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What Can Extension Professionals Do To Help Preschool Teachers Create A Positive Mealtime Environment?

Satoko C. Mita
Samuel A. Gray
L. Suzanne Goodell
North Carolina State University

Abstract

Preschool mealtimes can be ideal opportunities to provide nutrition education to preschoolers by creating a positive mealtime environment (PME). Through in-depth, semi-structured phone interviews, researchers interviewed Head Start teachers around the U.S. (n = 65) and explored teachers' perceived barriers to and needs for establishing a classroom PME. Based on the teachers' perceptions, investigators developed a framework depicting points for intervention that could help teachers overcome their PME-related challenges. The framework identifies three focus areas of intervention for Extension professionals to help teachers create a PME: (1) teachers, (2) kitchen staff, and (3) parents of preschoolers. Applying the proposed framework, Extension agents could develop and implement PME-related interventions involving experiential learning-based curricula, which allow teachers to learn and practice creating a PME and to reflect on their experiences. This approach could help teachers implement a PME in their classroom, possibly leading to the development of sound eating habits in preschoolers.

Keywords

qualitative research, mealtime, preschool, teachers, nutrition

Introduction

Extension professionals target and teach many audiences, including preschoolers (i.e., 3- to 5-year olds) and preschool teachers, to help people foster healthy eating habits. One of the ways to help preschoolers learn healthy eating behaviors is to expose them to nutrition education (Benjamin Neelon and Briley 2011; Williams et al. 2014). Because more than half of preschoolers spend their waking time at center-based childcare (Federal Interagency Forum on Child and Family Statistics 2013), a preschool can support children in establishing healthy eating habits through nutrition education. Researchers and educators have developed numerous

nutrition-related preschool curricula and interventions targeting children's eating habits (Davis et al. 2013; Sharma, Chuang, and Hedberg 2011; Wallen et al. 2011). In spite of these efforts, integrating nutrition education into the daily preschool curriculum seems to be associated with various challenges, including teachers' perceived lack of knowledge, skills, time, and resources necessary to teach nutrition in the preschool classroom (Carraway-Stage et al. 2014).

As an alternative to structured activities (e.g., circle time), a preschool mealtime can be an ideal setting to provide nutrition education (Carraway-Stage et al. 2014; Benjamin Neelon and Briley 2011) by establishing a positive mealtime environment (PME) (Mita, Gray, and Goodell 2015). According to Mita, Gray, and Goodell (2015), teachers defined a PME as a mealtime environment where everyone in a classroom (i.e., adults and children) feels positive (e.g., happy) by eating and socializing under mealtime rules. Through the acts of eating and socializing (e.g., asking questions) at mealtimes, a child's learning can be facilitated, and this learning can be extended to many different disciplines such as acquiring skills (e.g., language and social skills) and knowledge, including nutrition information (Mita, Gray, and Goodell 2015).

The potential of a preschool mealtime as a place to support a child's healthy eating has been recognized in the past. The attention has been directed toward teachers' mealtime practices (Mita, Li, and Goodell 2013; Goodell et al. 2010; Freedman and Alvarez 2010; Ramsay et al. 2010; Dotson, Vaquera, and Cunningham 2014), meals served at centers (Benjamin Neelon et al. 2010), and mealtime structure (Sigman-Grant et al. 2008). Additionally, while some is known about possible barriers and solutions to facilitating effective nutrition education through a PME, and Extension professionals are conducting nutrition education with various audiences, no framework identifying specific targets for Extension intervention currently exists. One of the ultimate goals for this project was to explore preschool teachers' perceived barriers and needs related to the creation of a PME. The purposes of this study, therefore, were to develop a framework depicting points of interventions for Extension professionals to help teachers overcome said barriers. Using the results from this study as well as the existing tools and educational resources, researchers plan to develop PME-related training for preschool teachers to assist them in creating a PME, ultimately aiming to foster healthy eating habits in preschoolers.

Methods

Research design

To investigate preschool teachers' barriers and needs in the creation of a PME, researchers conducted semi-structured, in-depth phone interviews employing the concepts of grounded theory (Charmaz 2006; Wertz et al. 2011). Because children from low-income families have poorer eating habits than their peers (Eagle et al. 2012) and are at greater risk for childhood obesity (Ogden et al. 2010), investigators chose to work with Head Start teachers from across the

United States. North Carolina State University's Institutional Review Board approved the procedures and protocol for this study.

Participants/recruitment

To be included in the study, each participant was required to (1) be either a Head Start teacher or teacher assistant, (2) be over the age of 18, (3) be present in a classroom during mealtimes (as opposed to a cafeteria), and (4) have worked with 3- to 5-year-old students. To recruit a geographically diverse population of Head Start teachers, researchers targeted 20 teachers per region (Northeast, Midwest, South, and West) from the U.S. Census Regions and Divisions map (U.S. Department of Commerce n.d.).

Investigators applied both snowball (Marshall 1996) and nationwide sampling techniques involving multiple steps. First, researchers identified contact information of key personnel (e.g., center directors and administrators) for Head Start centers across the United States by using the Head Start Locator tool (U.S. Department of Health and Human Services n.d.). Next, investigators asked these key personnel to aid with recruitment by forwarding a recruitment email to teachers at their centers and/or providing potential study participants' contact information. Additional potential participants were identified at the conclusion of each interview through snowballing, wherein interviewers asked study participants if they could help recruit other teachers by forwarding a recruitment email to their friends.

Tools and instruments

The lead author drafted the interview guide and modified it in an iterative process, using feedback from research team members and an expert in qualitative research. The interview guide consisted of warm-up questions and core questions, as well as probing questions for eliciting further description. Fifteen core questions were aimed at five topics centering around a PME. These five topics are teachers' perceived Definition, Barriers, Facilitators, Motivators, and Needs to creating a PME. The following lists the core questions, but these questions were not asked in this order in the interview guide.

Definition

- How do you define a PME?

Barriers

- What are the challenges, if any, you or other teachers face to create a PME?

- When you or other teachers try to create a PME, what are the challenges/difficulties regarding [Children/Meal itself/Time/Accessibility to certain materials in the classroom]?

Facilitators

- Who is involved in creating a PME?
- What is your role as a teacher in creating a PME?
- What do you do to create a PME?
- What is your co-teacher's role in creating a PME?
- What are the children's roles in creating a PME?
- You mentioned _____are (is) involved in creating a PME. What are _____ roles in creating a PME?

Motivators

- What are some reasons, if any, why you or other teachers would want to create a PME?

Needs

- What can we do to help you or other preschool teachers make it easier to create a PME?
- What do you want to learn about a PME?
- How do you want to receive this training?
- How often would you like to receive the training?
- What kinds of materials might you want to receive in training?

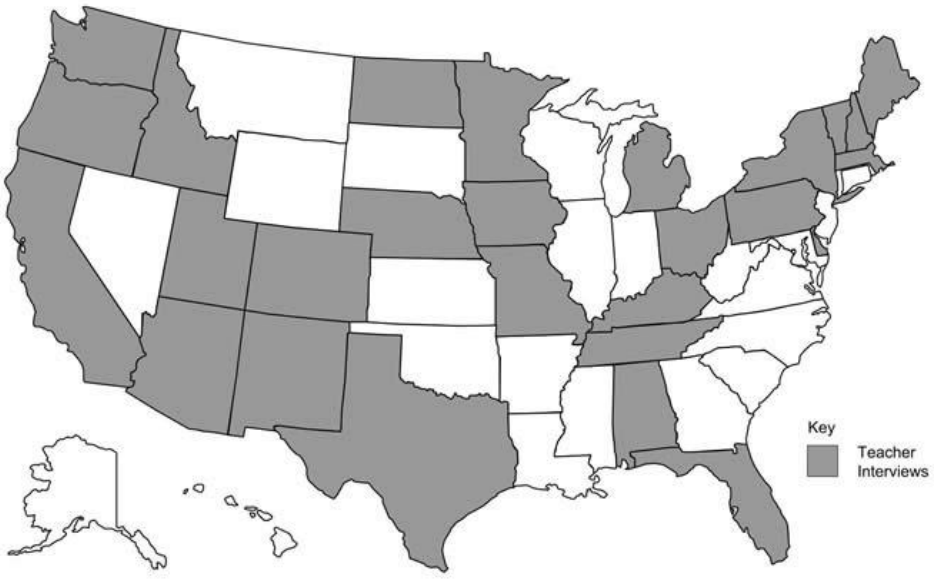
Data collection

To ensure data credibility (Krefting 1991), prior to this study five interviewers completed intensive training that included on-line ethical research training with human subjects, the basic concepts of qualitative research, summarization technique, and at least two mock interviews — one with a lab member and the other with a non-Head Start teacher in the local area — along with observation feedback by the lead author. At the beginning of data collection, the interviewer obtained oral informed consent, asked basic demographic questions, and then transitioned to the series of warm-up and core questions.

During data collection, the interviewer audio-recorded each interview session and took notes on interviewees' answers. To ensure trustworthiness of the findings (Krefting 1991), after asking all questions in the guide, the interviewer summarized the interview, asked for confirmation and clarification of the findings, and provided an opportunity to add anything related to the research topics. After each interview session, the interviewer recorded post-interview notes, summarizing

the answers in the guide and noting conditions of the interview (e.g., interviewee openness to the questions). Interview times ranged from 31 to 109 minutes, averaging 50 minutes. Researchers collected data until saturation was reached (i.e., no new themes appeared) (Morse 1995). In total, 65 Head Start teachers from 28 states participated in this study (Figure 1).

Figure 1. Locations of teachers interviewed



[D link content for Figure 1: Locations of teachers the investigators interviewed were: AL, AZ, CA, CO, DE, FL, ID, IO, KY, MA, ME, MI, MN, MO, MS, NB, ND, NH, NM, NY, OH, OR, PA, TN, TX, UT, VT, WA.]

Data analysis

Researchers transcribed interviews verbatim and used QSR NVivo qualitative analysis software to manage the data (version 9, for Windows). As researchers collected data, they conducted an initial analysis by identifying key themes based upon discussions from weekly meetings, transcripts of interviews, and post-interview notes. The lead author also used this initial analysis to determine when data saturation had been achieved (Morse 1995). After completing data collection, the lead author reviewed all transcripts using a memoing technique and conducted open coding (Creswell 2012). Then, using the codes generated from the open coding process, the

research team, including an expert in qualitative research, developed a coding manual, which included codes, code categories, operational definitions, and example quotes.

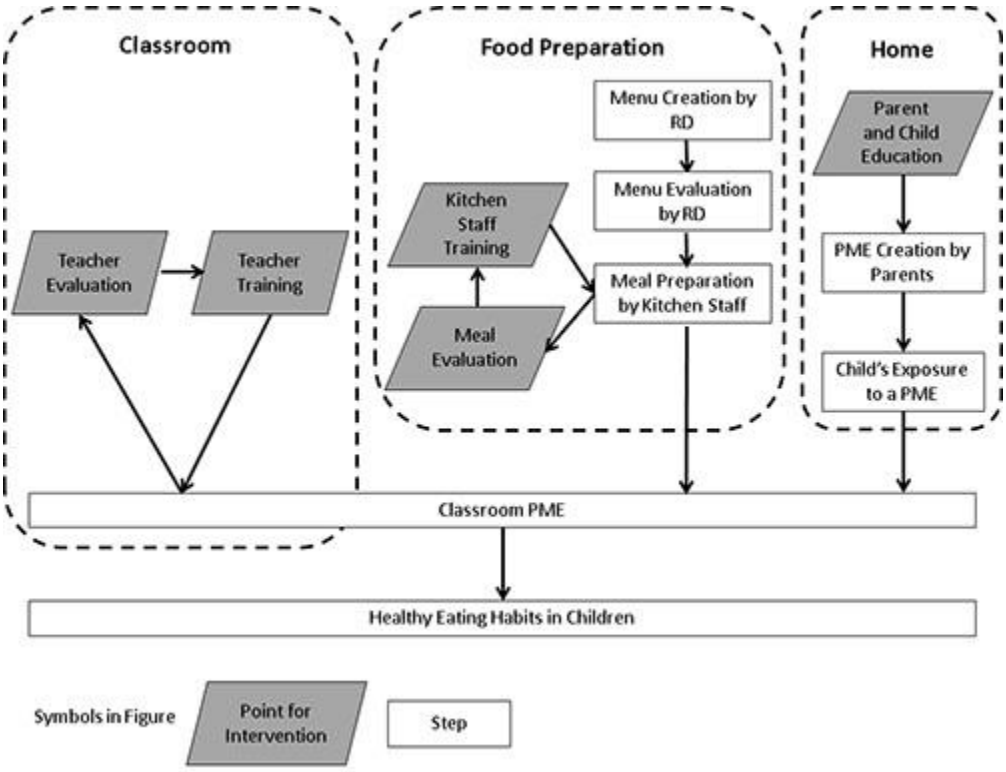
The lead author, one interviewer, and three other research assistants participated in coding. During coder training, all data analysts coded one transcript together to familiarize themselves with operational definitions of each code. The analysts then coded another transcript independently and compared coding as a group, further refining the definitions of the codes. Next, the remaining 63 transcripts were divided among the 4 research assistants, and they coded transcripts independently. The first author coded all 63 transcripts, met individually with each data analyst, and compared the codes in their assigned transcripts.

After coding all transcripts, the lead author conducted axial coding (e.g., how codes relate to each other) and selective coding (e.g., a narrative answering the question of "What are teachers' perceived barriers and needs to creating a PME?") (Creswell 2012; Charmaz 2006). Then, based on the narrative created in the selective coding phase, the research team developed and refined a framework depicting three focus areas of interventions for Extension professionals to help teachers create a classroom PME.

Results and discussion

Our study participants were predominantly female (63 out of 65) and Caucasian (43 out of 65) and African American (14 out of 65). Their work experience with preschoolers ranged from 2 to 44 years (14.4 ± 9.8 years), and their age averaged 40.7 years (S.D. = 12.1). Three-fourths of study participants had a 4-year college degree or advanced degree. During analysis, researchers identified three major themes related to preschool teachers' perceived barriers and needs in the creation of a PME. These were teachers' PME training needs (needs), challenges with meal served at school (barriers), and child-related issues at mealtimes (barriers). Figure 2 depicts the framework that identifies three focuses of intervention for Extension professionals to help teachers create a PME: (1) teachers, (2) kitchen staff, and (3) parents. Employing community-based interventions at these three levels may assist preschool teachers in effectively creating a classroom PME, thus positively influencing the development of preschoolers' healthy eating habits.

Figure 2. Potential solutions for creating a PME in a preschool setting



[D link content for Figure 2: In the figure, three levels of intervention are labeled as "Classroom," "Food Preparation," and "Home." Each level consists of "Point for Intervention" and "Step," which are represented by parallelograms and rectangles, respectively, and elements in the Figure are connected by arrows. These interventions could directly or indirectly influence "Classroom PME" that potentially impacts "Healthy Eating Habits in Children." Within the framework, this "Classroom PME (rectangle)" is influenced by elements ("Point for Intervention" or "Step") in each level ("Classroom," "Food Preparation," and "Home").

The first level of intervention targets teachers, labeled as "Classroom" in Figure 2. This consists of a three-part cycle: "Teacher Evaluation (parallelogram)," "Teacher Training (parallelogram)," "Classroom PME (rectangle)." As described earlier, this "Classroom PME (rectangle)" potentially influences "Healthy Eating Habits in Children (rectangle)."

The second level of intervention, labeled as "Food Preparation" in Figure 2, involves kitchen staff. This level includes steps, "Menu Creation by RD (rectangle)," followed by "Menu Evaluation by RD (rectangle)" and "Meal Preparation by Kitchen Staff (rectangle)." This "Meal Preparation by Kitchen Staff" is a part of a three-part cycle: "Kitchen Staff Training (parallelogram)," "Meal Preparation by Kitchen Staff (rectangle)," and "Meal Evaluation

(parallelogram).” The step “Meal Preparation by Kitchen Staff” can be an influencer of “Classroom PME,” which could also impact “Healthy Eating Habits in Children (rectangle).”

The third level of intervention, named as “Home” in Figure 2, targets parents. The intervention, “Parent and Child Education (parallelogram),” is followed by steps “PME Creation by Parents (rectangle),” “Child’s Exposure to a PME (rectangle),” “Classroom PME (rectangle),” and then “Healthy Eating Habits in Children (rectangle).”]

Teacher training

The first focus area of intervention depicted in the framework is teachers (Figure 2). When asking Head Start teachers their training-related needs (e.g., topics, frequency, and means), they indicated different expectations of mode and frequency of training. For example, when describing the preferred mode of training, one teacher commented “I prefer to receive [training via] an email. That would save my time.” While this teacher expressed his/her interests in passive training via email, another teacher noted that he/she was interested in receiving training through an active learning approach: “I think I gain a lot by hearing other teachers’ experiences, so having discussion groups, or panels of teachers for question and answers.” Additionally, teachers reported varying levels of confidence in creating a PME. One factor that appeared to influence teachers’ levels of confidence in PME-related practices was their previous work experience with preschoolers. For example, one teacher expressed confidence in saying: “I’ve been teaching for 12 years... [I] feel like I know what to do.” In contrast, a teacher with 2 years of work experience said, “I guess [I want to learn] more and more [about]…how we can bring [a PME to a classroom], model [a PME], and bring [a PME] to home.”

While some teachers preferred more passive training and/or desired little additional training, professional development is likely to be more effective if interventions are based on learner-centered curricula that employ experiential learning (White 1992). The idea of experiential learning (e.g., Kolb’s Learning Style (Kolb 1984)) has been applied to many Extension programs (Enfield, Schmitt-McQuitty, and Smith 2007; Kemirembe et al. 2011), including professional development programs for teachers (Meichtry and Smith 2007). Modifying the principles of experiential learning to assist teachers in creating a classroom PME, investigators propose that teacher training should consist of a three-part cycle: teacher training, practice (trying to create a PME in the classroom), and teacher evaluation (Figure 2). Additionally, teacher training should occur on a continual basis because the traditional one-time workshop or training for professional development will not likely positively impact teachers’ behaviors (Lumpe 2007; Wei et al. 2009). At the same time that teachers participate in training, teachers should be provided opportunities to participate in self-reflection, as well as outside evaluation. In theory, through this reflection and/or evaluation process, learners will be able to identify areas for improvement,

hone their knowledge (Kolb 1984), and increase their self-efficacy (Tomolo et al. 2011; Konopasek et al. 2014; Arbuckle et al. 2013).

Resources for teacher training

Because preschool teachers play an important role in supporting young children's healthy eating habits, educators, Extension professionals, and researchers have developed materials to assist preschool teachers in positively influencing their students' healthy eating habits. Of the existing resources, several focus on PME-related constructs and could be a benefit to Extension professionals.

First, to evaluate teachers' practices at mealtimes (i.e., "Teacher Evaluation"), Extension professionals can use Building Mealtime Environments and Relationships (BMER) to assess preschool environments. Though this tool is developed to evaluate a feeding environment in a group setting (Fletcher et al. 2005), the inventory includes multiples areas that overlap the constructs associated with a PME (Mita, Gray, and Goodell 2015). As mentioned in BMER, the inventory's statistical reliability and validity are not known; therefore, the investigators advise the users to utilize this tool cautiously.

Extension professionals can take advantage of existing resources for "Teacher Training," as well. The University of Idaho offers various resources regarding feeding children. Their web site, called Feeding Young Children in Group Settings, includes short, instructional videos and downloadable handouts (University of Idaho n.d.). Similar to this web site, Child Care Mealtime & Active Play Partnerships also covers feeding practices, but their topics are widely distributed, ranging from nutrition to physical activity. The types of resources are categorized into video clips, downloadable handouts, and ideas for lesson activities (University of Colorado Denver, University of Idaho, and Washington State University n.d.). Essential Training by IdahoSTARS also provides Extension professionals with training resources, but the topics are not limited to a PME; for example, topics also include nutrition, physical activity, and learning in young children (IdahoSTARS n.d.). Lastly, Extension professionals may find useful resources from the Texas A&M Agrilife Extension on-line courses. However, their topics are widely diverse (Texas A&M Agrilife Extension n.d. [a]), and depending on the availability of the on-line courses offered, some may not be applicable to PME-related training.

Kitchen staff training

In the current study, Head Start teachers discussed barriers to creating a PME that they cannot control, including the food served at the meal. According to the study participants, how and where the food was prepared varied from site to site. Some centers had a kitchen on site where staff prepared the food. In other centers, food was prepared outside the facility and brought to the

site. Though some teachers expressed satisfaction with the food served at their centers, many others reported the food was often of poor quality, was of insufficient quantity, was not served at appropriate temperature, and/or was not age-appropriate. For example, one teacher described the lack of quality in the food served to his/her classroom in this way: "I know that technically [the food] meets the [Child and Adult Care Food Program] requirements, but … it's not always the most attractive food." Another teacher described the importance of serving eye-appealing food because appearance could affect children's appetite: "Sometimes [with] the turkey stroganoff, we have the turkey instead of the beef stroganoff, and sometimes that just doesn't look really appealing to some children… [children] just say 'No, thank you.'"

The challenges associated with poor quality and quantity food at mealtimes in Head Start preschools have been reported previously, including similar references to teachers' disgust at food appearance (Goodell et al. 2010). Additionally, the actual food served at centers is not always consistent with the menus (Benjamin Neelon et al. 2010), implying that the food served to preschoolers may not be nutritionally adequate. Despite the importance of providing nutritious food to preschoolers and this room for improvement in the food served to preschoolers, little is known about factors influencing how kitchen staff members prepare the food. Furthermore, Head Start centers comply with the guidelines of the U.S. Department of Agriculture (USDA) Child and Adult Food Care Program (CACFP), requiring staff, including the cook, at Head Start to receive mandatory training. To provide the staff with nutrition education, Extension professionals may have actively involved in collaborating with CACFP trainers. However, only half of the kitchen staff at CACFP-participating centers receives one or more training in a year, which may not always to be training on feeding practices (Sigman-Grant et al. 2011). In fact, our study participants may not have seen CACFP training's positive impact on kitchen staff's practices. Further research should examine kitchen staffs' barriers to serving nutritious and appealing food as well as their needs for training. Using these results, Extension agents should provide kitchen staff with the same opportunity for experiential learning as teachers. The experiential learning cycle should consist of training tailored to the needs of the kitchen staff, application of training through food preparation using menus created and evaluated by a registered dietitian, and food evaluation (Figure 2).

Resources for kitchen staff training

Because CACFP-participating centers are required to follow the CACFP guidelines, Extension professionals can use the guidelines as a food evaluation tool (U.S. Department of Agriculture CACFP n.d.), in addition to MyPlate guidelines by USDA (U.S. Department of Agriculture Center for Nutrition Policy and Promotion 2016).

Researchers have attempted to focus more on preschool teachers and parents of preschoolers when developing training and educational materials to help preschoolers establish healthy eating

habits. In contrast, few educational materials for kitchen staff are available to Extension professionals. Additionally, of the existing resources that kitchen staff may use, they focus more on food safety (National Food Service Management n.d.), recipe adjustments, and menu planning (National Food Service Management 2009). Because members of the kitchen staff are also key personnel to the creation of a PME (Mita, Gray, and Goodell 2015), researchers should develop PME-related training and educational materials for kitchen staff using the existing resources.

Parent training

Our study participants reported child-related issues that prevent teachers from creating a PME in their classrooms. One of the major challenges that teachers reported was picky eaters. Teachers mentioned that their students reject certain foods served at their centers because these students may not have been exposed to eating a variety of foods at home. In the classroom, picky eaters can negatively impact other peers and subsequently affect the entire mealtime environment. For example, one teacher reported, "There are some of the challenges when [children] see foods they have never seen before or stuff they don't like. I think when [picky eaters create] a negative environment, you have a whole table that are like 'I don't like any of this food, I'm not going to sit here and eat this!'"

Our teachers suggested that the child-related issues might have resulted from inconsistent rules or expectations at mealtimes between home and preschool. Previous studies involving parents of preschoolers indicate that parents also face difficulties in managing their children's behavioral issues at mealtimes (Quick et al. 2011), including picky eating (Bellows et al. 2013). So that children can smoothly transition from home to preschool mealtime settings, the framework for PME intervention (Figure 2) emphasizes that Extension professionals should develop PME-related educational materials for parents and their children (Figure 2). Furthermore, while continual reflection and evaluation are often difficult to implement in a home setting, an adaptation of Kolb's experiential learning theory (Kolb 1984) would suggest that within the curriculum, parents should be offered opportunities to learn, reflect, and try new ideas in order to improve the outcomes of the intervention.

Resources for parent training

To help preschoolers establish healthy eating habits, researchers, educators, and Extension professionals have given considerable attention to parents of preschoolers and developed educational materials for them. These materials focus on the importance of having meals together as a family (The Oregon Public Health Division n.d.; Oregon State University 2013; University of Minnesota Extension n.d.; Iowa State University Extension and Outreach n.d.; eXtension Foundation 2016; West Virginia University Extension Service 2015) and tips on having meals together as a family (The Oregon Public Health Division n.d.; West Virginia

University Extension Service 2015; Texas A&M Agrilife Extension n.d. [b]). Because parents are mealtime managers, as well as gatekeepers of their family members' health and nutrition, the existing educational materials also focus on healthy recipes (The Oregon Public Health Division n.d.; Oregon State University 2013; Texas A&M Agrilife Extension n.d. [b]), cooking tips (Oregon State University 2013), guide to kitchen tools and food preparation (Texas A&M Agrilife Extension n.d. [b]), nutrition (Iowa State University Extension and Outreach n.d.), and feeding practices such as introducing children new foods, teaching children serving themselves (The Oregon Public Health Division n.d.), and helping children develop healthy eating habits (eXtension Foundation 2016; Iowa State University Extension and Outreach n.d.). In spite of researchers' attentions to parents, informative, intensive PME-related resources for parents are not sufficiently available. Because preschool teachers and parents of preschoolers must be on the same page to create a PME both at preschool and home, researchers should develop educational materials for parents, adapting the existing preschool teachers' educational resources to parents.

Limitations

The current study is not without limitations. Because investigators targeted only Head Start teachers, our results may not be applicable to other teachers in non-Head Start programs, including those who are in private preschools and family care settings. Additionally, due to social desirability bias, some teachers may have believed they should be confident in their practices (because it is their job) and therefore might have underreported their perceived needs and barriers in creating a PME. To try to limit these biased responses, interviewers emphasized to participants that there were no right or wrong answers and encouraged participants to share their views (e.g., "You are the expert on this subject."). Finally, five trained interviewers collected the data throughout this project. While use of multiple interviewers can impact consistency during the data collection, to minimize this potential limitation and increase study validity, all research members involved in this study received intensive training on qualitative research.

Conclusion

In this qualitative study, investigators explored Head Start teachers' perceived barriers and needs in the creation of a PME and developed a framework identifying three focus areas of interventions (teachers, kitchen staff, and parents). This paper also provides the existing educational resources that Extension professionals can benefit from for future interventions, targeting preschool teachers, kitchen staff, and parents. At each intervention level, Extension agents should create curricula that integrate experiential learning (e.g., learn, practice, reflect) into the lessons to increase the likelihood of successful behavior change. Through these interventions, Extension agents may effectively assist preschool teachers in creating a PME in their classrooms, possibly leading to preschoolers' promoting healthy eating habits.

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