


Caregiver Experiences With an Innovative Farmers' Market Incentive Program for Children in Flint, Michigan

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Abstract

An innovative farmers' market incentive program designed specifically for children was implemented to address persistent challenges with accessing fresh, nutrient-rich foods in a food desert community. The current study sought to qualitatively examine caregiver perceptions of the incentive program. Following distribution of farmers' market incentives to all children (ages 0 to 15 years) at 43 Flint-area early childcare facilities and elementary schools, researchers conducted semistructured interviews with 37 caregivers (mean age = 39.59 ± 11.73 years). The majority were female (87%) and African American (53%). Through these interviews, researchers explored family experiences with the farmers' market incentive program, as well as changes in environmental factors that may have resulted from program participation. Interviews were audio recorded and transcribed verbatim for textual analysis. Thematic analysis was used to identify patterns across transcripts and formulate emerging themes. Four recurrent themes emerged during interviews: (1) fruit and vegetable access, (2) child influence, (3) autonomous grocery shopping, and (4) program expansion. Interview participants indicated that the farmers' market incentive program was an effective tool to both encourage families to visit the farmers' market and purchase fresh foods there. Program design, particularly distribution to children, was credited with introducing families to the local farmers' market. The current study suggests that a farmers' market incentive program targeting children who reside in a food desert community may have meaningful impacts on access to fresh, nutrient-rich foods.

Keywords

children, nutrition, food access, farmers' market, low-income, farmers' market incentives

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Background

More than 12 million children across the United States live in food-insecure households.¹ In Flint, Michigan, a post-industrial city with high rates of violence, crime, and unemployment, approximately 60% of children live in poverty.² With full-service grocery stores entirely absent from most neighborhoods within the City of Flint,³ and transportation a persistent challenge, many residents have the additional burden of living in a food desert with poor access to fresh, healthy, and affordable food.^{4,6} Accordingly, Flint's children frequently consume diets that lack nutrient-dense foods and are high in low-quality, calorie-dense foods.^{4,6,7} Moreover, the city's well-publicized lead-in-water public health crisis,⁸

aggravated by poor nutrition,⁹ is further compounding persistent food access and affordability problems. Recent efforts to tackle issues related to food access and affordability in Flint and similar communities have included the introduction of centrally located farmers'

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markets and associated farmers' market incentive programs.¹⁰⁻¹²

Although studies examining their direct impact on health are scarce, farmers' markets are vitally important to improving availability of and access to healthy foods.¹³ Touted as "fertile ground for optimizing health,"¹⁴ farmers' markets have been shown to improve fruit and vegetable availability when introduced into food desert communities.¹⁵ Furthermore, farmers' market incentive programs, designed to increase the affordability of fresh produce, have consistently demonstrated success in improving access, availability, and consumption of fruits and vegetables among adults.¹⁶ The simultaneous introduction of farmers' markets and incentive programs into food desert communities not only provides the means for dietary improvement but also modifies the food environment in such a way that previously inaccessible opportunities become available.

Despite the growing body of literature that suggests farmers' market incentives are associated with increased fruit and vegetable consumption as well as decreased food insecurity among adults,¹⁷ no studies have assessed the perceived impact of farmers' market incentive programs that specifically target youth. Additionally, although previous research has examined perceived benefits and barriers to farmers' market incentive programs among adults,¹⁸ none have qualitatively assessed program perceptions or perceived influence of farmers' market incentives on child consumption. The beneficial effects of incentive programs, and the farmers' markets they support, may be particularly meaningful when these programs have a specific focus on children, encouraging even the youngest to actively participate in food selection and preparation. Early experiences with food have a formative impact on dietary behaviors, particularly with regard to fruit and vegetable intake.¹⁹ Farmers' markets frequently offer an environment that is conducive to exposure activities, such as food tastings and cooking classes, which show strong potential to improve the diet quality of children and families.^{20,21} Given the success of farmers' market incentive programs among adults,^{10-12,16} a focused farmers' market incentive program for children may provide both early exposure to farmers' markets and improved consumption of fresh, high-nutrient foods.

Purpose

The current study is the first to explore the perceived impact of a farmers' market incentive distributed exclusively to children living in a food desert community. The incentive program (annual distribution of one \$30 booklet per child at the conclusion of the school year) was

designed to improve access to and affordability of nutrient-rich fresh foods readily available at a downtown farmers' market. The current study adds to the existing body of literature because of the incentive program's specific distribution at early childcare centers and elementary schools serving Flint youth and redemption at a variety of farmers' market food vendors. The purpose of the current study was to elicit the unique experiences and voices of the families who participated in the farmers' market incentive program. Qualitative research was employed to provide an accurate and detailed understanding of caregiver experiences with the program as well as views about the specific focus on children.²²

Methods

Farmers' Market Incentive

In direct response to Flint's water crisis, the Michigan State University–Hurley Children's Hospital Pediatric Public Health Initiative partnered with local childcare centers and elementary schools in June 2017 to implement and evaluate a farmers' market incentive program designed specifically for children. The farmers' market incentive program targeted children who attended early childcare facilities and elementary schools serving Flint youth. Children (ages 0 to 15 years) at 43 Flint-area facilities were provided \$30 booklets (1 booklet per child) at the end of the academic school year to redeem at the downtown Flint Farmers' Market (FFM). Every booklet contained 6 individual vouchers worth \$5 each. At the farmers' market, the \$5 vouchers were removed from the booklets and exchanged for food at 1 or more of the 50 FFM food merchants between June 2017 and October 2017. Vendors were primarily local farmers selling fresh produce, but those selling meats, cheeses, and baked goods also participated, as did several food stands. After collecting the \$5 vouchers, vendors returned them to the farmers' market office for payment and tracking.

Qualitative Approach and Theoretical Framework

The current study employed a narrative qualitative methodology in which researchers relied on field text, in the form of interviews, to understand the narration of caregivers and their perceptions of the initiative.²³ Along with the chosen qualitative method, Bandura's social cognitive theory supported the design and approach of this study. Social cognitive theory suggests that behavior is explained by a 3-stage, dynamic model between personal factors, environmental factors, and behavior.²⁴

Table 1. Questions Used to Guide the Semistructured Interviews.

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1. Where do you typically get fresh fruits and vegetables?
 - a. How easy or difficult is it for you to get fresh fruits and vegetables?
 2. Before receiving the farmers' market vouchers, how many times per month did you visit a farmers' market with your children?
 - a. What are the main reasons you like to shop at farmers' markets?
 - b. What prevents you from shopping at farmers' markets more often?
 3. How (if at all) did participation in the farmers' market voucher program influence how often you visit a farmers' market with your children?
 4. Tell me about your family's experience with the farmers' market voucher program.
 5. What did you purchase with the vouchers to the farmers' market?
 6. Please describe your experiences when redeeming your vouchers at the farmers market.
 - a. What challenges did you have redeeming vouchers?
 - b. How would you describe your experience with the vendors?
 7. How (if at all) did the voucher program change your interest in purchasing fresh foods?
 8. How (if at all) did your family benefit from the voucher program?
 9. What were your opinions of the voucher program?
 10. What could be done to improve the voucher program?
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Personal factors within social cognitive theory for understanding behavior change include knowledge, skills, self-efficacy, and outcome expectancies, while primary environmental factors are modeling, support, and availability (such as provision of healthy foods). The interview guide was carefully developed to provide a better understanding of family experiences with the farmers' market incentive program as well as changes in environmental variables, such as parental support behaviors and provision of fresh foods, which may have resulted from program participation.

Data Collection

Included in each of the \$30 voucher booklets was a brief demographic survey that also assessed farmers' market shopping patterns. On this survey, caregivers were asked to provide contact information to voluntarily participate in a telephone interview with a researcher to share program experiences. Completed surveys were returned to the farmers' market. Caregivers were eligible to participate if (1) at least one \$5 voucher was redeemed at the FFM; (2) a caregiver pre-interview survey was completed and returned to the FFM office; and (3) they spoke English.

Researchers collected qualitative data through semistructured telephone interviews with caregivers. The semistructured interview protocol had probing options (Table 1) and lasted approximately 30 minutes. Each interview was audio-taped to guide data transcription and analysis. A total of 324 surveys were collected from 5552 redeemed booklets. From the 324 completed surveys, 108 surveys included complete data with contact

name and telephone number. Researchers attempted calls to all 108 caregivers who were eligible to participate in the semistructured interview process. Although data collection was challenged by nonworking telephone numbers, data saturation was achieved. Researchers jointly agreed at 37 completed interviews that no new concepts were being observed and concluded data collection.

Data Analysis

Interview audio files were collected and transcribed verbatim for textual data analysis. The tenets of inductive thematic analysis guided data examination.²⁵ Two researchers analyzed the interviews to identify patterns across transcripts, conclusively developing illustrative themes. During the first stage of analysis, both researchers executed an initial coding process, creating open categories for thematic purposes. Researchers then removed nonsupportive themes and combined similar themes. During the final step of thematic analysis, researchers jointly selected the most exemplifying quotes from the interview transcripts to illustrate the themes and sub-themes. Data were organized and managed using an Excel spreadsheet, and sociodemographic data were analyzed using Statistical Package for the Social Sciences (version 24, IBM Corp, Armonk, NY, 2016).

Ethical Approval and Informed Consent

The study was considered exempt by Michigan State University Institutional Review Board (IRB Exemption Number: x17-1045e/i054692) for the collection of

deidentified, nonconfidential research information. Implied consent was obtained from all participants by voluntary completion of the first survey and subsequent verbal agreement to participate in the phone interview.

Results

Over half of the individual \$5 vouchers distributed at early childcare centers and elementary schools ($n = 31310$, 53%) were redeemed for food at the FFM. Nearly 30% of the \$5 vouchers were redeemed for fresh produce ($n = 8938$, 29%), followed by farmers' market food stands ($n = 8927$, 29%) and fresh meats, poultry, and fish ($n = 5728$, 18%).

Among the 37 caregivers who participated in interviews (mean age = 39.59 ± 11.73 years), the majority were female (87%) and African American (53%). Interviewed caregivers represented 18 different early childcare centers or elementary schools. The following recurrent themes emerged during interviews: (1) fruit and vegetable access, (2) child influence, (3) autonomous grocery shopping, and (4) program expansion. These themes are organized according to associated sub-themes (Table 2).

Fruit and Vegetable Access

Nearly every caregiver discussed an increased ability to purchase fresh foods and save food dollars when they had the farmers' market vouchers, pointing to a noticeable financial benefit. Many caregivers appreciated the vouchers for assisting families in acquiring fresh fruits and vegetables, which were often viewed as superfluous or expensive in comparison with other food items. Some described persistent struggles with limited resources to buy essential items and appreciated the vouchers for saving food dollars that could then be redirected to pay bills or purchase necessities for their children. Others shared that, because of the vouchers, more fresh foods were available in the home for children to consume when they were hungry.

It was helpful for me, very helpful. Because after you use your money buying groceries, a lot of times you don't have enough during the month to get produce. (African American female, age 42 years)

Many caregivers also pointed to noticeable improvements in their ability to acquire high-quality produce that was readily available at the FFM but difficult to obtain at local food stores. Some discussed challenges with finding fresh foods at neighborhood stores and appreciated the quality and taste of farmers' market produce.

I prefer the farmers' market for everything. I live on the north side of Flint where they closed all of those major grocery stores, so we're stuck with stuff like [stores], where I refuse to shop. Food from the farmers' market tastes totally different. (African American female, age 40 years)

Child Influence

Caregivers were motivated by children to visit the market after receiving the incentives at school or childcare facilities. Some vividly recalled an initial reluctance to shop at the farmers' market but were persuaded to visit because of their children's enthusiasm for the vouchers. Many credited the vouchers, and specific distribution to children, with introducing families to the FFM and services available there. Some further explained that their continued patronage of the market was a direct result of their children's participation in the voucher program.

I hadn't been to the FFM since I was a kid, and they (children) kept begging me about those vouchers, and finally I said, "Okay, let's go." The new FFM, I had never been to. It's because of the vouchers that I go to the FFM now. (African American female, age 34 years)

Many caregivers used the incentive program as an informal educational opportunity. Most shared that their children were unaware of local farmers who sold fresh foods at the FFM, and caregivers used the incentives to introduce children to the wide variety of locally grown foods available at the farmers' market. Others credited FFM vendors with teaching children about local farming while encouraging them to taste new and unfamiliar foods.

My son asked one of the vendors, "How are these fruits and vegetables grown?" and he (vendor) was nice enough to give him a little feedback and a little conversation. . . . They were so nice and polite and they were very helpful in picking out different things and helping the children, you know "try this, try that." They would give them little samples of a snap pea or piece of an apple or stuff like that. (African American female, age 38 years)

Caregivers appreciated the farmers' market incentives for supporting valuable time with family. Many recalled their surprise on visiting the market for the first time and realizing the array of activities available for children and families. Some talked about areas of the market that promoted physical activity, while others discussed how the FFM experience supported time with their children that was free from typical distractions.

Table 2. Illustrative Quotes for Themes and Subthemes From Interviews With Caregivers of Children Participating in a Farmers' Market Incentive Program.

Themes	Subthemes	Illustrative Quotes
Fruit and Vegetable Access	Financial Benefit	They (children) are both on medicine for ADHD, and for the first time in a couple years actually gained weight. I think a lot of that was because there was so much produce around to snack on. If they were hungry, there was something that they could go and get to eat. (Caucasian female, 37 years)
	High-Quality Produce	I can run down there (FFM) and get a few things and have better quality of produce than I can in the inner-city markets that are close to me. I am just north of downtown Flint. (Caucasian female, 56 years)
Child Influence	Motivation	It (booklet) got us there (FFM). They (children) still to this day bug me about going to the farmers' market so they can walk around and check things out. (Caucasian female, 30 years)
	Educational Opportunity	You live in Flint, so you don't think these things are locally grown or locally produced. So, when you go there and see all the fruits and vegetables and see how many people are making locally fresh food, providing us with fresh fruits and vegetables, they (children) didn't know until I taught them. (Caucasian female, 25 years)
	Family	We spent time together. They (FFM) have a little area where you can sit down, and we talked and just had some family time. No phones, no malls, no nothing. Just sitting there and enjoying them and us enjoying each other. (African American female, 34 years)
Autonomous Grocery Shopping	Variety	I didn't know you could purchase meat with the vouchers. I thought they were just for fruits and vegetables. The meat was really a plus. (Caucasian female, 60 years)
		We got some cheeses which we normally can't afford. I make a really good macaroni and cheese where I put gouda and a couple other cheeses. It allowed me to make my children macaroni and cheese. (Caucasian female, 56 years)
		Fruits and vegetables are expensive, and it (booklet) helped with buying fruits and vegetables. Then, I could spend the money on other things. Like if the kids needed a new pair of shoes or clothes, it would leave money to do that. (African American female, 40 years)
		I really don't try to get fruits and vegetables at [local stores] because, to me, the quality just ain't good. (Caucasian female, 25 years)
		Sometimes people don't know the prices or don't know what's in there (FFM). But once they got the vouchers and looked around, they saw that there's more things in there. So, I think it brought people in more when they got them (vouchers). (Biracial female, 36 years)
		My son has autism and ADHD, so eating healthy foods and stuff is very hard. And with them having the farmers' market, he is seeing how people are farming and growing. All natural food and cooking, he actually liked that because he knows it's from the earth and it's fresh. Not everything is frozen in a box. (African American female, 42 years)
		He (son) loves going to the farmers' market and that way he is with me. The thing about the vouchers is that it gives you a chance to spend time with your child so that you and the child can pick out what you want. You go to the different spots that's in there and see what you want. . . . It's like a bonding, you know, it's extra bonding for you. (African American female, 40 years)
		My children were able to pick out healthy foods for themselves that they like. Instead of us forcing them to eat certain foods that they didn't really care for, they were able to pick out some foods that they really liked. (Male, age and race not disclosed)

(continued)

Table 2. (continued)

Themes	Subthemes	Illustrative Quotes
	Ease of Redemption	They (vendors) were very kind. They welcomed the vouchers and weren't like, "Oh, they don't have money. They are just using the vouchers." That's not the attitude they had. It was very nice. (African American female, 38 years)
Program Expansion	Program Eligibility	There are some parents who homeschool their kids. . . . When you homeschool, all the different programs that are offered to the public schools, you miss out on all of that. You don't have access to any of that. (Caucasian female, 37)
	Distribution	I think it's a really good program. I think they should do it more in the summertime, you know, when kids aren't in school and parents have to come up with all those meals. I think that doing it in the summertime helps out a lot. (Caucasian female, 27 years)

It (vouchers) got them (children) down to the farmers' market. The Children's Museum has a play area down there, and it gave us a reason to go and to be kids and get some healthy exercise. (Caucasian female, age 37 years)

Autonomous Grocery Shopping

Uniquely different from other farmers' market incentive programs, which limit redemption to fresh fruits and vegetables, the vouchers in the current program were accepted by nearly all food vendors at the FFM. Caregivers appreciated the variety of food choices that were available to families through the voucher program. Some talked about making homemade meals with fresh meats, fish, and cheeses, while others discussed how their children explored the FFM and used the vouchers to purchase their favorite fresh foods.

He (son) got himself a nice piece of salmon. He likes fish, so he was able to get himself a nice little piece of salmon that I baked for him at home. (African American female, age 38 years)

Many caregivers shared previous experiences with food assistance and incentive programs that involved special redemption procedures. Some talked about requirements to show identification or other documentation, while others mentioned feelings of embarrassment when cashiers or vendors took additional time to process food assistance benefits while other patrons were waiting. There was a resounding appreciation for the ease of

redemption when vouchers were presented to farmers' market vendors.

The vouchers were not something they (vendors) had to specially process or do something separate that would hold up the line or take more time than someone who was just using money. They all seemed more than happy to take the vouchers. (African American female, age 37 years)

Program Expansion

The farmers' market incentives were distributed exclusively in elementary schools and early childcare centers serving Flint children, thereby placing a boundary on who had access. Many caregivers with additional children who did not attend the targeted schools or childcare centers suggested revising program eligibility criteria. Most suggested that the initiative include children who were home-schooled or attending middle and high school.

Two booklets would have been nice for us. I thought my son would have brought home one from school. He goes to [high school], so he goes to a different school. I was wondering why he didn't get one too. (African American female, age 35 years)

Caregivers expressed tremendous gratitude for the booklets as well as the timing of distribution. While some discussed the importance of the program in addressing the ongoing lead-in-water crisis, others simply shared their appreciation for the program and desire for it to continue.

I think the program is great. I think they should keep it up. It helps, it does. It lets people know that they care, and they are aware of the situation. The whole water crisis and that somebody is thinking about us and that somebody is trying. (African American female, age 40 years)

Discussion

This was the first study to examine the perceived impact of a farmers' market incentive distributed exclusively to children living in an urban food desert. Central to our findings was the positive influence of children on farmers' market shopping. Following receipt of vouchers at elementary schools or childcare centers, many children persuaded caregivers to visit the FFM, where families were introduced to a wide variety of market vendors and services. More important, many caregivers credited the vouchers with their continued patronage of the market after vouchers were expended. Research has demonstrated the importance of incentive programs designed for recipients of food assistance benefits in both encouraging visits to farmers' markets and redeeming benefits there.¹¹ The current study demonstrated that even a modest investment of a single farmers' market incentive for children may be an effective method of introducing new families to local farmers' markets. This finding is particularly important to food desert communities whose residents are frequently challenged with limited access to fresh, high-quality foods.²⁶ Similar to previous research that suggests low-income neighborhoods often have poorer quality and fewer healthy food options than higher income neighborhoods,²⁷ caregivers in the current study revealed that the quality and variety of the fresh foods at the FFM were simply not available elsewhere in the community. With limited budgets and low-quality fruits and vegetables as the primary barriers to consumption of fresh produce,^{4,6} the current incentive program could be modeled in underserved communities to introduce children and families to local markets that showcase a rich assortment of fresh, high-quality foods.

Interview participants expressed deep gratitude for the vast number of stands within the FFM that accepted the booklets. Although most farmers' market incentive programs restrict redemption to fresh produce,^{11,16,21,28} the current program was intentionally designed to broaden access to foods high in nutrients believed to be protective during and after exposure to lead.^{9,29-31} Caregivers consistently reported that vouchers were used to purchase not only fresh fruits and vegetables but also food high in dietary iron and calcium, which are particularly important to lead-exposed children.^{9,30,31}

Caregivers appreciated the ease of voucher redemption as well as the positive reception from farmers' market vendors. As indicated by their feedback, most caregivers

expected to be treated poorly on presenting the vouchers. Caregivers did, in fact, recall their apprehension when vouchers were presented to FFM vendors. Among the most common barriers to farmers' market shopping is the belief that food assistance benefits are not accepted by farmers' markets that appear to cater to affluent clientele.¹⁰ Similar to previous studies, caregivers described the FFM as residing in the "nice" area of Flint. The vouchers were recognized for their ability to both introduce families to the FFM and counter beliefs that only the wealthy were welcome. Interactions with vendors were critically important to these experiences as every caregiver described a positive encounter between their children and the farmers' market vendors.

It is well-recognized that child participation in food selection and preparation is effective in improving diet quality and eating patterns.^{20,21} Furthermore, farmers' market-based nutrition education programs appear to be successful in increasing child consumption of fruits and vegetables.³² The current study combined child food selection with informal education from caregivers and farmers' market vendors. Many caregivers discussed the importance of the vouchers in encouraging child food selection. Some further shared how their children asked questions of farmers' market vendors, who generously responded with information about growing and preparing fresh foods, as well as with food samples.

Many caregivers with older children requested that the booklets be distributed more widely. Previous studies have identified adolescence as a critical phase of development for establishing health and dietary behaviors in adulthood.^{33,34} Public health interventions targeting middle and high school students may, therefore, have meaningful impacts. Additionally, there is sufficient evidence to support the influence of parents on adolescents' dietary behaviors.³³ Older children may have benefited from both having their own booklets to redeem for fresh foods as well as sharing the experience of food selection with caregivers. As a result of caregiver concerns and potential positive impacts, efforts are currently underway to expand the incentive program to include older children.

Several limitations should be acknowledged. This study specifically examined caregiver experiences with a farmers' market incentive for children. The sample size was small and specific to one low-income city in Michigan. Therefore, results may not be generalizable to a broader population. Additionally, there may have been selection bias as feedback from caregivers who redeemed the booklets and completed an interview may differ from those who did not. Finally, caregivers may have been motivated to describe positive experiences in the hope that the program would continue. However,

caregivers were candid about program eligibility requirements, and researchers are confident in the sincerity of their overall responses.

Implications for Practice and Research

There is growing concern that the children of Flint may have been particularly vulnerable to contaminated water due to poor dietary patterns and limited access to healthy foods—problems that continue to challenge health care providers in this community and elsewhere. The current study suggests that investing financial resources in farmers' market incentive programs that target children who reside in a food desert community may be successful in persuading new families to visit local farmers' markets that showcase fresh, locally grown foods. The current farmers' market incentive program, with its distribution to children and redemption at a wide variety of food stands, is an innovative method of introducing children and families to farmers' markets that could have meaningful long-term impacts on food access and availability, particularly in low-income communities. Future research will explore perceptions of the incentive program among adolescents who participated in the program.

Author Contributions

A.S.-C. conceived the study, study design and analysis; collected data; led analysis of the data; and led all writing and drafting of the manuscript. H.C.L. participated in data collection and analysis; and contributed significantly to interpretation of results and drafting of the manuscript. M.H.-A. developed the voucher program; and assisted in conceptualization of the study and the drafting and revising of the manuscript. Z.T. participated in data analysis and interpretation of results; and contributed significantly to manuscript. T.C. and J.L. each assisted in conceptualization of the study and the drafting and revising of the manuscript.

Declaration of Conflicting Interests

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