

# **Food Inventories Document Behavior Change in Hispanic Women Participating in SNAP Nutrition Education Classes: A Pilot Study**

SUSAN J. ALGERT<sup>1</sup> and MARIAN J. RENVALL<sup>2</sup>

<sup>1</sup>*University of California Cooperative Extension, Santa Clara County, San Jose, California, USA*

<sup>2</sup>*Consultant in Private Practice, El Cajon, California, USA*

*The objective of this mixed methods study was to measure changes in the home food environment of Supplemental Nutrition Assistance Program (SNAP)-eligible Hispanic families participating in a series of nutrition education and resource management classes. This small pilot project conducted before and after inventories and ethnographic interviews with 5 families to measure success of the classes in improving the quality and quantity of foods at home. Families improved food security by making the following behavior changes to stretch their food dollars: planning menus, using leftovers, using shopping lists, and shopping less often. Participants used savings to purchase additional healthy food including whole wheat bread and fruit.*

**KEYWORDS** *food insecurity, SNAP recipients, Hispanic families, home food inventories*

## INTRODUCTION

The goal of the US Department of Agriculture's Supplemental Nutrition Assistance Program (SNAP) nutrition education is to improve the likelihood that eligible individuals make healthy food choices within a limited budget and choose physically active lifestyles consistent with the current *Dietary Guidelines for Americans* and MyPlate.<sup>1,2</sup> A number of different factors affect the purchasing power of the SNAP allotment and thus the

---

Address correspondence to Susan J. Algert, PhD, RD, Nutrition Advisor, University of California Cooperative Extension, Santa Clara County, 1553 Berger Drive, Bldg. 1, Floor 2, San Jose, CA 95112, USA. E-mail: [salgert@ucanr.edu](mailto:salgert@ucanr.edu)

adequacy of the benefit to meet the participants nutritional needs.<sup>3</sup> The home food environment supplies more than 70% of the food, by weight, eaten by Americans and has been strongly associated with 75% of intake and overall food consumption.<sup>4–6</sup> Nutrition interventions, such as the University of California Cooperative Extension (UCCE) SNAP-Ed (or UC-CalFresh), are designed to improve family nutrition by impacting the home food environment.

Three quantitative methods used to measure food coming into the home used by researchers in the field include the use of grocery records and receipts for foods purchased, Universal Product Code bar code scanning, and an inventory of actual food items present in the home.<sup>7–13</sup> They are all similar in attempting to measure the presence of specific food items in the home; however, frequency of observations, types of foods being measured, and the method of data collection vary. Home food inventories (HFIs) rely on mailed, telephone, or researcher-administered surveys and participant self-report or direct observation by a trained researcher. HFIs can be a simple, quick, and efficient method to capture home food purchases. Cullen et al concluded that HFIs using self-reported data are subject to possible attention, comprehension, memory and recording errors.<sup>13</sup> Self-reported error is of concern in studies conducted outside of the home, where participants are asked to recall the types of food items present in their homes when they are in a location other than their homes.<sup>7,10,14–16</sup> Direct observation or open inventories are considered the gold standard and are conducted by trained researchers who travel to a subject's home and record all foods present in the home in the refrigerator, freezer, pantry, and elsewhere.<sup>5–7,11</sup>

This small mixed methods pilot project studied 5 families in-depth to determine whether outcomes of the study met the program objectives for a series of nutrition education and resource management classes taught by UC CalFresh educators.<sup>17</sup> The study integrated qualitative and quantitative research to draw on the strength of each. Qualitative data provided detailed information about the setting or context of the research project including individual attitudes and beliefs that are hard to document quantitatively and also emphasized the voices of participants through quotes.

In this pilot evaluation project, UC CalFresh nutrition and resource management curriculum was offered as a series of 3 2-hour classes in Spanish to SNAP eligible families. Outcome evaluation objectives for participants completing the classes were that 50% or more of participants would report the ability to make food dollars go further and increase the presence of fruits, vegetables, and whole wheat bread in the home. The purpose of this project was to use home interviews and food inventories to document changes in household food environment pre- and post-participation in classes to determine whether evaluation outcomes were met by participants. Secondly, the project gathered qualitative data during home interviews both pre- and post-intervention to determine reasons for behavior change leading to successful evaluation outcomes.

## METHODS

### Participants

Eligibility for inclusion in the study was limited to Hispanic women who were SNAP eligible with at least one child under the age of 18 living in the same household. Five women with children attending a Santa Clara County preschool were recruited for the study through word of mouth. Teachers of the children were providing nutrition education lessons in the classroom using curricula developed by UC CalFresh youth program. The study was completed between February 15 and April 19, 2011. Participants in the intervention group were interviewed by a trained nutrition educator twice, one time before the study and a second time after participation in nutrition education and resource management classes held weekly for 3 weeks. Content of the classes included the following: MyPlate/portion sizes, comparison shopping, label reading, menu planning, healthful fats, increasing whole grains, limiting sugars, and cooking and creating leftovers.

Participants received a grocery store voucher valued at \$20 for each interview for a total compensation of \$40. Informed consent was obtained from all participants and the study was approved by the Institutional Review Board at the University of California, Davis. All materials not already available in Spanish were translated and reviewed for semantic and conceptual equivalence.

### Data Collection

#### PRE-INTERVENTION INTERVIEWS AND HFI

Data were collected in each participant's home by a 2-person team composed of a trained nutrition educator with 8 years of experience teaching the UC CalFresh educational classes in Spanish and the cooperative extension nutritionist, who is bilingual. The team examined household food availability by conducting direct observation in-home assessments to obtain accurate and reliable data about the home food environment of participants. During the visit to each household, the baseline questionnaire and interview were administered and the first HFI was completed using direct observation of food stored in the home and photographs of cupboards and refrigerators. After participants completed the series of 3 classes, a follow-up HFI and questionnaire with photographs was administered during the same week of the month as the first interview.

During the first home visit, the trained nutrition educator administered a questionnaire in Spanish documenting sociodemographic characteristics and food-related activities. The questionnaire had been developed previously and translated for a study in low-income SNAP eligible population in southern Texas.<sup>5,11</sup> Sociodemographic characteristics included participant's

age, education (highest grade completed in school), race/ethnicity, marital status, number of adults and children residing in the household, ages of the children, monthly household income in 2011, employment status of household members, automobile ownership and other forms of transportation, and nutrition program participation. SNAP participants were asked about the length of time in the program, amount, and receiving date of current benefits. Data collection regarding food-related activities included the outlet where most of the household groceries were purchased, frequency of shopping at that store, amount spent on groceries, and days since last food shopping occasion. Food security was measured using the US Household Food Security module 6-item short form in Spanish.<sup>18</sup>

Household food supplies were inventoried by the extension nutritionist using an HFI instrument that included 252 items that had been translated into Spanish.<sup>11</sup> The HFI consisted of the following categories: fresh, canned, and frozen vegetables; fresh, canned, and frozen fruit; legumes; dairy (milk, yogurt, cheese); fresh, canned, and frozen meat, poultry, seafood, and other protein foods; cereals, breads, tortillas, chips, crackers, and other snacks; frozen desserts (ice cream and popsicles); frozen foods (eg, pizza, tacos, or burritos; entrees; breakfast items; and french fries); beverages; oils and other fats. The instrument was designed to document the presence and amount of each food item. Amounts were determined by a count of the number of items of whole fresh fruit and vegetables; labeling of bottled, canned, or prepackaged foods; estimation of previously opened or prepackaged foods; and estimation of previously opened or sliced food items. Prepared foods from full-service fast food restaurants were not included. The first HFI prior to participation in educational classes required 45 minutes to 1 hour to complete. The second HFI postintervention required only 30–45 minutes to complete due to fewer interview questions and familiarity of the researcher with the layout of the kitchen, including number and size of storage areas, particularly cupboards.

#### POSTINTERVENTION INTERVIEWS AND HFI

Semistructured interviews postintervention gathered qualitative data on participants' backgrounds and beliefs about the outcomes of classes. The interviewer was the same nutrition educator who conducted the pre-intervention interviews and taught the UC CalFresh series of educational classes in Spanish. Semistructured interviews explored topics related to nutrition and resource management presented during the classes. The interviewer probed for more information in order to clarify points made on certain topics and to get participants to expand on their responses to questions. Interviews were recorded and transcribed into English from Spanish by the nutrition educator who conducted the interviews. The following questions were included: (1) Were groceries purchased (including where, how much

was spent, type of purchase, and method of transportation)? (2) Did you/you and your family purchase food prepared elsewhere to eat at home since completing the class? Frequency responses included the number of times per week: once, 2–3 times, 4–5 times, >5 times, or does not apply.

The follow-up HFI with photos was also conducted the same week of the month as the first interview by the UCCE nutrition educator. This study on research involving human subjects and participants who provided informed consent was approved by the University of California at Davis Institutional Review Board.

## DATA ANALYSIS

### Quantitative

Survey and household food inventory data were entered into Microsoft Excel 2010. Descriptive statistics were calculated for mean and frequency of sample characteristics, food-related activities, and food security. Results of the inventory of individual food items found in the home were tallied for all food groups.

### Qualitative

Content analysis of the qualitative interview data identified common themes reported by participants.<sup>19</sup> Three reviewers independently evaluated the data and identified recurrent themes and quotes supporting each theme. The coders were staff members of UCCE with extensive background in providing and reviewing nutrition education materials. Lists of recurrent themes were compared across reviewers to increase inter-rater reliability and common themes were combined. Analysis continued as an iterative process through discussions and refining of the major themes based on the content of the classes.

### Food Security Module

Food security status was determined from the self-reported occurrence of the following risk situations in the 12 months prior to the first home visit: purchased food did not last and money was not available to get more; could not afford to eat balanced meals; adults in the household cut the size of the meals or skipped meals because there was not enough money for food (yes or no); adults ate less than they felt they should eat because there was not enough money for food (yes or no); and were hungry and did not eat because they could not afford enough food (yes or no). If a participant answered often or sometimes, a follow-up question asked regarding whether or not this happened every month, only 1 or 2 months, or some months but not every

month. Scores were calculated to classify households as food secure (score = 0), marginally food secure (score = 1), food insecure (score = 2–4), and highly food insecure (score = 5–6), which is similar to food insecure with hunger.

## RESULTS

### Demographics

All participants considered themselves Mexican or Mexican American and all data were collected in Spanish. The average age of the women was 34 with a range of 27–50 years of age. Average years of education completed was 9.5 with a range of 6–12 years.

Two of the women were married and 3 were in a relationship with a partner. Household size ranged from 4 to 8 adults and children. All participants reported a household income of less than or equal to \$22 000 annually. All 5 of the intervention households spent \$400 or less per month on groceries, averaging \$80–100/person per month. Two of the families were receiving SNAP benefits, averaging \$85.00 per person per month. All families participated in other federally funded nutrition programs including school breakfast/lunch or Special Supplemental Nutrition Program for Women, Infants and Children. For most, income was received on a weekly or biweekly basis.

Four women reported driving their own vehicle to the store and 1 relied on a neighbor for transportation. On average, the store was an 11-minute drive from home.

### FOOD SECURITY

The lack of food security was a problem for one household out of the 5. Four of the households reported being food secure (score of 0); however, on occasion they could not afford to eat balanced meals. Members of the high food insecurity household (score of 5) reported frequently running out of food at the end of the month.

### HOUSEHOLD FOOD INVENTORY

Results of the inventory were tabulated for the food groups related to outcome objectives for the series of classes; that is, 50% or more of participants would increase the presence of fruits, vegetables, and whole wheat bread in the home. Therefore, only results for the fruit, vegetable, and whole wheat bread food groups are reported as number of servings in a household pre-versus postintervention in [Table 1](#).

**TABLE 1** Change in Fruit and Vegetable and Whole Wheat Bread in the Home of 5 Participant Mothers Over 63 Days<sup>a</sup>

Food item	Participant									
	1		2		3		4		5	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Vegetables, fresh	56	100	88	52	62	33	56	45	22	62
Vegetables, canned	16	21	1	2	15	16	56	0	8	0
Vegetables, frozen	9	11	0	0	4	0	4	20	32	25
Fruit, fresh	58	81	43	21	30	68	74	154	52	46
Fruit, canned	3	0	0	6	8	0	0	0	0	0
Fruit, frozen	0	12	30	16	30	16	0	0	0	0
Legumes	46	96	128	75	0	48	176	160	64	96
Whole wheat bread	12	24	12	24	0	0	0	24	0	16

<sup>a</sup>Servings per household: Pre = pre-intervention, February 15, 2011; Post = postintervention, April 19, 2011.

- Fruit and vegetable intake:** The goal of the classes was for 50% of participants to increase the quantity of fruit and vegetable in the home, and results of the pre to post inventory indicated that there was a 15% increase overall. The slight increase occurred due to increased presence of fresh fruit in the home. Vegetable intake (frozen, canned, and fresh) was largely unchanged from the one-month interval between pre and post classes. As reported in Table 1, baseline or preclass inventory levels of both vegetables and fruits found in the homes of participants were ample enough to meet US Dietary Guidelines. The most common fresh vegetables found in the homes post-inventory included the following: red and green tomatoes (100%), broccoli/cabbage (80%), onion/carrots (60%), and chilis/potatoes/celery (40%). Frozen or canned vegetables were present in 3 of 5 homes, including tomatoes, corn, and mixed vegetables. Fresh fruits post-inventory included oranges/tangerines (100%), apples/mangoes/lemon (80%), bananas/papayas (40%), and grapes/melon (20%). Frozen fruit was found in only one home. Data collection included the types of fruits and vegetables provided to all families by the local food bank Farm to Family program.<sup>20</sup>
- Whole wheat bread intake:** An additional goal of the classes was for 50% of participants to increase the presence of whole wheat bread in the home. Table 1 indicates that 4 out of 5 families (80%) increased purchase of whole wheat bread by 100% or more after completing the classes. Participants reported the change as being relatively easy and not too costly to make. One family did not change due to a preference for the taste of white bread.
- Qualitative interviews:** In-depth interviews were conducted with study participants to gain a better understanding of changes important in helping them meet the desired outcomes of the class. The following section describes the 3 main themes that emerged from the qualitative data analysis.

*Theme 1: Shopping less often in order to save money and make food last longer.* Participants in the UC CalFresh/SNAP nutrition education curriculum learn skills to stretch food dollars and make fewer trips to the store. Eighty percent of the participants in the study indicated that they were able to shop less often due to skills they learned in class including planning menus, making healthier recipes from scratch, and making shopping lists. One participant shared, “I used to spend \$100 to \$150 a week on food. Now I spend the same amount but every two weeks. I am saving a lot.” Another participant stated the importance of sticking to a shopping list: “The list helps me to stay within the budget and it really helps. Now I avoid taking my kids to 7/11 or convenience stores because the food is not healthy and it just contributes to spending more money. This way I am saving the money I can spend on healthier food.”

The one family reporting food insecurity and frequently running out of food by the end of the month was able to successfully apply skills learned in the classes to make SNAP benefits last the entire month. The mother of 3 stated, “Before the money that I received from food stamps was always short, now I am doing better. The money is lasting longer. I would like to thank the program because I learned very much about how to stretch my food dollars until the end of the month, something I couldn’t do before.”

*Theme 2: Stretching food dollars to spend more on healthier foods such as fruits and vegetables.* Researchers have shown that consumption of a plant-based diet increases fruit and vegetable consumption and saves money in low-income households; however, this small pilot study is the first to document that dollars saved due to participation in SNAP nutrition education classes are used to purchase additional healthful foods.<sup>21–23</sup> One mother stated, “I go to the grocery store and buy just what I need. I used to buy or get things that I didn’t need only because they were on sale. Now I’m getting only what I really need. I am trying to spend less and buy only what is healthy for my family.” During the in-depth interviews, all 5 participants reported changing behaviors to increase consumption of fruits, vegetables, and other healthy foods. The following quote illustrates how motivated one of the participants was to change: “I am eating more fruit and vegetables. I always tried to give my daughter fruit and veggies, but I was not eating them. Now I am trying to eat more and more. It is better to reach out for a veggie than for a cookie or any sweet.”

The importance of adopting other health-related behaviors taught during the classes was also emphasized by one of the participants: “I am buying more vegetables and giving them to the children. I am giving them more water to drink and keeping them active, something they weren’t doing before.”

*Theme 3: Stretching food dollars by using leftovers and not wasting food.* The concept of creating and using leftovers in order to stretch food dollars is not consistently taught as an important skill in SNAP nutrition education

classes; however, it emerged as an important theme in our in-depth interviews with 4 out of 5 participants. At least 2 of the mothers cited using more leftovers, including one who stated, "I learned about calories, I learned to use my leftovers and learned to give more vegetables to the kids." Providing recipes and ideas for creative use of leftovers is important so they are acceptable to the family, as stated by a second mother: "I'm learning to use leftovers. I used to throw them away because my husband does not like them. Now I use them to create new dishes and this way I stretch my food and my money."

In summary, results of these in-depth interviews provided important insights into why participants purchased more healthful foods after participation in UC CalFresh/SNAP nutrition education classes. Skills learned and practiced in class such as making shopping lists and new recipes for using leftovers helped stretch food dollars, which, in turn, were used to purchase additional healthful foods such as fresh fruit.

### Limitations

The major limitation associated with the use of a household food inventory is the error involved in extrapolating information about household food availability to individual dietary practices. The inventory does not capture information about food purchased and consumed outside the home. In multiple-person households, an inventory of household foods will not reflect each household member's diet with equal validity. Bias could be present due to knowledge of participants that their foods would be inventoried to assess changes to a healthier home food environment. Having the nutrition educator both conduct and translate the interviews can also lead to bias in the data. Despite the limitations, an inventory of household foods requires little skill, knowledge, or training of respondents or interviewers to administer and may not be subject to social desirability of assessment of individual eating behavior.

Small pilot studies using mixed methods, such as this one, can generate reliable results given that the demographic background of subjects is similar, such as the Hispanic mothers in this study. Mixed methods research is time intensive to conduct and analyze, although small samples can yield extremely reliable data. Interviews regarding the content of cultural patterns often results in an average correlation of 0.5 or higher among subjects because there is generally high agreement about what the answers are and each subject knows the majority of the answers if background characteristics are similar.<sup>24,25</sup>

The small number of women in this convenience sample who self-selected to participate were already consuming a relatively healthy diet, partially supported by supplemental produce provided by the local food

bank. However, this may also be the case for participants in all of our classes—they may choose to sign up for a class due to an underlying interest in nutrition or motivation to improve the family's diet. Further research can better understand the characteristics of individuals motivated to participate in SNAP-Ed nutrition classes.

## DISCUSSION

This study relies on mixed methods to provide a unique understanding of changes in the household food environment of low-income Hispanic families participating in classes in nutrition and resource management. Results of the study show that all families improved the quality and quantity of food found at home after completing the series of 3 classes taught by a UC CalFresh nutrition educator. The changes in behavior reported to be most effective in helping to stretch food dollars included making a shopping list, planning menus, shopping less often, and using leftovers. These results are consistent with findings of others showing that households with greater financial management abilities are less likely to be food insecure.<sup>26–28</sup>

Participants in this study used savings to purchase additional healthy foods such as whole wheat bread and fresh fruit. These findings are similar to a recent study demonstrating that the use of coupons as financial incentives increased average weekly purchase of fresh fruit in lower-income households.<sup>29</sup>

Results from the food inventory indicate that the most important change that families made nutritionally was to dramatically increase the purchase of 100% whole wheat bread. Fruit and vegetable intake at the end of the study increased only slightly over preclass levels due to the fact that the families had adequate amounts in the home to start.

Included in the food inventories were fresh fruits and vegetables distributed to the families through the local food bank's Farm to Family program. The produce from the food bank made a major contribution to fresh fruit and vegetable intake of the families in this study. The Farm to Family program included distribution of up to 10 pounds weekly of potatoes, carrots, onions, cabbage, broccoli, turnips, corn, tomatoes, apples, sweet potatoes, oranges, and stone fruit. Consequently, families used cost savings from tips learned in the UC CalFresh/SNAP-Ed classes to buy some of their favorite fresh fruits that they would not typically receive through the food bank program, such as mangoes, melons, and papayas.

## CONCLUSION

Most studies designed to evaluate outcome of SNAP-Ed will rely on intent to change survey data pre- and postintervention to determine the likelihood of

behavior change in at-risk individuals.<sup>30</sup> Recent research indicates that intent to change does not reliably measure true intent without also measuring planning and self-efficacy, and the role of intention as a proxy for behavior has been questioned.<sup>31–33</sup> Alternative measures such as the home food inventory used in this study provide additional evaluation strategies to document SNAP nutrition education program outcomes.

Surveys of individual intake or intent to change behaviors as part of program evaluation can be supplemented with assessments of household food availability, as documented in this study, to provide additional measures of success in meeting desired outcomes. Mixed methods research gathering both qualitative and quantitative evaluation data can be time consuming and detail oriented. However, reliable results can be documented in small numbers of subjects with similar demographic and cultural backgrounds such as the Hispanic women in this study. Although the sample size is small, these findings are relevant to family-centered interventions aimed at promoting healthy eating in SNAP-eligible Spanish-speaking Hispanic mothers in the United States.

SNAP nutrition education interventions teaching resource management may facilitate the purchase of healthful foods by changing skills and behaviors related to limited budgets. Families in this study improved food security by making the following changes to stretch their food dollars: planning menus, using leftovers, using a shopping list, and shopping less often. Participants used savings to purchase additional healthful foods such as fruits and whole wheat bread. Notwithstanding its limitations, this study necessitates future research to document whether the behavior changes achieved after completion of classes are sustained.

#### ACKNOWLEDGEMENTS

The authors are thankful for collaboration with the University of California CalFresh Nutrition Education State Office. We gratefully acknowledge Carmen Simmons and Lee Ann Ray for their work regarding data collection and manuscript review.

#### FUNDING

This study was funded by a faculty startup award from the University of California Division of Agriculture and Natural Resources.

## REFERENCES

1. Dietary Guidelines Advisory Committee. *Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2010*. Washington, DC: US Department of Agriculture, Agricultural Research Service; 2010.
2. Center for Study of the Presidency and Congress. *SNAP to Health: A Fresh Approach to Improving Nutrition in the Supplemental Nutrition Assistance Program*. Washington, DC: Center for the Study of the Presidency and Congress; 2012.
3. Yaktine AL, Caswell JA. SNAP benefits: can an adequate benefit be defined? *Adv Nutr*. 2014;5:21–26.
4. Story M, Kaphingst KM, Robinson-Obiren R, Glanz K. Creating healthy food and eating environments: policy and environmental approaches. *Ann Rev Public Health*. 2008;29:1–6.
5. Sisk, C, Sharkey JR, McIntosh WA, Anding J. Using multiple household food inventories to measure food availability in the home over 30 days: a pilot study. *Nutr J*. 2010;9:1–12.
6. Bryant M, Stevens J. Measurement of food availability in the home. *Nutr Rev*. 2006;64:67–76.
7. French SA, Shimotsu ST, Wall M, Gerlach AF. Capturing the spectrum of household food and beverage purchasing behavior: a review. *J Am Diet Assoc*. 2008;108:2051–2058.
8. Stevens J, Bryant M, Wang CH, Cai J, Bentley J. Sample size and repeated measures required in studies of foods in the homes of African American families. *J Nutr*. 2012;142:1123–1127.
9. Byrd-Bredbenner C, Abbot, JM, Cussler E. Nutrient profile of household food supplies of families with young children. *J Am Diet Assoc*. 2009;109:2057–2062.
10. Kaiser LL, Melgar-Quinonez H, Townsend M, et al. Food insecurity and food supplies in Latino households with young children. *J Nutr Educ Behav*. 2003;35:148–153.
11. Sharkey JR, Dean WR, St John JA, Huber C. Using direct observations on multiple occasions to measure household food availability among low-income Mexicano residents in Texas colonias. *BMC Public Health*. 2010;10:1–14.
12. Fulkerson JA, Nelson MC, Lytle L, Moe S, Heitzler C, Pasch KE. The validation of a home food inventory. *Int J Behav Nutr Phys Act*. 2008;5:1–10.
13. Cullen K, Baranowski T, Watson K, et al. Food category purchases vary by household education and race/ethnicity: results from grocery receipts. *J Am Diet Assoc*. 2007;107:1747–1752.
14. Baranowski T, Missaghian M, Watson K, et al. Home fruit, juice and vegetable pantry management and availability scales: a validation. *Appetite*. 2008;50:266–277.
15. Nackers LM, Appelhans BM. Food insecurity is linked to a food environment promoting obesity in households with children. *J Nutr Educ Behav*. 2013;45:780–784.
16. Ding D, Sallis J, Norman GJ, et al. Community food environment, home food environment and fruit and vegetable intake of children and adolescents. *J Nutr Educ Behav*. 2012;44:634–638.

17. Kaiser L, Chaidez V, Algert S, et al. Food resource management education with SNAP participation improves food security. *J Nutr Educ Behav*. 2015 (in press).
18. Harrison GG, Stormer A, Herman DR, Winham DM. Development of a Spanish-language version of the US Household Food Security Survey module. *J Nutr*. 2003;133:1192–1197.
19. Creswell JW, Klassen AC, Plano Clark VL, Smith KC, for the Office of Behavioral and Social Sciences Research. *Best Practices for Mixed Methods Research in the Health Sciences*. National Institutes of Health; 2011. Available at: [http://obssr.od.nih.gov/mixed\\_methods\\_research](http://obssr.od.nih.gov/mixed_methods_research). Accessed March 25, 2014.
20. California Association of Food Banks. Bethesda, MD: Farm to Family Program. Available at: [http://www.cafoodbanks.org/Farm\\_to\\_Family.html](http://www.cafoodbanks.org/Farm_to_Family.html). Accessed March 25, 2014.
21. Flynn MM, Schiff A. Research brief: food insecurity is decreased by adopting a plant based, olive oil diet. *J Hunger Environ Nutr*. 2011;6:506–512.
22. Flynn MM, Reinert S, Schiff AR. A six-week cooking program of plant based recipes improves food security, body weight and food purchases for food pantry clients. *J Hunger Environ Nutr*. 2013;8:73–84.
23. Kim K, Struempfer BJ, Parmer SM. Decision of SNAP recipients to consume more vegetables: an application of the theory of planned behavior. *J Hunger Environ Nutr*. 2011;6:294–311.
24. Weller SC, Romney AK. *Systematic Data Collection*. Thousand Oaks, CA: Sage Publications; 1988.
25. Romney K, Weller SC, Batchelder WH. Culture as consensus: a theory of culture and informant accuracy. *Am Anthropol*. 1986;88:313–338.
26. Gunderson CG, Garasky SB. Financial management skills are associated with food insecurity in a sample of households with children in the United States. *J Nutr*. 2012;142:1865–1870.
27. Loopstra R, Tarasuk V. What does increasing severity of food insecurity indicate for food insecure families? Relationships between severity of food insecurity and indicators of material hardship and constrained food purchasing. *J Hunger Environ Nutr*. 2013;8:337–349.
28. Rustad C, Smith C. A short term intervention improves nutrition attitudes in low income women through nutrition education relating to financial savvy. *J Hunger Environ Nutr*. 2012;7:205–223.
29. Phipps EJ, Braitman LE, Stites SD, et al. the use of financial incentives to increase fresh fruit and vegetable purchases in lower-income households; results of a pilot study. *J Health Care Poor Underserved*. 2013;24:864–874.
30. Wyker BA, Jordan P, Quiglye DL. Evaluation of supplemental nutrition assistance program education: application of behavioral theory and survey validation. *J Nutr Educ Behav*. 2012;44:360–364.
31. Richert J, Reuter T, Wiedemann AU, Lippke S, Ziegelmann J, Schwarzer R. Differential effects of planning and self-efficacy on fruit and vegetable consumption. *Appetite*. 2010;54:611–614.
32. Marzee M, Pil Lee S, Cornwell B, Burton WN, McMullen J, Edington DW. Predictors of behavior change intention using health risk appraisal data. *Am J Health Behav*. 2013;37:478–490.
33. Zhou G, Gan Y, Knoll N, Schwarzer R. Proactive coping moderates the dietary intention–planning–behavior path. *Appetite*. 2013;70:127–133.