The Journal of Extension

Volume 61 | Number 1 Article 5

5-4-2023

Qualitative Analysis of the Expanded Food and Nutrition Education Program's 24-hour Dietary Recall

Serena M. Fuller
Cosumnes River College, fullers@crc.losrios.edu

Josh A. Phelps
University of Arkansas System Division of Agriculture, Cooperative Extension Service, jphelps@uada.edu

Susan Baker
Colorado State University, susan.baker@colostate.edu

Jennifer Walsh
James Madison University, walsh5jr@jmu.edu

Recommended Citation

Fuller, S. M., Phelps, J. A., Baker, S., & Walsh, J. (2023). Qualitative Analysis of the Expanded Food and Nutrition Education Program's 24-hour Dietary Recall. *The Journal of Extension, 61*(1), Article 5. https://doi.org/10.34068/joe.61.01.05

Qualitative Analysis of the Expanded Food and Nutrition Education Program's 24-hour Dietary Recall

Cover Page Footnote

Serena M. Fuller https://orcid.org/0000-0003-3729-3065 Serena Fuller is currently an Assistant Professor at Cosumnes River College. Josh Phelps is currently an Associate Professor at the Department of Family and Consumer Science, University of Arkansas Cooperative Extension Service. Jennifer Walsh is currently an Associate Professor in the Department of Health Professions at James Madison University. The authors would like to acknowledge the contribution of Linda Boeckner from the University of Nebraska-Lincoln, Debra Garrard-Foster from Oklahoma State University, and Payton Mahoney from James Madison University. We have no known conflict of interest to disclose. Funding was provided in part by University of Florida Institute of Food and Agricultural Sciences. Correspondence concerning this article should be addressed to Serena Fuller. Email: serena.fuller@crc.losrios.edu.

JOURNAL OF Extension

Research in Brief

Volume 61, Issue 1, 2023

Qualitative Analysis of the Expanded Food and Nutrition Education Program's 24-Hour Dietary Recall

Serena M. Fuller[1], Josh A. Phelps[2], Susan Baker[3], and Jennifer Walsh[4]

AUTHORS: [1]Cosumnes River College. [2]University of Arkansas Cooperative Extension Service. [3]Colorado State University. [4]James Madison University.

Abstract. The Expanded Food and Nutrition Education Program (EFNEP) uses a group 24-hour dietary recall (Gr24HDR) to measure changes in diet quality. Participant perceptions of the tool can guide implementation practices used by EFNEP Extension staff. Focus group (FG) sessions were conducted in five states and transcripts analyzed following a framework analysis approach. According to FG participants, a range of factors, condensed into six themes with potential interactions, influence Gr24HDR including implementation processes and community settings. Findings inform overarching considerations EFNEP staff may take when collecting Gr24HDR data in the field to improve the evaluation process for participants.

INTRODUCTION

Positive changes in diet are linked to better health outcomes, including improved blood pressure, lower rates of cardiovascular disease, and lower overall mortality rates (Ma et al., 2017; Schwingshackl et al., 2017). This correlation indicates the importance of measuring and assessing changes in diet quality. Delivered by Extension and operating in all 50 states, Washington DC, and six territories, the Expanded Food and Nutrition Education Program (EFNEP) works with low-income families to help improve diet quality and reduce health disparities associated with poor health and chronic disease (United States Department of Agriculture, National Institute of Food and Agriculture [USDA/NIFA], n.d.). Taught by paraprofessionals, EFNEP classes address nutrition practices and diet quality, physical activity, food safety, food resource management, and food security (USDA/NIFA, n.d.). A 24-hour dietary recall helps to partially assess the outcomes of this longstanding Extension program (Gills et al., 2017).

The original idea for the 24-hour dietary recall consisted of an individual interview conducted by a nutrition professional trained to ask probing questions and record dietary intake for the participant (Johnson, 2002). In EFNEP, the approach is different. The program is delivered in community settings by a paraprofessional, and participants in the group record their own dietary intake. Additionally, each program implements the tool in a way that best meets the needs of their community (Gills et al., 2017; Gills et al., 2019; Scott et al., 2007). This shift in recall practices occurred during the 1980s, when EFNEP moved to a group education model to extend its reach and implemented the paraprofessional-delivered, group 24-hour dietary recall (Gr24HDR) evaluation method (Townsend & Wilson, 2016).

A multi-state research team formed to strengthen EFNEP's evaluation methodology. Multi-state research projects allow State Agricultural Experiment Stations, Extension, participants in the private sector, and other academics to work collaboratively on projects that no one state can address alone (Western Association of Agricultural Experiment Station Directors, n.d.). Over the past decade, the multi-state workgroup—Agricultural Experiment Station multi-state research project, EFNEP Related Research, Program Evaluation and Outreach (NC2169)—undertook research to evaluate the Gr24HDR (National Information Management and Support System, n.d.).

Researchers have yet to examine one aspect of the Gr24HDR: the participants' perspectives. A clearer understanding of participants' views can guide Extension professionals in knowing where to focus Gr24HDR training and other implementation efforts. Focus group (FG) research is one way to investigate opinions and attitudes that are

not easily captured by other quantitative methods (Draper, 2004; Krueger & Casey, 2014). In this situation, qualitative methods provide context and meaning to the Gr24HDR via participant perspectives. To this end, a team from five institutions across five states (Colorado, Florida, Kentucky, Nebraska, and Oklahoma) conducted FG sessions to explore EFNEP participants' opinions of the Gr24HDR as currently implemented in the field and developed a thematic framework to inform future research and application by Extension staff and improve Gr24HDR implementation.

METHODS

STUDY DESIGN

This qualitative study was designed to enhance overall understanding of EFNEP participant perspectives and provide generalizable findings for EFNEP staff related to the Gr24HDR. The study was reflexive in that researchers' subjective knowledge and experience with EFNEP and the Gr24HDR was central to the design of the interview guide used to explore participants' perspectives of the Gr24HDR (Swift & Tischler, 2010). Researchers used inductive reasoning and coding in the sense that the findings came from the data itself, as they were not considering a set theory or hypothesis prior to analysis (Fade & Swift, 2011).

A subset of NC2169 members developed a semi-structured interview guide for use with FG participants. They submitted the guide to the full NC2169 membership for comment and made subsequent modifications to improve clarity. A group of EFNEP paraprofessionals in Kentucky tested the guide with a pilot FG session. No changes occurred as a result of the pilot. Readers can view the interview questions and probes in the appendix.

After the pilot FG, all NC2169 members were invited to participate in the study. Of the 24 members, five institutions representing five states—or 21% of members —agreed to participate and complete one or more recorded sessions. Paraprofessional training, Gr24HDR forms, and visual aids supporting the Gr24HDR varied among participating states. Moderators from Colorado, Florida, Kentucky, Nebraska, and Oklahoma with varying levels of experience conducted the FGs. In addition to the moderator, a notetaker was present during the FGs held in Colorado, Florida, Nebraska, and Kentucky. States used standardized recruitment materials and aimed to recruit enough participants who completed both an entry and exit Gr24HDR—before and after the educational series, respectively—to complete FGs with four to twelve participants.

SUBJECTS AND RECRUITMENT

Researchers recruited participants for the FGs from a convenience sample. All members of the FGs were female EFNEP-participants, and in accordance with EFNEP policy, all participants met specific income guidelines, were responsible for preparing meals for children in the home, and/or were pregnant (USDA/NIFA, 2013). All FGs were held in community sites across the five states. Participants received incentives when individual institutions had funding to provide them and did not have any Extension or university policies that disallowed their use. Three states provided grocery store gift cards as an incentive; Gift cards in Colorado were worth $25, those in Florida were worth $15, and those in Nebraska were worth $20. Kentucky and Oklahoma provided no incentives to participants.

DATA COLLECTION AND ANALYSIS

To ensure familiarity with the Gr24HDR process and maximize the potential to receive more substantive comments, FG were comprised only of EFNEP participants who completed both an entry and exit Gr24HDR. Across states, the timing between participants' exit Gr24HDR and FG completion varied from immediately following the classes to several weeks later. Data collection occurred from August 2013 through September 2015. FG organizers recorded audio of each session that was later transcribed verbatim by professional transcribers.

Data analysis followed the process of framework analysis (Rabiee, 2004). Two researchers reviewed the transcripts to familiarize themselves with the data. After this initial review, they met repeatedly via phone to identify key words for auto-coding using the qualitative data analysis software program *ATLAS.ti*™ version 7. Auto-coding allowed for a computer-based approach to identify important passages in the transcripts, which facilitated the indexing of the data after it was exported (Rabiee, 2004). A single researcher familiar with both EFNEP and the Gr24HDR then sorted, analyzed, and condensed auto-coded passages and quotations based on appearance across FGs and their perceived importance. This approach is in line with published work on participants' experiences with dietary assessment measures (Vuckovic et al., 2000). Survey coordinators developed a framework of themes to illustrate how these themes may influence participant perception of the EFNEP Gr24HDR process. The authors then presented these final themes and the framework itself to members of NC2169 for comment, with no changes recommended.

RESULTS

Researchers conducted FGs in Colorado(2), Florida(1), Kentucky(3), Oklahoma(3), and Nebraska(1), for a total of n=51 female participants with a mean of 5.2 $\pm$ 2.5 participants per focus group and range of n=3-12 participants per group. Researchers initially identified 13 themes, which they then operationalized and condensed into six main themes (Table 1). Overall, the FG participants relayed that completing the

Gr24HDR was challenging or burdensome. However, they also reported that the paraprofessionals helped them feel confident in their ability to report dietary intake. They discussed that the community settings influenced their capacity to record their food intake data and emphasized the importance of things like timing of the delivery of the Gr24HDR, form design, and verbal and visual prompts as ways to either help or hinder their ability to recall foods. They said the paraprofessionals were helpful, although some individuals conveyed challenges with specific educator delivery approaches. A few participants mentioned there were positive aspects of completing the Gr24HDR in that they gained an increased sense of awareness of their own food consumption. Table 1 contains representative quotes and summary findings.

DISCUSSION

This study revealed participants' perceptions of the Gr24HDR experience, which may provide valuable insight to EFNEP staff. Adult EFNEP participants understand the challenges of accurately recording their own dietary intake and offered ways to improve the Gr24HDR as an evaluation tool. Figure 1 presents the six themes (program environment, implementation process, educator attributes, accuracy, participant burden, and personal benefit) as factors that Extension personnel should consider when designing and implementing the Gr24HDR in community settings.

Perception of relevance is a key construct that can shape how learners orient toward a given task (Hutchinson, 2003). If participants are distracted by noise or are uncomfortable with the setting, then they might place less value on the task at hand—such as completing the Gr24HDR. Participants mentioned the program environment where the class occurred as both a distraction and benefit. Having similar food intake as other participants was a perceived benefit to completing the Gr24HDR. While EFNEP does not offer meals, classes may be offered with partners who offer meals or in settings in which congregate or shared meals may occur, such as vocational training sites. In turn, this may improve the Gr24HDR process. Paraprofessionals may exercise some control over certain aspects of the environment but not others. For example, they might regulate the number of individuals but may not be able to modify the physical space. Where possible, EFNEP staff should assess class size and space when conducting the Gr24HDR to reduce distractions.

Participants also described many elements of the implementation process as factors that influenced their ability to recall food, including ingredients and amounts. For example, probing questions asked by the interviewer are a key feature of the individual 24-hour dietary recall (Thompson & Subar, 2017); participants reported this probing procedure as helpful in improving the confidence with which they can recall specific foods they've eaten. Some respondents mentioned that visual aids were useful to remember the amount of something they ate. While the study design did not allow for specific implementation process recommendations, the findings should encourage EFNEP managers to refer to best practices in evaluation methods for similar Extension audiences (Townsend et al., 2014; Townsend et al., 2008). Additionally, investigations into novel implementation processes for the Gr24HDR with similar audiences are underway. A pilot study exploring an educator-assisted, automated deliv-

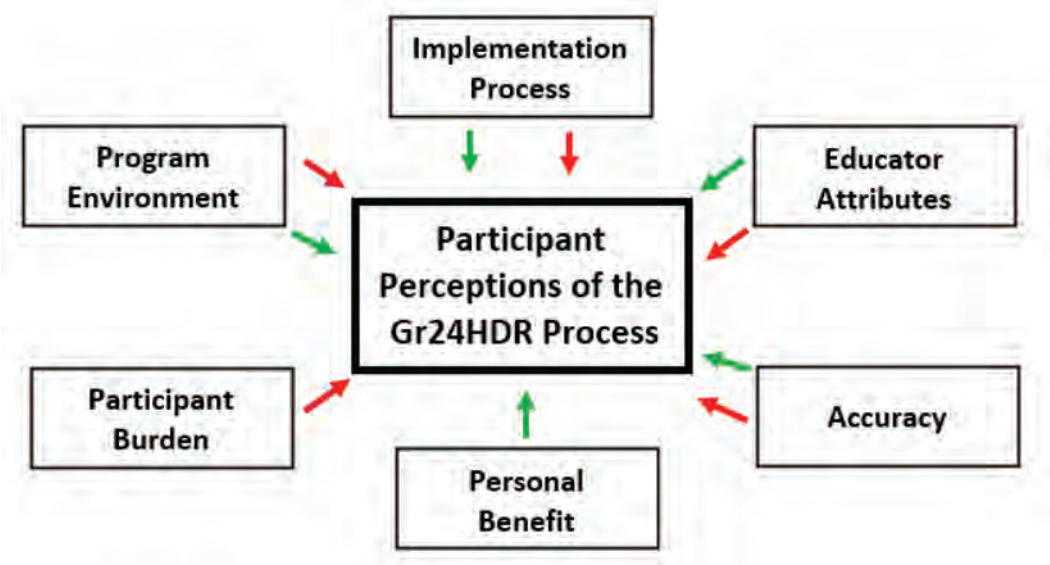

Figure 1. Influencers on participant perceptions of the Gr24HDR process. Six themes are presented as influencers (positive and/or negative) on participant perceptions of the Gr24HDR process.

Table 1. Themes, Summary Findings, and Representative Quotes

Theme	Finding	Quotes
Program environment Identified as discussion of the physical space and location of where the Gr24HDR was delivered and the dynamics of the class participants.	Participants expressed concern about the influence of the location on their ability to accurately recall and record their food intake data. Topics ranged from the physical space to other distractions, including other people in the room. Participants also conveyed that specific class attributes like sharing meals, such as in congregate meal sites, positively influenced their ability to complete the tool.	• "Another thing is we were sitting on the couch, we would have probably paid more attention if we were sitting at a table like in a classroom." (Oklahoma participant L2-P9) • "you know the group is kind of large sometimes" (Oklahoma Participant L1-P2) • "the food recall part of it was really easy because we all ate the same thing and we could all just remember together what we all ate." (Nebraska participant La)
Implementation process Identified as dialogue about the execution of the tool and wide-ranging suggestions for process improvement.	Participants highlighted aspects of the Gr24HDR's implementation process that may affect their ability to complete the Gr24HDR. Topics included oral instructions and probes used by the paraprofessionals, the usage and type of props or other support materials, and visual qualities or layout of the Gr24HDR form as either a benefit or a barrier to completion.	• "The visual aids did help." (Colorado Participant BH-Ra) • "Our instructor went back and she said okay can you remember what you guys had for supper, did you have a snack last night, what did you have for supper. So she just went from the most recent back with us and that kind of helped us all jog our memory." (Nebraska participant A) • "a video would have been a whole lot easier and more precise because there were pauses in the presentations that caused me to make a couple of mistakes and I believe a video would have been better." (Oklahoma participant L2-P6) • "I though(t) this looked simple, not too hard to write down. The lines were too close. I write big." (Kentucky participant MC-S)
Educator attributes Identified as feedback about personal educator attributes related to the delivery of the Gr24HDR.	Some participants conveyed that they felt supported through the process by paraprofessionals, which was seen as positive. Yet other participants relayed challenges with the educator's personal delivery, including low voice volume and a desire for increased instruction to complete the Gr24HDR.	• "No pressure, just encouraging about if you didn't remember." (Colorado participant BH-Ma) • "Very helpful, rewards us for little things that we do, she explains it well to us." (Kentucky participant JC-7) • "She was very clear." (Florida participant Ma) • "I guess I feel like it should be more you know, she should speak to us more explained it to us more." (Oklahoma participant L1-P6)

Table 1. (*continued*)

Theme	Finding	Quotes
Accuracy Operationalized as the confidence participants conveyed in their ability to recall specific amounts of foods and beverages and their ingredients.	Participants shared their challenges in recalling specific amounts of ingredients in foods. Yet participants also stated confidence in their ability to accurately recall what they ate, including amounts and ingredients depending on the type of food.	• "A small apple or medium and we have an idea, most people know a medium size apple is" (Florida participant Pe) • "I wasn't real sure I didn't know on the second one she (paraprofessional) was talking about salt and pepper that we were supposed to write down that we put salt and pepper on our food" (Oklahoma participant L1-P3) • "if someone else is cooking for you know, it's hard to know how much you had of everything." (Kentucky participant CC-1) • "It was trying to figure out, okay how much dairy, how much wheat and all that was in just the one portion." (Nebraska participant Ag)
Personal benefit Identified as the perceived use or satisfaction participants shared when reflecting upon completion of the Gr24HDR (and particularly the exit Gr24HDR).	Participants discussed positive aspects of completing the Gr24HDR, including an increased sense of awareness of their own food consumption. For one participant, the Gr24HDR also served as a time to reflect upon positive food intake changes made over the course of the program.	• "It brought a certain awareness in us subconsciously. To a point that I think we all became more aware of what we ate everyday." (Colorado participant Me) • "It was good, I didn't realize how much bad stuff I was eating until she actually asked me to write down in the last 24 hours what did I eat." (Oklahoma participant OKC-P10) • "…but then the one we did with the exit one, thank goodness I saw a lot of difference because I'm practicing and learning to eat differently." (Florida participant Li)
Participant burden Defined as points of discussion where FG participants expressed their general feelings about the challenges of completing the Gr24HDR not related to the recall of specific amounts or ingredients of foods and beverages.	Participants expressed their general feelings about the challenges of completing the Gr24HDR not related to the recall of specific amounts or ingredients of foods and beverages. Often, completing the Gr24HDR was characterized as hard, alluding to cognitive load demands.	• "…I know for me it was kind of discouraging when I couldn't really remember everything and it really made me kind of not want to..." (Nebraska participant D) • "It's hard to remember, when you're real busy." (Kentucky participant CC-P1)

ery of the 24-hour dietary recall reported positive outcomes (Kirkpatrick et al., 2019). Along with referencing published research, program organizers should encourage EFNEP staff to consult with participants and paraprofessionals to evaluate their own implementation processes—including the use of props and aids and form design choices—that can provide the most value for their specific programs.

Previous research identified the influence of nutrition educators themselves on knowledge and behavior change outcomes of participants (Dickin et al., 2005; Hoover et al., 2009). EFNEP policy strives to provide this influence around nutrition education via their audience's peers (USDA/NIFA, 2013). Paraprofessionals are typically indigenous to the community they serve and employed to improve the nutritional health and well-being of EFNEP families (USDA/NIFA, 2017). Many participants commented that the paraprofessionals' approach was coach-like and non-intimidating; however, participants also relayed other attributes—including voice quality and lack of presence as an authority figure—as potential barriers to optimal completion of the Gr24HDR. These negatively-contributing factors (low voice volume, lack of presence as a class leader, and other classroom management techniques) may be addressed through paraprofessional educator trainings and in-services.

The reliability and validity of evaluation tools is imperative to accurately assess program outcomes while still respecting the nature of Extension programming (Mullins et al., 2015). There are statistical methods that researchers can employ to improve confidence in population-level 24-hour dietary recall findings (Dodd et al., 2006). These methods may currently be impractical, given the various approaches used by states to implement the Gr24HDR and the general lack of publications on the validity of the Gr24HDR (Gills et al., 2017; Gills et al., 2019; Scott et al., 2007). While this qualitative study did not test the reliability and validity of the tool, it does provide insight that future quantitative investigations should consider. For example, FG members recognized the challenges of recalling dietary intake over a 24-hour period; this recognition demonstrated a focus on the cognitive demand of recalling portion sizes and easily-forgotten ingredients (i.e., salt). Yet FG participants also conveyed that with support, they had confidence in their ability to accurately recall amounts of and ingredients in foods.

Just as some FG members described the tool as hard to use, others relayed a personal benefit from completing the Gr24HDR. Across FGs, participants mentioned their increased awareness of their diet after using the tool. The literature supports this observation, and the documentation of food intake and an awareness of eating habits are an established method for improving dietary behaviors (Yu et al., 2015). This finding should encourage Extension managers to emphasize to paraprofessionals the perceived benefits of completing the Gr24HDR.

Another consideration in program evaluation is participant burden (Payne & McDonald, 2012). Extension personnel may balance the assessment of programs' impacts with an individual's encumbrance of program participation. The FGs revealed that the Gr24HDR was hard to complete because it required a high cognitive load. Importantly, there are approaches, like using images and repetition, that EFNEP providers can take to reduce cognitive load during the evaluation process (Thompson & Subar, 2017).

LIMITATIONS

Overall, the subjective design and inductive reasoning-based approach of this qualitative study cannot test the relative importance or statistical significance of the themes and their impact on the quality or value of the Gr24HDR. As such, we propose that those should be areas of future research. In addition, the internal validity of this study was limited by participant selection bias and use of a convenience sample. The study does not fully represent all EFNEP regions. The FGs were timed to be held after the second Gr24HDR, which is at the end of the educational program. While all participants had completed two recalls prior to participating in the FG, the time between the second recall and the FG was not standardized. Because of this, it is possible that the timing and therefore memory of the Gr24HDR influenced subject responses. There is also the possibility that providing incentives for participants impacted EFNEP program geographic representation and as such, FG member representation. In addition, the incentives or lack thereof might have impacted participant feedback. We are unable to directly assess the impact of the incentives on the geographic representation of the results, as we did not collect metadata about why certain states opted in or out of study participation. Additionally, external validity of this work could potentially be affected by the community settings where EFNEP FGs were held. These situational specifics cannot be controlled for and may include things like the presence of a vending machine on the premises, local public health campaigns occurring separate from EFNEP, other nutrition marketing materials, WIC education received by participants, or other factors.

IMPLICATIONS FOR EXTENSION

The study design and data, while older, still mimics EFNEP's Gr24HDR in the field as different Extension services execute the tool in various ways and work with distinct populations. From this work, staff takeaways include the following:

1. EFNEP managers maintain awareness of the interaction amongst and between themes and seek input from participants and paraprofessional educators when making changes to their Gr24HDR procedures.
2. Where possible, optimize physical environments by being mindful of lighting, noise and visual distractions, group size, seating, and room configurations.
3. Staff may enhance the consistency of Gr24HDR implementation practices through paraprofessional training (train, retrain, observe), form design updates, the inclusion of scripts/outlines with prompts (forgotten ingredients, condiments, etc.), and effective visual aids and props for assistance in recalling amounts of food and beverages.
4. Routinely address educator attributes that may help or hinder the Gr24HDR process through training and field observations.
5. Acknowledge to paraprofessionals that while recalling amounts of ingredients in foods is challenging, FG participants expressed confidence in their ability to accurately recall foods with appropriate support and guidance.
6. Highlight the potential for personal benefits to participants when they complete the exit Gr24HDR and see improved dietary changes.

7. Offer additional time, alternative formats, or assistive techniques for participants who express difficulty when completing the Gr24HR to reduce participant burden.

8. Further Extension research on the Gr24HDR can include assessing differences between participant perspectives between entry and exit recalls, assessing regional differences in program reflections, identifying necessary training efforts for specific programs, and quantifying how changes in the implementation process influence reliability and validity of the Gr24HDR. Importantly, any quantitative work should be informed by EFENP participants' voices, such as those reported here.

REFERENCES

Dickin, K. L., Dollahite, J. S., & Habict, J. P. (2005). Nutrition behavior change among EFNEP participants is higher at sites that are well managed and whose front-line nutrition educators value the program. *The Journal of Nutrition, 135*(9), 2199–2205. https://doi.org/10.1093/jn/135.9.2199

Dodd, K. W., Guenther, P. M., Freedman, L. S. Subar, A. F., Kipnis, V., Midthune, D., Tooze, J. A., & Krebs-Smith, S. M. (2006). Statistical methods for estimating usual intake of nutrients and foods: A review of the theory. *Journal of the American Dietetic Association, 106*(10), 1640–1650. https://doi.org/10.1016/j.jada.2006.07.011

Draper, A. K. (2004). The principles and application of qualitative research. *Proceedings of the Nutrition Society, 63*(4), 641–646. https://doi.org/10.1079/pns2004397

Fade, S. A., & Swift, J. A. (2011). Qualitative research in nutrition and dietetics: Data analysis issues. *Journal of Human Nutrition and Dietetics, 24*(2), 106–114. https://doi.org/10.1111/j.1365-277X.2010.01118.x

Gills, S. M. H., Auld, G., Hess, A., & Baker, S. (2019). Similar 24-hour dietary recall results from low-income women when collected by a paraprofessional nutrition educator or registered dietitian nutritionist. *Journal of the Academy of Nutrition and Dietetics, 119*(3), 500–506. https://doi.org/10.1016/j.jand.2018.08.168

Gills, S. M. H., Baker, S., & Auld G. (2017). Collection methods for the 24-hour dietary recall as used in the Expanded Food and Nutrition Education Program. *Journal of Nutrition Education Behavior, 49*(3), 250–256. https://doi.org/10.1016/j.jneb.2016.10.009

Hoover, J. R., Martin, P. A., & Litchfield, R. E. (2009). Evaluation of a new nutrition education curriculum and factors influencing its implementation. *Journal of Extension, 47*(1). https://tigerprints.clemson.edu/joe/vol47/iss1/3/

Hutchinson, L. (2003). Educational environment. *BMJ, 326*(7393), 810–812. https://doi.org/10.1136%2Fbmj.326.7393.810

Johnson, R. K. (2002). Dietary intake—How do we measure what people are really eating? *Obesity Research, 10*(s1), 63S–68S. https://doi.org/10.1038/oby.2002.192

Kirkpatrick, S. I., Guenther, P. M., Douglass, D., Zimmerman, T., Kahle, L. L., Atoloye, A., Marcinow, M., Savoie-Roskos, M. R., Dodd, K. W., & Durward, C. (2019). The provision of assistance does not substantially impact the accuracy of 24-hour dietary recalls completed using the Automated Self-administered 24-h Dietary Assessment Tool among women with low incomes. *The Journal of Nutrition, 149*(1), 114–122. https://doi.org/10.1093/jn/nxy207

Krueger, R. A., & Casey, M. A. (2014). *Focus groups: A practical guide for applied research* (5th ed.). Sage Publications.

Ma, C., Avenell, A., Bolland, M., Hudson, J., Stewart, F., Robertson, C., Sharma, P., Fraser, C., & MacLennan, G. (2017). Effects of weight loss interventions for adults who are obese on mortality, cardiovascular disease, and cancer: Systematic review and meta-analysis. *BMJ, 359*, j4849. https://doi.org/10.1136/bmj.j4849

Mullins, J., Chapman-Novakofski, K., Franck, K., Olson, B., Serrano, E., Townsend, M. S., & Wong, S. S. (2015). Food and nutrition Extension programs: Next generation impact evaluation. *Journal of Extension, 53*(4). https://tigerprints.clemson.edu/joe/vol53/iss4/10/

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. https://doi.org/10.1016/j.jneb.2017.05.341

National Information Management and Support System, Multistate Research and Activities. (n.d.). *NC2169: EFNEP Related Research, Program Evaluation and Outreach*. Retrieved November 19, 2020 from https://www.nimss.org/projects/view/mrp/outline/15197

NIFA Program Leadership. (2013). *The Expanded Food and Nutrition Education Program policies*. United States Department of Agriculture. Retrieved May 10, 2020 from https://nifa.usda.gov/sites/default/files/program/EFNEP%20Program%20Policies%20(onscreen%20version).pdf

Payne, P. B. & McDonald, D. A. (2012). Using common evaluation instruments across multi-state community programs: A pilot study. *Journal of Extension, 50*(4). https://tigerprints.clemson.edu/joe/vol50/iss4/19/

Rabiee, F. (2004). Focus-group interview and data analysis. *Proceedings of the Nutrition Society, 63*(4), 655–660. https://doi.org/10.1079/PNS2004399

Schwingshackl, L., Schwedhelm, C., Hoffmann, G., Knüppel S., Iqbal, K, Andriolo, V., Bechthold, A., Schlesinger, S., & Boeing, H. (2017). Food groups and risk of hypertension: A systematic review and dose-response meta-analysis of prospective studies. *Advances in Nutrition, 8*(6), 793–803. https://doi.org/10.3945/an.117.017178

Scott, A. R., Reed, D. B., Kubena, K. S., & McIntosh, W. A. (2007). Evaluation of a group administered 24-hour recall method for dietary assessment. *Journal of Extension, 45*(1). https://tigerprints.clemson.edu/joe/vol45/iss1/12/

Swift, J. A., & Tischler, V. (2010). Qualitative research in nutrition and dietetics: Getting started. *Journal of Human Nutrition and Dietetics, 23*(6), 559–566. https://doi.org/10.1111/j.1365-277X.2010.01116.x

Thompson, F. E., & Subar, A. F. (2017). Dietary assessment methodology. In Coulston, A., Boushey, C., Ferruzzi, M., & Delahanty, L. (Eds.), *Nutrition in the Prevention and Treatment of Disease* (pp. 5–48). Academic Press.

Townsend, M. S., Ganthavorn, C., Neelon, M., Donohue, S., & Johns, M. C. (2014). Improving the quality of data from EFNEP participants with low literacy skills: A participant-driven model. *Journal of Nutrition Education and Behavior, 46*(4), 309–314. https://doi.org/10.1016/j.jneb.2013.10.004

Townsend, M. S., Sylva, K., Martin, A., Metz, D., & Wooten-Swanson, P. (2008). Improving readability of an evaluation tool for low-income clients using visual information processing theories. *Journal of Nutrition Education and Behavior, 40*(3), 181–186. https://doi.org/10.1016/j.jneb.2007.06.011

Townsend, M. S., & Wilson, M. (2016). *Validity of the group-administered 24-hour diet recall as used by EFNEP* [White paper]. University of California Cooperative Extension and University of Nevada Cooperative Extension. https://www.nimss.org/system/ProjectAttachment/files/000/000/091/original/24HDR.EFNEP.White.Paper.NOV2016.pdf

United States Department of Agriculture, National Institute of Food and Agriculture. (n.d.). *Expanded Food and Nutrition Education Program*. Retrieved November 19, 2020 from https://nifa.usda.gov/program/expanded-food-and-nutrition-education-program-efnep

United States Department of Agriculture, National Institute of Food and Agriculture. (2017). *Expanded Food and Nutrition Education Program (EFNEP) paraprofessional supervision: Crucial components for program success* [White paper]. https://nifa.usda.gov/sites/default/files/resource/EFNEP-Supervision-White-Paper-2.15.17.pdf

Vuckovic, N., Ritenbaugh, C., Taren, D. L., & Tobar, M. (2000). A qualitative study of participants' experiences with dietary assessment. *Journal of the American Dietetic Association, 100*(9), 1023–1028. https://doi.org/10.1016/S0002-8223(00)00301-1

Western Association of Agricultural Experiment Station Directors. (n.d.) *Multistate research*. Retrieved November 19, 2020, from https://www.waaesd.org/multistate-program

Yu, Z., Sealey-Potts, C., & Rodriguez, J. (2015). Dietary self-monitoring in weight management: Current evidence on efficacy and adherence. *Journal of the Academy of Nutrition and Dietetics, 115*(12), 1931–1938. https://doi.org/10.1016/j.jand.2015.04.005

APPENDIX. INTERVIEW GUIDE

Focus Group Questions
• How do you think participating in EFNEP has helped you? Your family?
• What did you think about the 24-Hour Food Recall process?
• How clear was the educator at guiding you through the 24-Hour Food Recall? What are some of the reasons you think this?
• We would like participants to be able to read forms easily. How could we make this form better? How clear were the instructions for filling out the form? What are some of the reasons you think this?
• How closely did the foods you listed match your usual, day-to-day foods eaten? Are the foods you listed at the time of the recall the sort of foods you usually eat?
• The recall really has two parts- remembering the foods you ate and remembering the amounts. How well do you think you did in remembering the amounts? What did the educator do to help you with remembering how much you had?
• How well did you remember all the foods you ate? What did the educator do to help you with recalling what you ate?
• After the class, did you think of some other foods that you forgot to put on the recall? What might have helped you remember them?
• How would you change the recall process? What parts of the process did you like? What parts of the process did you not like?
• What else would you like to share about doing the 24-Hour Food recall that we have not talked about yet?
• To Assistant Moderator: Are there any questions or topics we missed? Are there any questions you would like to ask?