Nutrition Education in Food Pantries: Perceptions of Pantry Personnel towards Implementation

Chelsea Allison
Springfield College, callison@springfieldcollege.edu

Christopher T Sneed
csneed@utk.edu

Marissa McElrone
The University of Tennessee at Chattanooga, marissa-mcelrone@utc.edu

Kristin Riggsbee
Maryville College, kristin.riggsbee@maryvillecollege.edu

Janie Burney
jburney@utk.edu

Nutrition Education in Food Pantries: Perceptions of Pantry Personnel towards Implementation

CHELSEA ALLISON[1], CHRISTOPHER T. SNEED[2], MARISSA MCELRONE[3],
KRISTIN RIGGSBEE[4], AND JANIE BURNEY[2]

AUTHORS: [1]Springfield College. [2]University of Tennessee Knoxville. [3]University of Tennessee at Chattanooga. [4]Maryville College.

Abstract. Extension programming can be effective at delivering nutrition education to food pantry clients. This study aimed to understand the perceptions of food pantry personnel towards nutrition education. A mixed methods survey was administered to food pantry personnel (n=53). Most (62.3%) reported their food pantry was church-affiliated, and few (22.6%) reported any Extension collaboration. Qualitative themes included perceptions that nutrition education was resource intensive, clients were not interested in nutrition education, and differing attitudes towards nutrition education. When working with food pantries, Extension should educate personnel about the importance of nutrition education, offer resources, and facilitate programming.

INTRODUCTION

Food insecurity (FI), or the uncertainty or inability to acquire nutritious food for themselves and their families (Coleman-Jensen et al., 2020), was projected to rise to 50.4 million due to the coronavirus pandemic (Hake et al., 2020). Emergency food assistance programs, such as food banks and pantries, exist to help mitigate FI. Food banks are non-profit centers that safely store and distribute food to smaller food assistance programs, such as food pantries, that are local and provide food directly to clients (Waite, n.d.). Food pantries distribute free grocery items to over 15 million Americans at high risk of FI nationwide each year (Weinfield et al., 2014). Thus, food pantries may be a suitable hub to distribute additional resources to improve nutrition-related behaviors, which are often compromised among populations experiencing FI (Hanson & Connor, 2014).

Food pantries have become increasingly popular settings to implement a variety of nutrition education programming (Dave et al., 2016), ranging from direct nutrition education to policy, systems, and environmental approaches (An et al., 2019; Hardison-Moody et al., 2015; Miyamoto et al., 2006). Nutrition education is the education about food and its components for a healthful diet to support nourishment and development (Contento & Koch, 2021). The University of Tennessee (UT) Extension identified this setting as a suitable area for nutrition education programming. According to

the Intervention Mapping (IM) framework, which is a series of evidence-based steps to develop successful and effective health programming, the first step to program development is conducting a needs assessment of nutrition education programming in targeted food pantry settings. This step includes collecting information, such as the perceptions of individuals involved in programmatic decision-making at local food pantries (Majid et al., 2018). Currently, there is limited research exploring these factors with food pantry personnel (Joly et al., 2019). Thus, this study examined the perceived barriers to, and feasibility of, nutrition education implementation in food pantries among food pantry personnel.

METHODS

STUDY DESIGN

This cross-sectional design used stakeholder input and formative research to develop and implement a mixed methods survey (using qualitative and quantitative questions) at a regional food bank conference. This study was acknowledged by the Institutional Review Board at the University of Tennessee.

SURVEY DEVELOPMENT

A stakeholder committee was formed between Tennessee Extension State Specialists, Second Harvest of Tennessee (regional non-profit food distribution center), and the lead

researcher (a community nutrition intern) to bring nutrition education to the region's food pantries. The committee used the IM framework to guide program creation (Majid et al., 2018). To fulfill the first step of the IM, the committee developed and administered a mixed methods survey to food pantry personnel.

As part of formative research for the survey development, researchers conducted seven semi-structured interviews to inform the development and inclusion of appropriate survey questions with food pantry managers and directors. The interview participants revealed that little to no nutrition education was being implemented at their food pantries. They cited little client interest and limited space, time, personnel, and budgets as barriers to implementation. This information was incorporated into the survey questions and response options. The stakeholder committee finalized an 18-item survey that included questions about food pantry characteristics and quantitative and qualitative questions about nutrition education efforts, barriers, and perceptions (Figure 1).

DATA COLLECTION

Researchers administered the survey at the Second Harvest of BLINDED Agency Relations Conference in September 2019. The conference was projected to have approximately 150 attendees from food pantries in the region. Each person at the conference received a paper survey. Attendees were asked not to complete the survey if they had participated in the formative research interview to ensure there were no duplicate participants. Fifty-three surveys were either collected at the conference or mailed to the Extension office. Participants received no incentives for completing the survey.

DATA ANALYSIS

Food pantry characteristics and quantitative questions were organized in Excel and analyzed in frequencies and relative frequencies in SPSS version 26. Qualitative data analysis included three phases (Figure 2): 1) codebook development; 2) phase one coding; and 3) phase two coding (Saldaña, 2016). Two expert qualitative researchers, Researcher A and Researcher B, assisted the lead researcher in qualitative data analysis. Researcher A participated in codebook development, and Researcher B helped compare survey coding to the codebook. All three researchers participated in discussing emerging themes of the study. Inter-rater reliability was calculated to ensure adequate agreement between the lead researcher and Researcher A. A percent agreement of at least 80% and a Cohen's kappa value of 0.80 and above were the targets for a strong agreement level (McHugh, 2012). Researchers used SPSS version 26 to calculate Cohen's kappa and Excel to calculate percent agreement. An overall percent agreement of 92.0% and a Cohen's kappa of 0.804 ($p <.001$) was calculated for this study. Themes were organized and presented using direct quotes from survey participants and frequencies collected through attribute coding (Saldaña, 2016).

RESULTS

FOOD PANTRY CHARACTERISTICS

Researchers used all the surveys ($N = 53$) received in data analysis. Most participants were affiliated with a church or a non-profit organization (62% and 34%, respectively). Table 1 provides a summary of food pantry characteristics. Food pantry locations ($N = 37$ zip codes) were widespread in the region, with 23 zip codes only having one food pantry represented. The rest had multiple food pantries in one zip code (range 2–5 food pantries in one zip code). Zip codes represented urban, suburban, and rural counties and were all located within a 65-mile radius of each other.

QUANTITATIVE SURVEY RESULTS

Most survey participants reported they would consider recipe distribution (69.8%), posters (58.5%), and educational brochures (69.8%) for nutrition education (Table 2). Most participants felt their clients would welcome information on how to manage food resources (86.8%), prepare healthy foods (77.3%), and choose healthy foods (77.3%). Many survey participants (35.8%) said their clients did not ask about nutrition. Still, most wrote their clients asked how to prepare certain food items (37.7%) or manage food resources (32.1%).

QUALITATIVE SURVEY RESULTS

Three main themes about nutrition education in food pantries emerged from the open-ended survey questions: 1) perceptions that nutrition education is resource intensive; 2) clients are not interested in nutrition education; and 3) food pantry personnel have differing attitudes toward nutrition education implementation.

Theme 1: Perceptions that Nutrition Education is Resource Intensive

When asked whether their food pantries provided nutrition education, most did not offer any, and very few (n = 5) offered nutrition education daily or reported always having it available. Participants stated that reasons for not implementing education included barriers like lack of time, personnel, and funding. Participants emphasized how their agencies were already overwhelmed by the high demand of need and their main priority of providing food already stretched the resources they had. Additionally, there was a consensus that personnel (which typically are volunteers) were limited and they did not have enough money to give anything beyond the food they were already providing.

Nutrition Education Perceptions in Food Pantries

Instructions: Please provide answers or select the answer that is most applicable to your agency. Feel free to write additional responses, elaborate on answers, or write notes.	
1. How often do you provide nutrition education to your clients (e.g., cooking demonstrations, recipe cards, brochures, etc.)?	OPEN FOR TEXT
2. What are the challenges to providing nutrition education at your agency?	OPEN FOR TEXT
3. Do you feel your clients would like to receive nutrition education by your agency? Why or why not?	OPEN FOR TEXT
4. Do you think nutrition education would be effective at your agency? Why or why not?	OPEN FOR TEXT
5. If you do not already provide nutrition education, would your agency be interested in nutrition education for your clients, if provided? Why or why not?	OPEN FOR TEXT

6. What types of nutrition education would your agency be open to using, if provided? Circle the best answer.

Classes or workshops	Yes	Maybe	No
One-time cooking demonstration	Yes	Maybe	No
Recipe distribution	Yes	Maybe	No
Posters	Yes	Maybe	No
Educational brochures	Yes	Maybe	No
Social media	Yes	Maybe	No
Healthy choice signs when clients choose food (if your agency is client-choice)	Yes	Maybe	No
Additional notes or ideas:	OPEN FOR TEXT		

7. What types of nutrition education (from above) would work best at your agency, if provided? Why?

How to choose healthy foods	Yes	Maybe	No
How to prepare healthy foods	Yes	Maybe	No
How to manage their food resources so that they do not run out of food	Yes	Maybe	No
Gardening	Yes	Maybe	No
Other: _____	Yes	Maybe	No
Additional notes or ideas:	OPEN FOR TEXT		

8. Which of the following topics do your clients request information or education? SELECT ALL THAT APPLY.	☐ Nutrition (e.g., how to choose healthy food, diabetes management, etc.) ☐ Gardening ☐ How to prepare certain food items ☐ How to manage food resources so they do not run out of food ☐ Our clients do not request information or education on any of these topics ☐ Recipes to cook foods they receive ☐ Other: _____ ☐ I don't know
Additional notes:	OPEN FOR TEXT
9. Who are your average clients? SELECT ALL THAT APPLY.	☐ Children ☐ Young families ☐ Homeless individuals/families ☐ Grandparents as parents/single parents ☐ Senior citizens/elderly ☐ Other: _____
Additional notes:	OPEN FOR TEXT
10. What challenges do your clients face when choosing to eat a balanced diet (e.g., all food groups and a variety of food)?	OPEN FOR TEXT

Figure 1. Survey used during the Food Bank Conference to identify nutrition education efforts, barriers, and perceptions.

| 11. Does your agency provide information or assistance to sign up with any of the following programs? SELECT ALL THAT APPLY.	Supplemental Nutrition Assistance Program (SNAP) Women Infants Children (WIC) My agency does not provide information or assistance for these programs Other: OPEN FOR TEXT
Additional notes:	OPEN FOR TEXT
12. Has your agency worked with your local Extension office in the past (e.g., your county Extension office or SNAP-Ed program)?	Yes No I don't know
13. What kind of food distribution does your agency use to send food home with clients? Choose ONE. *"Client Choice" means that clients remove the items directly from the shelf themselves like they were "shopping" in a grocery store.*	☐ Pre-packed boxes/bags only ☐ Mix of pre-packed boxes/bags and volunteers select foods for clients ☐ Clients choose and volunteers remove (Clients select their foods, but a volunteer handles & packs food) ☐ Client Choice ONLY (Clients choose and remove ALL Foods themselves without assistance)
14. How do you provide food to your clients?	☐ Deliver food to clients ☐ Clients pick up at our location ☐ Other: _____
15. What type of institution is your agency affiliated with?	☐ Church ☐ School ☐ Non-profit organization ☐ Other: _____
16. What zip code is your agency located?	OPEN FOR TEXT
17. We are interested in learning more about your agency! If you are able to participate in a 10–15-minute interview (either by phone or in person), please provide your name and phone number below:	NAME: OPEN FOR TEXT PHONE NUMBER: OPEN FOR TEXT
18. Is there anything else you would like us to know about your agency? Please write below:	OPEN FOR TEXT

Figure 1. *(continued)*
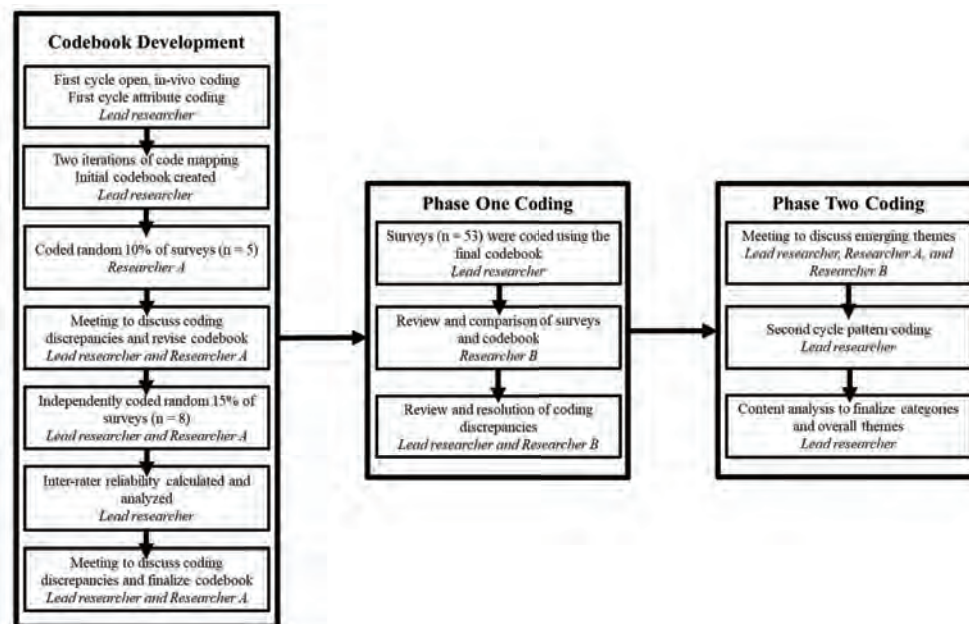
Figure 2. The three phases, associated activities, and participating researchers involved in qualitative data analysis.

Nutrition Education Perceptions in Food Pantries

Table 1. Food Pantry Characteristics Reported by Survey Respondents (N = 53)

Variable	*n*	%
Pantry Affiliation		
Church	33	62.3
School	3	5.7
Non-profit organization	18	34
Other	2	3.8
Average Client		
Children	23	43.4
Young families	32	60.4
Homeless individuals/families	33	62.3
Grandparents as parents/single parents	33	62.3
Senior citizens/elderly	41	77.4
Other	8	15.1
Food Distribution Process		
Pre-packed boxes/bags only	20	37.7
Mix of pre-packed boxes/bags and volunteers select foods for clients	15	28.3
Clients choose and volunteers remove[a]	10	18.9
Client Choice ONLY[b]	5	9.4
Other	4	7.5
Food Distribution Method		
Deliver food to clients	14	26.4
Clients pick up at our location	41	77.4
Other	8	15.1
Program Assistance or Information		
Supplemental Nutrition Assistance Program (SNAP)	16	30.2
Women Infants Children (WIC)	14	26.4
My agency does not provide assistance or information	20	37.7
Other	5	9.4
Past Extension Collaboration		
Yes	12	22.6
No	24	45.3
I don't know	13	24.5
Missing response	4	7.5

Note. Questions were select all that apply, which is why total responses are greater than the sample. a Clients select their foods, but a volunteer handles & packs food. b Clients choose and remove all foods themselves without assistance.

Table 2. Quantitative Question Answers of Survey Participants (N = 53)

Education or Information	Yes		Maybe		No	
	n	%	n	%	n	%
Types of Nutrition Education						
Classes or workshops	14	26.4	11	20.8	16	30.2
One-time cooking demonstration	16	30.2	9	17.0	15	28.3
Recipe distribution	37	69.8	8	15.1	1	1.9
Posters	31	58.5	7	13.2	3	5.7
Educational brochures	37	69.8	6	11.3	2	3.8
Social media	11	20.8	12	22.6	12	22.6
Healthy choice signs	16	30.2	7	13.2	15	28.3
Information Clients May Be Receptive To						
How to choose healthy foods	19	35.8	22	41.5	3	5.7
How to prepare healthy foods	22	41.5	19	35.8	3	5.7
How to manage food resources	33	62.3	13	24.5	2	3.8
Gardening	8	15.1	19	35.8	11	20.8

- "[Challenges to providing nutrition education are to] have the information available and even someone to talk about the information." (Church-affiliated food pantry personnel)
- "I don't believe anything other than brochures and such could be used because of our small facility." (Church-affiliated food pantry personnel)
- "Not enough staff to help cook while having other priorities." (Non-profit-affiliated food pantry personnel)

Theme 2: Clients are Not Interested in Nutrition Education

Many participants reported a perceived lack of client interest as one of the barriers to providing nutrition education in their food pantries. Some perceived that clients would not be receptive to nutrition education. They reported clients were not interested or concerned about nutrition, did not partic-

ipate in past nutrition education efforts (when offered), or lacked a desire for nutrition education. Several survey participants cited that clients were "set in their ways." Participants reported this disinterest based on previous lack of client participation in providing nutrition education (e.g., cooking classes or recipe distribution), surveying clients about their interests, or their clients' perceptions.

- "Some but few [clients] are open [to receiving nutrition education]. Many have received pantry food for so long they have little interest in nutrition. More focus on just having something to eat." (Church-affiliated food pantry personnel)

- "A lot of our clients are not very educated, so they are not willing to accept new ways or ideas. Some are also set in their ways about food. (Non-profit-affiliated food pantry personnel)

Theme 3: Food Pantry Personnel Have Differing Attitudes Toward Nutrition Education Implementation

Survey participants reported mixed attitudes toward implementing nutrition education at their respective food pantries. Some participants expressed willingness and interest, but others expressed limited or no desire due to the perceived lack of client interest and the difficulties in implementing the education. Just over half of the participants that answered the question about interest in providing nutrition education expressed they were interested.

- "I think every family is different – every situation is different, but overall – progress is progress. We celebrate every success and I think [nutrition education] would be effective." (Non-profit-affiliated food pantry personnel)

- "[Our pantry is] not [interested in nutrition education] at this time. Pantry is small and clients have been asked interest and majority not interested." (Church-affiliated food pantry personnel)

- "Yes, we would be excited for nutrition education opportunities for our clients (and also for our workers and volunteers)." (Non-profit-affiliated food pantry personnel)

DISCUSSION

This study's researchers explored the perceptions of food pantry personnel toward nutrition education in the food pantry setting. The lack of noted nutrition education implementation in this sample may be due to the perception that nutrition education is resource intensive. In addition, participants had mixed attitudes toward implementing nutrition education, and many felt their clients were not interested in nutrition education.

The first recommended step to overcome the barriers found in this study would be for Extension professionals and

paraprofessionals to form trusting partnerships with food pantries. Less than a quarter of survey participants reported that their food pantry ever collaborated with Extension. Therefore, Extension professionals and paraprofessionals need to reach out to these agencies to educate what nutrition education could entail, the benefits to clients, and ways Extension can facilitate and support nutrition education efforts. Studies have reported that food pantry leaders are interested in providing nutrition education but may be overwhelmed by their priority task of providing clientele with food (Barone et al., 2020; Hardison-Moody et al., 2015; Joly et al., 2019). However, partnering with Extension may strengthen efforts and increase success in nutrition education implementation in food pantries (Barone et al., 2020; Miyamoto et al., 2006).

Many participants reported they were interested in using passive nutrition education methods (e.g., recipe distribution or brochures) over more active methods (e.g., cooking demonstrations). Though many participants in this study felt clients had little interest in nutrition education, previous research has found that food pantry clients were concerned about obesity and diet-related diseases (Dave et al., 2016), indicating that more active methods of nutrition education may be important to clients (Champion & Skinner, 2008). Thus, a partnership between food pantries and Extension could help facilitate more resource intensive nutrition education that would benefit all parties, especially the client. There are numerous examples of how food pantries and Extension have successfully formed partnerships to bring nutrition education to clients. For example, Extension educators have partnered with farmers to increase the supply of locally grown foods available through food pantries. Family and Consumer Science (FCS) educators have conducted mini lessons at food pantries, which include lessons designed to demonstrate food preparation methods, food safety, and healthy heating tips. And, in an effort to incorporate policy, systems, and environmental change into nutrition education, Extension educators have used nudges, marketing, and product placement to encourage healthy food choices among food pantry clients (Caspi et al., 2019; Norbert et al., 2017; Miyamoto et al., 2006). A variety of interventions suitable for implementation at food pantries can be found in the SNAP-Ed toolkit (University of North Carolina [UNC] Center for Health Promotion and Disease Prevention, 2016). Utilizing the resources that Extension can provide will only help leverage the ease of nutrition education implementation in this setting, which would help address many of the barriers cited by the participants in this study.

CONCLUSION

This study provides initial IM framework information critical for developing nutrition education programming in food pantry settings. Though this research was conducted prior to the

COVID-19 pandemic, the increasing demand of emergency food assistance programs supports the need for nutrition education in these settings. By understanding that food pantry personnel may be hesitant to implement nutrition education, Extension should initially focus on building trusting partnerships among local food pantries and Extension professionals and paraprofessionals. These findings may not represent all the food pantries in this region, nor should they be considered generalizable for the US. Therefore, assessing the perceptions about nutrition education on a local level before program development may be necessary. This manuscript can be used as a guide for assessment and comparison. Regardless, educating food pantry personnel about what Extension can offer may be the first step in program implementation. This step and other recommendations will be critical to design successful nutrition education programs for food pantries.

REFERENCES

An, R., Wang, J., Liu, J., Shen, J., Loehmer, E., & McCaffrey, J. (2019). A systematic review of food pantry-based interventions in the USA. *Public Health Nutrition, 22*(9), 1704–1716.

Barone, K., Krummel, D., & Lee, S-Y. (2020). Availability of food options and nutrition education in local food pantries. *Journal of Nutrition Education and Behavior, 52*(5), 492–502.

Caspi, C.E., Canterbury, M., Carlson, S., Bain, J., Bohen, L., Grannon, K., Peterson, H., &

Kottke, T. (2019). A behavioral economics approach to improving healthy food selection among food pantry clients. *Public Health Nutrition, 22*(12): 2303–2313. https://doi.org/10.1017/S1368980019000405

Champion, V. L., & Skinner, C. S. (2008). The Health Belief Model. In Glanz, K., Rimer, B.K. and Viswanath, K. Eds., *Health behavior and health education: Theory, research, and practice* (pp. 45–96). Jossey-Bass.

Coleman-Jensen, A., Rabbitt, M. P., Gregory, C. A., & Singh, A. (2020). *Household food security in the United States in 2019* [ERR-275]. United States Department of Agriculture, Economic Research Service.

Contento, I. R., & Koch, P. A. (2021). *Nutrition education: Linking research, theory, and practice* (4th ed.). Jones & Bartlett Learning.

Dave, J. M., Thompson, D. I., Svendsen-Sanchez, A., McNeill, L. H., & Jibaja-Weiss, M. (2016). Development of a nutrition education intervention for food bank clients. *Health Promotion Practice, 18*(2), 221–228.

Eicher-Miller, H. A. (2020). A review of the food security, diet and health outcomes of food pantry clients and the potential for their improvement through food pantry interventions in the United States. *Physiology Behavior, 220*, 112871.

Hake, M., Dewey, A., Engelhard, E., Strayer, M., Harper, T. J., Summerfelt, T., Malone-Smolla, C., Maebry, T., & Gunderson, C. (2020). *The impact of the coronavirus on food insecurity in 2020.* Feeding America.

Hanson, K. L., & Connor, L. M. (2014). Food insecurity and dietary quality in US adults and children: A systematic review. *American Journal of Clinical Nutrition, 100*(2), 684–692.

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://tigerprints.clemson.edu/joe/vol53/iss6/22/

Helmick, M. J., Yaroch, A. L., Parks, C. A., Estabrooks, P. A., & Hill, J. L. (2019). Utilizing the RE-AIM framework to understand adoption of nutrition policies at food pantries across the USA. *Translational Behavioral Medicine, 9*(6), 1112–1121.

Joly, B. M., Hansen, A., Pratt, J., Michael, D., & Shaffer, J. (2019) A descriptive study of food pantry characteristics and nutrition policies in Maine. *Journal of Hunger and Environmental Nutrition, 15*(4), 1–13.

Long, C. R., Narcisse, M-R., Rowland, B., Faitak, B., Caspi, C. E., Gittelsohn, J., & McElfish, P. A. (2020). Written nutrition guidelines, client choice distribution, and adequate refrigerator storage are positively associated with increased offerings of Feeding America's detailed Foods to Encourage (F2E) in a large sample of Arkansas food pantries. *Journal of the Academy of Nutrition and Dietetics, 120*(5), 792–803.e5.

Majid, U., Kim, C., Cako, A., & Gagliardi, A. R. (2018). Engaging stakeholders in the co-development of programs or interventions using Intervention Mapping: A scoping review. *PLoS ONE, 13*(12), e0209826.

McHugh, M. L. (2012). Interrater reliability: The kappa statistic. *Biochemia Medica, 22*(3), 276–282.

Miyamoto, A., Chun, L., Kanehiro, N., & Nakatsuka, C. (2006). Food pantries: Food and nutrition education in a non-traditional setting. *Journal of Extension, 44*(1). https://archives.joe.org/joe/2006february/iw2.php

Norbert, L.W., Wilson, D. R., Just, J. S., & Wansink, B. (2017). Food pantry selection solutions: A randomized controlled trial in client-choice food pantries to nudge clients to targeted foods, *Journal of Public Health*, 39(2), 366–372, https://doi.org/10.1093/pubmed/fdw043

Saldaña, J. (2016). *The coding manual for qualitative researchers.* SAGE Publications.

University of North Carolina Center for Health Promotion and Disease Prevention. (2016). *Intervention programs SNAP-ed toolkit.* SNAP-Ed Toolkit. https://snaped toolkit.org/setting/food-pantries/?s=&post_types= toolkit-items

Waite, T. (n.d.). *What is the difference between a food bank and food pantry?* Feeding America Hunger Blog. https://www.feedingamerica.org/hunger-blog/what-difference-between-food-bank-and-food-pantry

Weinfield, N. S., Mills, G., Borger, C., Gearing, M., Maca-luso, T., Montaquila, J., & Zedlewski, S. (2014). *Hunger in America 2014: National report prepared for Feeding America.* Westat and the Urban Institute.

Wetherill, M. S., Williams, M. B., White, K. C., Li, J., Vid-rine, J. I., & Vidrine, D. J. (2019). Food pantries as part-ners in population health: Assessing organizational and personnel readiness for delivering nutrition-focused charitable food assistance. *Journal of Hunger and Environmental Nutrition, 14*(1–2), 50–69.