Original Article

Rural Parent Support of Child Health Behavior in the Home Environment: A Qualitative Study on an American Indian Reservation

Global Pediatric Health
Volume 6: 1–10

DOI: 10.1177/2333794X19847451
journals.sagepub.com/home/gph
SAGE

Maja Pedersen, MS[1], Blakely Brown, PhD[1], Kari Harris, PhD[1], Sonja France[1], Mike Tryon, MS[2], and Aric Cooksley, BA[3]

Abstract

Background. Obesity rates are disproportionately high among rural and American Indian (AI) children. Health behaviors contributing to child obesity are influenced by parents at home. Engaging parents remains a challenge, particularly among low-income and ethnic minority families. *Aims*. The aim of this study was to learn how AI parents living on a rural AI reservation support and engage with their children's nutrition and physical activity behaviors at home. *Methods*. Parents with children ages 6 to 12 years living on one, rural AI reservation participated. Focus groups and interviews were conducted, using a 14-question moderator's guide. A systematic, iterative content analysis was applied to the transcripts. *Results*. Twenty-five parents (52% AI or Alaska Native) participated in 3 focus groups (n = 17) and interviews (n = 8). Themes related to enhancers included role modeling and whole family and child-initiated activities. Barriers included resources, child safety concerns, driving distances, and competing family priorities. Themes related to strategies for change included opportunities for peer learning from other local families, creating fun, program support for all supplies and incentives, and incorporation of storytelling and multicultural activities. *Discussion*. This study advances knowledge to promote parental engagement with child health behavior in the home, including unique themes of inclusiveness, culture-focused, and intergenerational activities. *Conclusion*. Results may inform interventions seeking to engage parents living in rural and AI reservation communities in home-based child behavior change efforts.

Keywords

health behavior, pediatric obesity, parent-child relations, North American Indians, qualitative research

Received March 18, 2019. Received revised April 9, 2019. Accepted for publication April 9, 2019.

Introduction

Childhood obesity has been declared an epidemic; almost 13 million children in the United States are obese.[1] Overweight/obesity in childhood is a major risk factor for negative health, psychological, and social outcomes.[2-4] Childhood obesity rates are higher among rural children than their urban counterparts,[5] and American Indian (AI) populations have the highest prevalence of obesity among North American youth.[6] Health behaviors such as physical inactivity and the consumption of excess calories contribute to obesity among children.[7] These behaviors are influenced by psychological and social aspects of an obesogenic environment,[8] including the influence exerted by parents.[9] Childhood obesity prevention interventions may benefit by effectively incorporating parent support and engagement with their child's health behaviors at home as a central aspect of child behavior change efforts.[9]

The role of the parents is an essential yet underemphasized influence in the prevention of child obesity[9,10];

[1]University of Montana, Missoula, MT, USA
[2]Summit Medical Fitness Center, Kalispell, MT, USA
[3]Boys and Girls Club of the Flathead Reservation and Flathead County, Ronan, MT, USA

Corresponding Author:
Maja Pedersen, University of Montana, 32 Campus Drive, Missoula, MT 59812, USA.
Email: maja.pedersen@mso.umt.edu

and child physical activity (PA) patterns and nutrition habits are shaped by home practices and support from parents.[11,12] Parent PA level and nutrition habits are known to be associated with child body mass index and dietary intake,[12] while parent behaviors such as encouragement of their child's PA and praising their child about healthy food and beverage choices have been shown to positively influence child PA levels and weight change.[11] However, the literature is inconclusive on how best to engage parents in obesity prevention interventions, particularly among low-income and ethnic minority families.[13-15] Although some interventions have aimed to engage parents in improving child health behaviors, barriers such as lack of cultural and/or contextual fit, inflexible parent work schedules, and other family stressors have contributed to high parental participant dropout rates, poor attendance during the intervention, and lack of sustained impact.[13-15] In addition, interventions in rural settings, which comprise nearly 25% of the US population,[16] that may present unique challenges (eg, long travel distances and limited resources)[17-19] and strengths (eg, interconnectedness and shared values)[20,21] to engaging parents. Given the unique challenges and strengths of rural communities, a multifaceted approach to intervention development with program activities and design driven by local context is recommended.[22]

For many rural families, out-of-school programs (OSPs) may provide an intervention platform that can serve as an implementation point to transfer healthy lifestyle changes to parents at home.[23] However, very few OSP interventions have tested strategies to enhance the transfer of child healthy behaviors learned in the OSP to home or other settings.[24] Our research[25] and others[23] show that OSPs are eager partners and offer an ideal launching organization to improve child health.

Some out-of-school child obesity prevention interventions have included strategies for parents to make changes in the home environment. These intervention strategies have included in-person behavior change sessions,[26] signed parent–child contracts for healthy home changes,[27] a multicomponent approach featuring family event nights, family goal setting, support phone calls to parents, and take-home resources,[28] and parental involvement in meal preparation activities with children.[29] Evaluation of such strategies have included surveys and focus groups with mixed results,[26-28,30] indicating a need for formative work to identify practical parent strategies to support their child's salient behaviors at home.

Research on parent perspectives of childhood obesity interventions has largely focused on factors influencing enrollment and attendance; this research indicates that modifiable facilitators include the opportunity for social interaction with other parents, the opportunity to learn new skills, and a lifestyle-focused approach to intervention. Barriers include parent denial about child health status and personal and program logistics, among others.[31] The few studies that have examined parent perceptions include an urban sample where parents described child food preferences and familial opposition as main barriers to healthy eating,[32] while similar barriers plus the additional challenges of time constraints and cost were found among another urban sample.[33,34] Importantly, an examination of PA behavior among working parents found the opportunity for participation in PA with children and serving as a role model for children to be motivating factors for their own participation in PA,[35] indicating the possibility to utilize family-based activities as motivation for parent and child behavior change.

In summary, research suggests that efforts to engage parents in their child's health behaviors may yield participation, involvement, and home environment changes, yet little has been done to explore what strategies might be effective for parents living in rural and AI reservation communities. To address this gap, we explore how at-home, family-based activities may serve to extend and reinforce healthy lifestyle concepts children learn about in OSPs. This article describes a qualitative study to determine enhancers and barriers for engaging parents in obesity prevention activities for their child in the home environment.

Methods

Study Design

To maximize impact on intervention development and implementation, this study focused on identifying enhancers for, barriers against, and strategies to promote parental engagement in healthy behaviors with their children in the home. Focus groups were used to capitalize on group interaction.[36] Interviews focused on creating comfort for the individuals to speak freely, capturing in-depth individual-level data.[37] This research was approved by the Institutional Review Board (Approval # 2014_19) at the Tribal College on the AI reservation where the study was conducted. Informed consent was obtained prior to research activities.

Study Sample

Parents from 2 communities on one rural, AI reservation were recruited to participate. Eligible participants had at least one child, age 6 to 12 years, who was enrolled in an after-school program on the reservation. Study staff recruited participants through posted flyers and through

Table 1. Selected Moderator's Guide Questions.

What things do you, or your family, do to support your child's PA when he/she is at home?
What are the best ways to engage busy parents like yourselves in implementing short activities in your home that would support your child's PA and healthy eating behaviors?
Are there aspects of culture specific to this community that we should consider?
What cultural component could be included in this (at home) activity?/How would that go over with both American Indian and non–American Indian families?
Are there any other topics you would like to share about that might be relevant to this conversation?

Abbreviation: PA, physical activity.

telling parents about the study. Parents also completed a demographic survey that assessed race, ethnicity, gender, and age, and if the participant was the primary decision maker for their child's health. Participants received a $20 incentive.

Data Collection and Analysis

Study authors conducted the focus groups and interviews in 2 communities on the reservation. Childcare and a healthy meal were provided. Authors were trained in qualitative methods, and some are trusted members of the communities. The moderator's guide contained 14 semi-structured interview questions designed to explore parent perspectives on supporting their child's PA and healthy eating behaviors (Table 1). The project's Community Advisory Board members (n = 12) reviewed the moderator's guide to refine questions. All sessions were audio recorded.

Audio recordings were transcribed verbatim by a professional transcriptionist. Transcripts provided the foundation for analysis. Authors trained in qualitative methods performed content analysis using manual techniques and NVivo11 software (QSR International, Cambridge, MA). Briefly, themes were identified as the unit of analysis, and all transcripts were reviewed independently. An iterative process was applied to compare emergent themes and reconcile differences through discussion; open coding was applied to all transcripts, and categories were grouped into higher order headings.[38,39]

Results

Twenty-five parents participated in the study. Eight interviews and 2 focus groups were conducted. Participants were on average 38 years old, and 88% of the participants were female. Participants were 52% AI or Alaska Native, 36% were non-Hispanic white, 8% were Hispanic, and 4% were Asian. Interview length ranged from 40 to 60 minutes, with transcript page count from 7 to 17 typed pages. Focus groups were approximately 2 hours each, with transcript length from 19 to 29 typed pages. Parents reported on enhancers, barriers, and strategies for parental engagement in the home environment (see Table 2 for themes and participant quotes).

Enhancers

A common theme described among parents was child modeling of PA based on parent behaviors; if a parent goes on a bike ride or walks to the store, the child is likely to do the same. Parents described this as a natural progression of involvement—that she/he started the routine, and the children joined out of interest or wanting to be together. The same was true for modeling cooking and eating behavior for children; and some families involved their children in preparing meals and described this as helpful and healthy routine for the family.

Parents expressed interest in incorporating new ideas and information about healthy behaviors into the whole family's routine. Parents were interested in learning new ideas for indoor PAs when seasonal weather reduced outside activities and healthy recipe ideas from other busy families. Other areas of interest included PAs for the whole family to do together, positive strategies (rather than disciplinary action) to encourage behavior change in children, local information about safe places to be active, and ways to encourage kids to eat fresh foods.

Parents identified the concept of child-initiated healthy activities. That is, when their children are motivated to engage in healthy activities, parents will be more likely to participate. Parents reported that even when busy or tired, if their children are excited about something, they will be more likely to make time to engage. Parents also recommended creating enthusiasm for healthy activities inside the home environment through friendly competition; and cultivating contests within the family, such as competing for the highest number of steps per day, was described as motivating.

Inclusion of culture in activities was described by parents as an opportunity for children to learn about global traditions and languages. Both AI and non-AI parents emphasized the importance of their children

Table 2. Themes and Sample Participant Quotes on Enhancers, Barriers, and Strategies for Parents to Support Healthy Child Behavior in the Home.

Theme	Description	Participant Quotes
Enhancers		
Role modeling	When parents have or begin a routine of PA or healthy food choices, their children are likely to join them	"The . . . activity that we all seem to like doing together is yoga, you know and it's kind of funny because I just started doing it by myself and they would ask if they could do it and I [said.] "sure!" and the next thing everybody just gradually started doing it."
Whole family activities	Home-based activities that can include siblings of varying ages, parents, grandparents, and other family members are preferred	"If you want kids eating healthy, parents are so busy like 'no you can't help in the kitchen,' if you want them to eat healthy, have them be involved in all of it, even when I go grocery shopping, I tell the kids, hey, go pick some apples, which one? Whichever ones are on sale, you know, but they learned how to pick what is ripe and what's not ripe and uh, the more hands on they have with fresh fruit and vegetables, the more likely they are going to eat it."
Willingness to learn new health information	Parents are interested in learning new information about health and new ways to incorporate healthy behaviors into their family's routine	"It [child bringing healthy activities home] would be nice because it would be my child teaching me something, because they would learn it first and then they would come share it with me, because it's not something that I know, so it would be nice for my child to be able to teach me something."
Child-initiated activities	Parents are more likely to join in home-based healthy eating or PA if the child is enthusiastic about it and initiates the activity	"I know they have like a garden project here, I don't know what all we're growing but my daughter grew some little purple potatoes, she was really excited about it when she brought the plant home, so she asked her dad, and so then we just baked them in the oven with olive oil and rosemary."
Multicultural learning	Inclusion of culture in healthy activities represents an opportunity for families to engage in multicultural learning together	"I think that doing it early on, the multicultural thing would be good for them because they are going to have things coming at the left and right from everywhere, you know, different things, people have different opinions, but if you do a positive thing about it early on then hopefully they will carry back and maybe not listen to some of the things they are going to learn or hear or see, you know, that discriminate others."
Intergenerational learning	The inclusion of grandparents and elders is an opportunity to share cultural wisdom about health with families and children	"I know they have 'grandparents day' at school and our kids really look forward to that and at school, last year I went, with um, my mom when they went, and that's one of the activities they had there for them was, for the grandparents to write a story about their day in whatever grade your child was in, you know, stuff like that and sharing with the child. . . . I thought that was pretty neat anyways."
Barriers		
Resources	Financial cost of fitness equipment and fresh foods in a rural area and limited space in the home and community for activity	"I did veggies all over my deck in pots, this year I didn't do anything, because it's time consuming and, and, it's me and my granddaughter and then I would always give to others, but this year, I just didn't do it, just didn't have the energy. And it costs too much, I've gotta get the soil, and I've gotta, everything is a cost and people, it, it's costing too much to do anything in the store, where you see the increase in the food and the prices in the store, but we do not ever see our checks increase."

(continued)

Table 2. (continued)

Theme	Description	Participant Quotes
Concern for child safety	Parent concern over limited availability of safe walking trails, local play areas that are in close proximity to busy roads, and potential exposure to drugs or violence in area	"Where we live, there's really not a lot of places to go—unless you crawl under a fence, but those guys drive crazy over there. We constantly hollering at people to slow down."
Child food preferences	Challenging for parents to adapt to varying food needs (ie, allergies) and preferences (ie, picky eaters or vegetarians) and provide healthy options	"I was a vegetarian for 23 years and my daughter who is now 16, she was like, oh, she loved meat. And so, ok, ok, we will start eating meat again and now, what does she do to me, I am going vegetarian mother, which is really expensive. It's expensive to eat vegetarian."
Family routine	Morning and evening routines include homework, organized sports, meal time, chores, and long driving distances—difficult to create additional time for cooking healthy meals of family PA	"It is also hard because you know my daughter is in softball too, and with practice, sorry, I have no time whatsoever, running, you know, I work in [town name], have to run all the way back here get her to practice or get her to a game, I don't have time to stop at the grocery store at night before, I don't have time, especially during softball season, there is no time to go to the grocery store half of the time for dinner, it's you eat there at the field or you, you know run to Dairy Queen or McDonalds just so your kid can get some sleep before school."
Driving distances	Extended, sometimes hazardous driving distances decreases time availability at home	"My downfall is going through the drive-thru, especially because we live so far out of town."
Competing priorities	Parent work hours, child participation in organized sports or extracurricular activities, and homework are viewed as competing with eating healthy meals or family PA	"Our night is so busy, already, you get home, you cook, you finish homework, you take a bath, you get ready for bed. . . . I guess you could fit it in while you're making dinner and what not, but that's the whole supervised thing that usually while I am cooking dinner they are doing something else to check off our nightly routine, you know taking a bath, or picking up their clothes . . ."
Strategies		
Share ideas/improve knowledge through peer learning	Peer learning from other local families is perceived as a positive and helpful form of gaining new information	"I love cooking, but even myself as a mother, and as a family, we do from time to time get in a rut. And, I never was a lady that exchanged recipes or even looked at them, you know, I don't know, I've just, but I can see why women have done that and why men do that and you know, it is neat to get recipes from other people that do a recipe exchange program of, you know this is something we make at our home and it's simple, it's easy, it's nutritional, you know, and that's getting people involved too."
Creating fun	Parents are interested in introducing healthy behaviors in the home through creative, fun activities	"If you take that 10 or 15 minutes to come up with something to do with the kids, you actually are going to enjoy your child more, you're going to enjoy your home life a lot more, but it takes time to be creative and come up with those ideas."
Regular activities help create habit	Parents reported appreciating activities that are meant to be incorporated into a regular routine (daily, weekly) with reminders	"If it's on the fridge, it's a good reminder, and you could put it into routine, after homework was done."
Send informational materials home with kids	Printed information coming home with children from the out-of-school intervention is an acceptable way to share information with parents	"I would like to see like you know, the literature, especially in my son's backpack when he gets home, because it's, I look through it every night when it's time to do homework and it would be nice to see, you know once or twice a week something, and maybe you know, new ideas, and I would be especially, would really like to see like the cooking, if you guys did have like a family night, see the new cooking ideas and recipes and that kind of stuff."

(continued)

Table 2. (continued)

Theme	Description	Participant Quotes
Program provides all needed supplies/incentives	All items needed for healthy family-based activities must be provided by the intervention, including incentives for children to complete activities at home with family	"Well maybe getting them (exercise equipment) for one . . . like tonight, when we are getting back so late, they haven't even got dinner yet, for one, and she don't have (exercise equipment)."
		"The prizes are always kind of good incentives for the kids, even if they're not even huge, you know like the reading program at school, when they get, read a certain amount, they mark them on their folders or whatever and then when they hit certain, marks, they get little prizes and stuff and even if they're not huge, like [name] hit his mark the other day, and he was like pretty psyched."
Storytelling and multicultural activities	Multicultural learning is valued by families and can be incorporated into healthy at home activities, especially sharing stories and lessons about health through the tradition of storytelling	"I like the idea of language, Spanish was my first language, so my children learn Spanish and they are also learning [their tribal language], I think the more exposure the children have to language, even if it isn't their Native language, the better, because we all need to develop a strong cultural awareness. . . . I don't think you should push it on them, but I think everybody should be exposed to it."

Abbreviation: PA, physical activity.

engaging in multicultural activities, such as learning the names of healthy foods in the language of the local tribes or counting off numbers in Spanish during PA games.

Last, the inclusion of elders in sharing wisdom on healthy living and well-being was described as a source of strength for engaging children in positive behaviors and sharing culturally relevant lessons. Parents suggested engaging elders in meals and family night activities.

Barriers

Resources were identified as a barrier to support children in healthy behaviors at home. Limited resources referred to the perceived affordability of PA equipment (eg, fitness trackers, sports equipment) that might be required for at-home PA with children, affordability of fresh fruits and vegetables, and inconvenient or unusual ingredients needed for a healthy recipe.

Limited space inside homes for indoor PA and lack of yard space were also an issue for some families, along with insufficient community resources, such as indoor fitness facilities that permit children to attend, or safe walking trails. This barrier overlapped with safety concerns; some parents were unable to support their children in playing outside due to proximity of yard to busy roads, or other concerns such as drugs and violence in the area.

Child preferences for food (allergies, sensitivities, vegetarianism) were described as challenges for healthy eating in the home. This was especially challenging for families with multiple children and differing food preferences or dietary needs, requiring problem-solving for healthy meals amid the varying requirements.

Family routines and other priorities were also key challenges. Some participants reported having no "wiggle room" in the evening routine, while others reported being able to fit between 5 and 30 minutes of a new healthy activity into the evening routine. Family routines were characterized as full of activities— such as homework and house chores—that parents were weary of sacrificing for healthy activities. Most parents had day jobs, leaving room for only a strict after-work schedule.

Long driving distances in hazardous seasonal conditions (darkness, snow, ice) contributed to inflexible evening schedules. This was also frequently cited as a barrier to cooking healthy meals—many families found it convenient to go to a fast-food or drive-through restaurant for family dinner.

Prioritizing child participation in organized sports and dedicated homework time were frequently mentioned as barriers. Parents perceived child participation in organized sports as replacing time for shared PA participation in the home and placed dedicated time for homework at odds with time that may otherwise be utilized for cooking a healthy meal together.

Strategies

Suggestions for meaningful and practical parental engagement at home centered on peer knowledge-sharing, creating habits through fun, regularly scheduled

activities, promoting culture-based learning, and significant program support and communication in the form of supplies, informational reminders, and incentives.

Parents expressed a desire to learn more about engaging with their children and were enthusiastic about learning information from other families. The benefit of peer learning was described as 2-fold; first, to learn favorite healthy recipes from other families using ingredients deemed acceptable by their children, and second, to gain the opportunity to get to know other families.

The theme of fun was interwoven into parents' interests; parents hoped to improve knowledge and wanted to learn how to translate knowledge into the home environment in an entertaining, enjoyable way.

Interest was expressed in learning how to create a regular routine of healthy eating and PA; and suggestions for this included scheduled weekly activities for the morning or evening, with reminders in the home (like a magnet for the refrigerator). Information and reminders could be sent home with children, and any supplies necessary for activities—such as fitness tools or food items— must be provided.

Parents emphasized that children are motivated by prizes or awards. These outside incentives were described as an effective way to promote child-initiated parent engagement; for example, when the child knows she/he will receive an incentive in the OSP for completing a healthy behavior at home, she/he is more likely to initiate parent engagement to participate in the activity.

Last, parents expressed an interest in weaving cultural elements from a variety of local and global cultures into healthy behaviors at home. This strategy encouraged multicultural and multigenerational learning, featuring languages from several different Northern Plains tribes, Spanish, German, and other European languages and cultural traditions, and storytelling. Parents emphasized the value of learning about cultural diversity to reduce discrimination. Land-based learning was also described as a potential strategy for engagement, where meaningful local geographic features or outdoor spaces and learning are the focal point of a family activity.

Discussion

The purpose of this study was to advance understanding of enhancers and barriers for rural parents living on an AI reservation to engage in healthy behaviors with their children at home.

Overall, parents expressed interest promoting healthy lifestyle behaviors in the home environment, and a willingness to learn new strategies from other families in the community and skill-building opportunities. The tone of the focus groups and interviews was promising, yet parents also expressed distinct challenges in motivation, limited resources for implementing such changes, long driving distances, and weather concerns associated with living in rural and Northern locations. Several themes identified in this study align with the existing (yet scarce) literature on parent perceptions on support for childhood obesity prevention interventions. However, this study advances knowledge about promoting parental engagement by introducing several strengths, barriers, and recommended strategies that may be specifically useful among rural and AI reservation community families.

Interaction and Learning Together

The value of parental role modeling to promote healthy habits for their children in the home is recognized by low-income, ethnic minority, and suburban working parents, and has been shown to serve as a motivator for parents to maintain healthy behaviors.[32,35] This sentiment was expressed among parents in this study, describing how their own activities provide engagement opportunities for children to join in. In the context of promoting parental engagement, role modeling may be used as a motivator for parents to initiate healthy behaviors in the home environment.

Parents also described a wish to learn from other families attempting to promote healthy behaviors for their children in the home environment, noting the meaningfulness of gaining the interaction and support from other parents in the local area. Peer learning as an enhancer to parental engagement in interventions is consistent with the literature, where parents view peer interaction with other families as a major benefit to involvement and reason for continued attendance.[31] This theme stands out as one that may be especially relevant to families living in rural areas, where incidental interaction in neighborhoods or common gathering areas may be less frequent than in suburban and/or urban areas. The need for learning skills that can be applied in the home environment through programmatic material and trainings or "sources of authority" such as trained staff was present in the literature; and parents sought training and support on how to change child habits in the home and manage changes while avoiding punishment and conflict.[32,40] Other practical skills included hands-on activities such as family cooking nights or community field trips to learn about resources for walking trails in the area. These types of practical sessions have been shown to improve attendance and reduce attrition in childhood obesity prevention interventions.[31] Results from our study indicate that offering a combination of printed and electronic material and practical and skill-building sessions for families may also promote parental engagement in healthy activities with their children in the home setting.

Inclusive Activities

Activities that can include the whole families are also referred to as a "family-centered approach" and are known to promote enrollment and retention in childhood obesity prevention interventions.[31] This theme is consistent with our findings, where parents felt more likely to participate with their children in PA or a cooking activity in the home if they could also involve all other family members. Current study findings highlight a unique addition to this theme with an emphasis on including older generations, such as grandparents and/or community elders. While it is known that AI elders (and other Indigenous older adults/elders such as Alaska Natives and First Nations in Canada) value participation in community health promotion efforts,[41-43] likewise, our findings suggest parent-based motivation to include elders in efforts to support healthy behaviors for children in the home. This finding has implications for future intervention development, where home-based activities specify opportunities for inclusion of children of differing ages, parents and/or other caretakers, and elders.

Time and Resources

Lack of time and resources were emphasized as barriers to parental engagement, which is consistent across prior studies.[31,34] Issues such as changing family circumstances, scheduling conflicts with out-of-school activities such as sports or extracurricular events, and lack of transportation were identified as common barriers for participation in both at-home parental engagement and intervention attendance. This theme is echoed in the literature, where rural families express concern that options for family-based, physically active opportunities were scarce due to limited resources.[40] A recent review of barriers and facilitators to attendance for childhood obesity prevention programs characterized the importance of child enjoyment or fun as a motivator for parents to support continued participation even in the face of personal or logistical challenges.[31] Findings from our study extend this concept into the home environment; and parents described child-initiated activities as a main force for engagement in health promotion activities in the home. When kids are having fun or enjoying the activities, parents will find time amid busy schedules and competing priorities to engage in the home environment.

Culture-Focused Activities

Parents expressed an interest in engaging in culturally diverse activities with their children to promote healthy behaviors, describing PA games that they once played (and their grandparents played) growing up as meaningful activities to do together as a family. Learning names of healthy foods in a local tribal language or another language of their ancestry was suggested as another good way to create excitement and cultural relevance around healthy foods. Cultural tailoring to childhood obesity prevention interventions has proven to be a draw for parental participation; for example, families in the GEMS intervention for female African American youth reported that they were initially attracted to the program because of culturally specific content.[28] Importantly, parents in our study unanimously reported interest in engaging with children around tribal languages and games, and specified that multicultural learning was also of importance—including tribal and non-tribal languages and PAs. Thus, future intervention development efforts including cultural adaptation for local context and activities focused on diverse cultural elements of PA and foods may garner increased parental engagement.

This study has several limitations. Most notably, the sample was relatively small and based across 2 communities located on one AI reservation. As a result, information is specific to the climate and rural nature of these communities and may not reflect the same barriers, opportunities, and strategies as other communities. This reservation setting is unique in its combination of AI and non-AI families, reflected in the participant population (52% AI). This setting and composition of AI and non-AI parents may impart important social dynamics on findings, which may differ from other more homogenous AI reservations. Despite these limitations, this study makes an important contribution by advancing understanding of parent perceptions on engagement in healthy behaviors with their children in the home environment among rural families living on an AI reservation—a generally understudied population. The use of focus group methodology to collect data is a strength in that it generated information on topics that could be corroborated by overall group agreement (eg, time management, resources, driving distances, providing a meal at parent night) and topics where consensus did not occur (eg, length of time available in evenings for activities, food and meal preferences); and this created a sense of themes that were generally accepted or known compared with topics that were disputed, or where differing lived experiences contrasted. Interviews provided a comprehensive perspective on the lived experience of each rural family. The fullness of each account and the extent of repetition of themes and subthemes provided the basis for achieving saturation of themes.[37,44] In this sample, parents provided meaningful and practical reflections and suggestions for future application to childhood obesity prevention intervention development.

Implications for Practice

The results suggest that parents living on a rural AI reservation experience many similar enhancers and barriers to engaging in healthy nutrition and PA behavior with their children in the home environment to inform future intervention development. Parents suggested recommendations for improved engagement such as peer learning from other families in rural communities, inclusive home-based activities for all family members (including elders), and specific activities featuring diverse cultural activities and languages that may facilitate improved engagement and attendance. Childhood obesity prevention interventions can utilize these factors to develop strategies that meet the needs of parents and provide support materials that address barriers identified. In turn, these activities could promote lasting health behavior change to increase family-based PA and healthy nutrition to prevent childhood obesity.

Author Contributions

Authors Brown, Harris, Tryon, and Cooksley designed the study and conducted the data collection. Pedersen and France completed the data analysis process, with feedback and approvals from all other authors and the Community Advisory Board. Pedersen, Brown and Harris conceptualized the article and Pedersen developed the written draft. Harris, Brown, and France contributed substantive revisions to the article, while Tryon and Cooksley provided review for accuracy of process and community description.

Acknowledgments

The authors of this manuscript thank the parents who participated in this study, and the community advisory board for their valuable contributions and review of this manuscript.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: Research reported in this publication was supported by the National Institute of General Medical Sciences of the National Institutes of Health under Award Number P20GM103474. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

ORCID iD

Maja Pedersen https://orcid.org/0000-0001-6072-720X

References

1. Ogden CL, Carroll MD, Lawman HG, et al. Trends in obesity prevalence among children and adolescents in the United States, 1988-1994 through 2013-2014. *JAMA*. 2016;315:2292-2299.
2. Falkner NH, Neumark-Sztainer D, Story M, Jeffery RW, Beuhring T, Resnick MD. Social, educational, and psychological correlates of weight status in adolescents. *Obes Res*. 2001;9:32-42. doi:10.1038/oby.2001.5
3. Noonan CW, Brown BD, Bentley B, et al. Variability in childhood asthma and body mass index across Northern Plains American Indian communities. *J Asthma*. 2010;47:496-500. doi:10.3109/02770901003759436
4. Freedman DS, Dietz WH, Srinivasan SR, Berenson GS. The relation of overweight to cardiovascular risk factors among children and adolescents: the Bogalusa Heart Study. *Pediatrics*. 1999;103(6 pt 1):1175-1182. doi:10.1542/peds.103.6.1175
5. Johnson JA 3rd, Johnson AM. Urban-rural differences in childhood and adolescent obesity in the United States: a systematic review and meta-analysis. *Child Obes*. 2015;11:233-241. doi:10.1089/chi.2014.0085
6. Ogden CL, Flegal KM, Carroll MD, Johnson CL. Prevalence and trends in overweight among US children and adolescents, 1999-2000. *JAMA*. 2002;288:1728-1732.
7. Steinbeck KS. The importance of physical activity in the prevention of overweight and obesity in childhood: a review and an opinion. *Obes Rev*. 2001;2:117-130.
8. Lobstein T, Baur L, Uauy R; IASO International Obesity Task Force. Obesity in children and young people: a crisis in public health. *Obes Rev*. 2004;5(suppl 1):4-104. doi:10.1111/j.1467-789X.2004.00133.x
9. Andrews KR, Silk KS, Eneli IU. Parents as health promoters: a theory of planned behavior perspective on the prevention of childhood obesity. *J Health Commun*. 2010;15:95-107. doi:10.1080/10810730903460567
10. Uauy R. Progress in preventing childhood obesity: how do we measure up? *Matern Child Nutr*. 2009;5:93-94.
11. Bradley RH, McRitchie S, Houts RM, Nader P, O'Brien M; NICHD Early Child Care Research Network. Parenting and the decline of physical activity from age 9 to 15. *Int J Behav Nutr Phys Act*. 2011;8:33.
12. Ricci CL, Brown BD, Noonan C, et al. Parental influence on obesity in Northern Plains American Indian youth. *Fam Community Health*. 2012;35:68-75.
13. Skelton JA, Beech BM. Attrition in paediatric weight management: a review of the literature and new directions. *Obes Rev*. 2011;12:e273-e281. doi:10.1111/j.1467-789X.2010.00803.x
14. Stice E, Shaw H, Marti CN. A meta-analytic review of obesity prevention programs for children and adolescents: the skinny on interventions that work. *Psychol Bull*. 2006;132:667-691. doi:10.1037/0033-2909.132.5.667
15. Prinz RJ, Smith EP, Dumas JE, Laughlin JE, White DW, Barrón R. Recruitment and retention of participants in prevention trials involving family-based interventions. *Am J Prev Med*. 2001;20(1 suppl):31-37. doi:10.1016/S0749-3797(00)00271-3
16. McCabe S, Macnee CL. Weaving a new safety net of mental health care in rural America: a model of integrated

practice. *Issues Ment Health Nurs*. 2002;23:263-278. doi:10.1080/016128402753543009
17. Rhodes P. *Mental Health and Rural America: Overview and Annotated Bibliography*. Hauppauge, NY: Nova Science; 2014.
18. Probst JC, Moore CG, Glover SH, Samuels ME. Person and place: the compounding effects of race/ethnicity and rurality on health. *Am J Public Health*. 2004;94:1695-1703. doi:10.2105/AJPH.94.10.1695
19. Krout JA. *Providing Community Based Services to the Rural Elderly*. Vol 165. Thousand Oaks, CA: Sage; 1994.
20. Kane CF, Ennis JM. Health care reform and rural mental health: severe mental illness. *Community Ment Health J*. 1996;32:445-462. doi:10.1007/BF02251045
21. Greenberg Quinlan Rosner Research. Perceptions of rural America. https://www.wkkf.org/resource-directory/resource/2002/12/perceptions-of-rural-america. Published December 9, 2002. Accessed April 23, 2019.
22. Karim G. In living context: an interdisciplinary approach to rethinking rural prevention. *NIDA Res Monogr*. 1997;168:398-412.
23. Beets MW, Beighle A, Erwin HE, Huberty JL. After-school program impact on physical activity and fitness: a meta-analysis. *Am J Prev Med*. 2009;36:527-537.
24. Skouteris H, McCabe M, Swinburn B, Newgreen V, Sacher P, Chadwick P. Parental influence and obesity prevention in pre-schoolers: a systematic review of interventions. *Obes Rev*. 2011;12:315-328. doi:10.1111/j.1467-789X.2010.00751.x
25. Brown B, Harris KJ, Heil D, et al. Feasibility and outcomes of an out-of-school and home-based obesity prevention pilot study for rural children on an American Indian reservation. *Pilot Feasibility Stud*. 2018;4:129. doi:10.1186/s40814-018-0322-4
26. Benke C, Bailey S, Eldridge G, Lynch W, Martz J, Paul L. 4-health: a programmatic evaluation of a parent-based childhood obesity prevention program. *J Youth Dev*. 2016;8:32-45. doi:10.5195/JYD.2013.83
27. Rosenkranz RR, Coleman KJ, Geller KS, Dzewaltowski DA, Hastmann TJ, Welk GJ. HOP'N After-School Project: intervention description and process evaluation of an obesity prevention randomized controlled trial: 607. *Med Sci Sports Exerc*. 2011;43:23.
28. Story M, Sherwood NE, Himes JH, et al. An after-school obesity prevention program for African-American girls: the Minnesota GEMS pilot study. *Ethn Dis*. 2003;13(1 suppl 1):S54-S64.
29. Macaulay AC, Paradis G, Potvin L, et al. The Kahnawake Schools Diabetes Prevention Project: intervention, evaluation, and baseline results of a diabetes primary prevention program with a native community in Canada. *Prev Med*. 1997;26:779-790. doi:10.1006/pmed.1997.0241
30. Potvin L, Cargo M, McComber AM, Delormier T, Macaulay AC. Implementing participatory intervention and research in communities: lessons from the Kahnawake Schools Diabetes Prevention Project in Canada. *Soc Sci Med*. 2003;56:1295-1305. doi:10.1016/S0277-9536(02)00129-6
31. Kelleher E, Davoren MP, Harrington JM, Shiely F, Perry IJ, McHugh SM. Barriers and facilitators to initial and continued attendance at community-based lifestyle programmes among families of overweight and obese children: a systematic review. *Obes Rev*. 2017;18:183-194. doi:10.1111/obr.12478
32. Luesse HB, Paul R, Gray HL, Koch P, Contento I, Marsick V. Challenges and facilitators to promoting a healthy food environment and communicating effectively with parents to improve food behaviors of school children. *Matern Child Health J*. 2018;22:958-967. doi:10.1007/s10995-018-2472-7
33. Grow HMG, Hsu C, Liu LL, et al. Understanding family motivations and barriers to participation in community-based programs for overweight youth: one program model does not fit all. *J Public Health Manag Pract*. 2013;19:E1-E10. doi:10.1097/PHH.0b013e31825ceaf9
34. Nepper MJ, Chai W. Parents' barriers and strategies to promote healthy eating among school-age children. *Appetite*.2016;103:157-164.doi:10.1016/j.appet.2016.04.012
35. Mailey EL, Huberty J, Dinkel D, McAuley E. Physical activity barriers and facilitators among working mothers and fathers. *BMC Public Health*. 2014;14:657. doi:10.1186/1471-2458-14-657
36. Pope C, Mays N. *Qualitative Research in Health Care*. 3rd ed. Malden, MA: Blackwell; 2006.
37. Padgett DK. *Qualitative and Mixed Methods in Public Health*. Thousand Oaks, CA: Sage; 2012.
38. Vaismoradi M, Turunen H, Bondas T. Content analysis and thematic analysis: implications for conducting a qualitative descriptive study. *Nurs Health Sci*. 2013;15:398-405. doi:10.1111/nhs.12048
39. Elo S, Kyngäs H. The qualitative content analysis process. *J Adv Nurs*. 2008;62:107-115. doi:10.1111/j.1365-2648.2007.04569.x
40. Dixey R, Rudolf M, Murtagh J. WATCH IT: obesity management for children: a qualitative exploration of the views of parents. *Int J Health Promot Educ*. 2006;44:131-137. doi:10.1080/14635240.2006.10708085
41. Varcoe C, Bottorff JL, Carey J, Sullivan D, Williams W. Wisdom and influence of elders: possibilities for health promotion and decreasing tobacco exposure in First Nations communities. *Can J Public Health*. 2010;101:154-158.
42. Kahn CB, Reinschmidt K, Teufel-Shone NI, Oré CE, Henson M, Attakai A. American Indian elders' resilience: sources of strength for building a healthy future for youth. *Am Indian Alsk Native Ment Health Res*. 2016;23:117-133.
43. Lewis JP. American Indian/Alaska Native elders: a growing demographic that is changing how we view aging. *J Gerontol Soc Work*. 2016;59:277-280. doi:10.1080/01634372.2016.1196804
44. Creswell JW. *Qualitative Inquiry & Research Design*. Thousand Oaks, CA: Sage; 2013. http://www.fach-portal-paedagogik.de/fis_bildung/suche/fis_set.html?FId=1116947.