

“This program is a make or break scenario for me”: A Qualitative Study on Participant
Perceptions of a Grocery Store Fruit and Vegetable Incentive Program

Sophia Riemer

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Committee:

Jessica Jones-Smith

Lina Pinero Walkinshaw

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Sophia Riemer

University of Washington

Abstract

“This program is a make or break scenario for me”: A Qualitative Study on Participant Perceptions of a Grocery Store Fruit and Vegetable Incentive Program

Sophia Riemer

Chair of the Supervisory Committee:

Jessica Jones-Smith

Department of Epidemiology

Department of Health Services

Background: Complete Eats Rx is a USDA-funded fruit and vegetable prescription program that is designed to incentivize fruit and vegetable consumption among SNAP recipients via \$10 vouchers to purchase fruits and vegetables at a mid-price large scale grocery chain in Washington State.

Objective: To understand participant experiences with the Complete Eats Rx program in the context of chronic food insecurity to better understand the user experience, to improve the program, and to determine the perceived impacts and consequences of the program.

Design: Qualitative analysis of three photovoice-style focus group discussions, including a total of 26 participants. Participants were provided with cameras and instructed to take photos based

on a participant-chosen theme. Focus group discussions were used to elicit participant experience with the Complete Eats Rx program. The SHOWeD/VENCeR process was used to relate the photo to participant experience in the context of the chosen theme. Each session was facilitated by a health organization staff member or community health worker and a note taker was present. Sessions were audio-recorded and transcribed.

Setting: Participants were recruited from three health organizations participating in the Complete Eats Rx program in Spokane, Seattle, and Yakima Valley, Washington.

Participants: Twenty-six participants in the Complete Eats Rx incentive program.

Analysis: Transcriptions were coded using inductive methods. Coded statements were organized into major themes. Coding structures and analysis were strengthened by iterative interactions between researchers.

Results: Participants reported that Complete Eats Rx is an important resources for families and improved their food security, mental health, and diet quality, affordability, and variety. Primary barriers to food security and fruit and vegetable consumption among participants include limited geographic accessibility and the high cost of fruits and vegetables exacerbated by other financial constraints such as rising housing costs. The most frequently mentioned barrier to program use was difficulty at the supermarket checkout due to embarrassment, stigmatization, and inability to redeem incentives. The most frequently mentioned barrier to program acceptability was the partner supermarket as the sole acceptor of the incentive, limiting options for redemption.

Conclusion: Participants reported Complete Eats Rx as an important intervention to increase both food security and produce consumption in their households. Supermarket-based incentive programs are a unique strategy to increase produce consumption that can be modeled by other

localities. As incentive programs continue to increase in frequency and size, focus on geographic accessibility and positive shopping experiences may improve incentive redemption and usability.

Background

Diets rich in fruits and vegetables (FV) are associated with better overall health and lower risk of chronic disease (1). However, only 12.2% of Americans meet the daily recommended intake of fruit and 9.3% meet vegetable recommendations (2). Chronic disease is more prevalent in low income populations. This may in part be due to a disparity in consumption of FV between low income households and high income households (3). Evidence suggests that low income populations face additional barriers to FV consumption compared to their higher income counterparts, including limited access to FV, high cost of FV, and low quality of available FV. These factors have been associated with lower consumption of FV among populations with low socioeconomic status (4,5,6).

FV incentive programs show promise as a strategy for improving food access and dietary quality in low income individuals. Use of incentives has been associated with higher FV purchase and consumption in low-income individuals (4, 7, 1, 8, 9, 10, 11). These behavior changes may be sustained after incentives are no longer available, however data are mixed (10,12,13). Incentive programs have been shown to improve food access, self-reported mental wellbeing, and food-insecurity related behaviors measured via food insecurity screening surveys (18, 1, 17). FV incentives have been associated with improvements in A1c levels and BMI (14, 15) suggesting they have potential to lead to long-term reductions in diet-related disease (16). Participants in incentive programs have largely supported the programs (4, 8, 17). Clinical providers report that

prescription programs have allowed them to take an action-oriented approach to discussions about healthy eating with patients (19).

In 2015, Washington State Department of Health tested three different Food Insecurity Nutrition Incentive (FINI) funded FV incentive strategies for SNAP participants, one of which was the Complete Eats Rx program. Complete Eats Rx consists of \$10 vouchers valid at a large mid-price grocery store chain in Washington State to be used for the purchase of fresh, canned, and frozen FV with no added salt, sugars, or fat. Another Washington State Department of Health FV incentive program, Complete Eats Coupons, partners with the same grocery store chain. Incentives are distributed as coupons for \$5 off participants' next purchase of FV when they spend at least \$10 of SNAP benefits on FV.

Though incentive programs are increasingly being used across the United States, the vast majority of literature on the topic has centered around farmers market (FM) incentive programs. There is a dearth of literature on grocery store incentive programs such as Washington State's Complete Eats Rx program. Therefore, little is known about the specific impacts and challenges of USDA FINI-funded projects conducted in grocery stores. However, existing literature shows promise. Rummo et al analyzed transaction data from 32 stores participating in a grocery store FV incentive program (20). Researchers found that SNAP participants' spending on fresh produce was significantly higher at participating stores compared to control stores.

To date, evaluations of incentive programs have suggested these programs are associated with positive dietary outcomes (7,1,8). However, the vast majority of previous work are focused on

FM incentive programs. Additionally, most existing qualitative studies are only documented in the grey literature. The purpose of this study was to understand participant experiences with the Washington State Complete Eats Rx program in the context of chronic food insecurity to better understand the user experience, to improve the program, and to determine the impacts and consequences of the program. We used photovoice techniques to elevate the participants' roles in shaping the group discussions.

Methods

Study Recruitment and Enrollment

This study used photovoice focus groups to qualitatively assess participant experience with the Washington State Complete Eats Rx program. Photovoice is a community-based qualitative data collection technique. Though Photovoice allows for a facilitator to encourage conversation, there is a focus on participant collaboration and leadership in topics discussed, differentiating them from traditional focus groups (37). Participants self-selected into the study. They were recruited using flyers and sign up sheets in the lobbies of three healthcare organizations that participated in the Complete Eats Rx program. Three health organizations in Washington State, one each in Spokane, Seattle, and Yakima Valley participated in the study. The Spokane clients were primarily underinsured or publicly insured with all study participants residing in low income housing, Seattle clients were primarily underinsured or publicly insured, Yakima clients were primarily Latinos and farmworkers. Yakima sessions were held in Spanish and Seattle and Spokane sessions were held in English. Individuals were eligible if they were over 18 years of age, comfortable communicating in English or Spanish, had received a FV prescription within

the past six months regardless of use, and intended to attend three photovoice sessions.

Individuals received reminder calls two days prior to each session.

Data Collection

Focus groups were conducted May 6th - July 3rd, 2019. Each organization's participants attended sessions at their local site. Participants attended one 75 minute and two 125 minute sessions, each session held one week apart for a total of three sessions per individual and nine sessions total. Participants received \$50 in either grocery store gift cards or FM vouchers each session depending on their preference. In both Seattle and Spokane, all three sessions were facilitated by the same Seattle or Spokane employee, respectively. In Yakima, each session was facilitated by a separate local community health worker, though all three community health workers attended all sessions. Facilitators were oriented by a researcher and the Washington state Department of Health FINI Director. The orientation included information on the Complete Eats Rx program, photovoice technique, and the evaluation aims. A Department of Health employee and/or a Department of Health affiliated researcher was present at each session as a note taker. Each session was audio recorded with participant consent.

Photovoice Process

The first session at each site consisted of an orientation to Photovoice and the purpose of the study. Written informed consent was collected and cameras were distributed to participants who requested one. Participants who did not use a camera supplied by Department of Health used their personal phone camera. Participants then collectively selected a theme for the photos they would capture in the first week. Each cohort chose their themes separately. Participants were

instructed to take photos of their lived experience as it related to the selected theme and to not capture faces. There was no limit on how many photos they could capture. During the second session, participants observed each photo and were instructed to select photos for the purpose of conversation. The SHOWeD/VENCeR framework was used to guide discussion among participants. SHOWeD (for English speakers) and VENCeR (for Spanish speakers) are acronyms for questions asked for each picture. Questions consist of (1) what do you see in the photo? (2) what is really happening in the photo? (3) how does this relate to our lives? (4) why does this situation, concern, or strength exist? (5) what can we do to improve the situation or enhance these strengths? After discussing photos, participants chose a new theme for the third session. During the third session, photos taken in week two were discussed in the same manner as the previous week. Contact information was collected from participants who wanted to be notified should their photos be used for other purposes.

Data Analysis

All session recordings were transcribed. Researchers used inductive analysis and an initial codebook created based off of the transcripts. One researcher served as a coder, adding new codes to capture emergent themes as needed. A DOH staff member served as a double coder and reviewed one transcript from each cohort, coding 30% of total transcripts. Coders reviewed differences in coding, iteratively discussed rationale, and created the final codebook. The original coder then coded the remaining transcripts using these final codes. Thematic content analysis was performed to identify key emergent themes in the context of the study questions. Atlas.ti (version 8.4.18.0, Atlas.ti Scientific Software Development GmbH, Berlin, Germany, 2019) was used to code and analyze all data.

Results

Participant Characteristics

Table 1 displays the number of recruitment sites, the number of individuals recruited and in attendance from each site, and the themes of each session. A total of 26 individuals participated in the study. One individual attended one session, two attended two sessions, and 23 attended all three sessions. Eight individuals were in the Spanish speaking cohort and 18 were in the English speaking cohorts. Seven participants attended Seattle sessions, eight attended Yakima Valley sessions, and 11 attended Spokane sessions.

	Session 1	Session 2	Session 3
OBCC: English 7 Total Participants	7 participants	5 participants Theme: Barriers	6 participants Theme: Our relationship with food
Virginia Mason: Spanish 8 Total Participants	8 participants	8 participants Theme: Prices of fruits and vegetables	8 participants Theme: What we cook with the produce we buy
SRHD: English 11 Total Participants	10 participants	10 participants Theme: How we use what we buy	11 participants Theme: Barriers

Table 1. Participants in photovoice focus groups on Washington State DOH's Complete Eats Rx program evaluation and session themes by partner organization

The majority of participants were female (n=17) and mothers (n=15). Many participants were seniors (n=12). Seven participants lived in an urban environment and eight lived in a rural

environment. Themes could be sorted into four major categories: 1) environmental factors influencing food security and food purchasing decisions 2) programmatic factors influencing incentive use 3) impact of program use 4) participants suggestions to overcome food security and program barriers. Major themes are discussed below.

Food Access as a Barrier to Food Security: Financial Constraints, Cost of Produce, Location, and Availability

Financial Constraints

Participants faced multiple financial constraints that took precedence over grocery budgets, reducing food security and FV consumption. Some costs participants experienced included driving and parking tickets, gas, housing, medical bills, tuition, and life events such as moving. Participants' long work hours and low wages lowered financial access to a quality diet and reduced their motivation and ability to spend time cooking healthy meals. Most participants were educated on the importance of including produce in the diet and how to include it, however they were unable to due to financial and other constraints. They understood recommendations but found them impractical. As a participant explained, "they want you to have more than one serving of fruit and vegetables every day...with our income- low-income people, you might as well forget about it and I'll just say that right out."

Participants named the rising cost of living as having a large effect on their ability to afford food. One participant explained, "The cost of living does not take into account the diet you know? You know life is life and you can barely pay rent and if you can keep the lights on that month you've done good and it gets worse and worse every year so of course the diet goes on the backburner."

Community was also mentioned as a valuable safety net in guaranteeing their ability to feed themselves and their families. Urban participants noted that this community safety net is disappearing due to gentrification. As stated by one participant “When you take away those great resources and infrastructure that allow us to come together...it breaks down those networks.” The changing makeup of participants’ cities caused some individuals to feel uncomfortable in their own communities, reducing their motivation to utilize resources and increasing stigma. Finally, many participants live in apartments due to the high cost of housing. Apartment living limits the ability of participants to grow food. Home gardens were noted as a significant source of produce and a strategy that had been used for generations to supplement diets. Apartment living has taken away that supply and reduced diet quality and affordability.

Cost of Produce

Produce was seen as the most expensive component of the diet and a luxury. Those that were benefiting from healthy living classes explained that they would not be able to make the transition from learning about the benefits of fruit and vegetable consumption to increasing purchase and consumption without the Complete Eats Rx program. One senior participant explained “People at our age splurge on fruits and vegetables. You used to have to splurge on meats but now it's fruits and vegetables. Fresh or organic especially.” Along with its high cost, purchasing produce is seen as a gamble as participants feared their children may not like it, it may be low quality, or it may spoil quickly. Many were driven to highly processed food due to its affordability and convenience.

and quality of produce and less accommodating staff than stores in communities with higher SES residents.



Figure 2. Participant photos portraying their environment. The photo on the left shows the lack of sidewalks on the participant's walk to and from the bus stop. This makes the trip difficult and dangerous. The photo on the right shows the empty shelves at a participant's local participating grocer. "I went to the [high SES area] one and it looked like a little showroom" explained the participant.

Barriers To Food Security By Demographics

Barriers to food security varied by population. Participants in rural areas most frequently mentioned financial barriers, primarily the high cost of produce. Participants in urban areas most frequently mentioned financial barriers related to wages and the high cost of living, followed by housing concerns related to gentrification, and poor access to quality grocers. Seniors most frequently mentioned issues with public transit stemming from spatial access to grocery stores, followed by medical issues and financial barriers due to the high cost of produce and low to no income.

Access, Cost, and Quality of Participating Grocer as Barriers to Program Use

The most frequently mentioned program concern was the participating grocery chain as the sole acceptor of the incentive, limiting options for redemption. The main reasons for this concern were difficulty accessing the grocer, high cost products, and poor quality produce. The prices of their produce and other products were seen as impractical for participants' budget and reduced the purchasing power of the incentive. Additionally, multiple participants reported low quality produce in the stores most accessible to them. They told stories of produce spoiling too quickly after purchasing or spoiling while still in the store. They reported that miscalibrated scales led to overcharging and reduced purchasing power for the incentive. Overcharging for items was mentioned and was especially difficult for participants as they could not afford to go back to the grocer and fix the issues.

No participants named the participating grocery store chain as their preferred grocery store. Transit cost and time spent to access the grocer were considered when deciding whether to utilize the incentives. Many participants made separate trips to the grocer to use the incentive and did the rest of their shopping elsewhere. This forced participants to spend extra money on transit and was impractical for those with limited time. Other participants did all of their shopping at the participating grocer when they had an incentive. These participants reported spending more on items they could purchase for less at other stores. "The only reason I spent the money at [participating grocer] yesterday was because I felt like I didn't have a choice. You got there, you spent the bus money." explained a participant.



Figure 3. Participant photo portraying the quality of papayas at their local participating grocer. Other participants agreed that they frequently found produce spoiling on the shelves.

Difficulty at Checkout, Lack of Knowledge, and Inconsistency as Barriers to Program Use

Difficulty at Checkout

Difficulty at checkout was the most frequently reported reason participants did not utilize their incentives. Difficulties included staff inability to redeem incentives, incorrect incentive redemption, inconsistent rules around incentives such as what can be purchased and how many incentives could be redeemed at once, and long checkout times. One participant explained her experience with inconsistency at checkout: “Because some will say ‘ok this is ok’ and another might say ‘no that's not ok’ and that's a big confusing aspect and that happened to me. I got so mad I left and didn't buy anything that day.” Another participant’s story: “ I was in that line for about forty-five minutes. The lady made me go to a whole other checkout, the manager came. My kids were like, ‘can we go now?’ And I was like ‘no, we did everything right.’” Staff difficulties led to embarrassment for participants and stigmatization by cashiers and other customers. Additionally, participants made attempts to engage the grocer in community efforts

such as food and clothing drives but were turned down. These experiences caused mistrust among participants and a poor perception of the grocer's role in the community.

Lack of Knowledge and Inconsistency

Participants reported confusion around the program rules, most commonly regarding what types of products could be purchased with incentives. While most of the confusion stemmed from misreported rules by supermarket staff, participating health organizations' lack of knowledge around changes in program regulations also caused difficulties. Other participants shared confusion around the Complete Eats FV coupons. Many either did not know that coupon program existed or were misinformed on the coupon value and policies around coupon distribution.

Perception of Complete Eats Rx

While some program difficulties such as those related to checkout reduced redemption of the Complete Eats vouchers, most difficulties did not prevent incentive use for most participants. Participants were grateful for the program and hoped for its continuation. As put by one participant, "These coupons saved my family. I learned how to cook things. Sometimes that's all we had." Participants either viewed the incentive as an increase in their SNAP benefits and thus contributing to their overall food security or as a tool to motivate behavior change around increasing produce consumption. The following two quotes exemplify these two perceptions of the program: "That little bit makes a big difference. Like that's ten dollars I can put down on bread" and "This program is helping me stay on track so we can buy things that are less packaged. Things we normally just can't afford." These views varied by focus group cohort. The Seattle cohort generally viewed the incentive as contributing to their general food security while

the Spokane and Yakima cohorts generally viewed the incentive as a tool to increase produce consumption.



Figure 4. Photo on the left shows the produce a participant was able to purchase with their incentives. The photo on the right is of fruit bought with an incentive for a participant and their children's breakfast.

Complete Eats Rx Impact: Diet Quality, Variety, and Affordability

Complete Eats Rx increased participants' grocery budget, increasing both produce consumption and food security. As explained by one participant, "I'm not spending as much on food but getting a lot of produce - fruits and vegetables. It gives us a chance to get the fresh stuff." Incentives helped them purchase produce they otherwise would not be able to afford such as berries, dark leafy greens, and organic produce. While the incentive allowed some participants to eat a diet they already desired but couldn't afford, others credited a new positive outlook on fruits and vegetables to the program. Incentives were used to alter typical meals and cultural favorites to feature more fruits and vegetables. Incentives were also used for healthy after school snacks, smoothies, and canning homemade jams.

Complete Eats Rx Impact: Family and Community

The majority of participants were parents. These participants were aware of the effects their children's diet would have on their futures. As one participant explained, "They're learning, they're going to be the future, so we must teach them about this, because I didn't know so much about vegetables." Participants reported Complete Eats Rx having a large impact on their children's behaviors and perceptions around food. Parents used the incentives for healthy after-school snacks and meals and for bonding activities. Participants reported incentives increasing their children's exposure to produce and supporting FV appreciation and normalization in the home. "My goddaughter that I have now, she grew up not having any vegetables or anything, she's used to microwaving all her stuff. So it was good to have them try different things out" explained a participant. Incentives encouraged families to cook with their children and to take them produce shopping, engage in learning activities such as reading labels, weighing, measuring, and learning the names of fruits and vegetables. The program also allowed participants to hold large family and community meals. They expressed the importance of the program in their ability to feed friends and family: "Not only did we feed the nine people in our house, but our neighbor has bone marrow cancer and he just told us about - and we were able to feed him and his family and another neighbor." Medical conditions, dietary restrictions, and preferences can make it difficult to afford holding large dinners and the incentives alleviated some of the financial barriers associated. "With health conditions or special diets...you end up making three different meals and it costs more" explained one participant.



Figure 5. A participant's child taking part in a grocery trip

Complete Eats Rx Impact: Mental Health

The Complete Eats Rx program had positive effects on mental health according to participants. The positive impacts discussed above contributed to better quality of life. The program provided a resource to alleviate the chronic stress associated with ongoing food insecurity. The program also helped participants feel supported and their troubles heard. As explained by one participant, “resources like this is what makes me feel like it's going to be ok.”



Figure 6. Participants and their neighbors carpooling to [the participating grocery chain] a suggestion to overcome barriers mentioned during the sessions.

Participant Suggestions

The most commonly mentioned solutions to food security included bringing paratransit to low income housing, allowing incentive/EBT use for online grocery shopping, freezing produce and using proper storage techniques to reduce spoilage, encouraging grocery stores to sample produce, and building community to help families feed each other during difficult times.

Common solutions to programmatic barriers included expanding the program to more stores, making alterations to the incentive such as dispensing incentives of various values and extending the expiration date, including recipe and snack/meal ideas with incentives, and including food storage education with the incentive.

Discussion

Participants reported Complete Eats Rx as an important intervention to increase both food security and produce consumption in their households. Primary reported barriers to food security

and produce consumption among participants were the high cost of produce exacerbated by other financial constraints and low geographic accessibility. Though nutrition education was seen as beneficial, education was not perceived as beneficial without addressing major access constraints. The most frequently mentioned barrier to program use was difficulty at checkout and the most frequently mentioned barrier to program acceptability was the grocery chain as the sole acceptor of the voucher. Prior to this study, the majority of literature on the benefits and barriers to incentive use have focused on FM incentive programs. While FM incentives benefit local vendors and are associated with positive outcomes such as higher FV purchase and consumption in low-income individuals (1, 8, 21), FMs are often perceived as a venue for high-income individuals and can leave low-income shoppers feeling stigmatized when using supplemental programs. (22) The results of this study expand on current literature by examining a grocery store-based incentive program, a unique strategy to increase produce consumption that can be modeled by other localities.

Participants reported Complete Eats Rx increased both their produce consumption and food security. This effect is supported by previous studies evaluating the impact of FV incentive programs. A study performed by Savoie-Roskos et al examined FV intake and food security in a dollar-per-dollar match for up to \$10/wk in FM incentives with a pretest-posttest design. Researchers found fewer reported food insecurity related behaviors and significantly increased intake of certain vegetables post-intervention. (1) Many other studies have found similar increases in purchase and consumption with FM incentive use (7, 1, 8). Though few studies have examined whether these same benefits translate to grocery store incentive programs, Rummo et al examined the impact of grocery store FV interventions. (20) Researchers analyzed transactions

from 32 individual grocery stores in a large chain, 17 of which participated in a FV dollar-matching program for SNAP participants in Michigan. They found SNAP participant spending on produce was significantly higher at participating stores than control stores. The positive effect seen in this study is encouraging as the intervention studied was large-scale model, similar to Complete Eats Rx, and may be a reflection of what large government incentives programs will look like in the future.

Primary reported barriers to food security and produce consumption among participants were the high cost of produce exacerbated by other financial constraints. This is consistent with previous studies. (18, 26,27,5,32) A qualitative study using a customer intercept survey design examined customer characteristics and barriers to healthy eating among customers at a mobile FM. (32) The mobile FM serviced areas where large proportions of the population had low geographic food access and used SNAP. SNAP customers received half price discounts, a price model similar to FM incentive programs. Among all customer respondents, the most common barrier to healthy eating was cost: almost half (49%) reported that it costs too much to eat healthy food. However, researchers suspected customers did not accurately represent the neighborhood as a larger proportion of respondents than expected had achieved higher education. Additionally, the survey was only offered in English, possibly excluding non-english speaking populations. Another, more comprehensive intervention with nine Women, Infants and Children supplemental nutrition program (WIC) clients involving \$40/week FV incentives, nutrition education, and produce shopping guidance, was assessed. (8) Though the intervention increased produce consumption in the short and long term, in reflective interviews three years later participants reported feeling limited in their ability to eat healthy after the program's subsidization ended,

largely because of the cost of produce. Due to the wide variety in FV incentive program models, generalizability between studies is limited. Further, causality cannot be claimed due to the studies' qualitative design. Regardless, both of these studies support cost as a major barrier to FV access in FV incentive target populations.

Geographic accessibility was another major reported barrier to food access and produce consumption. While produce incentive programs primarily address financial access, simultaneously addressing both financial and geographic access may increase useability, further increasing fruit and vegetable consumption. Using a logistic regression model, a study analyzing consumer survey data of a FM incentive program found statistical evidence that consumers from areas with low food access and low income were the most likely to perceive that their consumption was higher with the use of FV incentives. (18) Findings suggest the combination of increased geographic access and FV incentives may have a larger effect on produce consumption. Like many other studies examining incentive programs, consumers' perceptions of fresh fruit and vegetable consumption rather than actual consumption was examined, which may have led to biased results. However, the results of this study and prior research supports the need for FV incentive programs to focus on increasing both financial and geographic access. Though FM incentives aim to address both of these barriers and are associated with improved food access in low income individuals, they often operate during limited hours and in high income neighborhoods. (18, 32, 40) In a systematic review of FM incentive programs, Freedman et al found that among studies involving low-income populations, key barriers to FM use included lack of access to transportation and lack of racial diversity in the market space found that among studies involving low-income populations, key barriers to FM use included lack of access to

transportation and lack of racial diversity in the market space. (40) Grocery store incentive programs have the opportunity to address geographic access barriers by expanding incentive programs to local grocers that incentive recipients already frequent. Previous studies have found that small stores in high need communities can increase produce availability, improve diet quality, and can impact the eating culture of a neighborhood (35,36). Improving financial access to these small stores through incentives has the potential to further these benefits. A review of two corner store FV interventions conducted in New Orleans discussed the desire for increased fruit and vegetable access in the low income populations studied. Stores reported the profitability of products as the determining factor in what they chose to stock. (36) In theory, fruit and vegetable incentive use in small local stores may increase FV purchase, motivating retailers to provide a larger selection of produce. This strategy can address major barriers to food access and the specific challenges of FM incentive use while supporting the local communities of vulnerable populations.

Participants reported nutrition education to be an important factor in increasing their produce consumption, however participants reported increased consumption would not be possible without increased access in the form of the incentive. The positive effect of nutrition education was suggested in an intervention study evaluating the effect of a Michigan Farmers' Market Nutrition Program on fruit and vegetable consumption behavior in the WIC population. (27) Subjects were assigned to one of 4 interventions: education about the use, storage and nutritional value of fruits and vegetables, distribution of a FM incentive, both education and incentives, or no intervention. Researchers found incentives had a direct effect on increasing FV consumption behavior but had no effect on attitudes, while education had a direct effect on attitudes and

seemed to affect consumption behavior through attitudes. The maximum impact was achieved with the combination of education and incentives. This suggests nutrition education can be an important component to incentive programs to maximize FV consumption.

The most frequently mentioned barrier to program use was difficulty at checkout, including technical issues and stigma. Difficulties at checkout and employee stigma are common concerns in supplemental nutrition and incentive programs. (22,23,24,27) Though the majority of literature examining the shopping experience of incentive program recipients is found in the grey literature, a qualitative study evaluating WIC customer experiences was conducted using a series of focus groups with New Mexico WIC participants to better understand their shopping experiences. Researchers found employee-customer interactions to be a major theme in the WIC customer experiences, with participants reporting employee impatience and unfriendliness. Participants also reported experiences of poor WIC program management. Examples of this included poor cashier training, which can result in transaction errors and decreased redemption of benefits. This study found similar participant experiences with the Complete Eats Rx program. Difficulties at checkout stemmed from either a perceived lack of employee training or technical difficulties. These difficulties can lead to perceived bias against incentive users by staff and customers. Focusing on improving the checkout experience via improvements in staff interactions or through technical means such as a transition to an electronic system may have beneficial effects on redemption. Although no published data exist evaluating efforts to improve user-staff relations in incentive programs, after similar customer experience findings in the New Mexico WIC program, Payne et al. suggest setting normative retailer benchmarks of what is expected for WIC customer experiences. (27) The study population used is not directly

generalizable to FV incentive recipients, however a similar strategy may be promising enough for consideration by organizations implementing grocery store-based incentive programs.

As incentive programs continue to grow in size and duration, organizations may want to switch to an electronic system as soon as is feasible. With SNAP, like many government assistance programs, qualifying individuals have been met with stigma. An EBT system was initiated in part to reduce the stigma associated with paper food stamps as EBT cards are used similarly to a credit or debit card. Prior to EBT, stigma was a common reported barrier seen in food assistance programs in the US and Europe. (38, 24) The paper and coin vouchers used commonly in incentive programs may inadvertently re-introduce the stigma faced during paper food stamp usage. Shifting from physical vouchers and tokens to electronic and mobile payment methods may help reduce stigma while reducing administrative burden and supporting successful scaling of incentive programs. A transition to electronic systems would be resource-intensive but is feasible, as shown by the electronic system used in Flint Michigan's Double Up Food Bucks grocery store incentive program. When participants spend SNAP benefits on fruits and vegetables, participants receive a matched amount of credit on a Double Up Food Bucks card good for produce at any participating FM or grocery store. Another potential model can be seen in the USDA Healthy Incentives Pilot that took place in Western Massachusetts.(25) This pilot used a fully electronic system for depositing incentive payments into EBT accounts at the time of purchase. HIP households spent more SNAP benefits on targeted fruits and vegetables than non-HIP households in participating supermarkets and superstores and most retailers did not find it difficult to implement the program. Evaluation of the pilot found the estimated total cost for implementing the program nationwide to be approximately \$90 million over 5 years. It is unclear

how feasible alterations to these models would be for programs not restricted to SNAP participants. Though there are currently no publications evaluating the effectiveness of an electronic system in comparison to more widely used FV incentive models, arguments for implementation of electronic systems warrant consideration as similar transitions in large scale incentive programs may provide long-term benefit to participants, providers, and stakeholders.

Strengths and Limitations

Strengths of this study include utilization of a community-led discussion technique rather than discussion based on expected outcomes and concerns. Encouraging participant leadership has been shown to broaden the focus of the research question. (28) It has also been shown to empower communities and enhance understanding of community needs. (28,37) Use of the photovoice methodology provided more detailed insight into the unique experiences and challenges among food insecure populations. Additionally, participants who did not use their incentive were able to participate and focus groups from three distinct regions and of varying populations were included, including a Spanish-speaking cohort. Finally, focus groups recordings were transcribed and underwent rigorous qualitative analysis. This study also had limitations. Participants self-selected into the study, introducing bias towards those who had opinions on the program and were available during the hours of the focus groups. Researchers attended focus groups which may have introduced bias. However, researchers did not contribute to conversation other than to clear up program related information. Due to the qualitative nature of this study, causality between the program and the self-reported benefits of the program cannot be determined. Further, findings from this evaluation may not be generalizable. Given regional

variability and variability among independent incentive programs, some of these findings may not be applicable to specific regions or populations.

Conclusion

Incentive programs have been shown to increase fruit and vegetable purchasing in vulnerable populations, however further research is needed on the participant experience, particularly in grocery store settings. The Complete Eats Rx program was associated with increased perceived food security and produce consumption in participants and their families. Though participants reported perceived program benefits, barriers to incentive use remained. As incentive programs continue to increase in prevalence and size, focus on geographic accessibility, clinic-community relations, and positive shopping experiences may improve incentive redemption and usability.

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