Reducing Food Insecurity and Improving Fruit and Vegetable Intake Among Farmers' Market Incentive Program Participants

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ABSTRACT

Objective: To determine whether participation in a farmers' market incentive pilot program had an impact on food security and fruit and vegetable (F&V) intake of participants.

Methods: Participants in the Supplemental Nutrition Assistance Program were eligible to receive a dollar-per-dollar match up to $10/wk in farmers' market incentives. The researchers used a pretest-posttest design to measure F&V intake and food security status of 54 adult participants before and after receiving farmers' market incentives. The 6-item Behavior Risk Factor Surveillance System questionnaire and US Household Food Security Survey Module were used to measure F&V intake and food security, respectively. Wilcoxon signed-rank test was used to compare scores of F&V intake.

Results: After receiving incentives, fewer individuals reported experiencing food insecurity–related behaviors. A significantly increased intake ($P < .05$) was found among selected vegetables.

Conclusion and Implications: Participation in a farmers' market incentive program was positively related to greater food security and intake of select vegetables among participants in the Supplemental Nutrition Assistance Program.

Key Words: farmers' markets, food security, Supplemental Nutrition Assistance Program, fruits, vegetables (*J Nutr Educ Behav*. 2016;48:70-76.)

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INTRODUCTION

Food security refers to the ability to have sufficient food available at all times, resources available to purchase nutritious foods, and appropriate use of food based on nutrition knowledge.[1] Roughly 14.3% of American households experienced food insecurity at some time in 2013.[2] Food insecurity is most prevalent among households that are at or below the federal poverty line.[2] Households in rural communities and those with children are also more likely to experience food insecurity.[2] The diet of food-insecure individuals tends to be less nutritious and balanced compared with their food-secure counterparts.[3] More specifically, food-insecure individuals are more likely to have diets that do not meet the dietary guideline recommendations for fruit and vegetables (F&V).[4,5]

Shopping at farmers' markets is associated with improved food security and greater F&V consumption especially among low-income individuals.[6-8] This development corresponds with the current focus on incentivizing *Supplemental Nutrition Assistance Program* (SNAP) participants to improve dietary intake and raise health outcomes among these individuals.[9] Major federal nutrition assistance programs such as SNAP and the *Special Supplemental Nutrition Program for Women, Infants, and Children* (WIC) now allow benefits to be used at farmers' markets as a way to improve food security and increase F&V consumption among low-income participants.[10-12] People who rely on federal nutrition assistance are encouraged to use nutrition assistance benefits at farmers' markets through newly established farmers' market incentive programs.[13,14] The *WIC Farmers' Market Nutrition Program* (FMNP) and the *Senior Farmers' Market Nutrition Program* provide up to $30 and $50, respectively, as annual F&V incentives for eligible participants.[15] Matching programs have become a common strategy for incentivizing SNAP participants to use benefits at farmers' markets by providing a

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dollar-for-dollar match on each dollar spent with federal benefits.[16-19] Few studies have been published demonstrating the effect of farmers' market incentive programs, more specifically matching programs, on food security and F&V intake among program participants. Furthermore, few studies have used validated measurement tools to investigate behavior change before and after program participation. Thus, the goal of the current pilot study was to determine whether the *Double-Up Food Bucks* farmers' market incentive program improved food security and F&V intake among SNAP participants in Utah.

METHODS

Study Design

The researchers chose a pretest-posttest study design for this pilot study. The design allowed the researchers to measure the change in food security status and F&V consumption of participants from baseline to 4 weeks after initial participation in the *Double-Up Food Bucks* program at a farmers' market in Utah. The protocol for this study was considered exempt and was approved by the Institutional Review Board at Utah State University. Participants' consent was obtained before data collection after review of the informed consent document.

To be eligible to participate in the study, individuals had to be aged ≥ 18 years, receiving SNAP benefits, and participating in the *Double-Up Food Bucks* program at the Salt Lake City Downtown Farmers' Market. The *Double-Up Food Bucks* program is a grant-funded program that provides matching benefits to SNAP participants who spend SNAP benefits at selected farmers' markets in Utah. For every dollar spent using SNAP benefits, participants receive an additional dollar in *Double-Up Food Bucks* up to a maximum of $10 *Double-Up Food Bucks* per farmers' market visit. *Double-Up Food Bucks* can be used only for F&V purchases.

A convenience sample of 96 adult farmers' market patrons were recruited to participate in the survey at the farmers' market when they came to participate in the *Double-Up Food Bucks* program. Participants who were interested in completing the survey were provided with the letter of information and a 2-page, 28-item paper survey, which took approximately 5–10 minutes to complete. A researcher was available to answer questions about the study and the *Double-Up Food Bucks* program. As an incentive, after participants completed the survey, they were provided with $2 worth of tokens to use for F&V at the market. Participants were asked whether they were willing to participate in a 4-week follow up survey. The researchers collected first names and phone numbers from 74 interested participants and contacted the participants via telephone 4 weeks after completion of the initial survey. Participants were contacted up to 3 times to complete the 4-week follow-up survey. A total of 54 participants completed the follow-up survey and were mailed a voucher worth $3 to use at the farmers' market as an additional incentive.

Confidentiality was maintained by using identification (ID) numbers on data collection instruments in place of names and other identifying information. Individuals who were interested in completing the follow-up survey filled out a form separate from the initial survey with their first name, phone number, and study ID number. The contact information of follow-up participants was compiled and stored in a computer file available only to study personnel who placed follow-up phone calls.

Data and Instrumentation

The 28-item initial survey used in this study included 16 questions about demographics, F&V consumption, food security, food assistance use, and shopping habits. These survey items were developed by nutrition faculty at Utah State University. Fruit and vegetable consumption was measured using the 6-item validated F&V module of the Behavior Risk Factor Surveillance System (BRFSS).[20] Responses were modified based on the National Cancer Institute F&V Screener so that it could be self-administered.[21-23] Responses for the 6 F&V BRFSS questions included: never, 1–3 times/mo, 1–2 times/wk, 3–4 times/wk, 5–6 times/wk, 1 time/d, 2 times/d, and ≥ 3 times/d. The 6-item short form of the Food Security Module, validated by the US Department of Agriculture (USDA), was used to measure food security.[24,25] The 16-item follow-up survey included 2 questions about self-reported changes in F&V intake and variety and 2 questions about farmers' market shopping habits; the follow-up survey included the 6-item F&V BRFSS module and the 6-item Food Security Module, as discussed earlier. Each initial survey had a unique ID number that was matched with participants' follow-up information.

To assess the content validity of the survey, several faculty and staff were asked to review the survey independently before survey administration. Changes were made to the survey to further align questions with the data being measured.

Data Analysis

Data were double-entered for accuracy. Frequencies and descriptive statistics including mean, SD, medians, and interquartile range were analyzed. If more than 1 question from the food security module or the F&V module was skipped, surveys were excluded from the final analysis. Two participants who completed both the initial and follow-up survey were excluded from the study because they completed none of the questions within the food security module and F&V module. Small amounts of data were missing randomly from other surveys; however, missing data did not exceed the threshold previously mentioned. There were no missing demographic data. Baseline differences among participants who completed only the initial survey and those who completed both the initial and 4-week follow-up surveys were analyzed using independent sample *t* tests. Scales were developed for the food security and F&V questionnaires following instructions provided by the USDA and BRFSS, respectively.[20,25] Participants were categorized as food secure or food insecure based on the developed scales.[25] Wilcoxon signed-rank test was used to compare the scores for each question in the F&V module and total F&V consumption for each participant. All data analyses were conducted using SPSS 21.0 (version 21.0, SPSS, Inc, Chicago, IL, 2012).

RESULTS

A total of 54 participants completed the initial and follow-up surveys. There was no significant difference between the demographic characteristics of participants who completed only the initial survey and those who completed both the initial and 4-week follow-up surveys. Follow-up participants were significantly ($P < .05$) more likely than participants who completed only the initial survey to have shopped at the farmers' market before the *Double-Up Food Bucks* program.

The majority of participants who completed the initial and follow-up surveys were white, non-Hispanic females (Table 1). Age of participants ranged from 23 to 83 years (average age, 38 years). The average household had 1.6 children aged <18 years. A total of 74% of participants reported shopping at the farmers' market before the *Double-Up Food Bucks* program. In addition, 63% of participants reported they had not had enough money for food at some point in the previous 12 months.

The researchers compared the percentages of responses for the food insecurity questions for the initial and follow-up surveys. After participating in *Double-Up Food Bucks*, fewer individuals reported experiencing food insecurity–related behaviors (Table 2). Participants reported a decrease in the frequency of skipping meals, eating less food, feeling hungry, and not having enough money to buy enough food and eat balanced meals. The mean of the food security score decreased significantly from 3.0 to 2.3 ($P < .05$).

The mean, SD, and *P* for each of the 6 F&V questions and the F&V score were compared (Table 3). The individual question score for other vegetables (tomatoes, corn, eggplants, peas, lettuce, cabbages, and white potatoes) increased significantly ($P = .001$). The scores for the other individual questions regarding intake of fruit juice, fruit, canned beans, dark-colored vegetables, and orange vegetables did not change significantly, nor did the total F&V score ($P = .10$). However, 86% of participants reported an increase in F&V consumption and 84% reported an increase in the variety of F&V consumed after receiving farmers' market incentives. A total of 98% of participants reported purchasing fruit and 100% of participants reported purchasing vegetables at the farmers' market over the study period.

Table 1. Demographic Characteristics of *Double-Up Food Bucks* Participants in Utah (n = 54)

Characteristics	Total (%)
Gender, female	74
Age, y	
18–39	67
40–59	28
≥ 60	5
Race/ethnicity	
Asian	2
Black/African American	7
Hispanic or Latino	9
White	71
Other or multiple	11
Children age < 18 in household	
None	32
1–2	45
3–4	22
5	1
Receive other nutrition assistance[a]	
Assistance from family or friends	22
Food bank	26
Soup kitchen or community meals center	2
Special Supplemental Nutrition Program for Women, Infants, and Children	20
Employment status	
Employed	45
Not employed	55

[a]Participants were able to select all of the nutrition assistance programs in which they were enrolled; therefore, the total does not equal 100%.

DISCUSSION

Evidence-based programming is an essential component to developing successful nutrition-related interventions. Implementing farmers' market incentive programs is an innovative strategy to improve food security status and F&V intake among low-income individuals. Results of this pilot study suggest that there was an increase in food security status of select SNAP participants after receiving farmers' market incentives over a 4-week period. Few studies have investigated the impact of farmers' market incentives on the food security status of program participants. Significant differences were not found regarding food security status among WIC FMNP participants compared with WIC participants when the 18-item US Food Security Module was used.[10] However, it is possible that the small allotment of $18/y was not adequate to improve food security status among participants.[10] *Double-Up Food Bucks* participants received a higher benefit of up to $10 matched per farmers' market visit. It is likely that matching programs result in greater food security and F&V intakes because of the larger financial allotment provided weekly. Incentives of at least $20/wk have been reported as the minimum amount required to support nutrition-related behavior changes in low-income populations.[26]

Results also suggest that the intake of certain vegetables increased among study participants; however, results are not generalizable to the entire population receiving *Double-Up Food Bucks* owing to the small convenience sample. Previous studies with larger sample sizes indicated that

Table 2. Percentages of Participants Who Reported Food Insecurity Before and After Program Participation

Food Insecurity Questions	Survey	Answers				
		Often True	Sometimes True	Never True	Don't Know	
The food we bought didn't last and we didn't have money to get more	Initial (n = 53) Follow-up (n = 54)	9.4% 17.9%	64.2% 33.9%	22.6% 46.4%	3.8% 0%	
We couldn't afford to eat balanced meals	Initial (n = 53) Follow-up (n = 54)	22.6% 19.6%	47.2% 33.9%	26.4% 46.4%	3.8% 0%	
		Yes, Almost Every Day	Yes Some Days But Not Every Day	Yes, Only 1 or Two Days	No	Don't Know
We cut the size of meals or skipped meals because there wasn't enough money for food	Initial (n = 52) Follow-up (n = 54)	7.7% < 1%	19.2% 16.1%	19.2% 12.5%	50% 70.4%	3.8%
		Yes	No	Don't Know		
We ate less than I felt we should because there wasn't enough money for food	Initial (n = 53) Follow-up (n = 54)	50.9% 33.9%	45.3% 66.1%	3.8% 0%		
We were hungry but didn't eat because there wasn't enough money for food	Initial (n = 53) Follow-up (n = 54)	37.7% 32.1%	60.4% 67.9%	0% 0%		

Note: Food insecurity answers were based on whether the statement was often true, sometimes true, or never true in the past month.

F&V intake increased among farmers' market incentive participants after program participation.[27-29] Self-reported F&V intake increased significantly among participants of the *Philly Food Bucks* incentive program ($P = .006$) compared with nonparticipants.[13] Researchers of the USDA's *Healthy Incentives Pilot* found a 0.24-cup equivalent increase in F&V intake among participants receiving farmers' market incentives compared with the control group.[29] A similar study found a significant increase in F&V intake of 1.4 servings/1,000 cal among individuals who received WIC FMNP ($P < .001$) compared with the control group.[28] Furthermore, participants who receive farmers' market incentives eat more vegetables as snacks compared with individuals who do not receive the same incentives.[30] Findings of the current study align with previous research, which suggests a positive correlation between F&V consumption and participating in the *Double-Up Food Bucks* program.

To the authors' knowledge, this pilot study is one of few studies to investigate nutrition-related behavior change among participants of a matching farmers' market incentives program. As a result, to the authors' knowledge, this study is at the forefront of research supporting farmers' market incentive programs for low-income individuals. Results of this pilot study indicate that further research should be conducted regarding farmers' market incentives as an intervention strategy to improve food security and F&V consumption among low-income SNAP participants.

Despite the strengths of this study, there are limitations. This pilot study used a small sample size of participants to determine changes in nutrition-related behaviors. Therefore, this study was not powered to determine an effect size between mean scores of the initial and 4-week follow-up surveys for food security and F&V consumption. Furthermore, as a result of the small convenience sample used in this study, it is possible that results are not generalizable to the entire population of *Double-Up Food Bucks* participants. It is likely that demographics, shopping habits, food security status, and F&V consumption vary among study participants and all *Double-Up Food Bucks* participants. This was demonstrated by the difference in farmers' market use among study participants who completed the initial survey compared with those who completed both the initial and follow-up surveys. Based on the existing literature, it is likely that more generalizable and conclusive results would have been found with a larger sample of participants over a longer study period.

The initial and 4-week follow-up surveys used in this study relied on self-reported data for food security and F&V consumption. Self-reported instruments are subject to bias, which may cause an overestimation of study results.[31] Causal inference of the results is limited because the researchers did not use a control group. Therefore, it is possible that other factors besides participating in the *Double-Up Food Bucks* program influenced changes in food security and vegetable intake. Improvements in food security and vegetable intake reported by participants may have been a result of participants' awareness of being studied via the Hawthorne effect.[32] It is possible that participants who completed the follow-up study did not represent the

Table 3. Change in F&V Intake of *Double-Up Food Bucks* Participants After Program Participation

	Pretest		Posttest		
Frequency of F&V Intake Questions[a]	**Mean ± SD**	**Median (Interquartile Range)**	**Mean ± SD**	**Median (Interquartile Range)**	***P***
Consumption of 100% pure fruit juice (n = 48)	0.26 ± 0.32	0.07 (0.7–0.50)	0.24 ± 0.37	0.06 (0.07–0.21)	.50
Consumption of fresh, frozen, and canned fruit (n = 49)	0.71 ± 0.71	0.50 (0.21–1.0)	0.81 ± 0.67	0.79 (0.21–1.0)	.38
Consumption of cooked or canned beans (n = 48)	0.35 ± 0.53	0.21 (0.07–0.29)	0.28 ± 0.49	0.21 (0.07–0.21)	.22
Consumption of dark green vegetables (n = 49)	0.46 ± 0.49	0.21 (0.21–0.79)	0.52 ± 0.58	0.50 (0.18–0.79)	.24
Consumption of orange vegetables (n = 49)	0.27 ± 0.46	0.21 (0.07–0.21)	0.27 ± 0.26	0.21 (0.07–0.21)	.40
Consumption of other vegetables (n = 49)	0.52 ± 0.53	0.50 (0.21–0.79)	0.77 ± 0.61	0.64 (0.21–1.0)	.001
Total F&V consumption (n = 47)	3.3 ± 0.8	2.34 (1.41–3.25)	4.0 ± 0.8	2.57 (1.63–3.71)	.10

F&V indicates fruits and vegetables.
[a]Values are median and interquartile range from a Likert scale (never = 0.0; 1–3 times/mo = 0.067; 1–2 times/wk = 0.214; 3–4 times/wk = 0.5; 5–6 times/wk = 0.786; 1 time/d = 1.0; 2 times/d = 2.0; and ≥ 3 times/d = 3.0). *$P < .05$ is considered significant.
Note: Comparisons were performed using Wilcoxon signed-rank test.

entire population accurately because they were more likely to have previously shopped at the farmers' market compared with participants who completed only the initial survey. The BRFSS and the National Cancer Institute previously validated the F&V module and the food security module used in this study; however, combining the instruments may have compromised the validity of the survey used in this study. Finally, the survey used in this study was not assessed for face validity within the target audience; therefore, it is possible that the survey was not accurate in measuring what was intended.

IMPLICATIONS FOR RESEARCH AND PRACTICE

The results of this study suggest that there are potential benefits to implementing farmers' market incentive programs. The validated measurement tools used in this study could be used in future studies to determine changes in food security and F&V intake among program participants. Future studies should be conducted with larger sample sizes based on power analyses. Long-term implications of farmers' market incentive programs should be investigated. Objective data such as participant weight, height, waist circumference, and carotenoid levels should be collected in future studies before, during, and after receiving farmers' market incentives. Participants could be observed over a longer period of time to determine changes in long-term nutrition-related behaviors. Increased intakes of F&V were sustained among participating seniors 6 months after a study on the *Senior Farmers' Market Nutrition Program* had concluded.[27] Review of the literature indicates that no study to date has determined the long-term implications of farmers' market incentives on food security status. Qualitative data from interviews or focus groups would be beneficial to determine the values, beliefs, and experiences of participants with regard to program participation. Furthermore, incorporating a theoretical model into the development of survey tools would strengthen future study results. Integrating nutrition education with farmers' market incentives may optimize the impact of the program. Nutrition education paired with farmers' market incentives was found to be an effective way to improve F&V consumption among low-income individuals with diabetes.[33] Over half of participants of the *Healthy Options* program, which provided cooking classes, nutrition counseling, and farmers' market vouchers, reported an increase in F&V consumption after program participation.[34] Results of the current and previously mentioned studies indicate the value of continued research on the effectiveness of changing nutrition-related behaviors among low-income individuals participating in farmers' market incentive programs.

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REFERENCES

1. World Health Organization. Trade, foreign policy, diplomacy and health: food security. http://www.who.int/trade/glossary/story028/en/. Accessed June 14, 2015.
2. Coleman-Jensen A, Gregory C, Singh A. Household food security in the United States in 2013. http://www.ers.usda.gov/media/1565415/err173.pdf. Accessed June 14, 2015.
3. Champagne CM, Casey PH, Connell CL, et al. Poverty and food intake in rural America: diet quality is lower in food insecure adults in the Mississippi delta. *J Am Diet Assoc*. 2007;107:1886-1894.
4. Kendall A, Olson CM, Frongillo EA. Relationship of hunger and food insecurity to food availability and consumption. *J Am Diet Assoc*. 1996;96:1019-1024.
5. Miewald C, Holben D, Hall P. Roll of a food box program in fruit and vegetable consumption and food security. *Can J Diet Pract Res*. 2012;73:59-65.
6. Pitts SBJ, Gustafson A, Wu Q, et al. Farmers' market use is associated with fruit and vegetable consumption in diverse southern rural communities. *Nutrition Journal*. 2014;13:1.
7. Gustafson A, Christian JW, Lewis S, Moore K, Jilcott S. Food venue choice, consumer food environment, but not food venue availability within daily travel patterns are associated with dietary intake among adults, Lexington Kentucky 2011. *Nutrition Journal*. 2013;12:17.
8. Dimitri C, Oberholtzer L, Zive M, Sandolo C. Enhancing food security of low-income consumers: an investigation of financial incentives for use at farmers markets. *Food Policy*. 2015;52:64-70.
9. Grin BM, Gayle TL, Saravia DC, Sanders LM. Use of farmers markets by mothers of WIC recipients, Miami-Dade County, Florida, 2011. *Prev Chronic Dis*. 2013;10:E95.
10. Kropf ML, Holben DH, Holcomb JP, Anderson H. Food security status and produce intake and behaviors of Special Supplemental Nutrition Program for Women, Infants, and Children and Farmers' Market Nutrition Program participants. *J Am Diet Assoc*. 2007;107:1903-1908.
11. Byker C, Shanks J, Misyak S, Serrano E. Characterizing farmers' market shoppers: a literature review. *J Hunger Environ Nutr*. 2012;7:38-52.
12. Freedman DA, Mattison-Faye A, Alia K, Guest MA, Hebert JR. Comparing farmers' market revenue trends before and after the implementation of a monetary incentive for recipients of food assistance. *Prev Chronic Dis*. 2014;11:E87.
13. Young CR, Aquilante JL, Solomon S, et al. Improving fruit and vegetable consumption among low-income customers at farmers markets: Philly Food Bucks, Philadelphia, Pennsylvania, 2011. *Prev Chronic Dis*. 2013;10:E166.
14. Oberholtzer L, Dimitri C, Schumacher G. Linking farmers, healthy foods, and underserved consumers: exploring the impact of nutrition incentive programs on farmers and farmers' markets. *Journal of Agriculture, Food Systems and Community Development*. 2012;2:63-77.
15. McCormack LA, Laska MN, Larson NI, Story M. Review of the nutritional implications of farmers' markets and community gardens: a call for evaluation and research efforts. *J Am Diet Assoc*. 2010;110:399-408.
16. Parsons M, Morales A. Increasing the healthiness of consumers through farmers' markets. *J Ext*. 2013;51(4).
17. Lindsay S, Lambert J, Penn T, et al. Monetary matched incentives to encourage the purchase of fresh fruits and vegetables at farmers markets in underserved communities. *Prev Chronic Dis*. 2013;10:E188.
18. Payne GH, Wethington H, Olsho L, Jernigan J, Farris R, Walker DK. Implementing a farmers' market incentive program: perspectives on the New York City Health Bucks Program. *Prev Chronic Dis*. 2013;10:E145.
19. Centers for Disease Control and Prevention. *Behavior Risk Factor Surveillance System Survey*. 2013. http://www.cdc.gov/brfss/questionnaires/pdf-ques/2013%20brfss_english.pdf. Accessed January 30, 2015.
20. National Cancer Institute. Fruit and vegetable screeners in the Eating at America's Table Study (EATS): scoring. http://appliedresearch.cancer.gov/diet/screeners/fruitveg/scoring/. Accessed January 30, 2015.
21. Serdula M, Coates R, Byers T, et al. Evaluation of a brief telephone questionnaire to estimate fruit and vegetable consumption in diverse study populations. *Epidemiology*. 1993;4:455-463.
22. Thompson F, Kipnis V, Subar A, et al. Evaluation of 2 brief instruments and a food-frequency questionnaire to estimate daily number of servings of fruit and vegetables. *Am J Clin Nutr*. 2000;71:1503-1510.
23. Gulliford MC, Mahabir D, Rocke B. Reliability and validity of a short form household food security scale in a Caribbean community. *BMC Public Health*. 2004;4(9).
24. US Department of Agriculture, Economic Research Service. U.S. household food security survey: six item short form. http://www.ers.usda.gov/datafiles/Food_Security_in_the_United_States/Food_Security_Survey_Modules/short2012.pdf. Accessed January 30, 2015.
25. Ni Mhurchu C, Eyles H, Dixon R, Matoe L, Teevale T, Meagher-Lundberg P. Economic incentives to promote healthier food purchases: exploring acceptability and key factors for success. *Health Promot Int*. 2012;27:331-341.
26. Anliker JA, Winne M, Drake LT. An evaluation of the Connecticut Farmers Market Coupon Program. *J Nutr Educ*. 1992;24:185-191.
27. Kunkel ME, Luccia B, Moore AC. Evaluation of the South Carolina Seniors Farmers' Market Nutrition Education Program. *J Am Diet Assoc*. 2003;103:880-883.
28. Herman DR, Harrison GG, Afifi AA, Jenks E. Effect of a targeted subsidy on intake of fruits and vegetables among low-income women in the special supplemental nutrition program for women, infants, and children. *Am J Public Health*. 2008;98:98-105.
29. US Department of Agriculture, Food and Nutrition Service. Evaluation of the Healthy Incentives Pilot (HIP): final report. http://www.fns.usda.gov/healthy-incentives-pilot-final-evaluation-report. Accessed February 8, 2015.
30. Wheeler A, Chapman-Novakofski K. Farmers' markets: costs compared with supermarkets, use among WIC clients, and relationship to F&V intake and related psychosocial variables. *J Nutr Educ Behav*. 2014;46(3 suppl):S65-S70.
31. Miller TM, Abdel-Maksoud MF, Crane LA, Marcus AC, Byers TE. Effects

of social approval bias on self-reported fruit and vegetable consumption: a randomized controlled trial. *Nutr J*. 2008;7:18.
32. Campbell MK, Honess-Morreale L, Farrell D, Carbone E, Brasure M. A tailored multimedia nutrition education pilot program for low-income women receiving food assistance. *Health Educ Res*. 1999;14:257-267.
33. Weinstein E, Galindo RJ, Fried M, Rucker L, Davis NJ. Impact of a focused nutrition educational intervention coupled with improved access to fresh produce on purchasing behavior and consumption of fruits and vegetables in overweight patients with diabetes mellitus. *Diabetes Educ*. 2014;40:100-106.
34. Dailey A, Hess A, Horton C. Healthy Options: a community-based program to address food insecurity. *J Prev Interv Community*. 2015;43:83-94.

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