Healthy Options: A Community-Based Program to Address Food Insecurity

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Key words: food insecurity, community-based participatory research, Hispanics, qualitative research

Running head: Healthy Options Food Insecurity Program

Abstract: The objectives of this study are to better understand the lived experience of food insecurity in our community and to examine the impact of a community-based program developed to increase access to local, healthy foods. Participants were given monthly vouchers to spend at local farmers' markets and invited to engage in a variety of community activities. Using a community-based participatory research framework, mixed methods were employed. Survey results suggest that most respondents were satisfied with the program and many increased their fruit and vegetable consumption. However, over 40% of respondents reported a higher level of stress over having enough money to buy nutritious meals at the end of the program. Photovoice results suggest that the program fostered cross-cultural exchanges, and offered opportunities for social networking. Building upon the many positive outcomes of the program, community partners are committed to using this research to further develop policy-level solutions to food insecurity.

It has become increasingly well-recognized that nutrition and diet quality has a major impact on chronic diseases and overall health (Mozaffarian, Appel, & Van Horn, 2011). Communities across the United States are developing new ways to combat diet-related diseases by promoting healthy eating and improving access to healthy foods. Many projects are spear-headed by community-university partnerships rooted in principles of community-based participatory research (CBPR). CBPR is an approach that acknowledges community as an equal partner throughout the entire research and action process, including identification of research questions, program implementation and evaluation, and interpretation and dissemination of findings (Israel, Eng, Schulz, & Parker, 2005).

Recognizing that determinants of health stem from more than individual choices and behaviors, but are rooted in social processes that include interpersonal relationships, living and working conditions, and broad social and economic policies (Institute of Medicine, 2002), many communities are employing collaborative CBPR processes that can improve community health through social change. For example, one Kansas City neighborhood used CBPR to conduct a community food assessment survey that led to a business plan to improve access to healthy food options (Mabachi & Kimminau, 2012), and a San Francisco neighborhood used CBPR to achieve a neighborhood public policy solution to expand community accessibility to healthy food (Vasquez et al., 2007). Some communities have used CBPR to address food-related health disparities. Minkler (2010) describes how a San Francisco neighborhood used CBPR to link research with statewide legislative efforts to reduce disparities in access to healthy foods (Minkler, 2010).

A complementary approach to addressing community-level food access issues has been the development of area food policy councils. Similar to formalized CBPR partnerships, food

policy councils also are rooted in collaborative processes between residents, community organizations, and researchers. Adams County, Pennsylvania (PA) is an example of a community that has formalized community-academic partnerships to directly address equitable access to healthy food in the community. Adams County is a primarily rural area in south-central PA, with a large agricultural industry. In 2007, community discussions around food access were fueled by several important events and initiatives that eventually resulted in the formalization of the Adams County Food Policy Council (ACFPC), which was officially established by a proclamation of the county commissioners in 2009. The vision of the ACFPC is that all residents of Adams County will have access to a safe, nutritious, affordable and adequate food supply. In the interest of health and sustainability, ACFPC promotes the integration of the individual, community, the economy, and the environment to develop food policy and take action.

Given the unmet food needs reported by social service agencies, food insecurity has been a primary concern for ACFPC. Food insecurity refers to the condition of limited or uncertain access to adequate food (United States Department of Agriculture, 2012). It is likely that food insecurity disproportionately affects our Hispanic population, the largest racial/ethnic minority group in the county. According to the 2011 American Community Survey, 40.9% of people of Latino or Hispanic origin in Adams County had incomes below the poverty level, compared with 5.7% of non-Hispanic whites (U.S. Census Bureau, 2012) . Given the large migrant population in the county and probable documentation issues, population and poverty estimates are likely underestimated. While federal food assistance programs address food insecurity for some, many families do not qualify for these benefits.

The ACFPC developed a project, named Healthy Options, to provide families experiencing food insecurity, yet not eligible for federal food assistance programs, with the increased ability to purchase healthy, fresh foods. While our program did not exclusively serve Hispanic residents, the program was designed to meet the needs of this underserved population, ensuring that the program was culturally sensitive and accessible in terms of language. The objectives of this study are to better understand the lived experience of food insecurity in our community and to examine the influence of Healthy Options on participants, their families, and the greater Adams County community.

METHODS

Program overview. The central element of the Healthy Options intervention was a food voucher program. Each participating family received forty dollars in vouchers per month during the months of June through September, 2012 to spend at any of the three Adams County Farmers' Market Association affiliated farmers' markets, open at various times throughout the week. There were no restrictions on what participants could purchase with the vouchers. Participants collected the vouchers at an information table that was open during market hours. All program materials were available in English and Spanish and a translator was available for all events.

In addition to the primary voucher component of Healthy Options, multiple supplementary activities were also available. These activities included interactive gardening and cooking classes, cooking demonstrations and speaking with a registered dietitian at the farmers' markets, tours of local farms, introductory classes on how to begin a food-related business, health fairs, and market days with planned activities for children (referred to as kids' days). At

the end of the program we held a community gathering for participants, farmers, ACFPC members, and anyone involved with the program, to celebrate the accomplishments of the program.

The program was funded entirely through community support. Four local farms donated Community Supported Agriculture (CSA) shares for resale. Additional support came from an online fundraising, the Adams County Community Foundation and the United Way of Adams County.

Eligibility. Families were referred to Healthy Options by six social service agencies. They were eligible if their household incomes were between 160%-250% of the federal poverty income guidelines (FPIG). Some of the families referred to the program were below 160% of the FPIG, but because they were not eligible for federal food assistance benefits, were eligible for participation in Healthy Options. The research component was explained to participants through an informed consent process. Families were not required to participate in the research component to be eligible for the Healthy Options program. This study was approved by the Gettysburg College Institutional Review Board.

Research methods. Using a CBPR framework, mixed methods, including quantitative surveys and Photovoice research methods, were employed. One person from each family was invited to complete a pre-program survey when they arrived to collect their first set of vouchers. This survey, available in English and Spanish, consisted of twelve questions, took approximately five minutes to complete, and included questions on demographics, fruit and vegetable consumption, and shopping at the farmers' markets. At the end of the program, upon picking up their last set of vouchers, the same individuals were invited to complete a post-program survey. Lengthier than the pre-program survey, the post-program survey consisted of thirty-two

questions asking about fruit and vegetable consumption and their experiences with the Healthy Options program and farmers' markets, adapted from the Veggie Project (Freedman, Bell, & Collins, 2011).

Participants of the Healthy Options program were also invited to take part in a Photovoice project. By having participants take pictures that communicated their lived experience, we used Photovoice methodology (Lopez, Eng, Robinson, & Wang, 2005) to elicit insights about experiencing food insecurity not easily captured with more quantitative methods. Participants each received a $25 gift card to a chain grocery store for each photovoice session attended. At the initial meeting, digital cameras were distributed to those who did not have their own, the project was explained, and participants were asked to take pictures of their everyday experiences with food over the next several weeks. Study investigators explained the project to participants who could not attend the initial informational meeting in person or over the telephone. All individuals who agreed to participate completed informed consent paperwork and image release forms, both available in Spanish and English. The second meeting, held one month after the informational meeting, was discussion-based, and facilitated by two Healthy Options representatives, one who served as a Spanish/English translator. A sample of participant photos were placed on an overhead screen and an open-ended discussion was encouraged. Additional questions were asked by the facilitators to further probe participants about their experiences providing healthy food for their families. Participants were again asked to take pictures of their experiences to bring to the final Photovoice discussion session, held one month later. As before, participants were encouraged to discuss their experiences in an open-ended fashion with additional probes from facilitators. Non-facilitating study personnel took notes and each session was audio recorded.

Analysis. Pre-program and post-program surveys were analyzed using IBM SPSS version 20. Photovoice discussion notes were analyzed using a thematic content analysis approach. Study investigators each coded themes and then the investigators came to agreement on themes as a group. Photovoice participants were invited to a research meeting to help the group clarify and interpret the emerging concepts and themes. Two participants agreed to engage in this aspect of the analysis.

RESULTS

Program participation. Over the course of the entire project period (June- September) 47 families participated. Sixty-eight percent of the family contacts identified Spanish as their preferred language for program communication. Seventy-two percent of families fully participated throughout the entire project period. Over 90% of families collected their vouchers during the first two months of the program. However, 38% of families stopped using vouchers at some point during the summer, most of whom stopped late in the season (August – September). A few families dropped out of the program early and were replaced with additional participants. Over 95% of the vouchers collected by families were redeemed, resulting in $5,930 having been spent at the farmers' markets through the Healthy Options program. According to types of purchases, 19% was spent on meat, 67% was spent on fruits and vegetables, 12% was spent on baked goods, and 2% was spent on other items available at the markets. Nearly half (48%) of families had at least one member of the family participate in at least one of the supplemental activities.

Pre-program and post-program surveys. Thirty-eight individuals completed the pre-program survey, representing 81% of Healthy Options families, and all but one individual identified themselves as the primary food purchaser for the family (see Table 1). Over 80% of

respondents self-identified as Hispanic. Nearly a third (31.6%) of respondents reported having some high school education, 23.7% reported being a high school graduate (or had GED equivalent) and approximately 29% reported having completed some college or were college graduates. Over 70% of respondents reported sometimes, usually, or always experiencing stress or worry about having enough money to buy nutritious meals. For more than half of the respondents, the day they arrived at the farmers' market to collect their vouchers was their first visit to a farmers' market. Just over a third of respondents (34.2%) reported eating 2-3 servings of fruit and vegetables per day, whereas approximately two-thirds of respondents reported consuming four or more servings of fruits and vegetables per day.

Table 1. Characteristics of Healthy Options pre-program survey participants at baseline, 2012 (n=38).

Characteristic	**Categories**	**Number**	**Percentage**
Primary Food Purchaser for Family	Yes	37	97.4
	No	0	0.0
	Missing	1	2.6
Ethnicity	Hispanic	31	81.6
	Non-Hispanic	7	18.4
Education	Some high school	12	31.6
	High school graduate (or GED equivalent)	9	23.7
	Some college or college graduate	11	28.9
	Missing	6	15.8
Household size	2-4 people	22	57.9
	5-8 people	14	36.8
	Missing	2	5.3
Frequency of experiencing stress or worry about having enough money to buy nutritious meals	Always	7	18.4
	Usually	10	26.3
	Sometimes	14	36.8
	Rarely or never	4	10.5
	Missing	3	7.9
Frequency of shopping at	First visit	21	55.3

Characteristic	Categories	Number	Percentage
farmers' market			
	Few times per year	8	21.1
	Once per month	4	10.5
	Few times per month	4	10.5
	Missing	1	2.6
Fruit and vegetable consumption	2-3 servings per day	13	34.2
	4-5 servings per day	13	34.2
	6-8 servings per day	11	29.7
	Missing	1	2.6

The same individuals that were invited to participate in the pre-program survey were invited to participate in the post-program survey and the results are shown in Table 2. Thirty-three participants responded to the post-program survey, twenty-nine of whom had also filled out the pre-program survey. Thus, 88% of participants who responded to the pre-program survey also responded to the post-program survey. Four participants completed the post-program survey without having completed the pre-program survey.

Over 80% of post-program survey respondents agreed that the farmers' markets had fair prices, sold a wide variety of high quality fruits and vegetables, were in a good location, helped their families eat healthier foods, had convenient hours of operation, offered opportunities for social engagement, and were overall satisfactory. Furthermore, respondents overwhelmingly valued the fact that the foods were grown by local farmers. Over 80% of respondents tried fruits and vegetables that were new to them because of the program and nearly 88% of respondents agreed that the program made fruits and vegetables more affordable to them. Forty-two percent reported that they would shop at the farmers' markets sometimes if they did not receive vouchers, whereas nearly 40% reported that they would rarely or never shop at farmers' markets without vouchers.

Among participants who responded to both surveys, 55% reported increasing the number of fruit and vegetables consumed per day. Participants were asked in both surveys how often in the past 12 months they experienced worry or stress about having enough money to buy nutritious meals. Among those who responded to both surveys, 43% reported more worry/stress, 26% reported less worry/stress, and 30% reported no change in worry/stress over having enough money to buy nutritious meals.

Table 2. Perceptions of the farmer's market and experiences with the Healthy Options program, 2012 (n=33).

Perceptions of farmer's markets	**Category**	**Number**	**Percentage**
Farmer's markets had fair prices	Strongly Agree/Agree	27	81.8
	Unsure/ Disagree/Strongly Disagree	6	18.2
Farmer's markets sold a wide variety of fruits and vegetables	Strongly Agree/Agree	27	81.8
	Unsure/ Disagree/Strongly Disagree	4	12.1
	Missing	2	6.1
Farmer's markets were in a good location	Strongly Agree/Agree	29	87.9
	Unsure/ Disagree/Strongly Disagree	3	9.1
	Missing	1	3.0
Farmer's markets helped me and my family eat healthier foods	Strongly Agree/Agree	32	97.0
	Unsure/ Disagree/Strongly Disagree	0	0.0
	Missing	1	3.0
Farmer's markets had convenient hours of operation	Strongly Agree/Agree	29	87.9
	Unsure/ Disagree/Strongly Disagree	3	9.1
	Missing	1	3.0
Farmer's markets gave me a chance to hang out with people in my community	Strongly Agree/Agree	27	81.8
	Unsure/ Disagree/Strongly Disagree	5	15.2
	Missing	1	3.0
I was very satisfied with the farmer's market	Strongly Agree/Agree	29	87.9
	Unsure/ Disagree/Strongly Disagree	2	6.1
	Missing	2	6.1
Farmer's markets sold high quality fruits and vegetables	Strongly Agree/Agree	28	84.8
	Unsure/ Disagree/Strongly Disagree	1	3.0

Perceptions of farmer's markets	Category	Number	Percentage
	Missing	4	12.1
I shopped at the farmer's markets because they sold foods grown by local farmers	Strongly Agree/Agree	29	87.9
	Unsure/ Disagree/Strongly Disagree	0	0.0
	Missing	4	12.1
I tried fruits and/or vegetables that were new to me because of the program	Strongly/Agree	27	81.8
	Disagree/Strongly Disagree	6	18.2
	Missing	2	6.1
The program made the fruits and vegetables more affordable	Strongly/Agree	29	87.9
	Disagree/Strongly Disagree	2	6.1
	Missing	2	6.1
How frequently would you shop at the farmers' markets if you did NOT receive Healthy Options vouchers?	Sometimes	14	42.4
	Rarely/Never	8	39.4
	Missing	6	18.2

Photovoice. The three most central themes that emerged from the Photovoice discussion sessions were: 1) challenges with feeding families healthy food, 2) the intersection of food and culture, and 3) building community connections. Fifteen individuals participated in all or some of the Photovoice sessions; twelve participated in the first discussion session and ten participated in the second discussion session.

One theme that emerged from the Photovoice participant discussions is the challenges they faced trying to feed their families healthy food. Challenges included financial concerns, but many participant comments focused on the food preferences and behaviors of their spouses and children and the challenges associated with trying to encourage consumption of healthy foods. One participant offered that her kids preferred to eat "Mexican" food, which had advantages in terms of affordability, but she struggled with getting her children to eat fresh vegetables because of their food preferences, in addition to the financial challenges she faced. Other participants

shared these concerns about getting their children interested in eating healthy food. Many participants expressed that Healthy Options gave them the opportunity to learn new ways to prepare food and introduce new fruits and vegetables into their families' diets. For example, one participant said: "New varieties of fruits and veggies have been introduced. I had never heard of a donut peach and my family loves them."

The intersection of food and culture and tradition was also a central theme during both Photovoice discussions. While communication was sometimes slow, given the need for constant translation back and forth between English and Spanish, permitting all participants to fully participate, the conversations were rich with cross-cultural exchanges between participants. Many participants brought photos of the food they had prepared with the items purchased with their Healthy Options vouchers and were very enthusiastic about sharing their dishes and explaining how those particular foods were important to their culture and families. Participants extended this enthusiasm to preparing dishes to share with the group during the sessions. Participants exchanged recipe and preparation ideas and seemed genuinely interested in learning from different cultural perspectives.

Finally, building community connections was a central theme of the Photovoice research. Following the Photovoice sessions, participants shared how the Photovoice sessions themselves served as a facilitator for community connection. While the original intent was for Photovoice to be used as a research tool for understanding the lived experience of food insecurity and examining role of Healthy Options, the Photovoice sessions became more than acquiring new information for research purposes and became a venue for engaging in social networking and exchange of information for participants. One participant stated, "Participating in the photography project made it fun. It made me realize I was not alone." Sharing experiences

helped participants understand that others face similar challenges and this exchange fostered a sense of community amongst the group that led to exchanging information, such as home gardening tips, where to find the best food prices, how to extend food over the winter months, how to prepare items, and how to get children to eat more fruits and vegetables.

DISCUSSION

According to our research findings, the Healthy Options program positively influenced individuals and families who participated. Participants reported that Healthy Options directly helped their families eat healthier foods and made fruits and vegetables were more affordable. From baseline to the end of the program we observed that 55% of respondents reported an increase in fruit and vegetable consumption per day. With nearly half of participants engaging in the supplemental activities, many participants were exposed to additional information on nutrition, gardening, farming and cooking healthy meals. On a family level, many Photovoice participants expressed how Healthy Options helped to engage their children in healthy food preparation and introduced them new healthy foods.

While our intention was to alleviate some of the burden related to food insecurity, over forty percent of respondents reported an increase in worry or stress over providing healthy meals for their families after participation in Healthy Options. One interpretation of this finding is that after being encouraged to purchase and prepare healthy foods, and having additional financial support to do so, participants are now worried about not having the supplemental income to sustain their new behaviors. If participants have increased their families' acceptance of healthy foods they may feel even more worried about providing those foods for their families than they did at the start of the program. More research is needed to explore this result.

Although Healthy Options is a program with limited scope, it is likely to have influenced many more people than we were able to account for in this analysis. As a community-based project approached with principles of CBPR, this program influenced outcomes at multiple levels. Health behavior theory and research support the notion that multilevel interventions that may be essential in bringing about population improvements in health (Sallis & Owen, 2002).

On interpersonal and community levels, participants reported in the post-program survey that Healthy Options offered opportunities for social interaction. Following the Photovoice sessions, participants shared with us how the Photovoice sessions themselves served as a facilitator for community connection. While the original intention was for Photovoice to be used as a research tool, Photovoice itself fostered social connections. The participants valued the interaction so much so that a group of participants took the initiative to sustain and continue the gatherings. Participants were able to bring their own ideas to the meetings and become true partners in the research and sustainability process. One idea that was initiated by participants was using Photovoice photos to create a recipe book to sell to raise funds for the program.

In addition to the social networking outcomes of the program and the supplementary activities, broader community-level outcomes were also observed. The cross-cultural exchange between participants, farmers, chefs, students, health workers, community and academic partners involved in Healthy Options programming and research, was integral to success of the program. Furthermore, the Healthy Options programming and events, such as Kids' Day and the health fairs, helped to raise community awareness of food insecurity issues in the county. The money that was raised for Healthy Options went directly back into the local economy via the farmers' markets and local growers. Anecdotally, we heard from many of the vendors at the farmers' markets that they were very pleased with the Healthy Options program because of the influx of

customers and expansion of their customer base. Local farmers also were happy to gain new information from cross-cultural exchanges with participants, including learning new preparation techniques and new products to sell at the market. For example, on one of the farm tours, one participant identified purslane in the farmers' field and suggested that he harvest and sell it.

While we were able to document many positive aspects of the program, some limitations need consideration. First, the number of individuals and families positively impacted by Healthy Options was limited by the scope and resources available for the program, including money for vouchers, but also human resource time. Second, we must interpret our survey data with caution because of possible selection bias. Individuals that chose not to participate in the pre-program survey may be systematically different than those who were willing to. Furthermore, participants who did not fill out the post-program survey were more likely to be people who did not fully participate throughout the entire program. Thus, those individuals may have responded negatively to the program and our positive findings may be overestimated. There were also limitations in terms of the depth of information we could collect through surveys, given the small study population size and concerns about the burden on participant time.

Despite the relatively small scale of this program, the successes of Healthy Options have helped to energize the efforts of the ACFPC. We intend to use this research to continue to conceive of new ways to engage the community in our efforts, increase outreach to include more families experiencing unmet food insecurity needs, and improve the program to make it a more beneficial program for participants. Given the finding that many participants experienced increases in worry or stress associated with having money to provide nutritious meals at the end of the Healthy Options program, it is likely that the ACFPC partnership will need to tackle the issue of longer-term sustainability of food insecurity programs and continue to advocate for

broader policy solutions, building upon the connections forged through program-level solutions, such as Healthy Options.

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