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Cover Page Footnote

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Research in Brief

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Mixed Methods Evaluation of Nutrition Education for Limited Resource Audiences

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Abstract. This paper presents an exploratory evaluation of pilot nutrition education programs, Plan Shop Save Cook (PSSC). Behavior change between two nutrition education programs, Buy Eat Live Healthy (BELH; n=92 and PSSC; n=42), was examined using pre- and post-program questionnaire responses. Both programs resulted in significant improvement in food resource management (FRM) behaviors; however, there was no significant difference in the amount of change between the programs. Qualitative data suggests participants perceived label reading as the most useful information provided in the PSSC programs. The current findings suggest short-term behavior change can be achieved with a limited dose program.

INTRODUCTION

In 2019, 86.3 million Americans (26.3%) lived in a household with limited resources (U.S. Census Bureau, 2019). Families with limited resources are those with an annual income less than or equal to 185% of the federal poverty line—which determines eligibility for food assistance and nutrition education programs (Center on Budget and Policy Priorities, 2021; United States Department of Agriculture Food and Nutrition Service [USDA FNS], 2018). Adults living with limited resources are at higher risk for chronic diseases and food insecurity (Andress & Fitch, 2016; Franks et al., 2011; United States Department of Agriculture Economic Research Service [USDA ERS], 2019a). The Coronavirus (COVID-19) pandemic has amplified food insecurity in this population (Feeding America, 2020). According to Stanger (2020), one in five Americans have used a food pantry at some point since the pandemic started; half report never having used this resource prior. Research shows that food resource management (FRM) skills—such as stretching food dollars and preparing food—improve food security among those with limited resources (Hardison-Moody et al., 2015; Haynes-Maslow et al., 2020; Phelps et al., 2017).

The Expanded Food and Nutrition Education Program (EFNEP) and Supplemental Nutrition Assistance Program Education (SNAP-Ed) target those with limited resources (USDA FNS, 2018). These programs are designed to increase knowledge, skills, attitudes, and behaviors to improve diet quality and physical activity. FRM is one of the targeted behaviors for EFNEP/SNAP-Ed programming (SNAP-Ed Toolkit, 2019).

Evaluation of EFNEP/SNAP-Ed programming improves quality and ensures that programming meets the desired outcomes (i.e., improved behavior). Quantitative evaluation measures improvement in behaviors achieved by programming. Qualitative evaluation can provide insight into which program components are improving behavior. This study utilizes mixed methods, meaning that we used both qualitative and quantitative data in a single study to provide a better understanding of the research question (Tariq & Woodman, 2013). The purpose of collecting both types of data for this study was to further explore behavior change through participants' perceptions and attitudes, providing context to the documented behavior change.

Iowa Extension and Outreach offers a nine-lesson program called "Buy. Eat. Live Healthy" (BELH). BELH is adapted from a similar program at Colorado State University and the University of California at Davis called "Eating Smart • Being Active." "Plan Shop Save and Cook" (PSSC) is a four-lesson program adapted from the University of California's CalFresh Nutrition Education program. Some researchers (i.e., Contento et al., 1995) have suggested that increased dosage (in this case, number of lessons) results in a greater likelihood of behavior change. However, recent studies suggest that small changes in diet quality are frequently observed regardless of dosage (Olander, 2007). One concern

with the BELH program is the number of lessons, which likely contributes to participant attrition. Programs with fewer lessons, such as PSSC, may increase recruitment of eligible participants, decrease participant burden, and decrease attrition. The purpose of this pilot study was to determine the comparative effectiveness of PSSC and BELH of improving food- and nutrition-related behavior change.

Both PSSC and BELH address FRM, but the number of lessons specifically allocated for FRM differs (Table 1). The BELH program focuses on FRM in one of nine lessons and includes interactive food preparation during all lessons. In contrast, FRM is the sole focus of all four PSSC lessons, which also include tasting/cooking demonstrations.

This pilot study exploring FRM outcomes with the PSSC program is timely and relevant given the severity of food insecurity due to the pandemic. It explores the outcomes of the program using quantitative and qualitative methods.

METHODS

QUANTITATIVE EVALUATION

Participant Recruitment

Paraprofessional nutrition educators recruited participants in three counties in which both BELH and PSSC programs were offered. Recruitment focused on community resources that reach the desired target audience, such as food pantries and WIC clinics. All BELH data were collected between March 2018 and October 2019, and all PSSC data were collected from June 2019 to March 2020. The XXXX Human Subjects Institutional Review Board (IRB) approved and declared exempt all Protocols.

Food and Physical Activity Questionnaire

Participants completed the food and physical activity questionnaire (FPAQ) before and after their respective programs. The FPAQ asked participants to record demographics such as gender, age, ethnicity, race, and residence. Then, the survey presents 20 six- to eight-point Likert-style questions asking respondents to rank how frequently a behavior is performed. Questions belonged to one of five categories (diet quality, physical activity, food safety, food security, and FRM), and higher scores typically represent more desirable behaviors (Murray et al., 2017).

We examined the total score, component scores, and responses to individual FRM questions (n=5) of the FPAQ. We calculated the total score for pre- and post-FPAQ surveys by combining the scores of all 20 questions. We calculated component scores by adding the responses to questions in each of the five component categories. The FPAQ included six questions on diet quality, three questions on physical activity, four questions on food safety, two questions on food security, and five questions on FRM (Murray et al., 2017).

Statistical Analysis

Data analysis was conducted using SPSS (Version 26.0; Chicago, IL). For analysis and interpretation, we reversed the scores of survey responses where a lower score reflected more desirable behaviors. Paired-samples t-test compared pre- and post-program FPAQ responses. The analysis included change scores for all five component categories and the total score, calculated by subtracting the pre-survey score from the post-survey score. We used independent sample t-tests to compare change scores between programs. The level of statistical significance was set at $p<0.05$.

QUALITATIVE PROGRAM EVALUATION

Focus Group Discussion

A member of the research team conducted one focus group discussion with PSSC graduates; due to the outbreak of the COVID-19 pandemic, there was no focus group of BELH participants. The educator identified and recruited eligible PSSC participants who completed all four lessons. The research team developed and provided recruitment materials (i.e., scripts and flyer) to assist the educator. The educator recruited 10–12 participants for the focus group discussion to allow for attrition while reaching the desired six to eight participants. The educator referred recruited participants to a research team member who organized the focus group discussion. The educator did not attend the focus group discussion.

One member of the research team served as the moderator and facilitated the focus group discussion; another research team member observed and took notes. Prior to starting the discussion, the team member informed participants of the purpose of the group, selection criteria, and ground rules for participation. The research team and the PSSC program directors and coordinators constructed ten questions for the group (Figure 1). Questions focused on participants' experience and perception of the PSSC program. The focus group discussion lasted approximately 60 to 90 minutes. All participants were provided with a $25 gift card as compensation for their time.

An IRB-approved online transcription service (Rev.com; San Francisco, CA) recorded and transcribed the focus group discussion. The team removed identifiers prior to analysis. Then, four research team members reviewed the transcript to identify common themes using thematic analysis. Each research team member reviewed the transcript independently prior to meeting as a team to confirm key themes by consensus (Krueger, 1994).

RESULTS

QUANTITATIVE RESULTS

The BELH program had a 70.8% completion rate; PSSC had a 61.8% completion rate. Participants' demographic char-

Table 1. Lesson Topics by Program

BELH Lesson	Lesson Topics	PSSC Lesson	Lesson Topics
Welcome	-Introduction to the program and educators	**Planning Meals***	-MyPlate -Inventory of foods -Checking for sales -Making a grocery list
Get Moving	-Strategies to increase physical activity -Enjoying being active	**Using Food Labels***	-Changes to the "Nutrition Facts" label -Daily Values -Total and added sugar
Plan, Shop, $ave*	-Making a grocery list -Food label reading -Comparing prices -Safe handling of raw or cooked foods	**Saving Money***	-Unit pricing -Comparing brands for the lowest price -Using Coupons -Trying canned or frozen foods
Fruits & Veggies: Half your Plate	-How to increase consumption by making half your plate fruits and vegetables	**Cooking a meal***	-Food safety -Incorporating MyPlate when planning meals -Preparing a meal
Make Half your Grains Whole	-Choosing at least half your grains as whole		
Go Lean with Protein	-Choosing lean sources of protein		
Build Strong Bones	-Consuming low-fat dairy and other high calcium foods		
Make a Change	-Limiting foods high in fat, sugar, and salt		
Celebrate!	-Celebrating new knowledge and skills		

Note. * denotes lessons that focused on FRM skills.

1. To start the discussion, please share your name and how you learned about Plan Shop Save and Cook?
2. Think about the different lessons in the Plan Shop Save and Cook program.
   - Which topic or activity was the most useful to you? Why?
   - Which topic or activity was the least useful to you? Why?
3. What skills or strategies have you learned from Plan Shop Save and Cook that you have implemented?
4. Can you share a habit you have changed as a result of your participation?
5. What barriers or challenges to completing Plan Shop Save and Cook did you experience?
6. As part of this class, you set some goals. Now, that the class is over, which goals do you plan to continue?
7. What barriers or obstacles to these goals do you foresee?
   - Do you think you will be able to overcome these barriers or obstacles?
   - If so, how?
8. What do you think the Plan Shop Save and Cook program does well?
9. What do you think the Plan Shop Save and Cook program could improve on?
10. What would you tell your friends about the program?
11. "Any other thoughts about the program?

Figure 1. Focus group discussion questions.

acteristics by program appear in Table 2. Most participants were female, not Hispanic or Latino, and White. Two of the counties were classified as urban while the other county was rural (USDA ERS, 2019b). Demographics of the two groups were not significantly different, with the exception of BELH participants being younger (32.78 ± 10.50) than PSSC participants (45.10 ± 15.83) ($p<0.05$).

Participants' pre- and post-FPAQ scores by program appear in Table 3. There was no significant difference in component or total scores between the two groups pre-program. However, the research team observed significant improvement in all five component scores and total pre- and post-scores scores among BELH ($p<0.05$, $p<0.001$). Only FRM-specific and total pre- and post-scores improved significantly among PSSC participants ($p<0.05$). Independent samples t-tests of change scores suggest that BELH participants had more significant ($p<0.05$) behavior change among all components except for FRM; the team did not observe a significant difference in the amount of behavior change for FRM between programs.

Both BELH and PSSC participants (Figure 2) improved significantly ($p<0.05$, $p<0.01$, $p<0.001$) in three of the five FRM behaviors. Both programs' participants had significant improvements in "plan meals before shopping" and "make a grocery list before shopping." In contrast, BELH participants significantly improved in ($p<0.05$) "look before shopping," while PSSC participants improved ($p<0.05$) in "compare food prices to save money."

The bar graph in Figure 3 displays mean scores for individual FRM behaviors for each group (BELH and PSSC), represented by bar graphs in which scores are plotted relative to the corresponding Likert scale responses (Figure 3). These plots provide insight as to whether change in behavior resulted in a change in frequency of the behavior. For example, the Likert scale responses did not change the frequency of the behavior in the first two FRM behaviors. However, in "plans meals before shopping" the PSSC group moved from performing this behavior "rarely" to "sometimes." These graphs suggest that both groups increased the "look before shopping" and "make a list before shopping" behaviors, and both moved from "sometimes" to "often" among PSSC participants.

QUALITATIVE RESULTS

A total of six PSSC graduates participated in one focus group discussion. The research team did not hold subsequent focus groups due to the pandemic. Table 4 displays common themes and supporting quotes relative to focus group discussion questions (Figure 1). Table 4 denotes common themes related to PSSC lesson topics with superscripts corresponding to the lesson following the themes.

Table 2. Participants' Demographic Characteristics by Program

Demographic Characteristic	BELH (*n*=92)		PSSC (*n*=42)	
	Number	Percentage	Number	Percentage
*Gender**				
Female	84	91.3	36	85.7
Male	8	8.7	6	14.3
Age				
28 and younger	28	30.4	7	16.7
29 to 34	29	31.5	3	7.1
35 to 42	24	26.1	10	23.8
43 and older	11	12.0	22	52.4
Ethnicity				
Hispanic or Latino	6	6.5	1	2.4
Not Hispanic or Latino	86	93.5	41	97.6
Race				
American Indian or Alaska Native	1	1.1	0	0
Asian	8	8.7	6	14.3
Black or African American	5	5.4	3	7.1
Black or African American and White	1	1.1	0	0
White	77	83.7	33	78.6

* $p<0.05$

Table 3. Change in Nutrition, Physical Activity, and Food-Related Behaviors by Program

Questionnaire Component[1]	Program	Pre-Program		Post-Program[2]		Change Score[3]	
		M	*SE*	*M*	*SE*	*M*	*SE*
Diet Quality	BELH (*n*=91)	23.90	0.56	26.43	0.59***	2.53	0.39**
	PSSC (*n*=41)	22.95	0.92	23. 68	1.01	0.73	0.51
Physical Activity	BELH (*n*=92)	7.59	0.41	10.03	0.39***	2.45	0.33*
	PSSC (*n*=41)	8.59	0.73	9.51	0.70	0.93	0.55
Food Safety	BELH (*n*=92)	16.24	0.34	18.02	0.30***	1.78	0.28**
	PSSC (*n*=41)	16.02	0.53	16.46	0.57	0.44	0.37
Food Security	BELH (*n*=92)	8.87	0.27	9.57	0.24**	0.70	0.23**
	PSSC (*n*=42)	9.31	0.33	8.76	0.41	-0.55	0.36
Food Resource Management	BELH (*n*=91)	20.93	0.59	22.88	0.55***	1.95	0.42
	PSSC (*n* =40)	20.48	1.04	22.10	0.88*	1.63	0.66
Total Score	BELH (*n* =90)	77.82	1.38	87.14	1.31***	9.32	0.87***
	PSSC (*n*=37)	77.22	2.13	80.41	2.21*	3.19	1.47

[1] Questionaire utilizes 6- to 8-point Likert scales; lower scores suggest less-desirable behavior.
[2] Paired samples t-test pre-/post-program responses. 3Independent samples t-test change score by program.
* p<0.05, ** p<0.01, *** p<0.001.

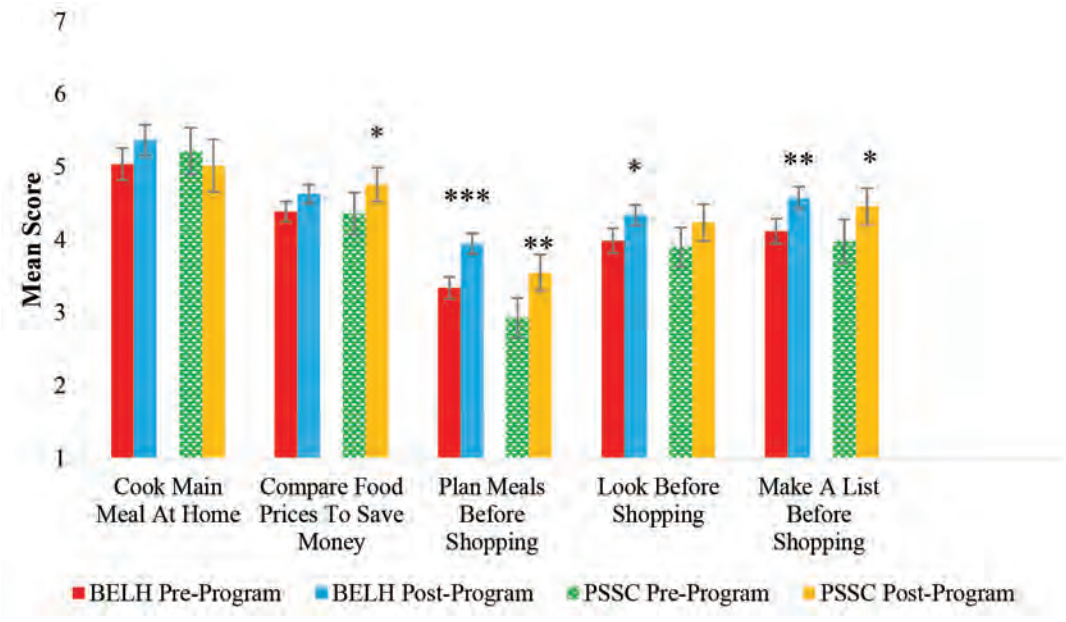

Figure 2. Change in food resource management behaviors1. Paired samples t-test mean scores were used for analysis of pre- and post-food resource management behaviors for both BELH (n=91) and PSSC (n=40) programs. [1]Questions utilize 6- and 7-point Likert Scales. * p<0.05, ** p<0.01, *** p<0.001.

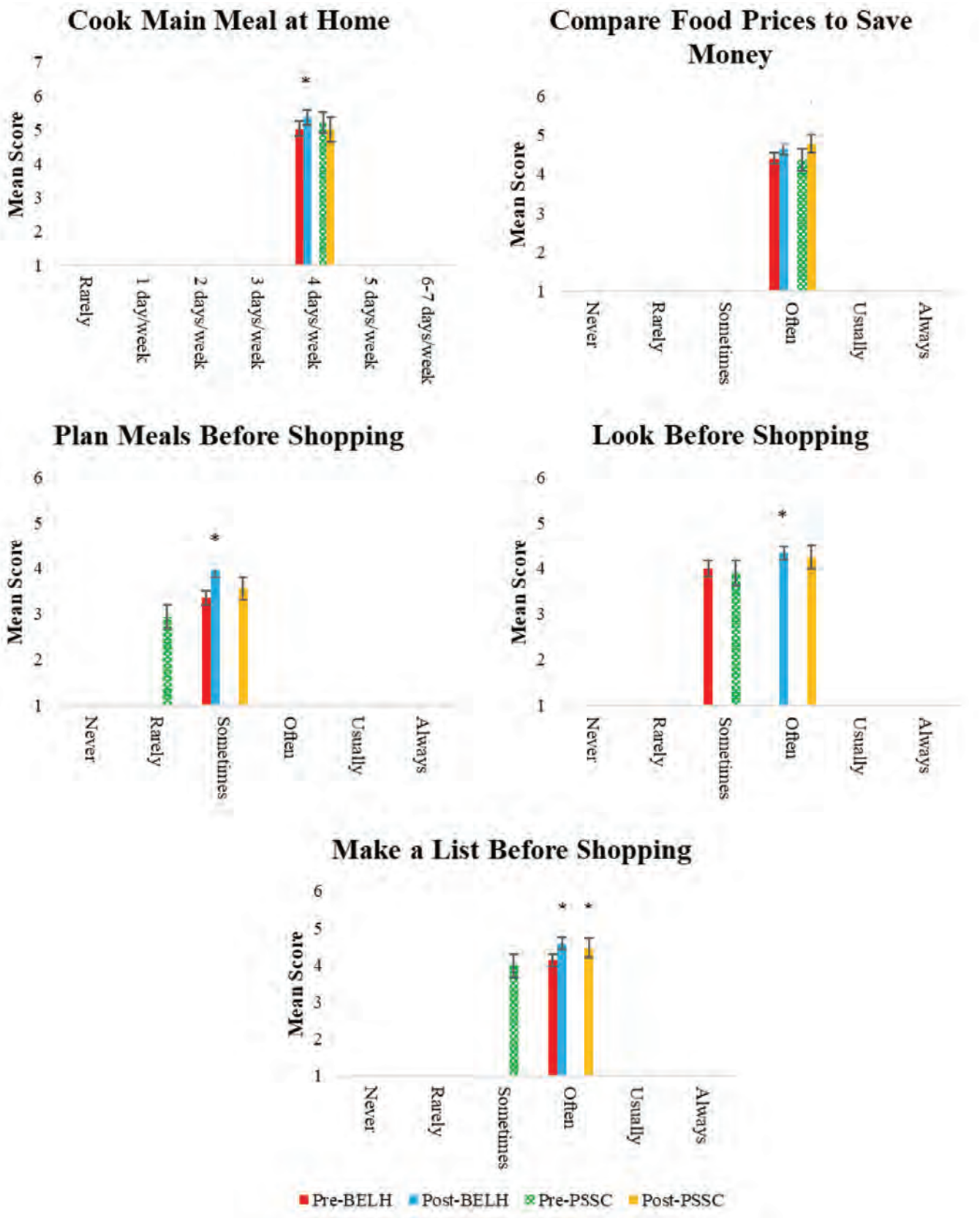

Figure 3. Change in Likert scale response for food resource management by program1. Note. The mean pre- and post-program scores were plotted according to category of frequency to determine the amount of change in frequency of food resource management behaviors. Paired samples t-tests means were used for analysis of pre- and post-behaviors for both BELH (n=91) and PSSC (n=40) programs. [1]Questions utilize 6- and 7-point Likert Scales.

Table 4. Common Themes and Supporting Quotes from Focus Group Participants

Questions	Common Themes	Supporting Quotes
Most Useful Topic/Activity	-Label reading[2] -Comparing price/brand[3] -Recipes provided	
Skills/Strategies Learned	-Food Safety[4]	*"…using the Happy Birthday song or the ABC song to wash your hands."* *"If you're going to cut your chicken, then you should wash it [cutting board] with soap and water, and then cut your vegetables."*
Changes in Habits	-Reading more labels[2] -Using weekly ads[3]	
Goals set during Participation	-Reading Labels2	*"Keep reading labels and try to eat more healthier."*
Barriers/Obstacles to Achieving Goals	-Resource limitations	*"If one grocery store is closed, where you can go during like Sundays..."*
Strategies to Overcome Goal Barriers/Obstacles	-Budgeting for the holidays -Asking family members for help	*"…budgeting with the holidays coming up…Maybe thinking about setting a little extra money aside…"* *"This winter, I might have to call one of my great nieces. During classes, she can go get my groceries, bring them here to my apartment…"* *"I get on a bus on Friday and get what I need for the weekend, so I don't have to worry about running out of..."*
Program Strengths	-Learned about freezing food[3]	
Program Improvements	-More interactive cooking -More classes	

Note. Superscripts represent lesson related to observed theme: [2]Using Food Labels lesson, [3]Saving Money lesson, [4]Cooking a Meal lesson.

Two key themes included reading labels and managing resources; both emerged among multiple focus group questions. These themes were associated with the FRM component score. Participants shared that label reading wwas the most useful topic/activity, they were reading more labels, and label reading was a behavior they planned to continue. Managing resources also emerged among multiple focus group questions and included comparing prices and brands of food items and using weekly ads.

DISCUSSION

Prior to COVID-19, there was a gradual decrease in EFNEP/SNAP-Ed participation. Between 2010 and 2018, enrollment declined by 28% and 33%, respectively (United States Government Accountability Office, 2019). The pandemic has led to a spike in unemployment (U.S. Bureau of Labor Statistics, 2020) and food insecurity (Feeding America, 2020), causing an influx of eligible participants.

In 2018, 9.7% of XXXX were food insecure. Current projections of food insecurity in XXXX counties range from 9.9% to 17.8% (Feeding America, 2020); however, a recent survey suggests that almost half of XXXX (48.5%; n=452) may be food insecure (Blinded citation for review, 2021). The pandemic underscores the need for nutrition education, specifically on topics related to FRM, to improve food security. Research shows that improvement in FRM improves food security (Hardison-Moody et al., 2015; Haynes-Maslow et al., 2020; Phelps et al., 2017).

This is one of the first studies to report outcomes in EFNEP participants using the FPAQ. We observed significant improvement ($p<0.05$, $p<0.01$, $p<0.001$) in all five FPAQ categories and total scores among BELH participants; we observed a significant improvement ($p<0.05$) in FRM and total score among PSSC participants. These results are not surprising, since the FPAQ was designed specifically to evaluate the BELH program. Furthermore, some research suggests that more lessons provide more strategies, which in turn elicits more behavior change (Havas et al., 1998). Additionally, BELH change scores were significantly greater ($p<0.05$, $p<0.001$) than PSSC change scores among four components—excluding FRM—and total score. Moreover, the smaller sample size (n=40) increased variability in standard deviations, and smaller mean change scores explain the

mostly non-significant changes in the PSSC programming. A larger sample likely would have resulted in smaller p-values; however, the strength of evidence would still have been weak to moderate compared to results from the BELH program. This was not an unexpected result, since the PSSC program is focused on food security and FRM topics. Even so, the lack of significant difference in FRM change score between programs suggests they were equally effective for this component.

Surprisingly, food insecurity among PSSC participants increased, though not significantly. In contrast, food insecurity decreased significantly ($p<0.01$) among the BELH participants. However, it should be noted PSSC data collection occurred during the winter months, when food insecurity is more common (Kaiser et al., 2003)—and during the initial stages of the COVID-19 pandemic. Additionally, the difference in age among BELH and PSSC participants may explain the differences between some results. That said, increased food insecurity with PSSC is not likely a result of the program.

Further examination of responses to the FRM questions from the FPAQ reveals significant improvement ($p<0.05$, $p<0.01$, $p<0.001$) in three of the five behaviors for both BELH and PSSC participants. However, examination of the mean change score for each question plotted by Likert-scale responses suggests more improvement in the frequency of the behaviors from pre- to post-program among PSSC participants. PSSC participants improved the frequency of performing the behavior for three of five FRM questions, whereas BELH improved frequency for just one behavior. This presentation of the data may be more pertinent for documenting behavior outcomes among the PSSC participants.

Qualitative data analysis of participants' perceptions of the PSSC program identified two key themes. Participants reported label reading and comparing brand/price as the most useful topics or behaviors. Other topics associated with managing resources—including using weekly ads, resource limitations, budgeting, and freezing food—also emerged and were combined with comparing price/brand into the common theme of resource management. Overall, qualitative results reaffirm the importance of FRM skills and strategies among PSSC participants. FRM is not a new concept in EFNEP/SNAP-Ed programming; participants have routinely reported relying on sales and considering alternative forms of foods as cost-saving strategies (Wardlaw & Baker, 2012).

EFNEP/SNAP-Ed programming has provided necessary resources during disasters and crises such as the COVID-19 pandemic (Fawcett et al., 2020). This study of FRM outcomes using a lower-dose program is timely and relevant given the severity of food insecurity during the pandemic. Findings from this pilot study suggest that similar, if not greater, improvement in FRM can be achieved with the PSSC program.

It was hypothesized that a lower dose of programming would be less burdensome and improve participant retention. Interestingly, the PSSC program experienced higher attrition (38%) than the BELH program (29%). However, half (n=13) of the PSSC attrition occurred during March 2020 and was likely due to COVID-19, as PSSC lessons were postponed and eventually moved to online delivery. In this case, the attrition was more likely a result of the pandemic than the program. Further research is necessary to determine the relationship between dose and attrition rates.

LIMITATIONS

The primary limitations of this study were differences in programs—both dose and content—and the pandemic's interference with data collection; the research team could conduct only one out of three PSSC focus group discussions. The FPAQ is explicitly intended to evaluate the BELH program, and data were self-reported. Furthermore, there was a lack of variability in the sample, so the limited sample cannot be extrapolated to other locations. Finally, short-term evaluation does not capture desired long-term behavior change.

CONCLUSION/IMPLICATIONS

This research suggests that short-term behavior change may occur with lower-dosage programming. Future research should evaluate the PSSC program and examine long-term behavior change using the evaluation tool designed for PSSC.

REFERENCES

Andress, L., & Fitch, C. (2016). Rural health inequities and the role of cooperative Extension. *Journal of Extension, 54*(3). https://archives.joe.org/joe/2016june/a4.php

Blinded citation for review, 2021.

Center on Budget and Policy Priorities. (2021). *A quick guide to SNAP eligibility and benefits.* https://www.cbpp.org/research/food-assistance/a-quick-guide-to-snap-eligibility-and-benefits

Contento, I. R., Balch, G. I., Bronner, Y. L., Lytle, L. A., Maloney, S. K., Olson, C. M., & Swadener, S. S. (1995). The effectiveness of nutrition education and implications for nutrition education policy, programs, and research: A review of research. *Journal of Nutrition Education, 27*(6), 277–418. https://www.ncbi.nlm.nih.gov/books/NBK66536/

Fawcett, J. E., Parajuli, R., Bardon, R., Boby, L., Kays, L., & Strnad, R. (2020). Tools for quickly adapting during pandemics, disasters, and other unique events. *Journal of Extension, 58*(2). https://archives.joe.org/joe/2020april/tt1.php

Feeding America. (2020). *2020 projected overall food insecurity rate.* https://www.feedingamericaaction.org/the-impact-of-coronavirus-on-food-insecurity/

Franks, P., Winters, P. C., Tancredi, D. J., & Fiscella, K. A. (2011). Do changes in traditional coronary heart disease risk factors over time explain the association between socio-economic status and coronary heart disease? *BMC Cardiovascular Disorders, 11*(28). https://doi.org/10.1186/1471–2261–11–28

Hardison-Moody, A., Bowen, S., Bloom J. D., Sheldon, M., Jones, L., & Leach, B. (2015). Incorporating nutrition education classes into food pantry settings: Lessons learned in design and implementation. *Journal of Extension, 53*(6). https://archives.joe.org/joe/2015december/a4.php

Havas, S., Anliker, J., Damron, D., Langenberg, P., Ballesteros, M., & Feldman, R. (1998). Final Results of the Maryland WIC 5-A-Day promotion program. *American Journal of Public Health*, *88*(8), 1161–1167. https://doi.org/10.2105/ajph.88.8.1161

Haynes-Maslow, L., Jones, L, Morris, L., Anderson, A., & Hardison-Moody, A. (2020). Development and evaluation of a family-based cooking and nutrition education program. *Journal of Extension, 58*(3). https://archives.joe.org/joe/2020june/rb5.php

Hoover, J. R., Martin, P. A., & Litchfield, R. E. (2009). Qualitative tools to examine EFNEP curriculum delivery. *Journal of Extension, 47*(3). https://archives.joe.org/joe/2009june/a3.php

Kaiser, L. L., Melgar-Quinonez, H., Townsend M. S., Nicholson, Y., Fujii, M. L., Martin, A. C., & Lamp C. L. (2003). Food insecurity and food supplies in Latino households with young children. *Journal of Nutrition Education and Behavior, 35*(3), 148–153. www.doi.org/10.1016/s1499–4046(06)60199–1

Krueger, R. A. (1994). *Focus Groups: A Practical Guide for Applied Research*. Sage.

Murray, E. K., Auld, G., Baker, S. S., Barale, K., Franck, K., Khan, T., Palmer-Keenan, D., & Walsh, J. (2017). Methodology for developing a new EFNEP Food and Physical Activity Behaviors Questionnaire. *Journal of Nutrition Education and Behavior, 49*(9), 777–783.e1. https://doi.org/10.1016/j.jneb.2017.05.341

Olander, C. (2007). *Nutrition education and the role of dosage*. United States Department of Agriculture Food and Nutrition Service. www.fns.usda.gov/sites/default/files/LitReview_Dosage.pdf

Phelps, J., Brite-Lane, A., Crook, T., Hakkak, R., & Fuller, S. (2017). Demonstrating impact through replicable analysis: Implications of an evaluation of Arkansas's Expanded Food and Nutrition Education Program. *Journal of Extension, 55*(2). https://archives.joe.org/joe/2017april/a2.php

SNAP-Ed Toolkit. (2019). *Food Resource Management.* https://snapedtoolkit.org/framework/index/

Stanger, T. (2020, November 2). *Hunger crisis: 1 in 5 Americans turning to food banks.* Consumer Reports. https://www.consumerreports.org/food/americans-turning-to-food-banks-during-the-pandemic/?eType=EmailBlastContent&eId=4d7b5515–7548–4ccb-a063–43922f3c193c

Tariq, S., Woodman, J. (2013). Using mixed methods in health research. *Journal of the Royal Society of Medicine Short Reports*, *4*(6). https://doi.org/10.1177/2042533313479197

United States Department of Agriculture Economic Research Service. (2019a). *Key statistics & graphics.* https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/key-statistics-graphics.aspx

United States Department of Agriculture Economic Research Service. (2019b). *Rural-urban continuum codes.* https://www.ers.usda.gov/data-products/rural-urban-continuum-codes.aspx

United States Department of Agriculture Food and Nutrition Service. (2018, March). *Supplemental Nutrition Assistance Program education: FY 2019 SNAP-Ed guidance plan.* https://snaped.fns.usda.gov/snap/Guidance/FY2019SNAPEdPlanGuidanceFULL.pdf

United States Government Accountability Office. (2019, July). *Nutrition education: USDA actions needed to assess effectiveness, coordinate programs, and leverage expertise (report to congressional requesters).* https://www.gao.gov/assets/710/700489.pdf

U.S. Bureau of Labor Statistics. (2020, October 2). *Economic news release*. https://www.bls.gov/news.release/archives/empsit_10022020.htm

U.S. Census Bureau. (2019). *POV-01. Age and sex of all people, family members, and unrelated individuals: 2019 below 200% of poverty- all races.* https://www.census.gov/data/tables/time-series/demo/income-poverty/cps-pov/pov-01.2019.html#par_textimage_30

Wardlaw, M. K., & Baker, S. (2012). Long-term evaluation of EFNEP and SNAP-Ed. *The Forum Journal, 17*(2). https://snapedtoolkit.org/app/uploads/Long-term-evaluation-of-EFNEP-and-SNAP-Ed.pdf