

Indicators of Diet Quality, Nutrition, and Health for Americans by Program Participation Status, 2011–2016: USDA National School Lunch Program Report (Summary)

Background

The U.S. Department of Agriculture's (USDA) Food and Nutrition Service (FNS) administers 15 nutrition assistance programs with the overarching goal of increasing nutrition security through consistent access to affordable, healthy food as well as nutrition education. The National School Lunch Program (NSLP) provides nutritionally balanced, low-cost or no-cost lunches to children each school day. The goal of the NSLP is to ensure children do not go hungry and that they have access to nutritious meals to optimize their growth, development, and academic achievement.

This study used 2011–2016 National Health and Nutrition Examination Survey (NHANES) data to examine the relationship between estimated program participation, diet quality, indicators of nutrition and health, food consumption patterns, and nutrient intakes. Most results presented in this report are unadjusted and descriptive only, and do not imply causality. They are intended to contribute to the evidence base needed to inform future research and program policy.

Key Findings

- Among income-eligible students, NSLP participants scored higher on diet quality than nonparticipants.
- On a given day, among income-eligible students, a higher percentage of NSLP participants consumed vegetables, fruit, milk products, and mixed dishes compared with nonparticipants.
- Among children from both higher and lower income groups, NSLP participants had higher mean usual intakes of potassium than nonparticipants; however, almost all school children (94 percent) had usual sodium intakes that exceed recommendations.

Methods

The primary sources of data for this study were three cycles of NHANES data (2011–2012, 2013–2014, and 2015–2016). NHANES collects data via interviews, physical examinations, and laboratory tests to assess the health and nutritional status of adults and children in the United States. Several additional data resources, including the USDA Food Patterns Equivalents Database (FPED), were used to complete the analyses in this report.

Because NHANES does not ask if the respondent received a school lunch on the day dietary intake was measured (intake day), NSLP participants were identified as school children ages 5–18 who were likely to have received a reimbursable meal on their intake day. The analysis imputed likely participation based on meeting one of the following conditions: (1) the child consumed at least three reimbursable meal components from the school cafeteria at lunch on the intake day; (2) the child consumed two reimbursable meal components from the school cafeteria at lunch on the intake day and reported they “usually eat a complete school lunch” 5 days per week; or (3) the child consumed two reimbursable meal components from the

school cafeteria at lunch on the intake day and did not consume food from outside the school cafeteria at lunch that day.

In the main report, unadjusted, descriptive analyses were used to examine associations between NSLP participation and income status and the following diet and health measures:

- Diet quality on a given day was examined using the Healthy Eating Index (HEI)-2015, a score (0–100) that assesses adherence to the 2015–2020 Dietary Guidelines for Americans (DGA)
- Food consumption patterns were examined by estimating (1) the proportion of individuals consuming foods from specific food groups—at lunch and over the course of a given day—and (2) the average amounts consumed
- Weight status was assessed using body mass index (BMI)-for-age percentiles based on Centers for Disease Control (CDC) growth charts and measured weight and height

- Usual energy, macronutrient, and micronutrient intake were assessed using dietary recall data relative to the Dietary Reference Intakes (DRIs) and the 2015–2020 DGA

For select outcomes, multivariate analyses were conducted to adjust for the following covariates: age; race/ethnicity; education and marital status of household reference person; and household size, income-to-poverty ratio, and food security status (see Appendix G).

The report provides tabulations for all school children, all NSLP participants, income-eligible NSLP participants, income-eligible nonparticipants, higher income NSLP participants, and higher income nonparticipants.¹ Tabulations are provided separately for three age groups (5–8, 9–13, and 14–18 years) and by gender.

Because of the descriptive nature of most analyses, the results presented in the report cannot be used to assess the impact of NSLP or infer causality. Also, because NHANES does not ask about NSLP participation on the intake day, children could not be identified with certainty as NSLP participants or nonparticipants.

Findings

Among income-eligible students, NSLP participants scored higher on the HEI of diet quality than did nonparticipants. After adjustment for covariates, income-eligible participants scored significantly higher than income-eligible nonparticipants on total HEI and on the total fruit, whole fruit, vegetables, greens and beans, dairy, total protein foods, and seafood and plant foods HEI components. Among higher income students, total diet quality score did not differ by NSLP participation. All groups had a total HEI score less than 60, indicating that all income and NSLP participant groups fell short of meeting the DGAs.

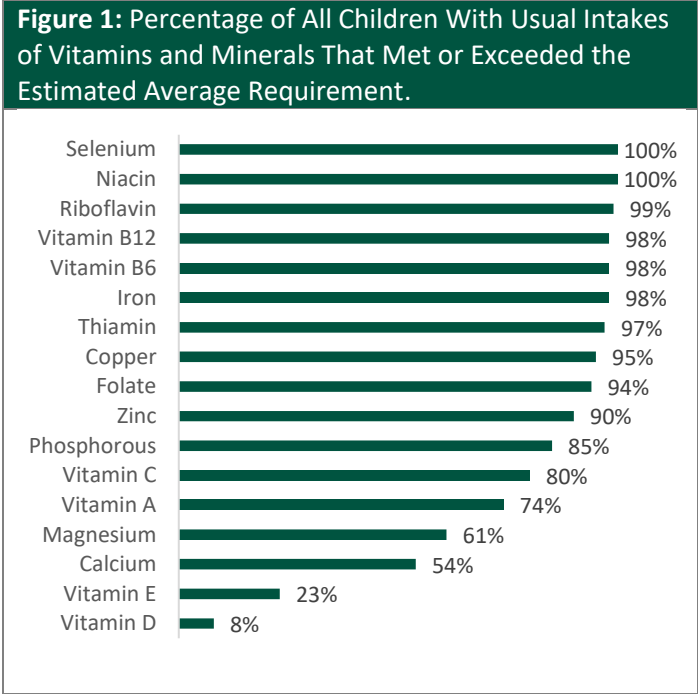
Sixty percent of school children had a normal weight status. The prevalence of overweight and obesity was 17 and 20 percent, respectively. In unadjusted analyses of income-eligible students, NSLP participants had a higher prevalence of obesity (27 versus 21 percent), but not overweight (15 versus 19 percent), than did nonparticipants. After adjusting for covariates, the prevalence of overweight or obesity did not differ by NSLP participation, indicating differences in weight status were related to factors other than NSLP participation.

Among income-eligible students, a higher percentage of NSLP participants consumed vegetables, fruit and 100 percent fruit juice, milk and milk products, and mixed

dishes within a 24-hour period compared with nonparticipants. Among higher income groups, NSLP participants had higher consumption of milk and milk products and mixed dishes, and lower consumption of salty snacks, than nonparticipants.

Most school children (77 percent) had usual intakes of total fat within the acceptable macronutrient distribution range (AMDR), and essentially all children had usual intakes of protein (100 percent) and carbohydrates (99 percent) within the AMDR.

Ninety percent or more of school children had a usual intake that met or exceeded the estimated average requirement (EAR) for vitamin B6, vitamin B12, folate, niacin, riboflavin, thiamin, copper, iron, selenium, and zinc (Figure 1).



Less than 90 percent of all school aged children had adequate intakes of vitamins A, C, D, and E, calcium, magnesium, and phosphorus. Among income-eligible students, a higher percentage of NSLP participants than nonparticipants met or exceeded the requirement for vitamins A, C, D, and E, calcium, copper, magnesium, phosphorus, and zinc. A lower percentage met the requirement for thiamin. Among higher income students, a higher percent participating in NSLP met or exceeded the EAR for vitamins A and D, thiamin, and calcium.

In both income groups, NSLP participants had higher mean usual intakes of potassium than nonparticipants.

¹ School children were determined to be eligible for free or reduced-price lunch, or “income-eligible,” if they lived in a household with monthly family income less than or equal to 185 percent of the relevant Federal Poverty Guidelines.

School children from households with monthly income greater than 185 percent of the relevant Federal Poverty Guidelines were designated as “higher income.”

Almost all school children (94 percent) had usual sodium intakes that exceed the chronic disease risk reduction (CDRR) level. Reducing sodium intakes above the CDRR is expected to reduce the risk of chronic disease. Sodium intakes did not differ by program participation.

For More Information:

Gleason, S., Hansen, D., Kline, N., Zvavitch, P., & Wakar, B. (2022). Indicators of diet quality, nutrition, and health for Americans by program participation status, 2011–2016: NSLP Report. Prepared by Insight Policy Research. Contract No. AG-GS-10F-0136X. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support, Project Officer: Jinee Burdg. Available online at: www.fns.usda.gov/research-and-analysis.