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# Nutrition and Health Characteristics of Low-Income Populations

## Healthy Eating Index

Biing-Hwan Lin, (202) 694-5458, blin@ers.usda.gov

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The Healthy Eating Index (HEI) measures how well American diets conform to recommended healthy eating patterns. Developed by the U.S. Department of Agriculture (USDA), the HEI provides a measure of overall dietary quality based on 10 dietary components. Five food-based components of the HEI (grains, vegetables, fruits, dairy, and meat) evaluate food consumption patterns against the Food Guide Pyramid recommendations. Four nutrient-based components assess compliance with the *Dietary Guidelines for Americans* recommendations for maximum daily intake of fat and saturated fat, as well as the National Research Council's (NRC) recommendations for maximum daily intake of cholesterol and sodium (USDA and U.S. Department of Health and Human Services, 2000; NRC, 1989). The analysis does not use the Acceptable Macronutrient Distribution Range for total fat and Upper Limits for sodium, released by the Institute of Medicine in 2002. The tenth component score assesses the level of variety in the diet. Each of the 10 dietary components has a scoring range of 0 to 10. The overall HEI scores are the simple sum of the scores from the 10 components. Total HEI scores over 80 imply a "good" diet. Scores between 51 and 80 indicate a "need for improvement."

And scores below 51 indicate a "poor" diet. The Nutrition and Health Characteristics of Low-Income Populations study examined the Healthy Eating Index using 1988-94 National Health and Nutrition Examination Survey (NHANES) data. The measures provide a baseline to monitor the dietary quality of Americans, focusing on the low-income population. Major findings are highlighted in this summary.

### All Americans Ages 2 and Older

For Americans 2 years and older, the mean overall HEI score was 64.0 (fig. 1). The majority of Americans need to improve their diets; only 12 percent of the population was deemed to have a good diet (fig. 2). More females than males had a good diet (13 percent vs. 10 percent), and more males than females had a poor diet (18 percent vs. 15 percent).

Consuming the recommended servings of fruits and vegetables were two difficult dietary tasks for Americans (fig. 3). Americans scored less than 40 percent (3.9 HEI score) in fruit consumption. Fewer than 20 percent of Americans consumed the recommended

Figure 1  
**Healthy Eating Index scores for all Americans, and by Food Stamp Program participation**

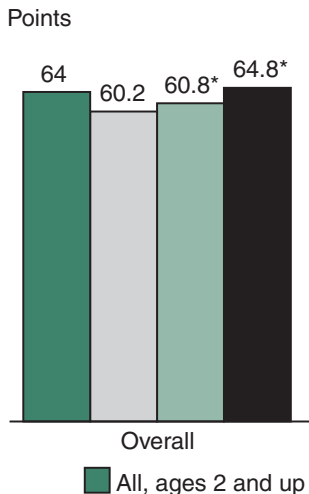
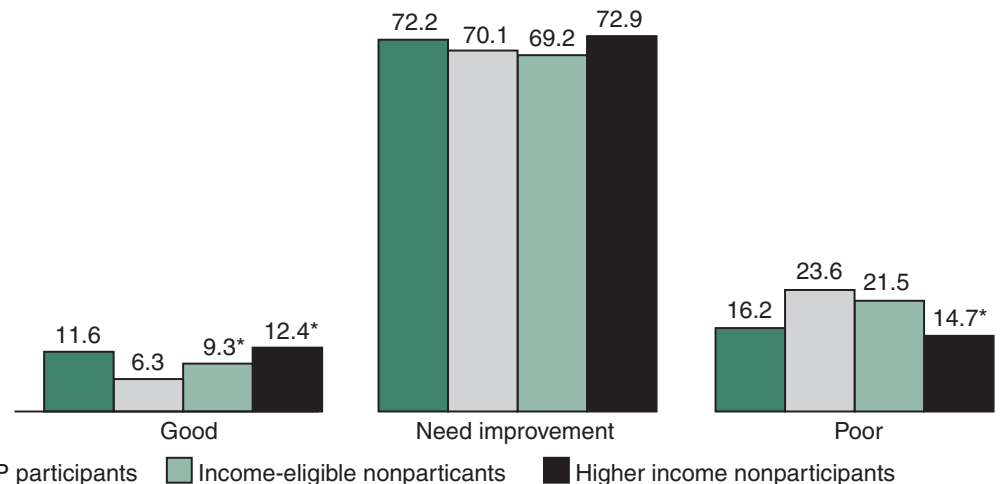


Figure 2  
**Diet quality based on Healthy Eating Index scores for all Americans and by Food Stamp Program participation status, age adjusted**

Percent of U.S. population



\*Statistically significant difference from FSP participants at the 0.05 level or better.  
 Source: National Health and Nutrition Examination Survey, 1988-94.

fruit servings. The HEI score on vegetable consumption averaged 5.7, and only one in four Americans consumed the recommended servings of vegetables. The average scores ranged from 6.6 to 6.8 for dairy, grains, and meat components.

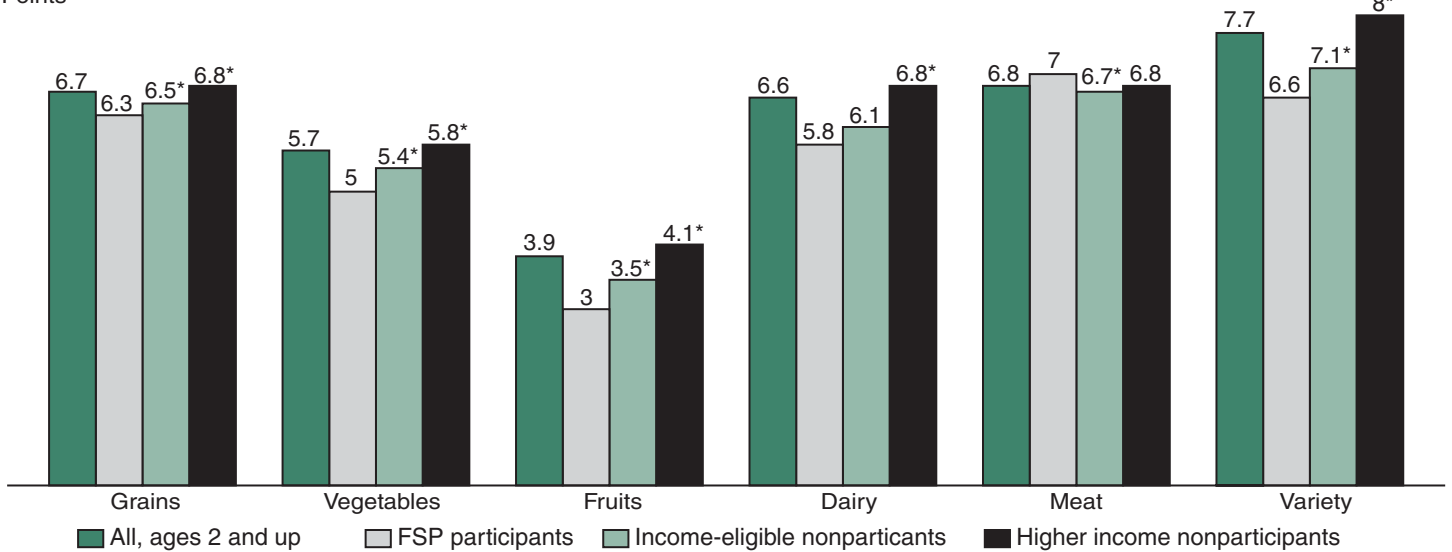
Many Americans consume excessive amounts of total and saturated fat, cholesterol, and sodium. Thirty-four percent of Americans consumed a diet of no more than 30 percent of calories from total fat, and 37 percent of Americans met the recommendation for limiting saturated fat intake to less than 10 percent of total energy. The recommended intakes for cholesterol and sodium are set at no more than 300 and 1,500 milligrams (mg) per day, regardless of age and gender. Partly because

females tend to consume fewer calories than males, females tend to do better than males in meeting these two recommendations. About 70 percent of Americans met the cholesterol recommendation, and the average HEI score was 7.8. Thirty-four percent of Americans met the sodium recommendation, and the HEI score for sodium averaged 6.1.

### Food Stamp Program (FSP) Participants

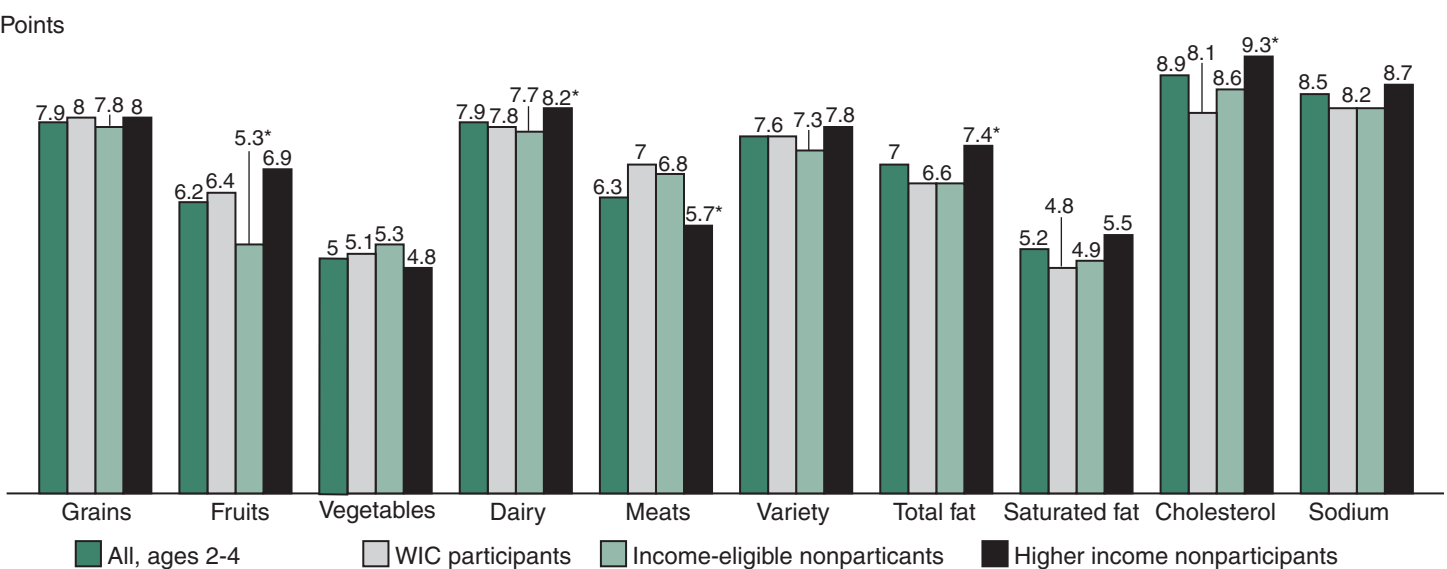
The U.S. population is separated into FSP participants and non-participants. The FSP income eligibility cutoff (130 percent poverty level) is used to separate nonparticipants into income-eligible and higher income groups. On average, FSP participants

Figure 3  
**HEI scores on food components for all Americans and by Food Stamp Program participation status, age adjusted**  
Points



\*Statistically significant difference from FSP participants at the 0.05 level or better.  
Source: National Health and Nutrition Examination Survey, 1988-94.

Figure 4  
**HEI component scores among children ages 2-4 and by WIC participation status, age adjusted**  
Points



\*Statistically significant difference from lowest income at the 0.05 level or better.  
Source: National Health and Nutrition Examination Survey, 1988-94.

scored lower on the overall HEI than either income-eligible or higher income nonparticipants (60.2 vs. 61.8 and 64.8, see fig. 1). This pattern was observed for both males and females. A lower percentage of FSP participants had a “good” diet than income-eligible nonparticipants (6 percent vs. 9 percent). Compared with higher income nonparticipants, FSP participants were more likely to have “poor” diets (24 percent vs. 15 percent) and less likely to have “good” diets (6 percent vs. 12 percent).

Consuming the recommended servings of fruits and vegetables was particularly unlikely among FSP participants, who scored a 3 for fruits and a 5 for vegetables, lower than the scores for income-eligible and higher income nonparticipants (fig. 3). FSP participants also scored lower on grains and variety than both groups of nonparticipants. FSP participants scored higher on meat consumption than income-eligible nonparticipants.

With respect to the four nutrient components, FSP participants scored similar to income-eligible nonparticipants. Compared with higher income nonparticipants, FSP participants scored higher on sodium but lower on cholesterol.

### Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Children Ages 2-4

The income eligibility cutoff for WIC (185 percent poverty level) is used to separate WIC nonparticipants into income-eligible and higher income groups. Infants and children under age 2 were excluded from the analysis because the HEI applies only to individuals ages 2 and older. There were no significant differences in overall HEI scores and diet ratings between children ages 2-4 who were WIC participants, income-eligible nonparticipants, or higher income nonparticipants. Children ages 2-4 averaged 70 points on their overall HEI—26 percent had a good diet, 66 percent needed improvement, and 8 percent had a poor diet.

There were only a few significant differences in HEI component scores among the three groups of children (fig. 4). No differences were found for grains, vegetables, and variety. WIC children and income-eligible children differed in only 1 of the 10 components. WIC children scored a 6.4 on fruit consumption, higher than the 5.3 for income-eligible nonparticipants. Children ages 2-4 as a whole scored quite high on dairy consumption, averaging 7.9. Higher income nonparticipating children scored higher than WIC children (8.2 vs. 7.8). On the other hand, WIC children scored higher on meat consumption than higher income nonparticipants (7 vs. 5.7). There were no differences in scores for saturated fat and sodium among the three groups of children. However, higher income children scored higher on total fat and cholesterol than WIC children.

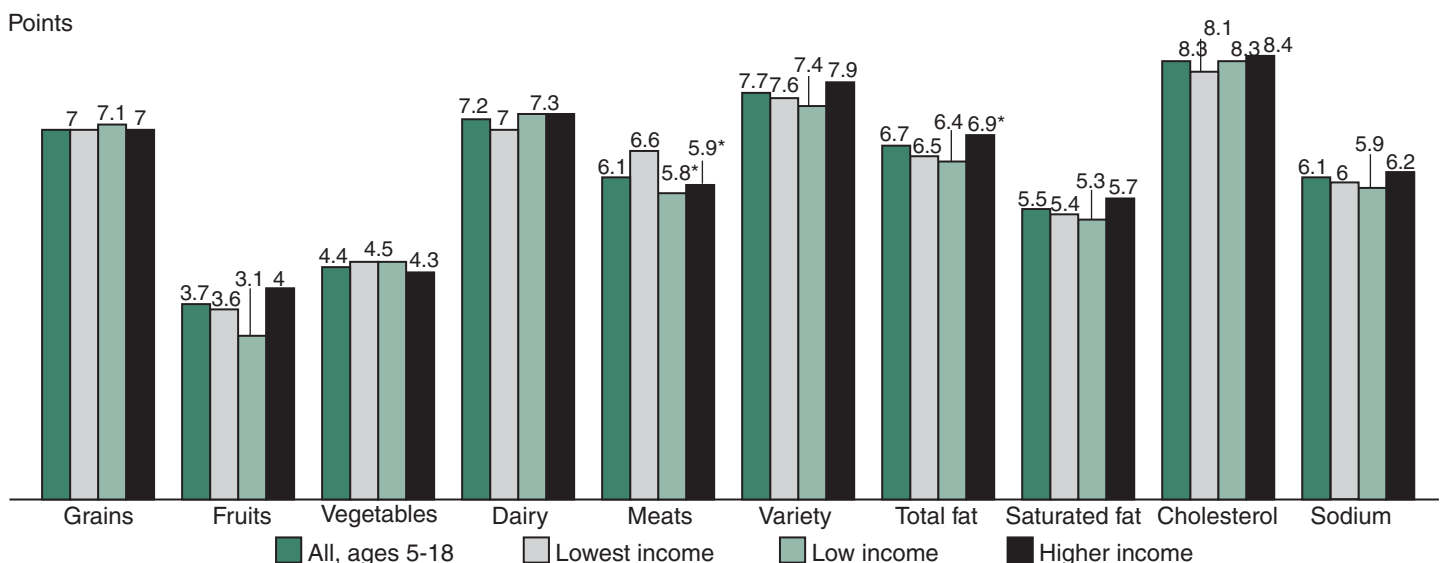
### School-Age Children Ages 5-18

Children ages 5-18 who were attending school during the survey were classified into three income groups: “lowest income” (with household income not exceeding 130 percent of poverty level), “low income” (with household income falling between 131 percent and 185 percent of poverty level), and “higher income” (with household income higher than 185 percent of poverty level).

School-age children scored 62.8 points on the overall HEI, compared with 64 for all Americans older than 2 and 70 for children aged 2-4. The majority of school-age children (78 percent) needed to improve their diets, and more school-age children had a poor diet than had a good diet (15.8 percent vs. 6.2 percent). The overall HEI scores and diet ratings did not vary by income level.

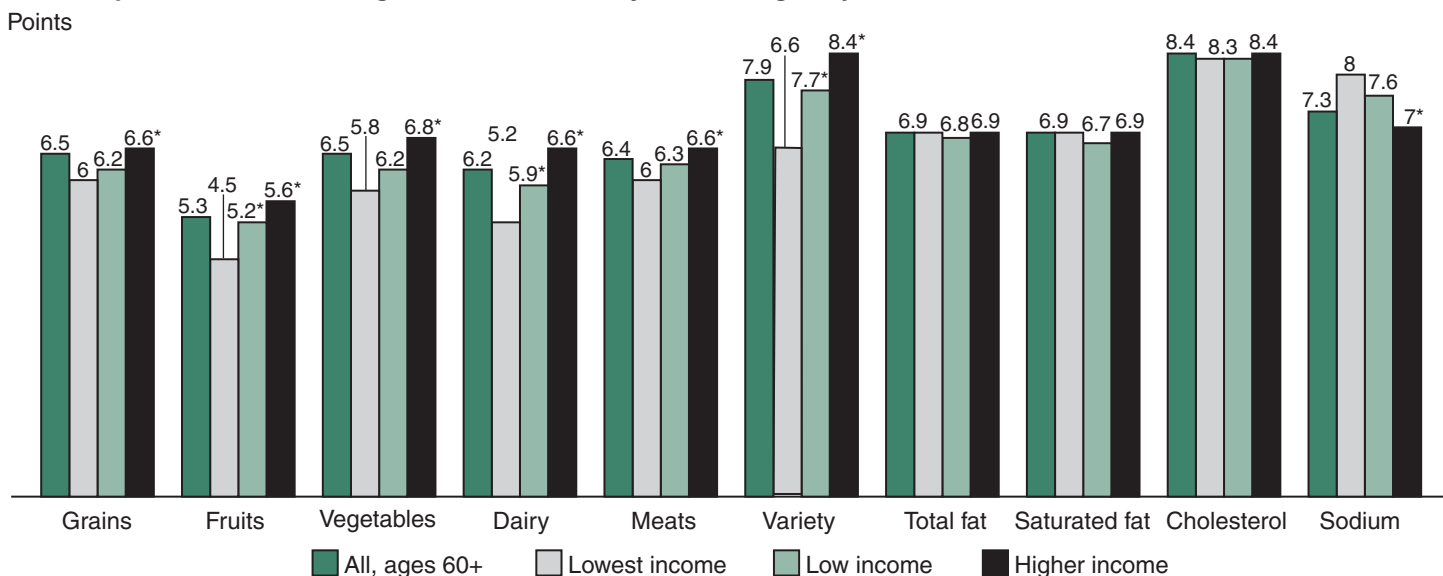
School-age children did better in meeting the recommendations for dairy, grains, meats, and variety than for fruits and vegetables (fig. 5). They scored 3.7 on fruits and 4.4 on vegetables, compared with 7.2 on dairy and 7 on grains. Children of different income levels

Figure 5  
HEI component scores among school-age children and by income, age adjusted



\*Statistically significant difference from lowest income at the 0.05 level or better.  
Source: National Health and Nutrition Examination Survey, 1988-94.

Figure 6  
HEI component scores among older Americans by income, age adjusted



\*Statistically significant difference from lowest income group at the 0.05 level or better.  
Source: National Health and Nutrition Examination Survey, 1988-94.

scored similarly their consumption of food components, with the exception of the meat component. Meat-component scores for the lowest income children were higher than the meat-component scores for other children. Looking at the four nutrient components, children scored best in cholesterol (8.3 HEI score) and worst in saturated fat (5.5 HEI score). The only significant difference was found in total-fat consumption, with the higher income children scoring higher than the lowest income children (6.9 vs. 6.5).

## Older Americans

Americans ages 60 and older were classified into three income groups, using the same cutoffs as for school-age children. Older Americans scored 68.4 points in the overall HEI, compared with 64 for all Americans older than 2. The dietary quality of older Americans appeared to improve with income status. The lowest income group scored 64.3, lower than the 67 for the low income and the 70 for the higher income. Twenty-five percent of higher income older Americans had a good diet, compared with only 13 percent for the lowest income group. A larger proportion of the lowest income older Americans had a poor diet, compared with others (18.5 percent vs. 13.1 percent for low income and 9.2 percent for higher income). Female elders had a better diet than male elders, scoring higher on the HEI and having higher diet ratings.

Older Americans did better than other age groups in the consumption of fruits and vegetables, scoring 5.3 for fruits and 6.5 for vegetables (fig. 6). The scores on food components rose with

income status, with the higher income group scoring higher than the lowest income group in all five food components. Female elders scored higher than males on grains, fruits, and vegetables, but males scored higher on dairy and meats. With the exception of sodium, there was no difference in nutrient scores by income status among elders.

## Information Sources

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**For more information**, see [www.ers.usda.gov/publications/efan04014-1, 04014-2, 04014-3, 04014-4](http://www.ers.usda.gov/publications/efan04014-1,04014-2,04014-3,04014-4)

**NOTE: These studies were not designed to assess program impacts. Do not interpret any reported differences between program participants and nonparticipants as impacts of food assistance programs.**

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