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Power of Produce: Farmers' Market Incentive Program Targeting Eating Behaviors of Children

Abstract

The Power of Produce (PoP) Club is a farmers' market incentive program for children aged 5–12. The purpose of the summative evaluation described in this article was to determine the impact of the PoP Club on improving family and child behavior at a Minnesota farmers' market as well as child fruit and vegetable (F&V) consumption. Results from a self-reported retrospective survey completed by parents suggest that the PoP Club is a valuable program, with participating parents reporting increased family attendance and child engagement at the farmers' market and increased F&V consumption by children at home.

Keywords: children, obesity, farmers' markets, fruits and vegetables, PoP Club

Jessica Norman
Extension Educator, Health and Nutrition
University of Minnesota Extension
Saint Paul, Minnesota
jnorman@umn.edu

Amy Moore
Assistant Professor
Department of Nutrition and Dietetics
Saint Louis University
Saint Louis, Missouri
artemear@slu.edu

Mildred Mattfeldt-Beman
Chairman and Professor
Department of Nutrition and Dietetics
Saint Louis University
Saint Louis, Missouri
mattfeld@slu.edu

Patrick Kelly
Statistician
Saint Louis University
Saint Louis, Missouri
kellypv@slu.edu

Patrick Barlow
Assistant Professor
Office of Consultation and Research in Medical Education
The University of Iowa
Iowa City, Iowa
patrick-barlow@uiowa.edu

Introduction

Farmers' markets have increasingly become a public health tool through which the health of communities can be improved and food access issues can be addressed (Parsons & Morales, 2013). One aspect of this trend is the positive association that exists between attendance at farmers' markets and fruit and vegetable (F&V) intake (Herman, Harrison, Afifi, & Jenks, 2008; Jilcott Pitts, Gustafson et al., 2014; Jilcott Pitts, Wu et al., 2013; Wheeler & Chapman-Novakofski, 2014; Young et al., 2013). The majority of existing literature related to farmers' markets focuses on incentive programs for low-income populations and the use of Supplemental Nutrition Assistance Program (SNAP) benefits at farmers' markets (Freedman, Bell, & Collins, 2011; Freedman, Mattison-Faye, Alia, Guest, & Hébert, 2014; Herman et al., 2008; Jilcott Pitts, Gustafson et al., 2014; Jilcott Pitts, Wu et

al., 2013; Wheeler & Chapman-Novakofski, 2014). Literature on the potential benefits of farmers' markets on the food-related behaviors of children, however, is limited, despite the fact that a majority of U.S. children do not have an adequate intake of F&V (Baker, McCabe, Swithers, Payne, & Kranz, 2015).

One approach to linking farmers' markets with improved F&V intake among children is implementation of the Power of Produce (PoP) Club. The PoP Club is an incentive program for children aged 5–12 offered at farmers' markets around the nation. The goal of the PoP Club is to empower children to make independent healthful food choices and to engage families in attending a local market together. The program provides children with a weekly $2 token to spend on fresh F&V and food plants. Although implementation varies, farmers' markets typically use a PoP Club Passport for registering program participants and tracking attendance. Market personnel check children in each week and distribute the $2 tokens from either a market booth or a designated PoP Club booth. Children can register at any point during the program and are not required to spend a token the same day it is received. Farmers' markets are encouraged to offer activities, food sampling, and incentives; however, these are not requirements of the program. University of Minnesota Extension offers a PoP Club Toolkit (z.umn.edu/popclub), which is free to farmers' markets and/or partnering organizations. The PoP Club Toolkit includes a detailed description of the program and all the resources necessary to implement a PoP Club.

The PoP Club program originated at Oregon City Farmers Market in Oregon City, Oregon, in 2011 (Farmers Market Coalition, n.d.). City Market in Charlottesville, Virginia, used the model from Oregon City to conduct a pilot implementation of the program in 2012 (Farmers Market Coalition, n.d.). Both Oregon City Farmers Market and City Market conducted formative evaluations during the first year of their PoP Club programs. On the basis of the best practices and positive program effects identified during those formative evaluations, Maple Grove (MG) Farmers Market in Maple Grove, Minnesota, conducted a 6-week trial implementation of the program from July 10 to August 14, 2014. Our purpose in performing the summative evaluation described in this article was to determine whether the PoP Club had the potential to improve F&V consumption among children participating in the program at MG Farmers Market. We also explored the program's impact on improving family attendance and child engagement at MG Farmers Market.

Methods

PoP Club Survey

Participants in the evaluation were parents/guardians of children enrolled in the PoP Club at MG Farmers Market. To participate, a parent/guardian had to be 18 or older and complete and sign a PoP Club Passport for his or her child. All portions of the evaluation were approved by the Saint Louis University Institutional Review Board.

We used a retrospective survey design and sent the survey instrument via email to parents/guardians upon completion of the PoP Club program. The survey asked parents to report on various attitudes and behaviors of their children as well as the family's attendance and spending at the farmers' market after participation in the program as compared to before participation in the program. The survey consisted of 17 items and included both closed- and open-ended questions:

- six questions related to PoP Club participant demographics and family characteristics,
- eight questions related to attitude and behavior variables (Figure 1), and

three questions elicited open-ended responses.

Figure 1.

Eight Survey Questions for Assessing Changes in Children's Attitudes and Behaviors

After participating in the PoP Club ...

	Much less than before participating in PoP Club	Somewhat less than before participating in PoP Club	About the same as before participating in PoP Club	Somewhat more than before participating in PoP Club	Much more than before participating in PoP Club
My children enjoy the farmers' market	○	○	○	○	○
My children help to choose the fruits and/or vegetables we buy at the farmers' market	○	○	○	○	○
My children help to prepare the fruits and/or vegetables we buy at the farmers' market	○	○	○	○	○
My children are trying new fruits and/or vegetables at home	○	○	○	○	○
My children eat more fruits and/or vegetables at home	○	○	○	○	○
We attend the Maple Grove Farmers Market as a family	○	○	○	○	○
Our family purchases more fruits and/or vegetables at the Maple Grove Farmers Market	○	○	○	○	○
Our family has fruits and/or vegetables available in our home	○	○	○	○	○

Data Collection and Analysis

We distributed the PoP Club survey using Qualtrics software (Qualtrics, Provo, UT). A month after the program ended, an email was sent to 381 parents/guardians who had provided email addresses; the email contained a link to an informed consent page and the survey. Each family completed only one survey regardless of the number of children who had participated in the program. The survey email was resent to nonrespondents once each week for the subsequent 3 weeks. We used the PoP Club Passports to gather weekly attendance data for each PoP Club participant and recorded those data using Microsoft Excel. We also recorded the number of $2 tokens returned each week by vendors, again using Excel. We used SPSS version 20.0 (SPSS Inc., Chicago, IL) to analyze survey data downloaded from Qualtrics. Our analyses included descriptive statistics and Spearman rho correlations.

Results

PoP Club Participant/Family Characteristics

The PoP Club survey was completed by 96 of the initial 381 parents/guardians to whom it was distributed. Survey responses indicated that 171 children participated in the program, and the mean age of PoP Club participants was 7.7 (±2.09) years. Table 1 summarizes other demographic characteristics of PoP Club participants and data on family attendance and spending at MG Farmers Market. There was an even distribution of male and female participants, and the children who participated were predominantly White. Most families had one child or two children participating in the PoP Club, and most families reported having at least one child who participated in the program 2 or 3 weeks. For almost one quarter (23.4%) of the families, 2014 was their first year attending the

market. All families reported spending money at the market beyond their child's $2 PoP Club token, with the highest proportion of families reporting spending $16–$20.

Table. 1.

PoP Club Participant and Family Characteristics as Reported by PoP Club Survey Respondents

Variable	*f* (%)
Child participant sex[a]	
Female	83 (50.3%)
Male	80 (48.5%)
Prefer not to answer	2 (1.2%)
Child participant race[a,b]	
White	141 (92.2%)
Black/African American	4 (2.6%)
Hispanic or Latino	4 (2.6%)
Asian or Pacific Islander	2 (1.3%)
American Indian or Alaskan Native	2 (1.3%)
Number of children per family participating in the PoP Club[c]	
1 child	38 (39.6%)
2 children	43 (44.8%)
3 children	13 (13.5%)
4 children	2 (2.1%)
Total number of weeks at least one child per family participated in the PoP Club[c]	
1 week	14 (15.7%)
2 weeks	23 (25.8%)
3 weeks	33 (37.1%)
4 weeks	15 (16.9%)
5 weeks	3 (3.4%)
6 weeks	1 (1.1%)
Years of family attendance at MG Farmers Market[c]	
This is our first year	22 (23.4%)
2 to 5 years	54 (57.4%)

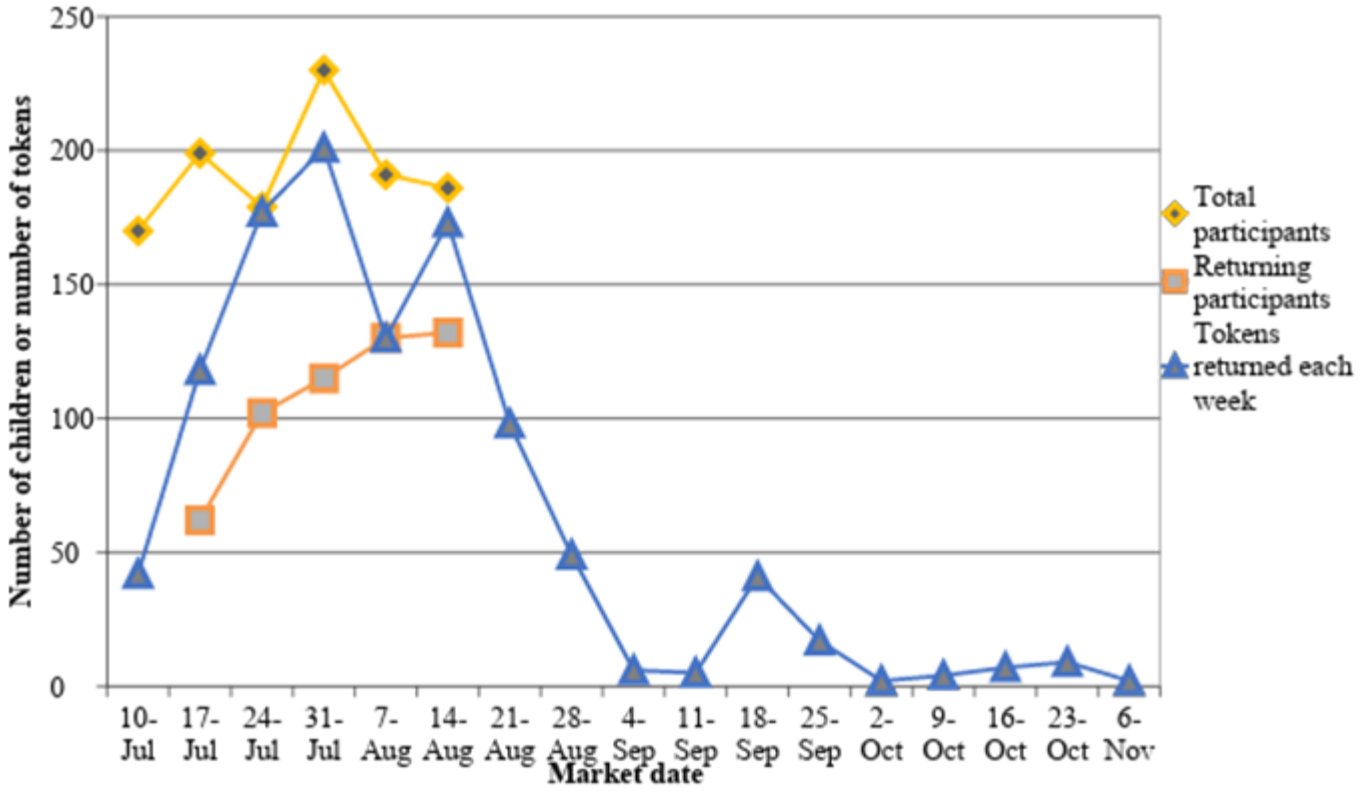
6+ years	18 (19.1%)
Average family spending at MG Farmers Market beyond $2 PoP Club token[c]	
$1 to $5	9 (9.6%)
$6 to $10	24 (25.5%)
$11 to $15	17 (18.1%)
$16 to $20	25 (26.6%)
More than $20	19 (20.2%)

[a]Means and percentages are calculated from the total number of child participants reported by parent/guardian respondents to the question. [b]Three children reported as mixed race. [c]Percentages are calculated out of the total number of parent/guardian respondents to the question.

According to PoP Club Passport data, 609 children participated in the PoP Club at least 1 week; therefore, approximately one quarter (28.1%) of PoP Club participants were represented in the survey results. As demonstrated in Figure 2, the number of returning children increased each week of the program, and weekly program participation and the number of returned tokens each week followed similar trends. Children also continued to attend the farmers' market and spend their tokens after the program ended on August 14.

Figure 2.

Weekly PoP Club Participation Tracked by Total Participants, Returning Participants, and Tokens Returned



Parent/Guardian Reports of Changes in Children's Attitudes and Behaviors

Many parents/guardians reported finding value in participating in the PoP Club program. They were asked to compare the occurrence of various attitudes and behaviors after the PoP Club to the occurrence of those attitudes and behaviors before the program. Several key findings are displayed in Table 2.

Table 2.

Parents' Reports of Changes in Children's Attitudes and Behaviors After Participation in PoP Club as Compared to Before Participation

After the PoP Club . . .	% agreed or strongly agreed (n = 94)
My children enjoy the farmers' market more	79.8%
My children help choose the F&V they buy at the market more often	74.5%
My children help to prepare the F&V we buy at the market more often	45.2%[a]
My children try more new F&V at home	51%
My children eat more F&V at home	41.4%
We attend the farmers' market more often as a family	43.6%
My family purchases more produce from the farmer's market	56.4%
My family has more F&V available at home	30.9%

Note. F&V = fruits and vegetables.
[a] n = 93.

A significant, positive correlation was found between number of weeks of participation in the PoP Club and parents' report of children's trying new F&V at home (r_S = .224, p = .035). A significant correlation was not found between number of weeks of participation and parents' report of increased F&V consumption by children at home after participation in the PoP Club. Significant relationships were found between parents' report of children's enjoyment of the farmers' market and all other attitude and behavior variables. Spearman rho correlations for these relationships are shown in Table 3.

Table 3.

Correlations Between Parents' Report of Weeks of Participation or Children's Enjoyment of the Farmers' Market and Attitude and Behavior Variables

Variable 1	Variable 2	r_S[a], p	Interpretation

Weeks of participation	Children's trying new F&V	r_S = .224, p = .035	Significant, positive correlation
Weeks of participation	Children's eating more F&V	r_S = .092, p = .389	Nonsignificant correlation
Children's enjoyment of FM	Children's choosing F&V they bought at FM	r_S = .616, p = .000	Significant, positive correlation
Children's enjoyment of FM	Children's preparing F&V they bought at FM	r_S = .422, p = .000	Significant, positive correlation
Children's enjoyment of FM	Children's trying new F&V at home	r_S = .286, p = .005	Significant, positive correlation
Children's enjoyment of FM	Children's eating more F&V at home	r_S = .369, p = .000	Significant, positive correlation
Children's enjoyment of FM	Family's attending MGFM as a family more often	r_S = .403, p = .000	Significant, positive correlation
Children's enjoyment of FM	Family's purchasing more F&V at MGFM	r_S = .452, p = .000	Significant, positive correlation
Children's enjoyment of FM	Family's having more F&V available in the home	r_S = .307, p = .003	Significant, positive correlation

Note. r_S = Spearman rho correlation; F&V = fruits and vegetables; FM = farmers' market; MGFM = Maple Grove Farmers Market.

Open-Ended Responses

Of the 82 respondents who answered the open-ended questions, 92.7% reported that their children were more interested in attending the farmers' market because of the PoP Club and that the program helped engage their children at the farmers' market. This is exemplified by the following comment: "It really gave my kids a chance to pick out something that was 'theirs.' They would be very engaged in walking around the market and looking for something to pick out instead of just following me around. It definitely made my kids more interested to go to the farmers' market." Additionally, 26.8% of respondents described the program's positive effect on their children's F&V consumption. One respondent said, "I love this idea. It was fun to have the kids make decisions about what vegetables they wanted to purchase. I think it also encouraged them to eat more since they purchased it themselves."

Discussion

The summative evaluation described herein is one of the first to explore the impact of farmers' market programs on the food-related attitudes and behaviors of children, as reported by parents. Parents reported observing changes in their families' and children's F&V-related attitudes and behaviors and farmers' market behaviors because of participation in the PoP Club; therefore, our evaluation results suggest that the PoP Club is a valuable program, worthy of continuation and replication.

Results of the evaluation also suggest that incentive programs at farmers' markets may help increase youth engagement at farmers' markets, which is consistent with the findings of Freedman et al. (2011). The majority of respondents reported that due to the program, their children enjoyed the farmers' market more and helped choose the F&V the family bought at the market more often. Furthermore, positive associations were found between parents' report of children enjoying the farmers' market and all attitude and behavior variables. These findings suggest that the more a child enjoys attending a farmers' market, the more likely he or she is to want to attend the farmers' market and take an active role in the purchasing of F&V for the family. This increased enjoyment by children may lead to increased family attendance at farmers' markets and F&V availability at home.

This potential is suggested by the high proportion of respondents who indicated that they attended MG Farmers Market as a family more often and purchased more produce from the farmers' market after participation in the PoP Club.

The goal of the PoP Club is to encourage children to try new F&V, with a long-term goal of increasing the F&V consumption of children at home. Studies have demonstrated an association between incentive programs at farmers' markets and F&V consumption (Herman et al., 2008; Jilcott Pitts, Gustafson et al., 2014; Jilcott Pitts, Wu et al., 2013; Wheeler & Chapman-Novakofski, 2014; Young et al., 2013). Although parents in our study reported that their children were trying new F&V and eating more F&V at home after the program, we did not find a significant association between number of weeks of participation and F&V consumption by children at home. Furthermore, we found only a weak positive association between number of weeks of participation and children's trying new F&V at home. These results suggest that the PoP Club may have the potential to increase F&V consumption by children but that more programming and evaluation are needed to assess its potential for increasing overall F&V consumption by children.

Limitations of the evaluation include the cross-sectional design and the self-reported nature of response to the survey, which can result in recall bias. We assessed parental perceptions of change retrospectively versus eliciting self reports of behaviors before the program and self reports of behaviors after the program that we could then compare through analysis. The evaluation also lacked a comparison group or randomization; therefore, causality that the PoP Club created the reported impacts cannot be determined. With regard to dosage, the program ran for only 6 weeks, which may not be a long enough time to measure behavior change. Lastly, only 25% of the initial sample responded to the survey, potentially biasing the results to a self-selected sample; however, this response rate is comparable to other research response rates from emailed, web-based surveys (Sax, Gilmartin, & Bryant, 2003). Future research on the PoP Club should involve stronger study designs (e.g., collection of participant baseline data, randomization or use of comparison groups, and use of mixed methods) and should be conducted on programs lasting a longer period of time or throughout a market season. Such modifications would allow the researchers to examine the long-term impacts of the PoP Club on the attitudes and eating behaviors of children, using methods that include asking questions about causality.

Implications for Extension

The PoP Club is a community-based program for helping shape the food environments of communities that may have positive implications on the eating behaviors of children and the shopping behaviors of families. Extension professionals play a crucial role in supporting the growth of farmers' markets (Abel, Thomson, & Maretzki, 1999), especially as Extension continues to emphasize policy, systems, and environmental changes to improve food access and affordability. The PoP Club is a feasible program that can be incorporated into Extension and SNAP Education efforts targeting farmers' markets.

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