

(CSFII) to study intake of the five major “pyramid” food groups (meats, fruits, vegetables, grains, dairy) plus added sugars and total fats (fig. 1). The study considers how intake of each major food category is correlated with intake of the other categories. The report offers some background on the FSP and WIC; reviews recent research on nutrition programs and dietary quality; describes the data and methods used in this investigation; summarizes the main results; and suggests some implications both for food and nutrition policy and for future research.

Background on the FSP and WIC

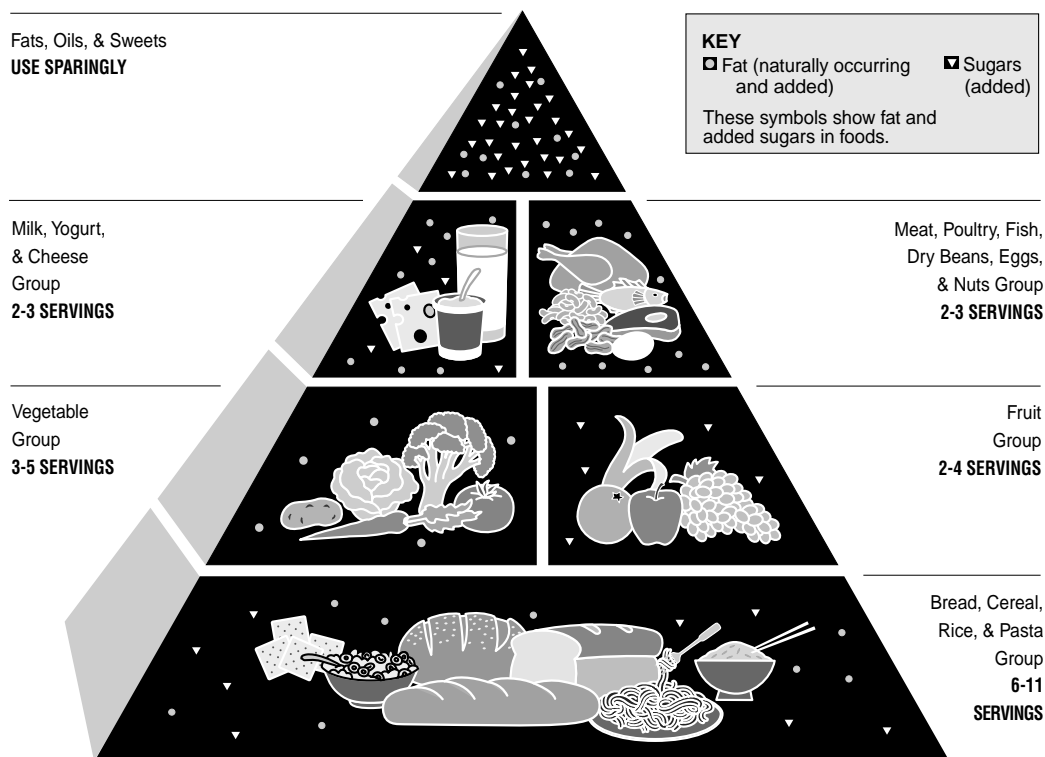
The FSP is the largest Federal nutrition assistance program and one of the largest components of the Federal social safety net. An early Food Stamp Program operated during the 1930’s, but it was discontinued during the Second World War. In its current incarnation, the program began in 1962. Initially, not all localities participated in the FSP, but it was extended nationwide during the early 1970’s. To qualify for the program, a household must have gross income less than or equal to 130 percent of the official poverty threshold. The

household must also have “net” income less than the poverty line, where net income equals gross income minus certain deductions. Finally, the household must meet restrictions on its ownership of certain assets (USDA Food and Nutrition Service, 1999).

The amount of benefits a family receives depends on its net income. If it has no net income, after deductions, the family receives the maximum food stamp benefit. This maximum benefit level equals the value of the Federal Government’s “Thrifty Food Plan,” which varies according to household size. If the family has some net income, its benefit level is reduced at a rate of 30 cents for every dollar of net income. The average monthly benefit in 1998 was about \$71 per person.

Food stamp benefits may legally be used to purchase only food and nonalcoholic beverages. The benefits were traditionally distributed as coupons that could be used at authorized retail stores to purchase food. Currently, the FSP is switching to Electronic Benefit Transfer (EBT) systems, which dispense benefits using plastic cards similar to automatic teller machine cards.

Figure 1
The Food Guide Pyramid



Source: U.S. Department of Agriculture/U.S. Department of Health and Human Services

WIC provides food, nutrition counseling, and access to health services to low-income women, infants, and children. The program began as a pilot in 1972 and was made permanent in 1974. Pregnant or postpartum women are eligible, as are infants and children up to age 5, if they meet income guidelines and are determined to be at “nutritional risk” by a health professional. The income cutoff is 185 percent of the U.S. poverty threshold, somewhat higher than the cutoff for the FSP. The “nutritional risk” determination takes account of both medically based risks such as anemia or underweight, and diet-based risks such as an inadequate dietary pattern.

WIC participants generally receive a voucher or credit, for use in purchasing specific authorized foods selected for their nutritional content. WIC foods are high in one or more of the following nutrients: protein, calcium, iron, vitamin A, or vitamin C. WIC foods include infant formula, cereals, dairy products, peanut butter, and other foods high in the target nutrients. The WIC program also offers a substantial nutrition education program and serves as a gateway to other forms of health services (USDA Food and Nutrition Service, 1999).

Research on Nutrition Programs and Dietary Quality

In a recent article on the U.S. nutrition safety net, Eileen Kennedy observes that the major nutrition problems in the United States have changed over the last 50 years:

Problems of over-consumption and excesses and imbalances are now, on average, more prevalent than problems of under-consumption and deficiency. For example, childhood obesity is now more common than growth retardation. This is true across all income strata, although the nutrition-related disease burden is substantially greater in low-income groups (Kennedy, 1999, p. 331).

These low-income groups are the target population for the FSP and WIC. Levedahl and Oliveira (1999) note how little is known about the effect of nutrition assistance programs specifically on dietary quality: “[T]heir effect on the quality of the recipient’s diet has so far been uncertain” (Levedahl and Oliveira, 1999, p. 322).

A substantial body of applied research has attempted to measure this “uncertain” effect. The line of research pursued most frequently has been to estimate

regression models, using survey data, to explain the effects of economic and demographic variables — including program participation and benefit levels — on one or more food consumption variables. Devaney and Moffitt (1991) found that food stamps have a significant and positive effect on the availability of food energy, protein, and nine micronutrients. Rose, Habicht, and Devaney (1997) found that food stamps and WIC both have positive and significant effects on iron and zinc intake for preschool children. By contrast, Butler and Raymond (1996) reported that food stamps have no positive effect on intake of several nutrients, after controlling for endogenous self-selection into the program.

In the 1990’s, nutrition scientists with expertise in survey research developed a new method for measuring dietary quality using the same commonsense terms that are employed by the Federal Government in its dietary recommendations and the Food Guide Pyramid (Cleveland and others, 1997a). Krebs-Smith and others (1995) used this type of pyramid servings data to study fruit and vegetable intake. Another study, Krebs-Smith and others (1996) used such data to study food intake by children and adolescents. For adults, Cleveland and others (1997b) found that intake of each of the five main food groups increased as income increased from below 131 percent of the poverty line to 131-350 percent of the poverty line.

The one previous food assistance study that drew on these methods for measuring intake in pyramid servings was by Basiotis and others (1998). That study investigated how economic and demographic characteristics of families influence scores on the USDA’s “Healthy Eating Index” (HEI) -- a measure of how well diets adhere to the Federal Government’s dietary guidelines. Using data from the 1989-91 CSFII, Basiotis and others found that the HEI increased with food stamp participation if household weekly benefits exceeded \$17.54. The HEI increased strongly with WIC participation.

Data and Methods

The study reviewed here and in Wilde, McNamara, and Ranney (1999) employed data from the 1994-96 CSFII. That nationally representative survey collected basic demographic information for all members of each household and used a randomization strategy to select certain members to participate in a complete food intake survey. These “sample persons” were administered two 1-day survey modules about their food