

# A Novel Peer Mentor Model for Nutrition Education within a Food Pantry

Tracy Lynn Oliver (✉ [tracy.oliver@villanova.edu](mailto:tracy.oliver@villanova.edu))

Villanova University <https://orcid.org/0000-0003-3809-1668>

Amy McKeever

Villanova University College of Nursing

Rebecca Shenkman

Villanova University College of Nursing

Lisa K. Diewald

Villanova University College of Nursing

---

## Research article

**Keywords:** Peer mentors, nutrition education, food insecurity, emergency food pantry

**Posted Date:** August 31st, 2019

**DOI:** <https://doi.org/10.21203/rs.2.13717/v1>

**License:** © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

---

**Version of Record:** A version of this preprint was published on July 14th, 2020. See the published version at <https://doi.org/10.1186/s40795-020-00352-9>.

# Abstract

Background: Food insecurity disproportionately affects groups of Americans and is a social determinant of health that deems one at risk for comorbidities. Food insecurity is defined as reduced access to a sufficient quantity and quality of food, which limits the variety or desirability of one's diet. Unfortunately, this hidden and silent epidemic in the United States continues to rise and is at an all-time high rate, with one in six children being affected, 13 million children and a total of 41.2 million Americans. As a result, emergency food pantries (EFPs) are challenged with the dual role of providing food to combat hunger, but also being conscious of the health concerns of their clients such as chronic illness and obesity. Methods: "Community Cooks" was a peer mentor model program implemented to deliver nutrition education, skills in basic cooking techniques, healthy eating principles, and easily prepared recipes relying on foods available within an EFP. Eleven peer mentors were recruited and trained over six months to deliver a series of live workshops open to all community members. Results: After six months, peer mentor retention rate was 85%, and qualitative focus group findings suggest that peer mentors had the desire to remain part of "Community Cooks" program. Conclusion: The use of a peer mentor model of delivering nutrition education within an EFP is a valuable and sustainable approach to target the food insecure and underserved population.

## Background

Food insecurity is defined as reduced access to a sufficient quantity and quality of food, which limits the variety or desirability of one's diet [1]. Access to healthy food is a fundamental human right, yet food insecurity remains a significant public health problem across the United States, with an estimated 41.2 million individuals experiencing some level of food insecurity [2]. Hunger, poverty, and food insecurity consequently influence individual health and well-being [3-5]. Well documented in the literature are the relationships between socioeconomic status, race, and food insecurity [6]. The consequences of food insecurity include lower economic productivity, increase in co-morbidities in adults and increased learning/developmental concerns in children [6]. Rates of food insecurity for men, women and children continue to impact many families with an estimated 9.7 million adults and 6.5 million children living in food-insecure households [7]. These families experience unreliable income and unexpected financial burdens and may not qualify for federal food assistance programs; therefore, they rely on food banks and emergency food pantries to help ends meet during these difficult times [4].

The concept of emergency food pantries (EFPs) was developed in the late 1960s in the United States and originated in a church using the support of a faith-based model to provide food and social support. The purpose of the "emergency" food pantry was to serve families on a short-term basis, however, due to more significant economic and social issues, this trend has changed, and many pantries now provide services long-term [4]. Pantries offer an invaluable source of supplemental food, at no cost, to fill the gap when other costs of living limit funds available for the purchase of food [8, 9]. Communities who are reliant on supplemental food resources are often limited in food choices, notably healthy choices. As a result, communities that rely on supplemental food have been shown to have increased rates of chronic

disease including: obesity, metabolic syndrome, cardiovascular disease, hypertension, and diabetes [1, 10-15].

Since the inception of the food pantry model 30 years ago, many EFPs have expanded their services to address the social networks and environmental triggers that influence food insecurity. These services target how to move families towards food security and self-sufficiency while continuing to provide food. As a result, many EFPs offer a comprehensive model that includes nutrition education, Meals on Wheels for seniors, summer food supplement programs for children, expanded social services as well as job training [16]. Other EFPs have implemented programming that addresses diverse needs of their communities, including catering to specific and cultural food preferences, general health and wellness care, and assistance in household and food budgeting skills [17, 18]. While there have been previous innovative nutritional education programs in the literature, gaps exist as to the best method of education delivery, and by whom, to effectively impact an EFP patron's food knowledge and healthy eating behaviors.

Peer mentors, community health promoters, and health educators are viewed as leaders in their communities and frequently used worldwide to educate and promote health. The peer mentoring recruitment process intentionally seeks out mentors who are of a similar age or have had a similar life experience to their target audience. Peer mentors who are also members of the same community, often share similar cultural beliefs, practices, and experiential knowledge that deepen a shared understanding of the challenges faced by community members [2, 19-21]. The peer mentor and mentee connection also foster relationships that an outside expert could never accomplish. Due to this unique relationship, peer mentors can be effective in many settings from academic to low-income community settings, where health education is particularly pertinent and where behavioral interventions can be measured [20, 22]. Peer mentors have also been found to be successful when appropriately trained in nutrition to deliver health and wellness information targeting children or in facilitating changes in health-related behaviors including physical activity, smoking, and condom use in both adults and in adolescents [20, 22-25]. Therefore, utilizing peer mentors to deliver health-promoting messages or nutrition education may be an innovative approach to reach underserved and economically disadvantaged populations [25].

Utilizing a peer mentoring model adapted from the concept of a community health educator within an EFP may be a key element to address health and wellness in families that suffer from food insecurity. The peer mentoring model has been identified as a significant mechanism for helping individuals (both mentor and mentee) develop a sense of purpose and belonging through a supportive relationship, and this also builds and strengthens their social networks [20]. Although peer mentors are recognized for their effectiveness in general community settings, little research has been done to determine the effectiveness of peer-led nutrition interventions in low-income populations using the EFP environment. To address this gap, we developed a nutrition education pilot program using peer mentors in a community EFP setting to teach nutrition education and basic cooking skills to their fellow community members. Titled *Community Cooks*, the purpose of this program was to develop an innovative approach of nutrition education in an EFP using a train-the-trainer peer mentor model and conducting a qualitative and quantitative program

evaluation. This paper reports on the implementation and preliminary qualitative findings of the *Community Cooks* peer mentor model program.

## **Theoretical Framework for Model Development**

The authors of this manuscript used two theoretical frameworks to support the program development and implementation: 1) Albert Bandura's Social Cognitive Theory, and 2) The Socio-Ecological Model. Using Bandura's Social Cognitive Theory (SCT), the authors theorized that having a peer mentor as a positive role model may increase good nutritional choices and decisions among EFP members [26]. Using peer mentors chosen from the MCM community to deliver healthy food choice, lifestyle and cooking information to the MCM community at large, draws on key components of SCT by infusing concepts of self-efficacy and role-modeling.

The Socio-Ecological Model has also been well established within health and wellness in terms of dietary patterns (e.g., individuals tend to model food choices and behaviors based on social interactions such as children modeling food choices after their parents) thus supporting the model's use for the *Community Cooks* program [27]. This model notes that individuals, families, and communities influence food choices, and opportunities for health promotion, and disease prevention [28]. Therefore, employing these education strategies within the target audiences' community will expand not only the reach but also the relevance to community members.

Integrating theoretical frameworks such as SCT and the Socio-Ecological Model within a peer mentoring program is supported when using curricula delivered in regularly scheduled meetings where peer mentors can receive social support, and develop mentoring skills while gaining self-efficacy and influencing behavior change within themselves and others [24, 29].

## **Methods**

### ***Setting***

XXX and Catholic Social Services (CSS) have a partnership which supported this *Community Cooks* program. Using CSS's largest EFP, Martha's Choice Marketplace (MCM) located in Montgomery County, Pennsylvania [30], MCM serves roughly 900 families each month and provides approximately 800,000 pounds of food annually. As part of the CSS Family Service Center, patrons are provided with a wide array of other empowering services including, but not limited to, job search assistance, financial literacy classes, nutritional education, and parenting classes [30]. MCM uses a choice market approach which provides families the independence to *shop* the EFP and select from the available foods to promote dignity and reduce stigma. The *Community Cooks* program was conducted from November 2017 through May 2018. Approval was obtained from the authors' university institutional review board (IRB) and the study was deemed exempt. Peer mentors were compensated for their participation.

### ***Recruitment***

Peer mentors were recruited using flyers, word-of-mouth, and direct referrals from EFP staff who had existing relationships with the MCM volunteers, pantry patrons, or as a member of the Co-Op food share program. Information sessions were also held to recruit potential participants to become mentors. Interested candidates completed a one-page application that included questions about general demographics, availability, and desire to participate in the program. These applications were reviewed by a committee of CSS, MCM and XXX staff to select candidates with leadership skills, reliability, and the ability to work well with others.

### ***Program Design***

*Community Cooks* utilized a “train-the-trainer” peer mentor model and involved nine peer mentor training sessions, and three community workshops held at the EFP (Table 1 and 2). The nine training sessions featured hands-on training and nutrition education provided by the research team with a focus on basic cooking skills, healthy eating principles, and easily prepared recipes that incorporated ingredients commonly available at the EFP. There were also three peer mentor-led community workshops held at the EFP, which allowed the peer mentors to train other pantry patrons in simple, low-cost recipes and basic healthy eating messaging (Table 1 and 2). The program was set up in a repeating sequence to host three peer mentor training sessions, immediately followed by one live community workshop. This sequence was repeated three times. Three peer mentors rotated as the leaders for the workshops. Responsibilities included facilitating the lesson, demonstrating the recipe preparation, providing samples, and answering community members questions. This rotation of peer mentors allowed each mentor an opportunity to teach in front of a live audience. The entire group of peer mentors was present for each community workshop, and the research team was also in attendance to oversee program implementation and ensure content accuracy.

### ***Measures***

Two semi-structured focus groups were conducted at the conclusion of the program to elicit feedback from the peer mentors on their perspective of having served as participants in the peer mentor model program. The focus groups were based on guiding questions and had two leaders from the research team assigned to each session (Table 3). All focus groups leaders were trained in facilitating focus groups and familiar with conducting qualitative research. The audiotapes were transcribed, and descriptive analysis was used to summarize the findings. Authors one and two independently reviewed the transcripts, they met to discuss any discrepancies and when necessary, appropriate corrections were made.

## **Results**

### ***Socio-demographic characteristics***

A total of 31 applications were received and reviewed by the CSS committee and XXX research team for potential eligibility. From the total pool of applicants, five individuals were eliminated for not meeting

inclusion/exclusion criteria (such as not being available on selected evening), a total of 15 individuals were invited to participate, 13 began the program, but only 11 participants completed the program. One subject withdrew due to personal health issues and a second subject withdrew due to transportation issues. At the conclusion of the *Community Cooks* peer mentor training program, retention rate was 85%. All the peer mentors were women over 40 years-of-age, most were high school graduates, and participated in some form of federal nutrition assistance programming (Table 3). The 11 subjects who completed the study attended an average of 92.7% of the nine scheduled training sessions (range, 80%-100%).

### ***Peer Mentor Feedback***

All the peer mentors participated in the evaluation process and reported on how the program benefited them personally as well as the impact it had upon others. General findings included: 1) they felt that the recruitment methods were effective in successfully enlisting eligible participants; 2) the information session provided an appropriate overview of the program and the participation requirements, 3) there were an appropriate number of peer mentors for the room size, the trainings, and the workshops, 4) the nutritional educational sessions were timed appropriately, 5) the nutritional educational sessions were tailored towards the lay population and included topics appropriate towards the diverse culture, health concerns, and cost concerns that are found among the peer mentors, 6) the foods included in the training sessions were appropriate as they are foods often found in MCM and are also low-cost, 7) the trainings provided the necessary cooking safety skills as well as cooking skills needed to lead a workshop for pantry patrons, 8) the trainings provided knowledge that can be used at home or in their role as volunteers or as peer mentors in MCM, 9) the trainings empowered them and provided them with knowledge and skills by which they can use at home, with their family, friends, or in future workshops, and 10) the peer group formed together and the mentor role individually, both gave them a sense of community, purpose, and camaraderie.

Focus group sessions provided peer mentor feedback from their perspective as having served as a peer mentor in the *Community Cooks* program and their feedback was overwhelmingly positive. This feedback was valuable in helping researchers understand the appropriateness of the program training, peer mentor satisfaction, and their commitment to the model. Peer mentors responded by not only sharing the benefits of the program for others at the EFP but also how the program benefitted them personally. Peer mentor comments included:

*"[The program] made it easy to want to eat healthy and learn more. I felt very at home."*

*"It was very informative, and I got a lot from the class[es]. I'm quite sure others learned a lot too."*

*"I thought the classes gave a lot of good information. I was able to share with my family, with neighbors."*

*"This program reinforced a lot of things that I knew, kind of brought back some things that I knew, and it helped me share with others. Like taking something and making it healthier and then having somebody say hey, this is really pretty good."*

Peer mentors were also asked about the format and structure of the *Community Cooks* program, including the train-the-trainer model, with nine training sessions and three community workshops. The consensus was they liked the way the *Community Cooks* program format was designed and they felt prepared for each workshop. Feedback included:

*"I think [the format] worked because it gave you more of a backbone to stand on. This way you had enough [information] under your belt that you felt confident enough to do the training instead of just one workshop, one training. You know, you had enough confidence to say okay, I know little bit about this."*

*"I think [the peer mentor model] boosted confidence level a little bit when you're going to demonstrate, [and] when you're meeting people. It helped you to communicate better [and] I think because it's not just me, it's me and [Name]."*

*"I would say that I liked how we demonstrate to people."*

*"I can do this."*

The group also spoke about how they felt more confident as peer mentors as time progressed and they were more comfortable in their role. One peer mentor shared:

*"I think that the first [workshop] we had [was] okay. But I think each one got better. I really do because everybody felt more confident than seeing the first people up there."*

Though the purpose of the *Community Cooks* program was to provide peer mentor-led nutrition education and skills to community members, the program also positively influenced many of the peer mentors' personal health habits. The majority of peer mentors shared the personal changes they made in as a result of the program, and responses included:

*"It helped me as a whole think twice before eating things that are full of salt or margarine or you can eat good without frying everything."*

*"I use less salt and I use more different seasonings."*

*"I use more like natural herbs. I've used fresh cilantro. I've used fresh garlic where before I was using the canned or the jarred. I got a chopper, and I put the garlic in it and chop the garlic up with a little bit of olive oil and cook with that. I use more olive oil. I use more olive oil than other kind of oils. I try to sweeten with honey instead of sugar."*

*"I was getting a little bit turned off by meat, so this all has taught me to experiment. I was on [to] black beans, and I was introducing them to other family members and telling them about the vitamins. I think*

*I'm being more conscious of my plate with the veggies. I am being creative. I am making my own dressing and trying different things and really introducing the veggies to the grandkids and we're trying a couple of things".*

The peer mentors noted an increase in their own cooking self-efficacy due to time spent in the training sessions with the research team. They noted that training sessions expanded their knowledge as well as their desire to experiment and try new recipes and ingredients. One peer mentor shared her newfound ease with recipe experimentation:

*"It was just like instead of a, b, and c, okay, I can add this to it, or I can add that to it and see how far I could push that envelope"*

The focus group also inquired about the peer mentors' reactions regarding the poor attendance by MCM community members noted at the community workshops. Insight included:

*"I think what the barriers are, it's a foodbank night. That's why. People have a hard time getting here anyway because they're bussing it, cabbing it, Uber-ing it, whatever. So, they have a hard time getting here anyway. Now, to get them here twice a month, oh, you done asked a lot. So, the barrier is the transportation here. The second barrier is they have their food with them. They don't want to miss out of that food because they need it."*

The peer mentors also shared ideas for future marketing to entice community members to attend, such as raffle drawings and incentives offered for workshop participation. There was consensus around the need to educate the MCM community on the benefits that workshop participation could bestow upon attendees. The peer mentors were also asked about the use of the word "workshop" and whether that word resonated with the community. Peer mentors suggested that this terminology was not ideal and contributed to the lack of community participation. One peer mentor shared: *"I think like cooking demo or something. Do away with the word workshop. A lot of people have different ideas of [what a workshop is]."* Another peer mentor reinforced this by saying community members may feel: *"[They] might feel they're getting lectured. Because usually a workshop, a lot of times you get lectured.* There was also uncertainty about the "who, what, when, why" of the workshop, which ultimately led to confusion and limited participation. Overall, the peer mentors felt that calling it 'events', 'demonstrations', or 'cooking classes' over the terminology "workshop" would be preferred.

The final focus group question asked the peer mentors for next phase ideas for the program, and they shared general thoughts about having a peer mentor presence in the EFP to help patrons with food selections. They also suggested having recipes and food samples available to provide patrons to encourage them to use unfamiliar produce items or ingredients. The peer mentors also envisioned an opportunity to provide nutrition education to patrons as they were waiting in the long lines to shop the EFP as this might be an ideal window of opportunity to capture their attention and share valuable knowledge before entering the EFP.

Another critical and noteworthy focus group finding was not just the benefit of the peer mentor model for the EFP and MCM community, but the peer mentors also discussed the positive dynamic and synergy that was created among the group of peer mentors. They shared a learned level of respect for each other and how during the training sessions they learned from one another and were then able to later share this information when they were conducting the workshops. They shared:

*"I think the group that we ended up with was a good group because we all had something to put in. We had diversity to put in from other cultures. We had age brackets. We had social brackets."*

*"We fell right in with each other."*

*"Everybody was on the maturity level and the learning level that it made it so that when somebody said something everybody's ears perked up."*

*"The group that committed themselves to [the program], we learned from each. We were able to feed off each other and broaden it."*

Peer mentors discussed how they developed a sense of belonging within the group and how they genuinely looked forward to coming to sessions and developing friendships among other peers. They described a cohesive sense of community and comradery that were beyond program expectations. This web of community created a bond among them that was unexpected to the peers themselves and to program facilitators. The peer mentors recognized that without the *Community Cooks* program, they would not have met nor created this unique connection among one another. These findings share the tangible and intangible power of a peer mentoring model.

## Discussion

Given the increasing rates of food insecurity in American communities, sustainable evidence-based, nutrition education programs delivered by peer mentors in an EFP can provide a mechanism for reaching individuals with simple healthy eating messages and skills for cooking on a budget which otherwise may not be available to these families. Using a peer mentor-led model to deliver this type of nutritional education to the broader community may be a feasible and sustainable option and one that was well received based on peer mentor feedback. Also based on feedback from the peer mentors, this educational program provided relevant and empowering information to patrons, and to the peer mentors themselves, to take charge of their health and food choices in ways that are realistic, culturally relevant, and mindful of food choices and budget. The peer mentor model has also demonstrated success in other areas of health-related education with behavior change and increased levels of knowledge and may be a key component to engage harder to reach community members [20, 22].

Feedback from our peer mentors supported the peer mentor model and *Community Cooks* program implementation. Through the focus groups, the peer mentors expressed that the program was timely, educationally appropriate, specific to the population needs, and was structured to empower them with

knowledge and skill to deliver relevant health and nutrition messages to fellow community members. The peer mentors taught the workshop participants the knowledge to choose, and then prepare, healthy foods available in the food pantry. A unique finding of the *Community Cooks* program reflected positively in the peer mentor's ability to relate to community members, but also how the program itself developed a web of community and a sense of belonging among the peer mentors that created a vested interest in the program.

### ***Academic and Clinical Partnerships***

The *Community Cooks* program benefited from the successful partnership among the research team, the EFP community site, and their host organization CSS. Clinical, academic, and community partnerships that are successful, sustainable, and committed to its mission and population served can have demonstrable impact. This program was born out of a common goal of all partners – to address the health knowledge gap within a food insecure population – and the cohesion among the partners in the development of the model and educational programming contributed to its success. Partnering with the EFP allowed our team the opportunity to utilize space to host the project, in addition to providing aid in recruitment, assisting in scheduling/or rescheduling educational program sessions as well as administrative support. When creating community-academic partnerships, consideration must be given to partnership experience, commitment to program goals and outcomes, resources, and space, and a defined delegation of roles and responsibilities to ensure successful program implementation. In this peer mentor model, peer mentors had some form of a pre-established relationship with the parent organization, which secured the trust among the mentors, and aided in mentor retention.

### ***Challenges and Lessons Learned***

Challenges and limitations relating to the peer mentor model in the EFP, as well as lessons learned both through implementation and evaluation, must be considered. The program had several limitations as it was a pilot program and was restricted to one EFP. The EFP had space limitations which impacted not only the time availability for peer mentor training sessions but also limiting the number of potential peer mentor participants. Additional limitations of the *Community Cooks* peer mentor program were that while recruitment and retention of peer mentors was successful, it was very challenging to engage the EFP and MCM community.

Hosting the live community workshops facilitated by the peer mentors proved to be challenging in achieving the desired attendance and participation outcome. An unexpected limitation that arose was related to scheduling the workshops which conflicted with the pantry hours, making it a challenge for patrons to attend the workshop and shop during the same timeframe. Workshops participation had an average of 5 patrons per session and we learned that conducting the workshops while the food pantry was open may have been an unintended barrier. Community members did not want to “give up” their spot in the EFP line to attend a workshop nor did they desire to visit the workshop upon exiting the EFP as they had their groceries and perishable items with them. These limitations and challenges will inform

future program development as finding ways to connect with the community are crucial for program success.

## Implications for Research and Practice

The social determinants of health that include zip code, socioeconomic level, and food security are not considered part of what predicts the health status of individuals who attend EFPs [31-33]. It has been well documented that food insecurity is a chronic stressor of health [34]. Food insecure individuals often consume calorie-laden foods with little fruits and vegetables since the cost is an issue, and gaps in knowledge exist on how to incorporate healthy eating from the foods obtained in EFPs [11, 35]. Many EFPs have expanded their services from supplemental food resources to now include services that recognize the connection between hunger and health and the interplay of social and environmental factors that influence food choice. There is a strong need for food and nutrition education in all venues, and EFPs provide a non-traditional setting for education in which innovation and community partners can work together [17, 18, 35, 36]. The program of using peers as leaders in pantries may be one model of connecting food insecurity and health. To sustain these efforts, EFPs must possess a vested administration and staff to identify members from their community motivated to lead and deploy nutrition education efforts throughout the EFP effectively and sustainably.

## Conclusions

*Community Cooks* was a peer-led nutrition education and healthy cooking program delivered in an EFP setting targeting a community with a high prevalence of food insecurity. The purpose of this program was to develop an innovative approach of nutrition education in an EFP using a train-the-trainer peer mentor model and conducting qualitative program feedback from the peer mentor participants. The peer mentors revealed many successes and challenges of utilizing peer mentors to deliver a nutrition education program within an EFP and these results contribute to the body of research on utilizing peer mentors in low-income communities. While further research and testing of this model are needed, this type of educational delivery can be a model for other community health providers and health personnel working in these types of community settings and EFPs. Future programs and research are still needed to explore the health impact of this program model on peer mentors as well as the patrons and community members who are the recipients of peer mentor-led nutrition education within an emergency food pantry setting.

## References

1. Holben DH, Marshall MB. Position of the Academy of Nutrition and Dietetics: Food Insecurity in the United States. *J Acad Nutr Diet*. 2017;117(12),1991-2002.
2. Longo P. Food justice and sustainability: a new revolution. *Agriculture and Agriculture Science Procedia*. 2016;8,31-36. doi: 10.1016/j.aaspro.2016.02.005.

3. Ayala A, Meier BM. A human rights approach to the health implications of food and nutrition insecurity. *Public Health Reviews*. 2017;38(10), 1-22.
4. Feeding America. Poverty and Hunger Fact Sheet 2018, May 2018. Accessed 20 August 2019. <https://www.feedingamerica.org/hunger-in-america/facts>.
5. United Nations Sustainable Development Goals Report: 17 Goals to Transform Our World. Accessed 20 August 2019. <http://www.un.org/sustainabledevelopment/hunger/>.
6. Hartline-Grafton H, Dean O. Hunger and Health: The Impact on Poverty, Food Insecurity, and Poor Nutrition on Health and Wellbeing. Washington, DC: 2017. Food Research & Action Center. Accessed 20 August 2019. <http://www.frac.org/wp-content/uploads/hunger-health-impact-poverty-food-insecurity-health-well-being.pdf>.
7. US Department of Agriculture, Economic Research Service. Food security in the US: Overview. Accessed 20 August 2019. <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/key-statistics-graphics/>
8. Campbell EC, Ross M, Webb KL. Improving the nutritional quality of emergency food: A study of food bank organizational culture, capacity, and practices. *Journal of Hunger and Environmental Nutrition*. 2013;8(3), 261-280.
9. Hardison-Moody A, Bowen S, Bloom JD, Sheldon M, Jones L, Leach B. Incorporating nutrition education classes into food pantry settings: Lessons learned in design and implementation. *Journal of Extension*. 2015;53(6).
10. Coleman-Jensen A, Rabbitt MP, Gregory CA, Singh A. Household Food Security in the United States in 2016, ERR-237. Washington D.C.: U.S. Department of Agriculture, Economic Research Services, 2017. Accessed 20 August 2019. <https://www.ers.usda.gov/publications/pub-details/?pubid=90022>
11. Leung CW, Epel ES, Ritchie LD, Crawford PB, Laraia BA. Food insecurity is inversely associated with diet quality in lower-income adults. *J Acad Nutr Diet*. 2014;114(12),1943-1953.
12. Food Research and Action Center. Why low-income and food-insecure people are vulnerable to overweight and obesity. 2018. Accessed 20 August 2019. <http://frac.org/obesity-health/low-income-food-insecure-people-vulnerable-poor-nutrition-obesity>.
13. Gregory CA, Coleman-Jensen A. Food Insecurity, Chronic Disease, and Health Among Working-Age Adults, ERR-235. 2017. Accessed 20 August 2019. <https://www.ers.usda.gov/webdocs/publications/84467/err-235.pdf?v=42942>

14. Morales ME, Berkowitz SA. The relationship between food insecurity, dietary patterns, and obesity. *Current Nutrition Reports*. 2016;5, 54–60.
15. Webb KL. Introduction–food banks of the future: Organizations dedicated to improving food security and protecting the health of the people they serve. *Journal of Hunger and Environmental Nutrition*. 2013;8(3), 257-260.
16. Houston Food Bank. Our Programs. 2018. Accessed 20 August 2019.  
<https://www.houstonfoodbank.org/our-programs/>
17. Martin K, Wolff M, Callahan K, Schwartz MB. Supporting Wellness in Pantries: Development of a nutrition stoplight system for food banks and food pantries. *J Acad Nutr Diet*. 2018;119(4), 553-559.
18. Martin K, Wu R, Wolff M, Colantonio AG, Grady J. A novel food pantry program: food Security, self-sufficiency and diet-quality outcomes. *A J Prev Med*. 2013;45, 569-575.
19. Mentor Support Network. 2019. Accessed 20 August 2019.  
<http://www.mentorsupportnetwork.com.au/>
20. Petosa RL, Smith LH. Peer Mentoring for Health Behavior Change. *American Journal of Health Education*. 2014;45, 351-357.
21. Karcher MJ, Hansen K. The SAGE Program on Applied Developmental Science: Handbook of youth mentoring: Chapter 5 Mentoring Activities and Interactions.  
Thousand Oaks, CA: SAGE Publications, 2014. Inc. doi: 10.4135/9781412996907
22. Webel AR, Okonsky J, Trompeta J, Holzemer. A Systematic Review of the Effectiveness of Peer-Based Interventions on Health-Related Behaviors in Adults. *American Journal of Public Health*. 2010;100(2), 247-253.
23. Sunguya BF, Poudel KC, Mlunde LB, Shakya P, Urassa DP, Jimba M. et al. Effectiveness of nutrition training of health workers toward improving caregivers’ feeding practices for children aged six months to two years: a systemic review. *Nutr J*. 2013;12(66).
24. Smith LH, Petosa RL. A Structured Peer-Mentoring Method for Physical Activity Behavior Change Among Adolescents. *The Journal of School Nursing*. 2016;32(5), 315-323.
25. Smith LH. Cross-age peer mentoring approach to impact the health outcomes of children and families. *Journal for Specialists in Pediatric Nursing*. 2011;16(3), 220-225.
26. Bandura A. Social foundations of thought and action: a social cognitive theory. Englewood Cliffs, N.J.:1986. Prentice-Hall.

27. Centers for Disease Control and Prevention. Division of Nutrition, Physical Activity, and Obesity. National Center for Chronic Disease Prevention and Health Promotion. 2018. Addressing Obesity Disparities: Social Ecological Model. Accessed 20 August 2019.
- [http://www.cdc.gov/obesity/health\\_equity/addressingtheissue.html](http://www.cdc.gov/obesity/health_equity/addressingtheissue.html).
28. Townsend N, Foster C. Developing and applying a socio-ecological model to the promotion of healthy eating in the school. *Public Health Nutrition*. 2011;16(6), 1101-1108.
29. Ginis KA, Nigg CR, Smith AL. Peer-delivered physical activity interventions: an overlooked opportunity for physical activity promotion. *Translational Behavioral Medicine*. 2013;3(4), 434–443. doi:10.1007/s13142-013-0215-2.
30. Martha's Choice Marketplace. 2019. Accessed 20 August 2019. [www.marthaschoicemarketplace.com](http://www.marthaschoicemarketplace.com)
31. Chen E, Miller GE. Socioeconomic Status and Health: mediating and moderating factors. *Annual Review of Clinical Psychology*. 2013;9, 723-749.
32. US Department of Agriculture, Economic Research Service. Food security in the US: Overview. Accessed 20 August 2019. <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/key-statistics-graphics/>
33. Vercammen K, Moran AJ, McClain AC, Thorndike AN, Fulay AP, Rimm EB. Food security and 10-year cardiovascular disease risk among U.S. adults. *American Journal of Preventative Medicine*. 2019;56(5), 689-697.
34. Laraia BA. Food Insecurity and Chronic Disease. *Advances in Nutrition*. 2013;4(2), 203-212.
35. Shanks CB. Promoting food pantry environments that encourage nutritious eating behaviors. *J Acad Nutr Diet*. 2017;117, 523-525.
36. Dave JM, Thompson DI, Svendsen-Sanchez A, Haughton-McNeill L, Jibaja,-  
Weiss M. Development of a nutrition education intervention for food bank clients. *Health Promotion Practice*. 2017;18(2), 221-228.

## Declarations

**Ethics Approval:** This study has received Institutional Review Board Approval and all participants were consented prior to their participation.

**Consent for Publication:** The authors consent this article is original, has not been submitted elsewhere, and provide consent for its publication.

**Availability of Data and Materials:** Data and materials are available upon request.

**Conflict of Interest/Competing Interest:** The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Funding:** The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was supported by: The Patricia Kind Foundation and The Catholic Foundation of Great Philadelphia.

**Authors' Contributions:** include study conception and design (TO, AM, RS, LD), acquisition of data (TO, AM, RS, LD), analysis and interpretations of data (TO, AM), and drafting of manuscript and critical revisions (TO, AM, RS, LD). The authors of this article have reviewed and approve the complete manuscript, have no conflict of interest to report, and provide consent for publication.

### **Acknowledgements:**

Catholic Social Services of Norristown; Susan Stier, Site Director; Patrick Walsh, Pantry Manager; Eli Wenger, Assistant Pantry Manager; and each of our peer mentor participants. Additional acknowledgements to Elizabeth B. Dowdell PhD, RN, FAAN of the M. Louise Fitzpatrick College of Nursing at Villanova University.

The manuscript with references includes 20 pages and 5436 words.

## **Tables**

**Table 1: Phase I “Community Cooks” Nutrition Education Training Program Curriculum**

Lesson	Content	Recipes
Training Session 1	Introduction & Review of Course Content Healthy vs Unhealthy Carbohydrates Portion size matters Choosing wisely-with budget in mind Cook ahead and store to save time Slow cookers-time and money saver	Whole grain recipes
Training Session 2	Budget Stretching using the My Plate Way Review of successes/foods tried Go Lean with Protein /Identifying protein foods Best value proteins/ Plant based proteins	Slow Cooker 3-Bean Chili
Training Session 3	Demonstration & Practice Cooking Session	Whole Grain Recipes Slow Cooker Recipes
Training Session 4	Vary your Vegetables Nutritional benefits Relationship to disease prevention Fresh vs Frozen vs Canned Using herbs and spices to lower sodium	Roasted Winter Squash
Training Session 5	Focus on Fruits Nutritional benefits DASH-benefits of fruit and vegetables : How to select: Seasonal fruits Canned vs Frozen	Fruit recipe
Training Session 6	Demonstration & Practice Cooking Session	Fruit Recipes Vegetable Recipes
Training Session 7	Dairy & Non-Dairy Options Health benefits: calcium, protein, vitamin D Managing lactose intolerance Freezing dairy foods to extend shelf life	Dairy & Non-diary recipe
Training Session 8	Quick and Easy Family Recipes Planning your menu ahead Recipe makeovers Preparing an All-In-One My Plate Meal	A family meal recipe

**Table 2: Phase I Community Cooks Community Workshop Curriculum**

Workshop 1	My Plate Review Whole grains and proteins Creative use of grains and proteins
Workshop 2	My Plate Review Creative use of fruits and vegetables
Workshop 3	My Plate Review Creative family meal or one pot meals

**Table 3: Phase I Community Cooks Focus Group Questions**

<p><u>Community Cooks Program-General</u>. Let's begin by talking generally about Community Cooks and what you thought about the program.</p> <ol style="list-style-type: none"><li>What did you get out of the program?</li><li>What did you like the best?</li><li>What did you like the least?</li></ol>
<p><u>Community Cooks Program-Format</u>. Now let's talk about the Community Cooks program format.</p> <ol style="list-style-type: none"><li>The format of the Community Cooks Program was to have 3 training sessions conducted followed by 1 workshop conducted by peer mentors. Did you like this format? What worked and what didn't work for you?</li></ol>
<p><u>Personal Changes</u>. Now that you have completed the Community Cooks training program, tell us about some of the personal changes that you have made.</p> <ol style="list-style-type: none"><li>How do you feel about learning to eat healthy and cook healthier now that you've gone through the program?</li><li>What are you doing differently with your food choices?</li><li>What are doing differently in food preparation?</li></ol>
<p><u>Barriers and Challenges</u>. We are aware that there are challenges and barriers to participating in a program like Community Cooks. We need your feedback to identify those challenges and to offer a program that best serves the community.</p> <ol style="list-style-type: none"><li>We struggled to get people to come to the workshops. Why do you think that happened?</li><li>How do we work around some of the barriers?</li></ol>
<p><u>Next Steps: Phase 2 Planning</u>. We're thinking about the next phase of Community Cooks and would like your thoughts as to what we should include.</p>

**Table 4: Socio-demographic characteristics of participants (n = 10; 1 missing)**

Characteristic	Number
----------------	--------

<b>Age (range in years)</b>	
40-49	4
50-59	0
60 and over	6
<b>Education Level</b>	
Less than a high-school degree	1
High school degree or GED	3
Some college, but have not graduated	3
Two-year or Four-year college degree	3
<b>Federal Food Assistance Program Participation (check all that apply)</b>	
Food Pantry	7
Free or reduced school meals	2
Head Start	2
Medicaid	6
SNAP	4
WIC	2
None reported	2
<b>Race/Ethnicity</b>	
American Indian or Alaska Native	1
Black/African American	4
White	4
Other	1