

Validation of Food Security Instruments in Hispanic Households

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Findings of previous research

Validation studies of food security instruments have reported significant trends between deepening food insecurity and the following:

1. Declines in household food supplies.
2. Less frequent fruit and vegetable consumption.
3. Increased participation in food assistance programs and unemployment.
4. Disordered eating behaviors.

Rigorous testing of the U. S. Department of Agriculture (USDA) 18-item food security instrument has supported its usefulness for monitoring food insecurity and hunger in the general U.S. population. More recently, researchers conducting studies among Hawaiian and Pacific Islanders have questioned the validity of applying the categorical measure of food insecurity to that population. Similar research has not been conducted among Latinos.

Another area of important investigation is beginning to focus on the nutrition and health consequences of food insecurity. In children, food insecurity is correlated with emotional and psychological problems. There is also some evidence that food insecurity may be linked paradoxically to obesity in adults.

Research goals and policy relevance

More research examining the relationships between food insecurity, household food supplies, and nutrition of children is needed in Latinos, particularly since that population has relatively high rates of both food insecurity and childhood obesity. The main goal of this study was to validate the 18-item food security instrument in a Latino population. The paper develops and tests a cultural framework that links food insecurity to nutritional outcomes in Latino families with young children, primarily of Mexican descent. This research is needed for more effective monitoring of food insecurity and hunger in the United States and for the design of nutrition education programs in diverse cultural groups.

Highlights of research methods

This study involved a cross-sectional survey, carried out between February and May of 2001, among approximately 250 low-income Latino households in six California counties. Prior to the study, four focus groups were conducted to examine cultural interpretation of the 18 food security questions. The survey included the following instruments: 1) the 18-item food security instrument; 2) a 171-item self-reported household food inventory; 3) a 66-item food frequency questionnaire; and 4) a 16-item family demographic record form. All families included in the study self-identified as Latino, Mexican, or Mexican-American and had at least one healthy child, between three to five years old. Trained bilingual interviewers recruited subjects from a variety of community-based agencies, including the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), Head Start, migrant camps, the local public health department, local health centers, and family resource centers. Subjects were interviewed either in a private clinic room or in their homes. Statistical procedures included Pearson correlations, Kruskal –Wallis test (for nonparametric data), and Mantel Haenzel chi-square.

Findings

The final sample with complete data included 239 low-income Latino families. About 80% were primarily Spanish-speaking, mostly of Mexican descent. Seventy-nine percent were currently enrolled in the WIC program, and 25% received Food Stamps. Forty-four percent of the families (n=105) reported food insecurity without hunger; 13% reported moderate hunger (n=30); and 3% reported severe hunger (n=8). Across the four levels (food secure, food insecure/no hunger, moderate hunger, severe hunger), the frequency of affirmative responses to each of 18 food security items increased as the level of food insecurity becomes more severe. However, within a level of food insecurity, the frequency of affirmative responses did not always decline as expected as the severity of the items increases. In particular, subjects tended to respond positively more often to some of the child hunger items than to some of the adult hunger items.

The food insecurity scale measure was negatively associated with all categories of household food supplies: dairy, $r=-0.19$, $p < 0.004$; fruit, $r=-0.36$, $p < 0.001$; grains, $r=-0.27$, $p < 0.0001$; meat, $r=-0.21$, $p < 0.003$; snack foods, $r=-0.24$, $p < 0.001$; and vegetables, $r=-0.28$, $p < 0.0001$. Similarly, the categorical measure of food insecurity was significantly associated with lower household food stores. Neither the scale nor categorical measure of food security was directly related to daily servings of fruit or vegetables in preschool children. However, child fruit and vegetable intakes were significantly correlated with household

supplies of those foods (daily servings of fruit and household fruit score, $r=+0.19$, $p < 0.003$; daily servings of vegetables and household vegetable score, $r=+0.24$, $p < 0.0002$). Food insecurity was associated with declines in household supplies of many nutritious foods (i.e., carrots, tomatoes, whole wheat bread, apples, oranges), as well as several less nutritious foods (i.e., soda, cookies, chocolate powder). Traditional Mexican foods, including beans, corn tortillas, and chili, tended to remain stable, as did several relatively high-fat or inexpensive food items (hot dogs, ice cream, Koolaid, instant soup).

Implications for food assistance programs and future research

The 18-item instrument used to monitor food insecurity and hunger in the United States has convergent validity in this population of Latinos, as indicated by the relationships observed between food insecurity and household food supplies. However, the subjects responded more sensitively than expected to some of the child hunger items in comparison to the adult items, suggesting that the tool may not be able to tease out the subtle differences in quality vs. quantity of foods available in these households.

Food insecurity could affect nutrition of young children via various mechanisms. First, decreased household supplies of fruits and vegetables may limit opportunities to expose young children to new foods, a step needed in developing food preferences. Second, episodic shortages of certain foods, particularly of high-fat or high-sugar foods, could increase the child demand for and intake of these foods when household supplies are more plentiful. Finally, severe shortages of food may interfere with a young child's ability to self-regulate energy intake and could be linked to onset of obesity later in life. Future research should explore these effects on children.