

School Food Environments and Policies in U.S. Public Schools

**Daniel Finkelstein, PhD, EdM
Elaine Hill, BA
Mathematica Policy Research, Inc.**

**Robert C. Whitaker, MD, MPH
Center for Obesity Research and Education
Temple University**

Importance of the School Food Environment

- **Significant portion of children's daily food intake occurs in the school setting**
- **U.S. Department of Agriculture (USDA) sets standards for nutrient content of school meals**
- **Limited federal regulation on competitive foods and beverages in the school cafeteria**

Recent Efforts to Modify the School Food Environment

- **Federal law required school districts to develop a “local wellness policy” by 2006**
- **Many states considering new legislation to improve nutritional standards in schools**
- **Despite increasing legislation, there is limited recent data on school food environments**

Variation in School Food Environments by Race/Ethnicity and SES

- U.S. public schools vary widely in the socioeconomic and racial/ethnic composition of student population
- Differences in school food environments could contribute to socioeconomic and racial/ethnic disparities in obesity

Study Objectives

- **Develop a summary score to characterize food environments and policies in U.S. public schools**
- **Examine variation in the summary score by school-level characteristics— grade level, percentage racial/ethnic minority, and household income**

Third School Nutrition Dietary Assessment Study (SNDA-III)

- **Nationally representative sample of public schools participating in USDA school meal programs in Spring 2005**
- **Sample sizes**
 - 129 school food authorities (school districts)
 - 395 schools (~ 3 schools per district)
- **Response rates**
 - 83% for districts and 95% for schools

SNDA-III Data Collection

- **Survey (districts, schools)**
 - Director of district nutrition programs
 - School principal
 - School food service manager
- **Menu analysis of foods offered**
- **Data on free/reduced price lunch and race/ethnicity from Common Core Data (National Center for Education Statistics)**

Characterizing School Food Environments and Policies

- **Examined “healthy” school food environments and policies in 3 domains**
 - 1) **Policies and practices (8 items)**
 - 2) **Competitive foods and beverages (4 items)**
 - 3) **Content of USDA lunches offered (5 items)**
- **Computed summary score reflecting total number (0-17) of healthy characteristics present in each school**

Healthy Policies and Practices (8 items)

1. **Wellness policy addressing nutrition and PA**
2. **Nutrition or health advisory council**
3. **Nutrition education in every grade**
4. **No “pouring rights” contracts**
5. **No brand-name or chain restaurant items**
6. **Government fruit and vegetable program**
7. **Information on nutrient content of meals**
8. **Nutrient requirements for food purchasing**

Availability of Competitive Foods and Beverages (4 items)

1. No school store or snack bar
2. No fundraising involving sweet or salty snacks
3. No vending machines in school
4. Has vending, but not in food service area

Content of USDA Lunches Offered (5 items)

1. Daily offering of fresh fruit and vegetables
2. No offering of whole or 2% milk
3. No offering of French fries
4. No offering of dessert
5. Average meal has $\leq 30\%$ calories from fat

Data Analysis

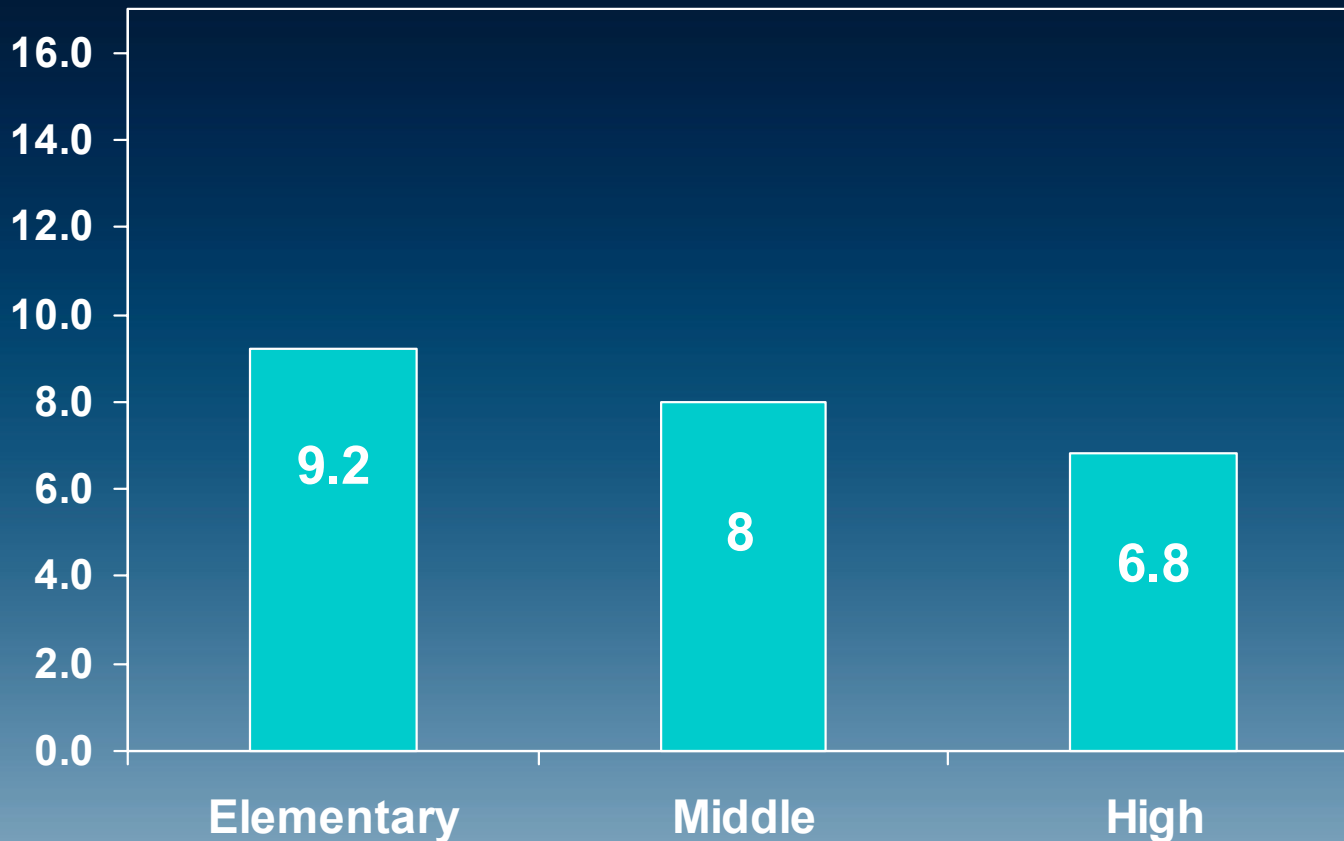
- **Examined variation in summary score by school characteristics**
 - Grade level (elementary, middle, high)
 - Racial/ethnic minority (percentage non-white)
 - Household income (percentage free/reduced price lunch)
- **Created tertile categories for minority and income variables**

Data Analysis (cont.)

- **Compared mean summary score across categories of school characteristics using analysis of variance**
- **Incorporated features of complex sampling design**
 - **Used school sample weights**
 - **Standard errors adjusted to account for clustering of schools within districts and sampling strata**

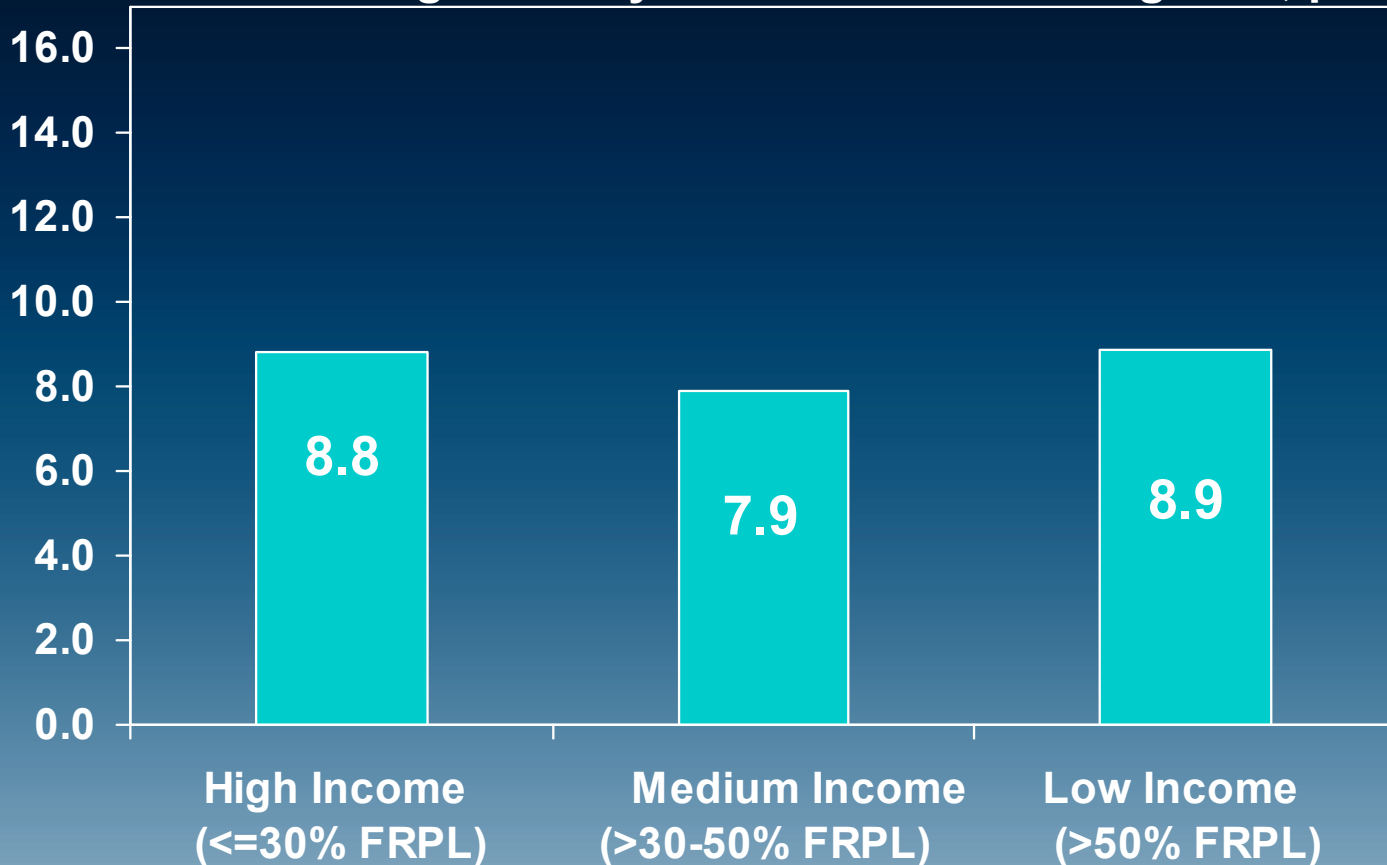
SFEP Summary Score by Grade Level

Means were significantly different across categories, $p < 0.001$.



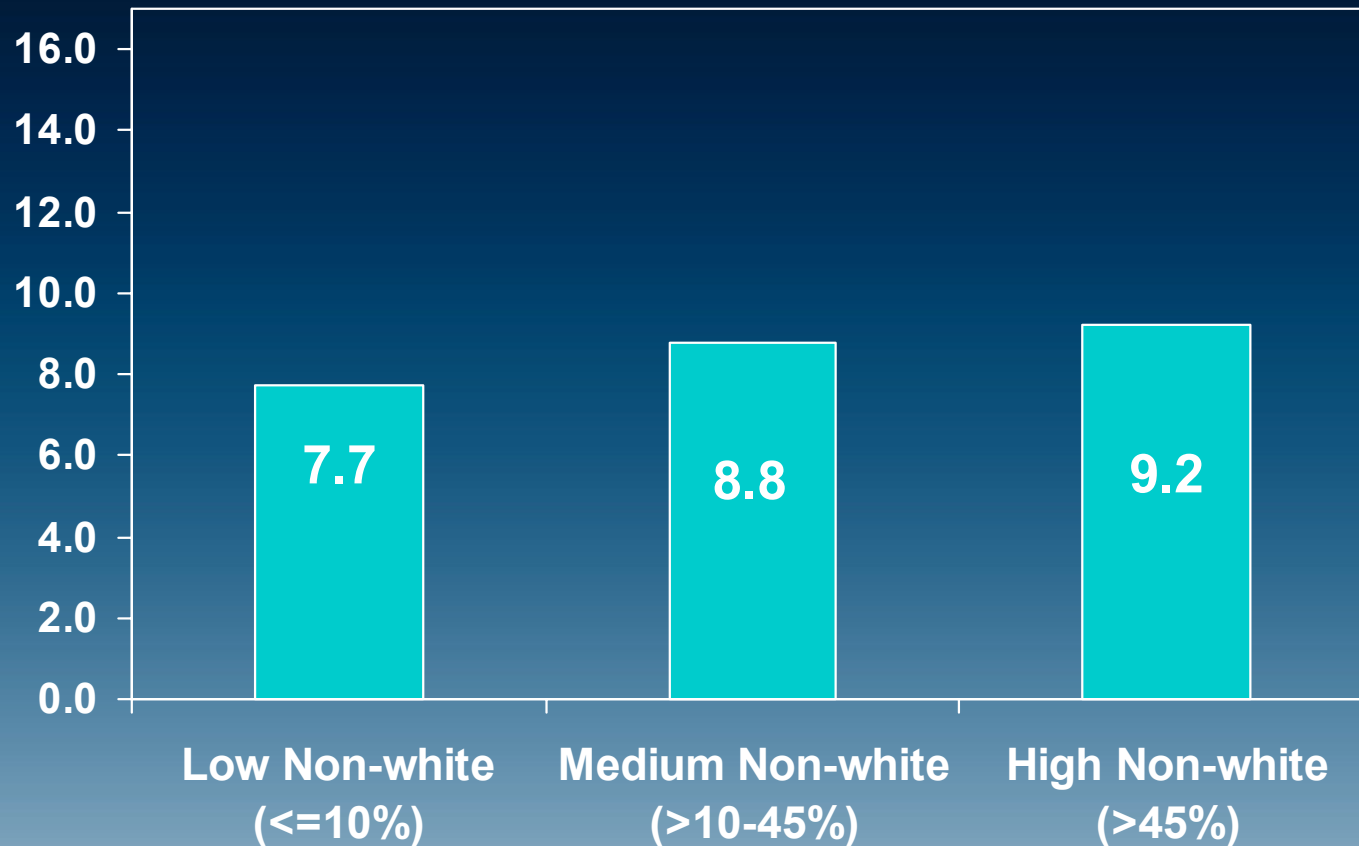
SFEP Summary Score by Household Income

Means were not significantly different across categories, $p=0.20$.



SFEP Summary Score by Percentage Minority (Non-white)

Means were marginally significantly different across categories, $p=0.06$.



Conclusions

- **In a nationally representative sample of U.S. public schools, we found:**
 - **Significant difference by grade level**
 - **No difference by percentage of students certified for free or reduced-price lunch**
 - **Marginally significant difference by the percentage who were racial/ethnic minority**

Implications

- **Schools have significant room for improving their food environments and policies**
- **Disadvantaged schools did not differ in their overall food environment**

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