1 **Parents' barriers and strategies to promote healthy eating among school-age children**

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ABSTRACT

The home environment is considered one of the most important settings in regards to the development of healthy eating habits among children. The primary purpose of this study was to explore parents' barriers and strategies in promoting healthy eating in the home. The secondary objective was to determine whether the barriers and strategies parents had were different between healthy weight and overweight/obese school-age children. Semi-structured individual interviews with 14 parents of healthy weight and 11 parents of overweight/obese children (6-12 years) were conducted in family homes from August 2014 to March 2015. Transcripts were recorded and codes and themes were verified by the research team and one qualitative expert. Themes emerging from both parents of healthy weight and overweight/obese children were: 1) Parents are busy and strapped for time; 2) Cost is a barrier in providing healthy food, but parents are resourceful; 3) Children ask for junk food regularly, but parents have strategies to manage; 4) Picky eaters are a challenge but parents know they have to overcome this barrier; and 5) Early exposure to unhealthy eating influences children's food choices but strategies can help. However, parents of overweight/obese children felt a lack of support from their spouses/partners for healthy eating in the home, which was not expressed among parents of healthy weight children. Additionally, barriers and strategies were similar among parents of children from different age groups [6-9 years vs. 10-12 years (pre-adolescents)]. Our results suggest while parents faced some challenges in promoting healthy eating in the home, they utilized several strategies to overcome these barriers, which are valuable for direct intervention to improve home food environment and manage children's weight.

Key Words: Parents, barriers, strategies, healthy eating, overweight, healthy weight

INTRODUCTION

The home food environment is one of the most important settings in regard to a child's dietary intake and the development of obesity, since 65% to 72% of daily calories are consumed in the home (Rosenkranz & Dzewaltowski, 2008; Campbell et al., 2007). Parents are seen as the nutritional gatekeepers and the key moderator that influences the provision of healthy foods to their children in the home (Briggs & Lake, 2011, Hanson, Neumark-Sztainer, Eisenberg, Story, & Wall, 2005; Wansink, 2006). Research is now beginning to explore how factors in the home food environment contribute to children's eating behaviors and weight status. It is suggested that homes with healthy weight children are more likely to have healthier food options available and limit the access to unhealthy foods (Brogan et al., 2012). Evidence further suggest that children's dietary intakes in the home are influenced by parent's support for healthy eating (Briggs & Lake, 2011, Hanson et al., 2005). Thus, further exploring and understanding parent's views in the challenges and strategies in feeding their children healthy foods in the home is necessary for promoting healthy eating and improving the home food environment among children and their families.

Despite their critical roles in the home food environment, parents face many barriers in feeding their children in the home, and these perceived barriers may influence children's eating habits (Roos, Lehto, & Ray, 2012). A study conducted in an ethnically diverse population indicated that price of food and the lack of energy and preparation time were seen as barriers in fruit and vegetable consumption (Yeh et al., 2008). Family focus group results stated that lack of accessibility to healthy foods was another barrier to healthy eating (Berge, Arikian, & Doherty, 2012). In addition, an adolescent's pickiness and taste preference was reported previously as a challenge during family meals (Fulkerson, Story, Neumark-Sztainer, & Rydell, 2008). Interviews

with parents of 5- to 6-year old children revealed that the foods made available in the home influenced what their children ate; however, these parents often offered foods based on their children's tastes and preferences (Campbell, Crawford, & Hesketh, 2006). Similarly, focus groups with Latina mothers found that the types of foods brought into the home were determined by their children's preference, their ability to cook with these foods, and the price (Evans, et al., 2011). Although previous studies identified barriers that parents face in providing healthy foods at home (Roos et al., 2012; Yeh et al., 2008; Berge et al., 2012; Fulkerson et al., 2008), few studies have explored the potential strategies or solutions to overcome these barriers from perspectives of the parents, given the fact that forming effective strategies is critical to helping parents promote healthy eating in the home. Furthermore, to our knowledge, whether parents of overweight and healthy weight children face similar issues as well as use comparable strategies at home in regards to feeding their children healthy foods have not been explored yet. Therefore, the primary purpose of this study was to explore parents' barriers and strategies in promoting healthy eating in the home. In addition, we sought to compare the barriers and strategies between parents of healthy weight and parents of overweight/obese school-age children.

MATERIAL AND METHODS

Sample selection

The parents of children (6-12 years) were recruited from the metropolitan area in Lincoln and Omaha, Nebraska, USA to participate in one-on-one interviews. Parents were interviewed in concert with a larger study assessing the home food environment of healthy weight and overweight children and interviews were conducted after the completion of the home food assessment. A total of 25 participants (22 mothers and 3 fathers) were selected for the one-on-one, in-depth interviews from August 2014 to March 2015 based on their willingness to participate in the interviews. All participants were the main food shoppers and preparers for the

family household. Eligibility requirements included having a child between the ages of 6 and 12 years and parents being fluent in English and greater than 19 years of age. Sample size was determined by the degree of data saturation, in which no new themes developed during the parent interviews. Written consent was obtained from the participants prior to the interviews. The study was approved by the University of Nebraska Institutional Review Board.

Data collection and participants

A qualitative collective case study design was used to explore parents' views of their barriers and strategies in healthy eating for their children at home, which is necessary to provide rich detail and insight into the topic (Merriam, 2009). Each interview was audiotaped and took approximately 45 minutes to complete. The interview questions were modified from previously published studies (Berge et al., 2012; Campbell et al., 2006) and were pilot tested with four study participants for clarity and comprehension. Questions were then revised and a semi-structured interview format was used, with interviewing occurring after the home environment survey was completed. The interview began with a general knowledge question regarding how parents would define a healthy food and followed with questions on barriers and strategies in feeding children healthy foods in the homes. Each question included probing questions which elicited further detailed answers from the participants (Table 1).

Parents completed a demographic questionnaire that included parent's age, working status, and educational levels, as well as demographic questions for their children including children's age, gender and race/ethnicity. Children's weight and height were measured with light clothing and no shoes using a weight scale and portable stadiometer by the investigator. Body mass index (BMI) was calculated using Centers for Disease Control and Prevention guidelines and plotted on age/gender-specific growth charts (United States Department of Health and

Human Services [USDHHS], 2002). Weight categories are defined as: $\geq 95^{\text{th}}$ percentile, obese; between the 85^{th} and 95^{th} percentile, overweight; and between the 5^{th} and 85^{th} percentile; healthy weight. No children were underweight ($<5^{\text{th}}$ percentile) in our study (Krebs et al., 2007).

Data analysis

All interviews were fully transcribed and analyzed by hand with data analysis and data collection occurring simultaneously by the investigator (Creswell, 2002). Each transcription was also independently analyzed and checked for accuracy by the second investigator, who listened to the audio and reviewed the transcription of the interviews. The preliminary exploratory analysis was used to gain a general overview of the data and to review data organization (Creswell, 2002). Inductive data analysis was used to aggregate the text into codes and each code was developed into themes that reflected parents' perceptions of their barriers and strategies in healthy eating for their children in the home (Creswell, 2002). Finally, cross-case theme synthesis was used to examine similarities and differences of themes across the interview transcriptions (Yin, 2009). The transcriptions were analyzed for quotes to determine if they would fit into one of the themes. If a quote was related to a theme, it was placed in that category and used in the working document. In terms of barriers and strategies in the individual theme category, parents might have mentioned both a barrier and a relevant strategy to overcome the barrier, or only a barrier but no related strategy that was mentioned. To validate the transcribed interviews, four participants were randomly selected to review the themes to determine if their views were adequately portrayed by the investigator. An expert in qualitative research reviewed the transcripts and developed themes independently from the research team. Any discrepancies in the themes were resolved and discussed among the qualitative expert and the research team.

RESULTS

A total of 25 parents (14 parents of healthy weight and 11 parents of overweight/obese children) were interviewed. The average age of the participating parents was 39.0 ± 7.6 years. All parents graduated from high school and 56% had a college degree. Approximately 44% of the parents reported working full time. The average age of the children were 9.6 ± 1.6 years with a range from 6-12 years. The majority of children were white (88%) and 44% were overweight or obese (Table 2). In addition, 14 children (56%) were considered pre-adolescents (10-12 years), a transitional stage between childhood and adolescence (The term “children” would refer to children in both age groups in our study, 6-9 years and 10-12 years [pre-adolescents]).

Table 3 highlights the similarities and differences in themes and barriers and strategies (including examples of quotes) associated with each theme between parents of overweight/obese children and parents of healthy weight children. Six themes emerged during the parent interviews on their barriers and strategies including: 1) Parents are busy and strapped for time; 2) Cost is a barrier in providing healthy food, but parents are resourceful; 3) Children ask for junk food regularly, but parents have strategies to manage; 4) Picky eaters are a challenge but parents know they have to overcome these barriers; 5) Early exposure to unhealthy eating influences children’s food choices but strategies can help; and 6) Parents feel a lack of support from their spouses/partners for healthy eating in the home. The themes were similar among both parents of healthy weight and overweight/obese children, except that only parents from overweight/obese children group mentioned the lack of support from their spouses/partners for healthy eating in the home. It appeared that parents of healthy weight children more frequently offered strategies to overcome the barriers relative to parents of overweight/obese children. Additionally, parents

with children of different age groups (6-9 years vs. 10-12 years [pre-adolescents]) seemed to have similar barriers and strategies when promoting healthy eating in the home.

Parents are busy and strapped for time

Majority of the parents stated that they had overwhelming schedules, which included children's activities and long working hours, causing a lack of time and energy to prepare healthy foods and family meals. For example:

“Not enough time to cook. I am busy and I don't feel like cooking, so I will go buy fast food.”

“Sometimes my kids have activities and I have to do a double shift and sometimes we don't have time to eat together.”

One mother stated that she wanted more time to research healthy food options for her son: “I would say that I wish I had more time to research to know what is the healthiest and why and even how to prepare it”

While acknowledging that the lack of time is a barrier in feeding their children healthy foods at home, parents had strategies that helped them manage healthier eating for their children.

“I try to stick with meals that I know I can do in 30 minutes, like spaghetti and chicken alfredo and something that I can throw a vegetable into.”

“I try to cook with the crockpot...like bake a casserole. I work from my house, so I can throw in a roast or a casserole.”

“I will plan meals around our activities that I can make ahead or if I don't have time to cook that day, so it works out. Planning ahead and then everyone gets to eat good food.”

“I think it is easy to get distracted with all that is going on in the day and so sometimes it is quicker to grab something that is already prepared rather than make something. So now I do more crockpot cooking so it is ready to go on nights, like religious education or a sport event.”

Cost is a barrier in providing healthy foods, but parents are resourceful

195 Parents felt that the cost of food was a barrier in providing healthy foods at home for their
196 children and felt that healthier versions of food were more expensive. For example, participants
197 said: “Cost is a big motivator.”; “The good foods are expensive.”; “Healthy foods are way more
198 expensive.”; “Money...we are on a budget.”; and “The price does...quite a bit.”.

199 A mother stated that she only received a certain amount of money from the Special
200 Supplemental Nutrition Program for Women, Infants, and Children (WIC, for her younger son)
201 for fruits and vegetables, and she could not financially afford to replenish her food supply.

202 “Financially, I get an \$8 allowance with my WIC that gives me access to fruits and
203 vegetables. I buy it and when it is gone, it’s gone. We can’t always replenish it.”
204

205 “I will buy because of price, first, based on our budget and we have a certain amount that
206 we spend at the grocery store.”

207 “Things that are on sale because I like to have fresh fruits and vegetables and I shop the
208 ads a lot and go to (name of grocery store), because they had better sales.”

209 Parents were resourceful when facing financial difficulties with food purchases and
210 would follow a food budget, ask neighbors for assistance, and receive food from commodity
211 programs, summer food programs, and food pantries.

212 “My overall barrier is financial problems. I get assistance with getting food and that
213 money runs out and when I don’t have enough money, it is hard to turn around and get
214 more [food]. I have gone to the food pantry before—that tends to help a lot. And my
215 neighbor next door will give me food that she doesn’t use.”
216

217 “We participate in this program all through the summer at the library where they give
218 away fresh fruits and vegetables to people and you stand in a line. You get fruits and
219 vegetables for your family for a whole week.”
220

221 “Based on our budget, we have a certain amount that we spend at the grocery store.”
222

223 “I have tried to use coupons and go through the ads.”
224

225 However, it was felt that the foods at some commodity programs were not the healthiest.
226 Therefore, despite attempts to feed their children healthier options, they were faced with
227 unhealthier food choices at these programs.

228 “All the commodity programs, everything they give you is fattening. You can go in there
229 and get sheet cakes, cupcakes, and donuts and you can take as many donuts as you want.
230 They are the stuff that the stores are getting rid of.”
231

232 Nevertheless parents felt that even though price was considered a barrier when providing
233 healthy foods to their children at home or lacked the resources to purchase healthier options, the
234 importance of providing these types of foods to their children was evident.

235 “My husband and I have high blood pressure so we don’t want to add too much salt. So
236 fresh is good and you can get fresh vegetables most of the time.”
237

238 “Right now I am buying for health and I am trying to buy fruits and vegetables and more
239 healthy [foods].”
240

241 **Children ask for junk food regularly, but parents have strategies to manage**

242 Parents mentioned that if their children asked for an unhealthy food or beverage, they
243 would let their children have this food out of frustration or wanting to please their children.

244 “A lot of time, I just give it to them.”

245 “I buy the food.”

246 “Sometimes I buy it, if it is out of my budget, I don’t, but most of the time we buy potato
247 chips and ice cream, but not all the time.”
248

249 “The easy way out is to just buy it.”

250 “Some days I just don’t want to deal with it”.

251 Parents also had strategies to help them manage unhealthy foods requests. For instance,
252 parents told their children about the unhealthy consequences of choosing junk foods at the store,
253 as a way to educate their children about healthy eating habits, as well as offering healthier foods
254 as an alternative. Also, parents used other strategies, such as not letting their children sway their
255 food choices when shopping, or letting their children eat unhealthy foods less frequently at
256 home.

257 “I tell them that it is not good for them and that is why we are not going to buy it. The
258 other thing that I say is that it is not healthy for us, but offer them an alternative.”

259
260 “When she was younger, I remember she wanted something so bad, and she was
261 throwing a fit and that is the last time she asked. Some kids go through the store and get
262 whatever they want. We don’t raised her like that—(we) went out to the store and (child
263 said) ‘hey mom, can I have this?’ and I say ‘no’, and she says ‘maybe next time’.”

264 “There have been times too that if they are with me (at the grocery store), then I let them
265 pick one treat that is not something that they can’t have all at once. It might be something
266 where you can have one of those, but we are going to save some for next week.”

267 “It depends on what else they have and they don’t get it all the time, so it is not like every
268 week, so maybe once a month they will have their one thing.”

269
270 “I normally buy it, but I try to buy small amounts.”

271
272 **Picky eaters are a challenge, but parents know they have to overcome this barrier**

273 Parents felt that their children and other family members were picky eaters which made it
274 difficult in promoting healthy eating at home. Parents stated: “The pickiness of everybody and
275 it’s not just the girls; my husband is picky.” and “My main challenge is someone who doesn’t
276 like to eat what is made. They are picky eaters.” When asked about barriers to healthy eating, a
277 mother mentioned that her son’s inflexible eating habits were discouraging: “My son’s
278 inflexibility; doesn’t tolerate change.” Another mother felt that fruits and vegetables are often
279 wasted if not eaten: “He won’t try salads or he won’t try a certain vegetable, and if I can’t eat it
280 all by myself, it makes me sick to have to throw it away.”

281 Parents stated they used a variety of strategies to overcome selective taste preferences in
282 the home and seemed frustrated in their attempts. This was especially obvious when parents tried
283 to get their children eat more vegetables.

284 “I have tried making them try it and that resolved nothing. I have tried rewarding them
285 for trying it. It doesn’t change the fact that he doesn’t like them (vegetables). He has tried
286 them, but he still doesn’t like them.”

287
288 “Like tomatoes, he will pick it out (of the food) and won’t even try it. I have tried to
289 make him eat it, but it ends up being a fight, and I don’t want to fight.”

However, several parents were more optimistic in their attempts to overcome their children's picky eating habits. For example, one parent stated: "Don't be afraid to try new things, at least try to have them taste it, and if they don't like it, they don't like it, but don't be afraid to try"; and another parent said: "Have them help pick them (foods) out at the store too is something we have done even." A mother stated that she had a garden, which not only helped with food costs, but increased the variety of healthy foods eaten in the home: "We have a garden outside and they pick fruits and vegetables from the garden; having a garden is really helpful." Having a home garden was also mentioned by another mother interviewed: "In the summer, we have a garden where we can get fresh vegetables."

Early exposure to unhealthy foods influences children's food choices, but strategies can help

Parents felt that healthy eating habits should start when children are very young such as toddler and preschool age, and thereby they are more likely to become permanent. A mother said that the early exposure to unhealthy food choices made available to her daughter when she was a toddler at daycare influenced her food choices at home.

"Start very early. I did a lot of quick foods too early; peanut butter too early and macaroni and cheese too early and they ate it a lot at daycare, so they were used to those certain foods. They were used to having donuts for breakfast. I would have investigated that fuller when they were younger. What our little kids are eating. You would be shocked."

Parents felt that patience, consistency, educating themselves on proper nutrition, and having more healthy foods available in the home were important strategies when developing healthy eating habits for their children. Parents also thought that if they strived for a balance between healthy and unhealthy foods that are available and are offered, this would be an important educational message to their children on how to include all foods in their diets.

"Start as early as you can; you just have to start early and it works out."

316
317 “Good food needs to be present and available for them to eat so they can choose them
318 and still need some foods that are sugary foods, but I like to have it available (sugary
319 foods) to a point so they know what it is, but they don’t go to other people’s house and
320 that it all they eat, so they know how to eat it in moderation.”

321
322 “I think it takes time. Once you start bad habits, it is hard to correct them and it takes
323 time to overcome that, but I think they (kids) can and will eat healthier things if that is
324 what you continue to provide for them. I think the big thing is educating yourself and
325 patience and consistency.”

326
327 “Have more healthy options available. As you have the more healthy options then
328 generally your body craves more healthy things and try to phase out the unhealthy things,
329 but start with adding in more healthy things.”

330
331 “Keep trying different ways to cook things; maybe even check out new cookbooks and
332 try recipes from family and friends.”

333
334 “Expose them to different varieties of foods.”

335
336 Although the aforementioned strategies were expressed by both groups of parents
337 (parents of overweight/obese vs. parents of healthy weight children), there was no further
338 indication whether these strategies had been actually implemented by the parents when their
339 children were younger. Furthermore, parents of overweight/obese children did not state that they
340 wished they would have implemented such strategies.

341 **Parents lack support from spouses for healthy eating in the home.**

342 Parents of overweight/obese children voiced concerns over the lack of support from their
343 spouses/partners in having healthy foods at home for their children; however, this barrier was not
344 expressed from parents of healthy weight children. Conflicts about what types of foods to have in
345 the home were evident among these parents of overweight/obese children who felt that their
346 spouses/partners did not support their family’s healthy eating efforts.

347 “Here is our biggest challenge—is that I work 60 to 70 hours a week, so a lot of time my
348 spouse is in charge, which means going out to eat way too much.”
349

350 “I try to limit fries to once a week, although I get sabotaged by his dad. He likes the fries
351 and he will buy the fries regardless if he has already had fries.”

352
353 “The hardest thing in the family environment is to get both parents on board and on the
354 same page, because my wife and I don’t necessarily agree on everything. I tend to be
355 more extreme in the way I want to go and she is more lenient—you know, as far as
356 buying things. One parent can certainly sabotage the other if you are not working
357 together.”

358
359 “We do not have a ton of snack food and honestly, if we do, my husband brought it in,
360 and I don’t have too much control over that.”

361
362 In addition, no parents from the overweight/obese children group offered any strategies
363 or solutions to overcome the differences among the adult family members. In contrast, parents of
364 healthy weight children often stated that working together and planning ahead as a family in
365 meal preparation has helped with healthy eating for everyone in the home.

366 “Somebody is cooking, while somebody is cleaning, and we have tried to do that and that
367 seems to help.”

368
369 “We plan ahead.”

370 “Planning ahead for the week is better and I let my husband know what we are planning.”

371 **DISCUSSION**

372 The current study explored parents’ views of barriers and strategies of healthy eating in
373 the home. Our study is unique in that we interviewed both parents of overweight/obese and
374 healthy weight children. Our results suggest that while parents were faced with barriers, such as
375 lack of time in preparing and providing healthy foods, costs of foods and their children’s picky
376 eating habits, they had a variety of valuable strategies to overcome these barriers.

377 Overall the two groups of parents (of overweight/obese and healthy weight children)
378 expressed similar barriers and strategies except that parents of overweight/obese children felt that
379 their spouses or partners were not supportive with healthy eating in the home. Our results were in
380 agreement with findings from a focus group study with parents of overweight children in a

weight management program, in which one parent made an effort to promote healthy eating at home, while the other parent sabotaged the endeavor by providing unhealthy foods to their children (Lyles, Riesch, Sanders, & Sass-DeRuyter, 2012). A review of 21 qualitative studies that interviewed parents of children with diverse weight status further suggests that family dynamics was a barrier in that being a role model for healthy eating was difficult for parents while other adult family members undermined the efforts (Pocock, Trivedi, Willis, Bunn, & Magnusson, 2010).

In the current study parents of healthy weight children did not voice concerns over the lack of support in the home. When comparing two group parents defined as whether their children were consuming a healthy diet or not, Peters, Paraletta, Lynch, & Campbell (2014) reported that parents from the healthy diet group had more spouse/partner support for making their children eat healthy versus parents from the unhealthy diet group although the researchers did not further differentiate the findings according to children's weight status (Peters et al., 2014). One thing that should be noted regarding the lack of spouse/partner support among parents of overweight/obese children is that they did not provide any potential strategies or solutions on how to overcome the differences between adult family members. As a contrast, parents of healthy weight children stated that working together as a family in the meal preparation helped bring family members together and reach consensus in terms of feeding children healthy foods in the home, which can be a useful strategy for families with overweight/obese children.

Parents in our study felt stressed about providing healthy meals and foods in the home that the entire family would enjoy. Consistent with previous findings from low-income parents (Davis, Befort, Steiger, Simpson, & Mijares, 2012), the current participants frequently stated that

404 lack of time, working long hours, children's activities, weariness from overwhelming schedules,
405 and children's pickiness were barriers to healthy eating for their children. Parents seemed to be
406 attentive to the fact that they needed to provide healthy meals and foods to their children, but
407 getting distracted throughout the day was a concern due to busy work schedules. Thus, parents
408 may then drive through fast food restaurants for a quick meal in order to feed their children.
409 These findings agree with a previous review which concluded that the fact of having busy family
410 lives was associated with increased chances of feeding children fast foods (Pocock et al., 2009).
411 As for the solution and strategies, parents all preferred quick and healthy meals that were easy to
412 prepare after working long hours and they often used crockpot meals. They were also in favor of
413 planning meals in advance, and both parents working together in meal preparation. These
414 strategies were similar to focus group findings among three ethnic groups of mothers (Whites,
415 Blacks, and Hispanics) who wanted meal preparation and meal times to be easy without undue
416 stress (Sherry et al., 2004). Two parents in our study (one parent of a healthy weight child and
417 one parent of an overweight child) cited that home gardening as a strategy to overcome
418 children's picky eating habits and improve healthy eating in the home. Although previous
419 research found that participating in gardening programs and/or having a home garden were
420 effective strategies in supporting healthy eating, increasing vegetable preferences and nutrition
421 knowledge among both children and their parents (Spears-Lanoix et al., 2015), gardening may
422 not be feasible because of lack of time and knowledge (Loopstra & Tarasuk, 2013) which may in
423 part explain why only two parents in the current study mentioned this strategy. Future studies
424 need to further explore the potential challenging of gardening and how to encourage families to
425 have a home garden or participate in community gardening programs.

The price of food was seen as a barrier to parents in feeding their children healthy foods. This is supported by a focus group study in which parents stated that the cost of healthy foods was a common challenge (Davis et al., 2012). Parents implied that healthy foods were more expensive and often were unable to buy more foods if they ran out of money. However, parents appeared to be resourceful and have ways of getting some healthier foods with lower cost for the family. A mother stated that she would go to another store to find better quality foods to purchase for her family, while another mother would participate in a summer fruit and vegetable program in order to provide more healthful options for their family. On the other hand, one father would seek food assistance from the local food pantry, however, voiced frustration on the unhealthy food options that were available to him, suggesting that policy makers and agencies in charge need to be more aware of the food environment in these places and make changes and improvement when necessary. Furthermore, most parents felt that eating healthy foods were important for good health and would try to purchase the healthier options despite the cost.

Some parents interviewed employed strategies to combat unhealthy food requests, but seemed torn between giving their children sweetened foods that they liked and yet still having healthy foods in the home. As an example, parents would give unhealthier food options to their children if requested to avoid the conflict and felt too overwhelmed to say no, which was seen in both groups of parents categorized by their children's weight status. This barrier has been previously demonstrated in a focus group study with mothers who stated that even though most of the time they would say no to unhealthy food requests, they would give in to such requests to "keep the peace" (Pettigrew & Roberts, 2007). In contrast, one parent was adamant in not purchasing unhealthy foods for her healthy weight daughter and made all the food choices for her. Although research evidence showed that indulgent parent feeding style is consistently

associated with weight increase, whereas parents using their authoritarian power may lead to a healthy weight in children (Vollmer & Mobley, 2013), the long-term effect of authoritative parent feeding style on children's eating behaviors and weight status as well as to which degree that is considered effective remains unclear.

Early exposure to unhealthy foods can be detrimental to children's healthy eating habits, and parents stated that starting earlier in childhood such as in toddler, preschool, and early school years (e.g, kindergarten) is an important strategy to form healthy eating habits regardless of the weight status of their children. Parents of overweight/obese and healthy weight children both recommended being consistent in feeding healthier foods (e.g., fruits and vegetables) and maintaining a balanced approach, such as having healthier options most of the time, but teaching their children moderation in unhealthy food choices could be helpful. Previous studies have suggested that starting in early childhood is important for the development of healthier eating habits (Pocock et al., 2009), which was confirmed by the parents interviewed in the current study. However, we did not further ask if parents had actually implemented these strategies they recommended. It would be interesting to explore whether the implementation status differed between the two groups of parents. For instance, parents of healthy weight children might have implemented the strategies whereas parents of overweight/obese children might wish they had. Interestingly, although majority of the themes were across both parent groups, parents of healthy weight children appeared to provide strategies/solutions to the challenges they had more frequently compared to their counterparts with overweight/obese children. Therefore, helping parents to form necessary and valuable strategies to overcome the barriers could be a practical approach to promoting healthy eating and weight management among overweight and obese children.

There are several strengths of the present study. We explored barriers and strategies of healthy eating in the home among parents of both healthy weight and overweight/obese children, presenting a unique, qualitative contribution to the field of home food environment research. The interview format used in the study also allowed parents to expand upon responses, which created a further understanding of the issues parents face with respect to promoting healthy eating in the home. Further, the qualitative approach, in that the determination of sample size was based on the degree of data saturation (Creswell, 2002), provided the opportunity to explore the topic in greater depth without the involvement of a larger number of participants. Our study has limitations. Parents of children ages 6 to 9 years may have voiced different barriers and strategies compared to parents of children ages 10 to 12 years (pre-adolescents) due to developmental and autonomy differences in these age groups (Burgess-Champoux, Larson, Neumark-Sztainer, Hannan, & Story, 2009). However, our results suggest that parents of children from both age groups appeared to have similar barriers and used comparable strategies of feeding their children healthy foods in the home. Since the current study was originally designed to explore if there were differences that existed in barriers and strategies among parents of children with different weight status which would help to develop direct interventions for weight management, our interview questions may not be sensitive to further examine the differences among parents based on their children's age. Future studies are warranted to explore this topic fully.

CONCLUSIONS

Understanding how the barriers and strategies parents have in supporting healthier eating in the home is important for developing intervention strategies to improve eating habits among children and combat childhood obesity. Our study reinforces the important challenges parents

face in providing healthy foods at home, including frequent junk food requests, scarcity of time and money concerns, and the lack of spouse/partner support among parents of overweight/obese children. However, despite the obstacles, parents managed to use several strategies to overcome these barriers, including meal planning, working together as a family in meal preparation, going to food assistance programs for help and being consistent in serving healthy foods. These valuable tips can be applied in family-based nutrition educational programs for improving home food environment and weight management.

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Table 1. Parent Interview Questions

Question category	Questions
Ice-Breaker	What is your definition of a healthy food?
Main questions	<p>What challenges do you face in providing healthy foods to your family?</p> <p>How do you overcome these challenges?</p> <p>What types of barriers do you face in having family meals?</p> <p>Tell me about the sort of things that motivates what you buy at the grocery store and bring home to your children?</p> <p>Suppose your child has asked you to buy a food or beverage at the store that is not what you think he or she should eat or drink. How do you handle that situation?</p> <p>What strategies do you use if this happens?</p> <p>Some say it is hard to feed kids foods that are healthy and that they like. What is your opinion on this?</p>
Conclusion	What additional comments regarding your challenges and strategies in feeding your children healthy foods in your home that you like to share?

Table 2. Characteristics of Study Participants

Child (N = 25)	
Age, year (mean $\pm$ SD)	9.6 $\pm$ 1.6
Gender, n (%)	
Male	8 (32.0)
Female	17 (68.0)
Race/ethnicity, n (%)	
Non-Hispanic White	22 (88.0)
Hispanic or Latino	1 (4.0)
African-American	1 (4.0)
Asian-American	1 (4.0)
Body mass index-for-age percentile, n (%)	
<85 th	14 (56.0)
85 th - 95 th	2 (8.0)
$\geq$ 95 th	9 (36.0)
Weight status, n (%) ^a	
Healthy weight	14 (56.0)
Overweight/Obese	11 (44.0)
Parent/caregiver (N = 25)	
Age, year (mean $\pm$ SD)	39.0 $\pm$ 7.6
Gender, n (%)	
Male	3 (12.0)
Female	22 (88.0)
High school graduates, n (%)	25 (100%)
College graduates, n (%)	14 (56%)
Working full-time, n (%)	11 (44.0)

^a Weight status for children was defined using body mass index-for-age percentiles (healthy weight, 5th – 84th; overweight, 85th – 94th; Obese, $\geq$ 95th).

Table 3. Themes, barriers and strategies from parents of overweight/obese and healthy weight children

Themes	Barriers to healthy eating in the home	Strategies to overcome barriers
From parents of OW children and parents of HW Children		
Parents are busy and strapped for time. N=22 (11 OW, 11 HW) ^a	Parent's long working hours interfere with healthy meals and food preparation. Kid's activities interfere with food preparation Lack of energy N=14 (8 OW, 6 HW) ^a Examples of quotes: "Not enough time to cook. I am busy and I don't feel like cooking, so I will go buy fast food" (OW) "I would say I wish I had more time to research to know what is the healthiest and why and even how to prepare it" (HW)	Crockpot and quick/easy meals Planning meals around activities or make ahead so family has healthy meals in the home N=8 (3 OW, 5 HW) ^a Examples of quotes: "I try to cook with the crockpot. I work from my house, so I can throw in a roast or a casserole" (OW) "I will plan meals around our activities that I can make ahead or if I don't have time to cook that day, so it works out. Planning ahead and then everyone gets to eat good food" (HW)
Cost is a barrier in providing healthy foods, but parents are resourceful N=20 (8 OW, 12 HW) ^a	Parents felt healthy foods are expensive Only can spend a certain amount at the grocery store Parents received unhealthy foods at food assistant programs N=13 (4 OW, 9 HW) ^a Examples of quotes: "Money...we are on a budget" (OW) "The price...does quite a bit" (OW) "Cost is a big motivator" (HW) "Good foods are expensive" (HW) "Healthy foods are way more expensive" (HW)	Received food from pantries, summer feeding programs, neighbors, and commodity programs Parents felt that healthy foods are worth the cost because of the health benefits. N=7 (4 OW, 3 HW) ^a Examples of quotes: "..having to go to the Salvation Army and then I go to the distribution or any place like that" (OW) "I get assistance with getting food. I have gone to the food pantry before—that tends to help a lot. And my neighbor next door will give me food that she doesn't use" (HW)
Children ask for junk food regularly, but parents have strategies to manage N=25 (11 OW, 14 HW) ^a	Parent let child have unhealthy foods out of frustration or wanting to please their child N=4 (2 OW, 2 HW) ^a Examples of quotes: "The easy way out is to just buy it" (OW) "Some days I just don't want to	Parents will not purchase unhealthy foods Educate on unhealthy foods Offer alternatives Let their children have the unhealthy food once a month. N=21 (9 OW, 12 HW) ^a Examples of quotes: "There have been times too that if they are with me (at the grocery store), then I let them pick one treat

	<p>deal with it”(OW) “A lot of times, I just give it to them”(HW) “I buy the food” (HW)</p>	<p>that is not something that they can have all at once and we are going to save some for next week” (OW) “...I say is that it is not healthy for us, but offer them an alternative to unhealthy foods” (HW)</p>
<p>Picky eaters are challenge but parents know they have to overcome this barrier N=8 (2 OW, 6 HW)^a</p>	<p>Family members are picky making it difficult for healthy eating in the home Parents were frustrated despite numerous attempts to feed healthy foods to children N=4 (1 OW, 3 HW)^a Examples of quotes: “My son’s inflexibility; doesn’t tolerate change” (OW) “He won’t try salads or he won’t try a certain vegetable” (OW) “The pickiness of everybody” (HW) “My main challenge is someone who doesn’t like to eat what is made. They are picky eaters” (HW)</p>	<p>Don’t be afraid to try new foods. Gardening helps increase acceptance of fruits and vegetables N=4 (1 OW, 3 HW)^a Examples of quotes: “I want her to be part of the meal planning and what she would like to eat and have her a part of the decision” (OW) “We have a garden outside and they pick fruits and vegetables from the garden; having a garden is really helpful” (OW) “Don’t be afraid to try new things, at least try to have them taste it” (HW) “Have them help pick them out at the store too is something we have done even” (HW) “In the summer, we have a garden where we get fresh vegetables” (HW)</p>
<p>Early exposure to unhealthy foods influences children’s food choices but strategies are helpful N=14 (3 OW, 11 HW)^a</p>	<p>Food choices made to child while in daycare or in early school years influenced food choices later in childhood. N=1 (1 OW, 1 HW)^a Examples of quotes: “I did a lot of quick foods too early; peanut butter too early and macaroni and cheese too early and they ate it a lot at daycare, so they were used to those certain foods. They were used to having donuts for breakfast.” (OW) “You have to start early or they will want what their friends eat every day. It is hard to get them to eat foods and they know that their friends eat different foods from</p>	<p>Having healthy options available. Be consistent in providing healthy foods Parents need to educate themselves on proper nutrition. Keep healthy foods available for children. Start early in exposing children to healthy foods N=12 (2 OW, 10 HW)^a Examples of quotes: “Start very early” (OW) “I think it takes time. Once you start bad habits, it is hard to correct them” (OW) “Don’t bring in much of the stuff you don’t want your kids eating” (OW) “Start early as you can” (HW) “Introduce them in small amounts” (HW) “Expose them to different varieties of foods” (HW)</p>

them.” (HW)

From parents of OW children

Parents lack support from
Spouses/partners for healthy eating
in the home
N=4 (4 OW, 0 HW)^a

Unhealthy foods are brought into
the home.
One parent takes children out to eat
if the other parent is not home.
N=4 (4 OW, 0 HW)^a

Examples of quotes:

“I try to limit fries to once a week,
although I get sabotaged by his
dad” (OW)
“We do not have a ton of snack
food and honestly, if we do, my
husband brought it in and I don’t
have too much control over that”.
(OW)

Work together as a family to have
healthy foods in the home and in
preparing healthy meals^b
N=3 (0 OW, 3 HW)^a

Examples of quotes:

“Somebody is cooking, while
somebody is cleaning.” (HW)
“Planning ahead for the week is
better and I let my husband know
what we are planning” (HW)

Note: OW = Overweight/obese; HW = Healthy weight

^a N = total frequency of responses from parents for a theme or the barrier(s)/strategy(ies) related to the theme; The total frequency of responses (N) reflects the total number of times that parents mentioned a theme or the barrier(s)/strategy(ies) related to the theme. The total frequency of responses (N) was further divided into the frequency of responses from parents of overweight/obese children (OW) and the frequency of responses from parents of healthy weight children (HW), which are presented in brackets.

^b Only parents of healthy weight children (HW) offered the strategies under this theme although the theme and barriers emerged from parents of overweight/obese children (OW) exclusively.