Supplemental Nutrition Assistance Program participation did not help low income Hispanic women in Texas meet the dietary guidelines ☆

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ABSTRACT

Objective. Low-income Hispanic women are at greater risk for dietary deficiencies and obesity. We assessed the association between Supplemental Nutrition Assistance Program participation and dietary intake among 661 Hispanic women aged 26–44 years living in Texas.

Methods. Cross-sectional data was collected using standard methods. Analysis of variance and logistic regression examined the influence of Supplemental Nutrition Assistance Program on diet after adjusting for household characteristics, body mass index, and food security status.

Results. Most women did not meet recommended dietary guidelines. Supplemental Nutrition Assistance Program participants consumed higher amounts of total sugars, sweets–desserts, and sugar-sweetened beverages than Supplemental Nutrition Assistance Program nonparticipants. High sodium intakes and low dairy consumption were observed in both groups. Only 27% of low-income eligible women received Supplemental Nutrition Assistance Program benefits.

Discussion. Low-income Hispanic women participating in Supplemental Nutrition Assistance Program reported less healthful dietary patterns than nonparticipants. This may contribute to the increased obesity prevalence and related comorbidities observed in this population.

Conclusion. Supplemental Nutrition Assistance Program should play an important role in enhancing the overall dietary quality of low-income households. Policy initiatives such as limiting the purchase of sugar-sweetened beverages and education to enable women to reduce consumption of high sodium processed foods deserve consideration as means to improve the dietary quality of Supplemental Nutrition Assistance Program participants. Effective measures are needed to increase Supplemental Nutrition Assistance Program participation rates among Hispanics.

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Introduction

The Supplemental Nutrition Assistance Program (SNAP) is the largest federal food and nutrition assistance program administered by the United States Department of Agriculture (USDA, 1983). SNAP aims to reduce hunger and safeguard the nutrition and health of low-income households by increasing their food purchasing power (US Farm Bill, 2008). In 2011, SNAP served about 44.7 million persons in 21 billion households providing an average monthly household benefit of $283 (Food and Nutrition Service, 2012). There is evidence that for every dollar of SNAP benefits, participants spend between $0.17 and $0.47 more on food purchases which may minimize their likelihood of experiencing food insecurity (Fox et al., 2004; Nord and Prell, 2011). On the other hand, there have been studies suggesting that SNAP benefits might contribute to weight gain particularly among adult women (Gibson, 2003; Meyerhoefer and Pylypchuk, 2008). The mechanism whereby SNAP leads to an increase in obesity risk has not been fully elucidated. However, recent data from the Continuing Survey of Food Intake by Individuals conducted in 1999–2004 showed that SNAP participants compared with eligible nonparticipants, consumed more energy from solid fats, alcohol and added sugars and were more likely to make less healthy food choices (U.S. Department of Agriculture, 2008; Wilde et al., 2000).

Hispanic women living in poverty may be at greater risk for dietary deficiencies than women with higher incomes. High rates of overweight and obesity are observed in this population compared to their non-Hispanic counterparts (Flegal et al., 2012). Furthermore, low-income Hispanic women are less likely to comply with current dietary recommendations consuming less fruit and vegetables, dairy products, and dietary fiber. Sweetened beverages are major contributors to the energy in their diets (Sharkey et al., 2011). These dietary patterns can lead to increased weight gain and place them at risk for chronic diseases.

Coping strategies such as participation in nutrition assistance programs like SNAP have the potential to substantially increase total food resources and improve nutritional outcomes. Despite growing interest about the nutritional impact of SNAP and its possible role on the rising rates of obesity in the United States, few publications have examined the effects of SNAP benefits on the dietary intake of Hispanic women. Household characteristics such as household income and composition may have cumulative impacts on the dietary quality of this population. Given that dietary intake among Hispanic women is influenced by a number of social and economic factors, the relationship between SNAP benefits and dietary adequacy should be assessed while taking into account the potential confounders.

The purpose of this paper is to investigate correlates of SNAP participation and to examine the relationship between SNAP participation and the dietary intake of low-income Hispanic women. It was hypothesized that participant characteristics (i.e., number of children and adults in the household, last month household income, BMI score, age, and food-insecurity status) would influence SNAP participation and intake, and that SNAP participation would result in improved dietary intake compared with nonparticipants.

Methods

Study design

In this cross-sectional study, participants were part of an intervention that evaluated a modified curriculum incorporated into the Texas Expanded Food and Nutrition Education Program (EFNEP). The EFNEP is a federal program that assists low-income families in over 800 counties throughout the 50 states and 6 territories to acquire the knowledge and skills necessary to maintain a nutritionally balanced diet (Chipman and Kendall, 1989). A total of 100 scheduled EFNEP classes in three Texas cities were recruited between February, 2006 and March, 2007 (Cullen et al., 2009). Participants provided written informed consent and received a small gratuity for each data collection they attended. For the purpose of this study, cases were selected based on the following inclusion criteria: 1) Hispanic; 2) nonpregnant; 3) non-breastfeeding; and 4) provided complete information on the variables of interest (i.e. SNAP participation status, diet, BMI, household food security, and household characteristics). Only baseline data collected in 2006 and 2007 were included in the analysis. Ethical approval was obtained from the Institutional Review Boards at Baylor College of Medicine, Houston, Texas, and Texas A&M University in College Station, TX.

Measurements

Demographic and socio-economic characteristics

All participants completed a demographic and information survey that was available in English and Spanish. Questions included age, last month income, SNAP participation, and number of children and adults in the home.

Anthropometrics

Height and weight were measured by trained EFNEP staff members using a stadiometer (Shorr Height Measuring Board; Olney, MD) and an electronic self-calibrating digital scale (Seca 770 Model Scale; Vogel and Halke, Hamburg, Germany) following a standard protocol. EFNEP data collectors were trained by the study research nurse and received booster training every 4 months. Height without shoes was measured twice to the nearest 0.1 cm and body weight with light clothing and without shoes was measured twice to the nearest 0.1 kg. The average value of the two measurements of height (cm) and weight (kg) was used to calculate body mass index (BMI) using the formula [weight (kg) / height (m^2)]. Overweight was defined as BMI of 25.0 to 29.9 and obesity was defined as BMI of 30.0 or higher (Centers for Disease Control and Prevention, 1998).

Dietary intake

Each participant completed one 24-hour dietary food record during the first class as part of the normal EFNEP class protocol. The 24-hour food record is a major component of the EFNEP program evaluation. All EFNEP paraprofessionals receive annual training to collect dietary data using the multiple pass method within the class period. All food records were entered into the Nutrition Data System for Research (version 2007; Nutrition Coordinating Center, University of Minnesota) for dietary analysis. Previously validated algorithms within the NSDR software were used to obtain nutrients and food group intakes (Cullen et al., 2009). Diet quality was assessed using the recommendations in the 2010 US Dietary Guidelines (USDA, 1983). A 2000-calorie pattern was selected because food amounts are based on energy intake, which is determined by age, gender, and activity level. This calorie amount is the estimate for women ages 19–50 who are moderately active.

Household food security status

The 6-item form of the USDA Core Food Security Module was administered to measure household food security status. This scale uses a subset of the standard 18-item survey with adequate reliability (Bickel et al., 2000). The 6-item form correctly classifies households across three levels of food security status (food secure, low food secure and very low food secure). This applies to households with and without children. Furthermore, the prevalence estimates of food insecurity and very low food security are only minimally biased relative to those based on 10-item or 18-item modules (Blumberg SJ et al., 1999). In this study, the abbreviated form was employed given the large sample size and to minimize respondent burden. Participants were categorized into three levels of food security based on the number of affirmative responses according to USDA guidelines (Bickel et al., 2000): food secure, low food security, and very low food security. The last two groups were combined to form the low food secure group.

Statistical analyses

Chi-square tests of independence examined the differences in demographic characteristics between SNAP participants and SNAP nonparticipants. Logistic regression analysis was used to predict SNAP participation with the following variables: number of adults and children in the household, last month income, food security status, BMI score, and age. One-way analyses of covariance (ANCOVAs) tested whether SNAP participation was related to dietary intake. Socio-demographic variables, BMI, food security status, energy intake and age served as the covariates. Single-sample t-tests compared the means of each nutrient and food group studied to the corresponding dietary recommendation for SNAP participants and non-participants. Separate models were used for each dependent variable (nutrients and food groups). Alpha was set at 0.05. All analyses were conducted with Statistical Analysis Systems (version 9.3, 2011, SAS Institute Inc., Cary, NC).

Results

Sample characteristics

Data from 661 non-pregnant and non-breastfeeding Hispanic females were used in this study. 829 non-pregnant and non-breastfeeding women were initially included, with 746 having non-missing SNAP information. Among these 746 women, 661 were Hispanic. Participant mean age was 35.2 years (SD = 9.2, range = 26–44). Approximately 27% ($n = 176$) participated in SNAP. The majority of women were overweight or obese (83.9%), and were from households with two adults (66.6%) and two or more children (78.7%). Most had incomes less than $2000 during the previous month. Slightly less than half reported low food security (46.2%). Sample characteristics by SNAP participation status are shown in Table 1.

Significant associations were found between SNAP participation and number of adults in the home, number of children in the home, household income in the last month and food-security status. SNAP participants had fewer adults ($\chi^2 = 33.57$, $p < .0001$) and more children ($\chi^2 = 31.86$, $p < .0001$) in the home, lower income in the previous month ($\chi^2 = 57.98$, $p < .0001$) and were more likely to report low food security ($\chi^2 = 13.44$, $p = .0002$) than SNAP non-participants.

SNAP participation

In the conditional logistic regression model (Table 2), the number of children in the household, last month household income, and age was statistically significant predictors of SNAP participation ($\chi^2 = 35.19$, $p < 0.001$; $\chi^2 = 44.04$, $p < 0.001$; and $\chi^2 = 6.41$, $p = 0.0113$, respectively). Holding other predictors at fixed values, the odds of being a