Increasing Farmers Market Access among Low-Income Shoppers in Washington State:
Understanding the Role of Peer-to-Peer Programs

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Abstract

Increasing Farmers Market Access Among Low-Income Shoppers in Washington State: Understanding the Role of Peer-to-Peer Programs

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OBJECTIVE: To describe a sample of peer-to-peer (P2P) farmers market programs, explore perceptions about the impacts of P2P programs, and to evaluate the factors that contribute to the success of this initiative. The study also examines how these findings relate to key indicators in the SNAP-Ed Evaluation Framework.

METHODS: Semi-structured, open-ended interviews were conducted with P2P program leaders, peer educators, and program participants. Interviews were coded and analyzed using qualitative software to identify emerging themes. The SNAP-Ed Evaluation Framework was used to interpret results.

RESULTS: P2P programs increased self-reported shopping at farmers markets and fruit and vegetable consumption among most peer educators and program participants. Multi-level facilitators were associated with successful P2P implementation. The characteristics of the peer educators, program design, support from program leaders, networks with partner organizations, and federal funding from SNAP-Ed were all critical to the success of P2P programs.

CONCLUSIONS AND IMPLICATIONS: This study suggests P2P programs that promote the use of farmers markets can contribute to individual behavior change, community change, and potentially changes in the agricultural sector. These results provide support for the further development and evaluation of P2P farmers market programs.
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Introduction

Many Americans are not consuming adequate amounts of fruit and vegetables. In 2013, only 13% of United States residents consumed the recommended one and one-half to two cups of fruit each day and only nine percent were meeting the recommendations to consume two to three cups of vegetables per day (1, 2). Low-income individuals are less likely to consume the recommended amounts of fruit and vegetables than higher-income people (3-5). United States Department of Agriculture data shows the average daily intake of both vegetables and fruit increases as income level increases (3), and when looking at an individual’s neighborhood socio-economic status (SES) index, one standard deviation increase is associated with consumption of nearly two additional servings of fruit and vegetables per week (6).

The income disparity in fruit and vegetable consumption is concerning because adequate intake of fruit and vegetables is essential to a healthy diet, and protective against many chronic diseases. Fruit and vegetable consumption has been shown to reduce the risk of cardiovascular disease, type two diabetes, and some types of cancer (1, 7).

Therefore it makes sense that low-income populations, who tend to have lower fruit and vegetable consumption, also tend to have higher chronic disease rates (6). With increased recognition of disparities in both chronic diseases and fruit and vegetable consumption, there are efforts underway to increase healthy food access among low-income populations with the goal of reducing overall health disparities.

Farmers Markets

One approach is to increase access to farmers markets among low-income families participating in the Supplemental Nutrition Assistance Program (SNAP). Shopping at farmers markets increases fruit and
vegetable consumption, and improves attitudes and beliefs about buying, preparing, and eating fruit and vegetables (8-10). SNAP participants who shop at farmers markets consume vegetables approximately 0.5 more times per day compared to SNAP participants who do not shop at farmers markets (11).

However low-income shoppers face many barriers to shopping at farmers markets such as cost, time, location of markets, hours of operation, lack of awareness of markets and the desire to shop for everything at one location (12, 13). Recently, many communities have begun implementing a variety of strategies to make farmers markets more accessible to this population.

One strategy is to provide financial incentives for SNAP participants to shop at farmers markets, as reducing the cost of produce can be an effective way to increase consumption among low-income shoppers (3). The USDA Economic Research Service reported that a ten percent price discount at the retail level would encourage low-income households to increase their consumption of fruit by 2.1-5.2% and vegetables by 2.1-4.9% (3). Incentives have already been in place in the Women Infants and Children (WIC) Farmers Market Nutrition Program and in the Senior Farmers Market Nutrition Program. Many of these have been evaluated and appear to contribute to increased shopping at farmers markets and increased fruit and vegetable consumption (11, 14). There is a new and growing trend toward providing SNAP matching programs at farmers markets, such as the Fresh Bucks program in Washington State, which provides varying incentive structures such as a dollar-for-dollar match (up to ten dollars) when shoppers use their Electronic Benefits Transfer (EBT) cards at the market (15). However, even in areas that offer these incentives, there are many low-income shoppers who are still not shopping at farmers markets. Reasons for this include a lack of knowledge about the incentive programs, and a lack of awareness about the location and hours of markets (11, 16). This highlights the need for initiatives that complement financial incentives by increasing awareness and knowledge and addressing other barriers throughout the community.
Peer-to-Peer Programs

There is some variety in the definition of “peer-to-peer” (P2P) interventions in the literature, but the major commonalities are that they involve individuals (e.g. peer educators) who are members of the target community, who are natural helpers, natural leaders, a person others trust and typically turn to for support, and someone who has a large social network (17-19). The role of peer educators is to promote the health of community members by providing health information, resources, or referrals in an informal, and culturally relevant way (19-21).

In the literature, P2P workers include lay health advisors, community health advocates, ambassadors, promotoras, navegantes, community health workers, navigators, and peer outreach workers (22-26). In this study, the term “peer-to-peer” (P2P) is used to describe this category of initiatives, and the term “peer educator” is used to describe the individual.

P2P initiatives can connect individuals to a variety of resources and health information, specifically in communities that are often labeled “hard-to-reach”, which have historically lacked access to health care, or those in which conventional outreach methods may not be effective (27-30). Peer educators are better suited to reach these communities because of their ability to provide culturally relevant information and their understanding of their community’s’ language, assets, values, and needs (21, 22).

P2P models have been used successfully in African American, Hispanic/Latino, Native American, Immigrant, and low-income communities addressing a wide array of health topics including cancer screening, sexual health, diabetes, tobacco cessation, pesticide contamination, couples violence, oral health, general health, nutrition/changing dietary patterns, infant mortality, low birth weight, childhood immunizations, hypertension, smoking, and the use of preventative care services (31, 32). In many
cases, P2P programs appear to be cost-effective and successful at increasing knowledge and facilitating behavior change (21, 23-26, 28, 33-35).

While P2P models have been used in a variety of health promotion initiatives, to the best of our knowledge the use of this initiative to increase shopping at farmers markets has not been studied.

**Context**

In Washington State, farmers market promotion activities can be funded through the Supplemental Nutrition Assistance Program Education (SNAP-Ed), the nutrition education and obesity prevention arm of SNAP. Several SNAP-Ed contractors in Washington implement P2P activities as part of their SNAP-Ed work, and Washington’s SNAP-Ed program has specifically highlighted P2P interventions as a promising approach to promote and increase access to farmers markets for low-income populations. Recently, there has been a shift in the scope of SNAP-Ed to expand its focus beyond just individual education to address additional determinants of nutrition behavior through promotion of policies, systems, and environment interventions. United States Department of Agriculture (USDA) recently finalized an evaluation framework that reflects this comprehensive approach (36). [Figure 1 describes the components of the evaluation framework]. This study uses the SNAP-Ed evaluation framework to understand the impact of P2P initiatives, as several P2P programs included in this study were funded through SNAP-Ed.
Figure One: SNAP-Ed Evaluation Framework with specific indicators used in this evaluation underlined in yellow.

The current study was part of a parent study entitled Washington Farmers Market Access Evaluation (WFMAE) conducted by the University of Washington Center for Public Health Nutrition (UW CPHN).

The parent study aimed to improve understanding about the impact of activities underway in the state to increase use of farmers markets by low-income populations, especially activities funded by the state’s SNAP-Ed program. It included a “deep dive” evaluation into one innovative farmers market initiative to learn about its effectiveness and feasibility and how it could be improved or replicated.

WFMAE’s Advisory Group, composed of individuals involved in WA State farmers markets, public
health and SNAP-Ed, expressed interest in focusing on P2P models for the “deep dive” evaluation, given their recent focus in Washington State, and the state SNAP-Ed directive specifically focused on using P2P models to promote fruit and vegetable consumption.

The purpose of this qualitative study is to identify and describe a sample of P2P farmers market programs in Washington State, explore perceptions about the impacts of P2P programs, and to evaluate the factors that contribute to the success of these programs. We also examine how these findings relate to key indicators in the SNAP-Ed Evaluation Framework.

**Methods**

**Study Population**

Interviews were conducted with P2P program leaders, peer educators, and participants [definitions in table 1]. Leaders were identified using two different strategies. Some were identified through a state-wide survey about farmers market activities conducted as part of the parent study. Others were identified by the parent study’s Advisory Group. Once identified, the University of Washington Center for Public Health Nutrition (UW CPHN) research team reached out to these leaders to schedule detailed interviews about their P2P programs. Peer educators and program participants were recruited using snowball sampling. At the end of each interview with leaders the research team requested contact information for peer educators from their program. Each peer educator interviewed was then asked to connect the research team to a program participant for a phone interview. Inclusion criteria for all participants included involvement in one of the participating P2P programs, being 18 years or older, and providing informed consent. After consultation with the University of Washington International Review Board, it was determined that this study did not meet the definition of human subjects research.
**Interviewee Role** | **Definition**
--- | ---
Leader | A person involved in the design and execution of the P2P program and responsible for the continuation and management of the program.
Peer Educator | A member of the target community who is trained in specific health issues with the intention of spreading that information to others in their community. This person volunteers for or is employed by the P2P program.
Participant | A member of the target community who receives education from a peer educator affiliated with a P2P program either through informal interaction or by attending any events led by peer educators.

Table One: Definitions of the Levels of Involvement with a Peer-to-Peer (P2P) Program

**Research Design**

Semi-structured, open-ended interviews were conducted over the phone, audio recorded, and professionally transcribed. Interviews with leaders lasted between 30-60 minutes, and interviews with peer educators and program participants lasted between 15-30 minutes. Peer educators and program participants were compensated for their time with a grocery store gift card.

Two separate interview guides were created, one for leaders and another for peer educators and program participants. The guide for leaders included questions about the structure of the P2P initiative, how the program was developed, what partners and resources were needed, how outcomes were measured, and perceived successes and challenges. The guide for peer educators and program participants included questions about the activities and experiences of peer educators, qualities of a peer educator, program outcomes and perceived strengths and challenges of the program.
**Data Coding and Analysis**

A coding framework for the qualitative interviews was developed by adapting the Consolidated Framework for Implementation Research (37). The framework combines relevant constructs from several different implementation theories in health services research, and is divided into 5 major domains. Figure 2 describes the framework domains.

![Diagram of the implementation framework](image)

**Figure 2**: Adapted domains and constructs from the Consolidated Framework for Implementation Research used to develop the codebook for interviews in this evaluation.

This framework was used to examine the multi-level factors that affect implementation, including the design of the initiative itself, the specific qualities of the peer educators, the larger context that the program functions within, and the process of implementation including evaluation of outcomes, successes and challenges. Interviews were coded using the code book developed from the CFIR framework. One third of the interviews were double-coded, and the codebook was refined and clarified based on discussion between coders. Interviews were coded and analyzed using Atlas.ti version 7.5.15 to identify emerging themes.
Results were then examined using the SNAP-Ed Evaluation Framework, which evaluates the ability of an intervention to create short, medium, and long term changes in individual behavior, environmental settings, and external sectors of influence. [Description of the evaluation framework in figure 1 ]

Results

Participants
There were 18 total interviewees representing leaders, peer educators, and participants across four peer-to-peer (P2P) programs. Table 2 shows the distribution of interviewees across programs and position within the program.

<table>
<thead>
<tr>
<th>Type of Organization Implementing the P2P Program</th>
<th>Interviewee Role</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Leaders</td>
</tr>
<tr>
<td>Local Public Health Department</td>
<td>3</td>
</tr>
<tr>
<td>Local City Government Office*</td>
<td>1</td>
</tr>
<tr>
<td>Farmers Market (a)</td>
<td>1</td>
</tr>
<tr>
<td>Farmers Market (b)</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
</tr>
</tbody>
</table>

Table Two: Number of Interviewees by Peer to Peer Program, Type of Organization, and Role

*This local government office contracted with four community-based organizations, each of which served and designed their P2P to focus on distinct populations.

Program Descriptions
Of the four P2P initiatives included, one was administered by a local health department, two by farmers markets, and one by a city government office that contracted with four different community-based organizations. Interviewees described different organizational goals and structures, resulting in a great amount of diversity in the design of the P2P programs. For example, some community based organizations target specific racial and ethnic populations, one works within low-income housing facilities, and others are run directly through the farmers markets. All programs worked to improve the health of community members by increasing access to fresh fruit and vegetables, but for most organizations interviewed, P2P promotion of farmers markets was just one aspect of the work they do. While all P2P programs conducted farmers market tours, other activities varied, including classes or workshops on buying and preparing produce, staffed booths at farmers markets or other events, door-to-door outreach, office hours for drop-in consultations, creation of signage and fliers, and advocacy to local government. For more specific details about the design and activities of each program, see appendix i.

Multilevel Outcomes and Facilitators of P2P Programs

Many factors influenced the success of P2P programs. Using the SNAP-Ed Evaluation Framework, we evaluated outcomes and facilitators at the individual level, in the community, at the environmental level, and within other sectors of influence. Figure 1 depicts the SNAP-Ed evaluation framework and highlights the specific indicators examined in this study.

Individual Level

The first level of the SNAP-Ed evaluation framework is the individual level. This section examines the changes experienced by both participants and peer educators in readiness and health behaviors influenced by P2P initiative. It also examines the capacity and qualities of peer educators to support these changes.
Both peer educators and program participants described increases in knowledge about farmers markets, and the use of SNAP and Fresh Bucks incentive programs at farmers markets, with a large portion of peer educators and program participants reporting they did not know they could use SNAP at farmers markets before coming in contact with P2P programs. Additionally, several interviewees reported increased fruit and vegetable consumption (which is indicator MT1 on the SNAP-Ed Evaluation Framework) and increased ability to save and preserve fresh foods (MT2).

“Before, I kind of hesitated on buying fresh fruits and vegetables because of the expense. But now with those farmers market vouchers I can buy… in quantities and freeze them and then have them… all winter long” – Peer Educator

Many peer educators agreed on the perceived characteristics and qualities that contributed to their effectiveness as educators. Several were related to the way information was delivered, rather than intrinsic qualities of the peer educators themselves, and centered on the theme of being more than an educator who simply shares information as part of a job. Peer educators acknowledged their larger role as part of a social support network, as a friend, and as someone who can relate to other’s experiences with compassion and empathy. Interviewees described the qualities of an effective educator in the following ways:

“I think you have to not be afraid…to connect with people, to reach them at their level and enjoy them for who they are and what they are right then and there, not, well they need to change this or they need to be better at that. No they don’t. They need to be loved and appreciated where they are, what they are, with their funny troubles and idiosyncrasies. You just need to be a friend; a friend who’s loaded with information and [has] access to more information.” – Peer Educator
“And one thing that I've found, the best way to get the people to at least have an open mind about it, is do it in such a way to where they're not being preached at... these people, they have vast knowledge themselves, so they've got to be treated with respect and make it more of a collaborative effort and conversation... We do impart information but it's an open, friendly manner.” – Peer Educator

These quotes highlight the way peer educators described providing information as a natural part of social interactions and social support. Peer educators were not acting as voices of authority imposing rules around health behavior, so program participants felt comfortable asking for help and advice.

Another theme that emerged from talking to peer educators about important educator qualities was the importance of being passionate about the work and believing deeply in the program. Many peer educators were truly “natural helpers” with several saying that they enjoy assisting others, that they would be doing this type of work even if they were not officially part of a P2P program, or that they already had a passion for health-related topics.

“I like talking to people, I like helping them, helping them figure out solutions to their difficulties. And like I said, it's the kind of thing I would do anyway.” – Peer Educator

“I like to teach for one thing, and I'm trained in the healthcare field already, so it's a way of using my education to be able to help the people in my building. That really fulfills me.” – Peer Educator

**Communities**

In addition to individual-level outcomes and characteristics, many interviewees reported changes in their community and social networks. Overall, peer educators and participants reported that P2P programs created changes in community member’s perception about their neighbors, assistance
programs, and farmers markets. They also reported an increase in the amount of interaction and support from their community.

**Changing perceptions of the community**

Peers reported positive changes in their own perceptions of their community and the work of their organizations, which one peer educator described this way:

> “In our [peer educator training] classes we talked about when you go into a community health setting, leaving your judgment at the door, learning that people have barriers that are unseen that we’re working to see. I’m the same way, so it was kind of a different perspective to realize that other people are human too. So it was an eye-opener and I’ve been able to see a lot of community members in a much broader way.” – Peer Educator

Some interviewees also reported a change in farmers markets themselves, feeling that farmers markets were more diverse and more welcoming since the initiation of farmers market programs that promote Fresh Bucks to low-income communities.

> “I noticed before Fresh Bucks, that you would see nothing but kind of like upper class looking white people going to them, and I’m a white person myself, but I’m a low income white person, and now you go to farmers market and there’s all kinds of people at it. I really enjoy …the particular farmers… it’s a pleasure dealing with them. Like they’ve embraced the whole idea of the Fresh Bucks program.” - Participant

Interviewees also described how P2P efforts led by community members could often effectively address cultural beliefs or biases within a specific community. One peer educator described the stigma against assistance programs within the Latino community:
“… it has such a big stigma in my community to be getting food stamps. … So it’s really, very hard working people don’t like to… just be given things… But the fact that I’m able to do this now, I am … I’ve spread more, a little more awareness, at least in my circle. I’ve completely changed my mentality about it. I don’t see it as a bad thing anymore here. It’s more like a blessing because a lot of people really do need it. We are big families. We definitely do live in the community. We’re not just a single household. We are many, many people together. And just having to change somebody’s mind a little bit, or even have them consider the idea, or thinking about it… that’s just a big change already.” – Peer Educator

Community-building capacity

Interviewees reported that P2P programs helped people socialize and connect with one another, building a more tightly knit community. Many peer educators and program participants reported being motivated to participate in the program because activities were fun and interesting, and they enjoyed spending time with others. This social impact was highlighted as one of the major outcomes of P2P programs.

“Sometimes it’s not a need that they have; they just need socialization. And I think that’s overlooked. It’s not something that we write down and put on the paper, but it’s something that I really think has a value.” – Peer Educator

The peer educators reported finding purpose in serving their community; other community members recognized this, and felt the support they were being given. Community members reported feeling cared for and hopeful as a result.
“Well it gives me a feeling of hopefulness that to see that, oh, there’s people in this community that are working hard and doing teamwork to bring tangible things to this community that will help…And these things always make you feel hopeful that, oh, you can make a difference.” – Participant

“I can speak a little bit more so to the senior community because I'm a senior … but we have a tendency to feel marginalized at this age. And the fact that [the organization] has shown an actual, not just verbiage, not just talk, an actual, physical interest in improving our lives and those around us, that itself … hope and things like that sometimes start to fall away when you get a little bit older, and that is a shiny new light really for a lot of us and we’re happy to have that come across our paths.” – Peer Educator

Peer educators as champions (ST6)
Many peer educators reported finding meaning and motivation in working for the betterment of the community as a whole. They often described themselves more as community leaders than just educators.

“[Since becoming a peer educator] my whole life has changed. I advocate now for people who aren’t aware, because when somebody doesn’t know that there’s programs out there, they’ll never get to try it, never. And then you’ve got people like me, who want people, all people, mostly communities who are most affected in this, you want them to know, and so we advocate. We go out and we spread the word.” – Peer Educator

Environmental and Organizational Level
The second level of the SNAP-Ed evaluation framework is the environmental level. Environmental framework outcomes include changes in the organizations that are associated with P2P programs, such as improved organizational capacity to provide support for individual nutritional changes, and
organizational efforts to leverage resources and plan for sustainability. Adoption and implementation of the P2P program itself was an environmental change to promote healthy eating and food access (indicator MT5 in the SNAP-Ed Evaluation Framework) for these organizations.

Initiative integration for sustainability

This study identified several factors that contributed to the implementing organization’s support of peer educators, and identified ways in which the implementing organizations were planning for program sustainability (LT10). A common theme discussed among P2P leaders was the importance of designing initiatives so they fit naturally into the existing activities of the community based organization (CBO) that will implement the program. Leaders felt it was important to work with organizations whose mission was aligned with the goals of food access and farmers market promotion, so that P2P programs are seen as part of the core work of community organizations. This is one way program leaders reported planning for the sustainability of P2P initiatives.

“Having them start to think about a way to integrate Fresh Bucks promotion into their existing activities because I think, in my mind, that's sort of ... a sustainability piece because the funding will not always be there. But if it's easy for organizations to bring Fresh Bucks messaging into their existing and/or if they, with these new activities, they find it valuable to support their overall kind of agency mission or things like that, that we can maybe see this promotion happening even without the kind of formal partnership that we have with them.” – Leader

Organizational efforts to facilitate program success

Interviewees described how organizational leaders influenced the success of their P2P programs by recruiting peer educators based on qualities that contribute to their effectiveness, and by supporting them through trainings, stipends, and open communication. Peer educators were recruited slightly differently at each organization, but recruitment strategies all seemed to be designed to highlight some
of the qualities of a successful peer educator discussed previously, such as being a natural helper and being passionate about the topic. Specific recruitment strategies are described more in appendix i.

Leaders supported the program by providing quality training for peer educators. Peer educators reported that this helped to increase their knowledge and motivate them to change their own behaviors and thereby contributed to the sustainability of the program’s impact.

“So it's been that critically important to me to learn the things I'm learning. We're getting some excellent trainings that have been really wonderful to go to. So for me that has been great. I like learning new things.” – Peer Educator

When peer educators were provided with trainings that helped them change their health behaviors, they reported excitement to share the new information with others.

“I didn't know that you could use an EBT card at farmers markets. I didn't know a lot about my EBT card before ... The classes itself ...I've been able to learn that if I go to the food bank first, before I spend any of my EBT card, I could use my EBT card for whatever the food bank didn't provide for my family. And along with that a little extra left over or get even more fresh fruits and vegetables at the end of the month. So there's things like that have been very beneficial that I've been able to teach to other people as well.” – Peer Educator

Many organizations also chose to financially support their peer educators with a stipend. Peer educators, in general, reported feeling that this was not their main motivation for participating, but that it was helpful. For some, it may have bumped them from ‘interested’ to ‘committed’. One organizational leader felt strongly about supporting community members in this tangible way:
“It takes time, it takes relationship building, … I think one of the things that can really help with that, is again, that recognition that community members who are doing this work need to be compensated for what they’re doing, … that we … recognize the value of their time and their efforts and their expertise, and what a valuable resource they’re bringing to the table by having these existing relationships and these existing trust with the community members that we’re trying to reach. … It's going to be something that I think is necessary for this work.” - Leader

Lastly, some of the peer educators talked about the value of having a leadership team that was open to feedback and new ideas, and who provided accessible channels of communication between themselves and the community members. Leaders also noted the benefits of this communication and feedback for the purpose of program improvement:

“And that's really powerful in the P2P model because not only are you asking them what do you think, then you're actually taking it back to somebody and you're sharing what they think and then it has a possibility of leading to change. …. So it's powerful for the P2P model.” - Leader

Organizational partnerships and use of SNAP-Ed resources

P2P initiatives were also able to affect other SNAP-Ed indicators of environmental change, such as the SNAP-Ed indicators of forming of new partnerships (ST7) and leveraging resources (LT9).

One of the most significant successes discussed by program leaders was their network of partners. Partners included the housing authority, farmers markets, the Washington State Department of Health (WA DOH), Washington State Department of Social and Health Services, Extension programs, local Public Health Departments, Farmers Market Associations, and many other food access and farmers market organizations.
Some regions of the state that implement SNAP-Ed work in farmers markets have a point person, or “lead” who works with and meets with other SNAP-Ed leads as part of the Regional Leads Program. The role of the Region Leads in knowledge and resource sharing, making connections to a network of other organizations, and providing funding were instrumental in the development of at least one organization’s P2P model. Leaders described that the Regional Leads Program allowed members to make connections, share knowledge, and coordinate with government, nonprofit organizations, and other farmers markets.

“It actually has really helped with increasing my knowledge of these programs that are available and … the language that’s used and the variety of programs that are out there and how they work together or oftentimes don’t work together. … That has been extremely helpful.” - Leader

In addition to the partnerships provided through the regional leads program, SNAP-Ed provides funds and resources that have supported the development of P2P initiatives. In this study, two P2P initiatives received SNAP-Ed funding to support their work. Even without direct SNAP-Ed funding, one program was still benefiting by partnering with SNAP-Ed organizations and receiving non-financial support from them.

“So we don’t receive any direct SNAP-Ed funding, but … and we’ve also reached out to [SNAP-Ed funded organizations] … they can help to provide some support around curriculum, or best practices so that the organizations that are leading nutrition education or cooking as part of their outreach work don’t have to sort of create meals, lessons or spend time doing that, but there are sort of existing resources available that [they] are willing to share …. So we are kind of partnering with them without receiving direct funding.” - Leader
Two of the four programs in this study received some funding through a Food Insecurity Nutrition Initiative (FINI) grant. FINI provided resources and created partnerships as multiple organizations worked together under the same initiative. One of the programs also received funding through USDA’s Farmers Market Promotion Project grant, which benefited the program by bringing together all the farmers markets in the county and providing opportunities for sharing of ideas and resources.

Sectors of Influence

The third level of the SNAP-Ed evaluation framework concerns champions and outcomes across multiple sectors of influence. In this case, change to the agriculture sector was the primary outcome at this level (MT8). The impact P2P programs have on farmers market sales was difficult to assess because there were many initiatives taking place at the same time. However, there has been a noticeable increase in Fresh Bucks use since the implementation of at least one of the P2P programs.

“I know that … this past year showed a real spike in uptake … in the Fresh Bucks use … and I certainly can’t … take any credit for that, but it does make me wonder the impact that those two initiatives had on the fact that their numbers jumped.” - Leader

Major Challenges

Despite the many successes of peer-to-peer programs there were some challenges. The most commonly mentioned challenges to implementing a P2P program were transportation to farmers markets and insufficient funding. Transportation was a major issue due to lack of busses, farmers market being located too far away, and rules about how many bags someone is allowed to carry onto a bus. Individual level barriers included lack of mobility due to disability and not owning a car. The challenge of adequate funding was brought up by leaders, who felt they needed more funds to be able to thoroughly evaluate and expand their programs, and by peer educators, who noticed they were spread thin, and lacked certain promotional materials and other tools.
Discussion

It appears that peer-to-peer (P2P) farmers market programs can foster individual changes in beliefs and behaviors and changes in the perceptions and dynamics of communities. The success of P2P programs in this study was influenced by the degree of support across systems, including the commitment of individual peer educators, the role of the implementing organization in facilitating the success of peer educators, and the role of policy and funding streams in enabling those organizations to create a well-designed program.

The multi-level SNAP-Ed Evaluation Framework was applied to consider the impacts and strengths of P2P initiatives around farmers market access. The Framework illustrates that the success of P2P programs requires a system-wide coordination of efforts, and that in turn, successful implementation of P2P programs could result in outcomes such as individual changes, environmental changes, and changes in other sectors of influence.

**Individual Level**

Application of the SNAP-Ed Evaluation Framework highlights the potential of P2P initiatives to increase shopping at farmers markets and fruit and vegetable intake among low-income families. By spreading knowledge about the availability of markets, how to use electronic benefit transfer (EBT) cards and incentive programs like Fresh Bucks, P2P programs were able to address some of the most commonly cited farmers market shopping barriers. Additionally, the initiative was able to alter some of the negative perceptions of farmers markets and assistance programs like SNAP and Fresh Bucks.

The self-reported increase in shopping at farmers markets and increased fruit and vegetable consumption among participants, including both peer educators and the community members they
interacted with, is consistent with other research on P2P initiatives that found an increase in knowledge, as well as positive health behavior changes among peer educators and other community members (32).

The characteristics of the individual peer educators are key to the success of a P2P initiative. In the present study, characteristics of a successful peer educator included the ability to provide information in a respectful, friendly, and humble manner as well as a passion for helping others. While others found similar qualities, like the ability to build trust (22, 29), to be essential, this study is somewhat unique in the focus on qualities related to the way information is delivered, as opposed to other studies which have focused on intrinsic personal qualities or knowledge such as understanding the peer educator role, knowledge about the health topic, having a good reputation in the community, and discretion (21, 22).

**Communities**

The characteristics and actions of peers can help mobilize and transform communities. P2P models seem to have a unique ability to empower communities to take ownership of their own health and wellbeing. The present study found that peer educators were able to positively impact perceptions about their communities, about farmers markets, and about using assistance programs like SNAP and Fresh Bucks. This type of initiative is successful at targeting unique cultural beliefs of a community, a feature supported by other studies which found that community members are more comfortable talking about sensitive issues to people who were demographically similar to them and that peer educators are uniquely able to share information in a culturally-relevant way that is applicable and meaningful (22, 27).

The perceived benefits from increasing socialization among community members found in this study is consistent with other research on the ability of P2P initiatives to increase socialization and allow
community members to develop new social networks (32). In this study, peer educators found a sense of purpose in serving their community, and working with people who had similar lived experiences. As reported by others (38), peer educators had a sense of empowerment and ability to impact their community and they internalized their roles and acted as change agents within the community (17). As a result, community members feel supported and cared for, and participants in this study reported feeling hopeful about their community because of the efforts taken by P2P programs. This highlights how P2P programs have the ability to reach beyond the target individual behavior changes and influence the community as a whole. Because of this, in addition to spreading knowledge and awareness, P2P initiatives have unique potential to address some of the broader barriers to shopping at farmers markets, such as perceptions that low-income families and people of color are not welcome in farmers markets.

The present study identified several outcomes that took place at the community level, many of which are not specifically outlined in the SNAP-Ed Evaluation Framework. Identifying intervention champions is included in the framework as a short-term indicator of environmental level outcomes. However, the other outcomes identified here, such as changing community perceptions and increased socialization, are not specifically called out in the framework.

**Environment and Organizational Level**

The environmental level of the SNAP-Ed Evaluation Framework helps identify indicators of changes to the places we eat, live, work, learn, shop and play. At the environmental level, P2P initiatives are able to address short term goals like forming partnerships, and long term goals such as leveraging resources and planning for program sustainability.

P2P programs addressed the SNAP-Ed indicator of planning for sustainability by designing interventions that fit naturally into the existing activities of community organizations. If community
organizations were able to embrace the ideas and activities around farmers market promotion and incorporate those topics into their work, they could continue to do so even without direct support from the implementing organization.

Successful programs require leaders within the implementing organization that recognize and support the qualities of peer educators that contribute to their success as well as facilitate the community building capacity of the program. One of the key ways leaders can support the program is by providing training that empowers peer educators to change their own behavior, and share what they learned with others. Many studies have looked at the effectiveness of training peer educators, and generally found training to be effective at increasing the knowledge of peer educators (19, 24-26, 34, 39) and in some cases creating positive behavior change in the peer educators themselves (26, 34). Training sessions improve the self-efficacy and retention of individual educators (19, 23, 26). A leadership team that prioritizes providing quality education to the chosen peer educators is a key component of P2P initiatives. Training peer educators is not just a part of the preparation before a P2P intervention can take place; peer educators are members of the intervention’s target community and therefore changes in their beliefs and health behaviors are the first of many outcomes of the intervention.

In addition to adequate training, peer educators require consistent support and access to resources. Therefore the partnership between peer educators and community organizations is essential for providing a sustainable supply of information, resources and support (27). Many peer educators in our study received a stipend and reported that, in some cases, this helped them decide to take on the role. It may improve retention rates as well (23).

Leaders need to provide opportunities for open communication and feedback. A study by Wagnor found that peer educators were able to identify additional needs of the community that the initiative was not originally designed to address (22). This highlights the importance of listening to feedback from peer
educators who are much better suited to identify ways in which the program is not addressing community needs and ways in which it can be improved.

Partnerships with other organizations (such as WA DOH and housing authorities) and funding (such as SNAP-Ed and the FINI grant) were instrumental to the success of P2P programs. In the current study, two programs were partially funded through SNAP-Ed, two were partially funded with a FINI grant, and one was partially funded through a Farmers Market Promotion Project Grant. In addition to direct funding, these sources often provided a network of partners and other resources, with one program highlighting the benefits of connections made through SNAP-Ed’s Region Leads program. Through these partnerships and networks, leaders of implementing organizations were able to effectively leverage resources by coordinating and sharing knowledge, insights, and funding. Nevertheless, one of the most common challenges mentioned by leaders and peer educators in this study was a lack of funding. Most of the suggestions for program improvement were related to expanding program scope, which requires additional funding. This highlights the significant role that adequate resources have on the ultimate success and expansion of these programs. Funding resources and partners have been identified as essential in providing support with the recruitment and training of peer educators, developing outreach strategies, designing materials, and working with the community to promote the role of peer educators (23, 27, 30, 33). Programs with state and federal funding are more likely to give peer educators a stipend, provide ongoing trainings, have a steering committee in place and have a physical space for the program, and to retain peer educators over time (23).

While there is not much research on the use of P2P programs at farmers markets, there has been some evaluation of other SNAP-Ed interventions at farmers markets that indicates that farmers markets have the potential to be effective intervention sites for low-income families. One study found that holding cooking classes and nutrition classes at farmers markets improved attitudes, increased self-efficacy, and changed behaviors around preparing and consuming fresh fruit and vegetables (40).
While several programs around farmers market may be taking place across the country, overall there are few published evaluations of SNAP-Ed interventions related to farmer markets (41).

**Sectors of Influence**

Results suggest that the P2P initiatives included in this study may be able to influence the agriculture sector by increasing sales at farmers markets. Self-reported increase in farmers market shopping as well as in increase in Fresh Bucks use indicate a potential influence of the program on market sales, however, the direct impact was not measured. These results are self-reported and preliminary. Future research should focus on measuring the impact of P2P programs on farmers market sales to further illuminate the true impact of the initiative on the agricultural sector.

**Limitations**

Several limitations to this study should be acknowledged. First, this study had a small sample size, interviewing just 18 respondents from four different P2P programs. Two of those programs were only represented by one interview each. Additionally, participants were heavily weighted towards one program, with 12 of the 18 participants representing the same program. Therefore this sample is not representative of all P2P programs in Washington State, and simply serves as one example of structure, successes, and challenges of implementation. Secondly, due to the nature of our recruitment process, volunteer bias is possible. Participants volunteered to be interviewed, and the views held by those who chose to volunteer may be different than the views of those who did not. Finally, several of the organizations implementing P2P programs around farmers market promotion were also involved in other health promotion activities including nutrition and cooking classes that could have contributed to increases in self-reported fruit and vegetable consumption. It is difficult to assess the individual impact of the farmers market promotion independently from the other activities conducted by the implementing organizations.
Despite these limitations, the current study is the first to examine the use of P2P programs to encourage farmers market shopping. It used a systematic interview process and included four of the five known P2P initiatives currently taking place in Washington State farmers markets. Furthermore, this study included participants who were at different levels of involvement in the P2P program, providing a holistic view of the challenges and success of these initiatives. Finally, the use of the SNAP-Ed Evaluation Framework to interpret the results ensures indicators of success are evidenced-based and comparable to future evaluation and design of SNAP-Ed programs.

This paper adds to the literature by providing insight into the use of SNAP-Ed funds to support farmers market shopping among low-income individuals, and specifically through the use of P2P programs, which Washington State recently identified as priority strategy for SNAP-Ed.

**Future research**

This study highlights promising impacts of P2P initiatives targeting farmers market shopping. More rigorous experimental studies are needed to show a causal link between participation in the program and behavior change. Future research should expand upon this initial study by collecting pre- and post-implementation data on fruit and vegetable consumption and farmers market shopping behavior to determine the degree of behavior change resulting from P2P programs. Additionally, future research should track changes in use of Fresh Bucks or farmers market sales as a result of this program to determine the impact of this program on the agricultural sector.

These findings illustrate the power of community-led initiatives. However, it also shows that in order for programs to be successful, they require the support of partner organizations, and adequate funding. P2P programs are a relatively new and growing trend within the broader scope of fresh fruit and vegetable access work, and the current study offers support for their further expansion and
development. Therefore we recommend additional research and pilot testing of the promising P2P model.

**Conclusion**

This study suggests peer-to-peer (P2P) programs that promote the use of farmers markets among SNAP-recipients can contribute to individual behavior change, community change, and potentially changes in the agricultural sector. Multilevel facilitators are needed for successful implementation. The characteristics of the peer educators, program design, support from program leaders, networks with partner organizations, and federal funding from SNAP-Ed are all critical to the success of P2P programs. These results provide support for the further development and evaluation of P2P programs in farmers market settings, and support the value of an ongoing focus on P2P initiatives.
References


## Appendix i

<table>
<thead>
<tr>
<th>Type of Organization Implementing the Peer to Peer Program</th>
<th>Structure or Design of P2P Program</th>
<th>Activities Conducted</th>
<th>Recruitment of Peer Educators</th>
<th>Stipend and other Support</th>
<th>Program Evaluation</th>
<th>Major Challenges</th>
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<tr>
<td>Local Health Department</td>
<td>Initiative took place within low-income housing facilities In one of the housing facilities, had produce from local farmers transported to the low-income housing facility where residents could then shop for what they would like using SNAP benefits and/or Senior Farmers Market Program vouchers.</td>
<td>SNAP-Ed Plan, Shop, Cook, and Save Classes Farmers Market Tours One-time events such as healthy eating Bingo Office Hours</td>
<td>Posted flyers in apartment complex Current peer educators recommended people who attended classes</td>
<td>Stipend provided to peer educators *Note: stipend does not affect eligibility for government assistance programs or affect income-based housing costs Training Provided Open Communication with leadership</td>
<td>Evaluation of peer educator health outcomes via surveys</td>
<td>Transportation to Farmers Markets Not enough funding for full program evaluation Challenge to keep track of all peer educator interactions with program participants (since many are brief and informal conversations) for the sake of evaluation Recruiting community members to events Lack of diversity in the nutrition education class curriculum</td>
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<td>Local Government Office</td>
<td>Government office partnered with four different community based organizations; each CBO incorporated farmers market promotion into the other health promotion work they were already doing</td>
<td>Nutrition and health Workshops now incorporate Fresh Bucks information Door-to-door outreach Provide resources and referrals at health fairs Peer Educator booth at farmers markets Farmers Market tours and Fresh Bucks “walk-through” Fresh Bucks promotion through posting flyers Advocacy to local government</td>
<td>Used current members of CBOs who were already doing peer-to-peer outreach on other health topics. Allowed community members already involved in the CBO to self-select to focus on this new topic of farmers market promotion work</td>
<td>Stipend provided to peer educators Some type of financial incentive also provided to program participants Quarterly check-in meetings with peer educators from each implementing organization and leadership</td>
<td>Using different shaped hole-punches in fresh bucks vouchers given to each implementing organization; then when collecting vouchers back from farmers markets they can see how much from each organization was used. Farmers market vendors collect last 8 digits of shopper’s EBT card so the market can track total and new shoppers</td>
<td>Tracking the impacts of a program is challenging because there are so many interventions taking place at once. Language barrier</td>
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<td>Farmers Market (a)</td>
<td>New program, just started with planning a farmers market tour</td>
<td>Farmers Market tours Booth at Farmers Market to exchange SNAP benefits for tokens, kids area, peer educators available to show community members around market and share budget friendly purchasing tips and nutrition education Provide recipe cards Signage at the market around weekly deals</td>
<td>Peer educators receive farmers market tokens or baskets from market vendors in exchange for their time Plan to give out special tokens at farmers market tours and encourage participants to share tokens with their peers; then track how many tokens come back to the market</td>
<td>Challenge getting community excited/involved Lack of needs assessment</td>
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<td>Farmers Market (b)</td>
<td>New program; had one tour led by program leadership before the 2016 market season</td>
<td>Farmers Market tour Working on point of Sale signage Plan to have peer educators walk community members around the market and provide shopping tips</td>
<td>Stipend provided to peer educators</td>
<td>Lack of response from schools and city government</td>
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