced desserts had 73 more calories in 2013 and 90 more calories in 2014, due primarily to increases in sugar (49 and 57 calories, respectively.) ■

Limitations: Data do not include information on children's meals and may not be generalizable to non-fast food restaurants. The study did not analyze consumer purchases, nor other menu characteristics, such as pricing.

## Sociodemographic and behavioral factors associated with added sugars intake among U.S. adults.

Park S, Thompson FE, McGuire LC, Pan L, Galuska DA, Blanck HM. *J Acad Nutr Diet.* 2016 Epub ahead of print

*Many US adults are consuming more added sugars than is recommended by the U.S. Dietary Guidelines for Americans. This study found that the intake of added sugars varies by sociodemographic and behavioral factors. High consumers were younger, less educated, and had lower family income. Differences by race/ethnicity were more mixed.*

Authors analyzed data from CDC's 2010 National Health Interview Study (NHIS) to identify patterns in consumption of added sugars among a representative sample of U.S. adults (n=24,967).

NHIS is one of the nation's largest in-person household health surveys. The 2010 NHIS included a supplemental 26-item dietary screener questionnaire. Adults reported the number of times per day, per week, or per month during the past month that they consumed selected foods and beverages.

Frequency responses on nine items (ie, regular soda, coffee/tea drinks, sport and energy drinks, sweetened fruit drinks, chocolate/candy, doughnuts/sweet rolls/Danish/muffins/toaster pastries, cookies/cake/pie/brownies, ice cream/frozen desserts, and hot/cold cereals) were used to estimate consumption of added sugars in teaspoons per day. Authors created three categories for added sugar consumption based on the distribution of the data (tertiles) for both sexes. For men, the highest tertile of intake was 22 teaspoons or more per day, while for women it was 14.6 or more teaspoons per day.

Men consumed more added sugars per day (17.6 tsp/day) than women (11.7 tsp/day). Several sociodemographic characteristics were related to intake. Among both sexes, the respondents most likely to be in the highest intake category were younger, less educated, had lower family income, reported no physical activity, were current smokers, and were former or current infrequent/light alcohol drinkers.

Black men were less likely to be in the highest tertile of intake compared with white men, whereas black women were more likely to be in the highest tertile compared with white women. Among both sexes, other/multiracial adults were less likely to be in the highest tertile of intake compared with white adults.

For men, the overall median intake of added sugars from foods was similar to that for sugary drinks (7.9 and 7.7 tsp/d, respectively). However, added sugar intake from sugary drinks was higher than from foods among younger men, Hispanic men, and non-Hispanic black men. For women, intake of added sugars from foods was higher than that for sugary drinks (6.5 and 3.8 tsp/d, respectively), and this difference was particularly large in older women, non-Hispanic white women, and non-Hispanic other/multiracial women. ■

Limitations: Added sugar was estimated based on self-reported intake of nine foods and beverages only.

Research Watch reviews the evidence on the health effects of sugar and the effectiveness of policy and other interventions to curb consumption to inform sugar reduction activities across the US.

Healthy Food America acts on scientific evidence to drive change in food policy and industry practice, giving people greater control over their health and reducing diet-related illnesses, such as obesity, diabetes, and heart disease.

*This publication was prepared by Dan Taber and Petra Vallila-Buchman.*