

The RD Parent Empowerment Program Creates Measurable Change in the Behaviors of Low-Income Families and Children: An Intervention Description and Evaluation



Rosa K. Hand, MS, RDN, LD; Amanda S. Birnbaum, PhD, MPH; Betty Jean Carter, MS; Lisa Medrow, RDN, LD; Emily Stern, MS, RD; Katie Brown, EdD, RDN, LD

ARTICLE INFORMATION

Article history:

Accepted 7 August 2014
Available online 7 October 2014

Keywords:

Parent education
Community-based intervention
Healthy family behaviors
Interactive workshops
Nutrition education

2212-2672/Copyright © 2014 by the Academy of Nutrition and Dietetics.
<http://dx.doi.org/10.1016/j.jand.2014.08.014>

ABSTRACT

Dietary and physical activity habits are developed early in life and are influenced by family environments. We describe and evaluate an intervention for low-income families to encourage healthy habits. The RD Parent Empowerment Program (<http://www.eatright.org/programs/kidseatright/activities/content.aspx?id=6442477891>) consists of four workshops centered on the 8 Habits of Healthy Children and Families (Academy of Nutrition and Dietetics Foundation). Registered dietitian nutritionists conduct the workshops in school and community settings using a structured leader guide and tailor the communication and interactive activities to the audience. Participants are parents of young children. Our goals were to use a phenomenologic approach to elicit participant feedback, determine whether participants in the RD Parent Empowerment Program made healthier choices for their families after attending the workshops, and identify which elements of the program participants believed contributed most to its success. The evaluation design used a pragmatic, mixed-methods approach utilizing post-intervention focus groups and pre–post intervention scores on the Family Nutrition and Physical Activity (FNPA) survey. All workshop attendees aged 18 years or older were eligible to participate in the evaluation. One hundred twenty-three parents participated in the intervention across seven sites. Focus group results were analyzed using thematic analysis methods to match themes to the main intervention goals. *t* Tests were used to compare pre- and postintervention FNPA scores and demographic characteristics pooled across sites. FNPA scores significantly improved from pre- to postintervention by a mean of 4.3 FNPA points (6.5%; $P < 0.01$). Focus group participants reported behavior changes as a result of the program and identified the site leaders as integral to the program's success, triangulating the results. The RD Parent Empowerment Program generates meaningful self-reported behavior change in parents. Long-term sustainability of the changes must be investigated.

J Acad Nutr Diet. 2014;114:1923-1931.

ESTABLISHING HEALTHY FAMILY BEHAVIORS EARLY IN life is important to promote healthy habits and prevent childhood overweight and its associated negative physical, mental, and social effects.^{1,2} There is evidence that weight-related behaviors developed in childhood persist into adulthood.³⁻⁶ Parents and caregivers are primary influencers of young children's dietary and physical activity habits, setting the stage for a child's diet quality and the amount of time spent in physical activity.⁷ They also set family norms for mealtime behaviors,⁸ screen time and sedentary activities,⁹ and bedtime routines.¹⁰ Research shows a 40% lower prevalence of obesity among children who regularly eat dinner as a family, get adequate sleep at night, and are limited in daily screen time.¹¹ For these reasons,

interventions that promote early formation of healthy family diet, activity, and sleep habits have the potential to have lasting effects. Evidence indicates that engaging parents in behavior change efforts to facilitate healthy habits in young children is both feasible and effective.¹²

The RD Parent Empowerment Program (<http://www.eatright.org/programs/kidseatright/activities/content.aspx?id=6442477891>), developed by the Academy of Nutrition and Dietetics Foundation in collaboration with Healthy Children, Healthy Futures, is a workshop series led by registered dietitian nutritionists (RDNs) and dietetic interns (DIs) to motivate and support parents to make targeted changes in their family health environments and behaviors. Here we describe the intervention and evaluate the extent to which participation in

the RD Parent Empowerment Program improved parents' self-reported ability to make healthy changes for themselves and their families.

METHODS

Intervention

Feasibility Pilot. During 2012, 12 schools in three cities participated in a feasibility pilot of the RD Parent Empowerment Program.¹³ The program was a series of four school-based parent workshops promoting healthy family diet and activity behaviors and environments. Schools were selected from urban public school districts (in Chicago, IL; San Francisco, CA; and Washington, DC) with which the investigators had previous connections or had implemented other programs. Within each district, four schools were selected based on economic need (Title I school) and the interest and commitment of school administrators. RDNs to serve as leaders for the workshop series at each school were recruited through the city dietetic associations. Applicants (7 from Chicago; 5 from Washington, DC; and 12 from San Francisco) were interviewed via videoconference; those selected were matched to schools based on relevant language skills and ability to travel to the school sites.

Site and Leader Selection and Training. At the conclusion of the 2012 pilot, the program developers identified the most active school–RDN team in each city and invited the team to participate in a revised workshop series during 2013. The remaining RDN leaders in each city were invited to identify and partner with an interested community-based after school or early childhood education program, and apply to participate in the 2013 program. One RDN in each city applied and was accepted. In addition, due to an interest in piloting the program in a rural site, one early childhood education site in northeastern Tennessee, with leaders from the East Tennessee State University dietetic internship program, were recruited through professional networks. Across cities, participating sites served primarily African-American, Hispanic, or Chinese lower-income children and families. Head Start community sites (n=3) served children whose families fell below the adjusted poverty guidelines or met other Head Start admission criteria.¹⁴

In addition to demographic factors, sites' interest in and commitment to supporting the intervention was also a priority in site selection. Sites were asked to host a preliminary program meeting with the RDN leader and site staff, and sign a letter of commitment confirming the site's agreement to support the workshops. Each site received a \$250 stipend. At least one additional DI was recruited at each site during 2013 to assist the leaders.

For the 2013 program, all leaders participated in three 1-hour team training webinars led by the program developers. Before this training, the East Tennessee State University leaders viewed archived training webinars from the 2012 program. Training for workshop leaders focused on three key areas: leader guides that outline the structure and key messages for each workshop, tailoring techniques to help leaders adapt the workshops to meet the needs of their particular audiences, and Family Nutrition and Physical Activity (FNPA) survey (described below) administration and interpretation.

Intervention Content, Training, and Implementation. The RD Parent Empowerment program is a series of four, 1.5- to 2-hour interactive parent workshops. The workshops were delivered between February and May 2013, with a minimum of 3 weeks between workshops. One complete workshop series was conducted at each site.

Each workshop focused on one or more of the 8 Habits of Healthy Children and Families (8 Habits). The 8 Habits (Figure 1) is a set of family behavioral and environmental health practices recommended to reduce the risk of childhood obesity. The 8 Habits was developed by the Academy of Nutrition and Dietetics Foundation (Academy Foundation) and Healthy Directions based on an earlier version called the 8 Habits of Healthy Kids. The original version was developed through an iterative, collaborative process, including expert round tables, review of literature and theory, focus groups with parents and children, and ongoing review by an expert advisory board.¹⁵ The revised version was updated and renamed to emphasize the important role of families, integrating constructs from the FNPA screening tool.^{16,17}

Along with the 8 Habits, the FNPA was a cornerstone of the intervention. FNPA is a 20-item survey on the self-reported frequency of specific obesogenic or protective behavioral and environmental factors in the home. Example item stems include, "My child eats breakfast...", "Our family eats fast food...", and "Our family finds ways to be physically active together..." Parents report the frequency of each item using a 4-point scale (never, sometimes, usually, and always), and upon completion are provided a report with a summative score and a set of tailored recommendations.¹⁶ The FNPA survey has been validated to relate to body mass index (BMI) and to

Habit no.	Habit
1	Be physically active at least 1 h/d
2	Spend <2 h/d playing video, computer, and cellular telephone games or watching television
3	Eat a healthy breakfast every day
4	Eat vegetables and fruits at all meals and snacks
5	Make time for healthy family meals at home
6	Be wise about portion size
7	Drink water, low-fat, or fat-free milk instead of soft drinks and other sweetened beverages
8	Ensure regular bedtime for your children and teens to include at least 9 h sleep every night
^a Academy of Nutrition and Dietetics Foundation.	

Figure 1. The 8 Habits of Healthy Children and Families,^a used as a cornerstone for the intervention and evaluation of the RD Parent Empowerment Program.

predict BMI change from one school year to the next in first-grade children.¹⁷ Possible FNPA scores range from 20 to 80.

Synchronous online training webinars were conducted for all workshop leaders (RDNs and DIs), with an emphasis on delivering the workshops in a similar fashion across all sites. The RD Parent Empowerment Program leader guide, developed by the Academy Foundation, contains detailed descriptions for leading each parent workshop, including timelines and scripts for each activity. The guide was revised by the Academy Foundation in 2012 based on feedback from leaders and participants in the 2012 pilot and the updated 8 Habits. Three RDN members of the Academy's Pediatric Nutrition Dietetic Practice Group provided expert review, then the updated version was reviewed and approved by the Academy's Knowledge Center and translated into Spanish and Chinese.

The 8 Habits were presented in the first workshop and reinforced in the remaining three workshops. Workshop were: the 8 Habits, Shop Smart, Cook Healthy, and Eat Right. Each workshop included an introductory activity, an interactive learning component, goal setting, a healthy recipe making and tasting activity, and time for parents to interact with each other and the workshop leader. When feasible, children arrived at the site with their parents and child care was provided. At the conclusion of the workshop, children joined their parents to participate in the interactive cooking and tasting activities. Participants used a program guidebook, available in English, Spanish, and Chinese, which supported the information presented in all the workshops. When workshops were offered in Spanish or Chinese, the RDN leader was fluent in that language.

Tailoring. The RDNs and DIs were trained on methods for tailoring the discussion to best meet the needs of participants. Tailoring is a process through which information already known about an individual or audience segment is used to shape the delivery or messaging around a new topic, with the goal of increasing relevancy, thereby improving the probability of audience attention and message effectiveness. Tailoring has been demonstrated to be valuable when creating messages and materials to serve low-income or minority communities.^{18,19} Leaders were encouraged to tailor workshop messages based on both baseline FNPA survey reports and on information about the neighborhood context based on an environmental assessment they performed before Workshop 1. For example, if FNPA reports for a particular group indicated consistently high sweetened beverage consumption, then the leader might dedicate extra time to the sweetened beverage component of the Shop Smart workshop. Leaders were trained that they could dedicate extra time to topics as appropriate, but no content was to be left out, to maintain consistency across sites. In addition, monthly webinars were held with all leaders to troubleshoot and ensure that the intervention was being delivered consistently.

FNPA. At the first workshop attended, parents completed a paper version of the FNPA survey in English, Chinese, or Spanish after reading a consent statement in the same language as the survey. Survey completion indicated consent. DI assistants at each site transferred the parents' answers from the paper version to the web-based form to generate the

individualized reports; however, the data stored in the website was anonymous. The only identifying information was the program site, the workshop number, and age and gender of both parent and child. At workshop 4, parents completed the FNPA again following the same procedures. Although individual FNPA reports served as an intervention tool, the de-identified, aggregated pre- and post-FNPA scores were also used for evaluation, as described below.

Evaluation

The evaluation design was developed using a set of guiding principles: make efficient use of limited resources (ie, funding and participants' time), maximize validity using multiple methods, and focus on the key intervention goals and targets. It was therefore decided to use a mixed-methods evaluation, combining qualitative data elicited through separate focus groups with parents and RDNs at the end of the program with quantitative pre–post assessment data generated as part of the intervention itself (ie, the FNPA). Institutional review board approval was obtained from Case Western Reserve University.

Attendance. Site leaders kept attendance lists at each workshop. Data were aggregated by the interventionists to determine the mean number of parents who attended each workshop.

Qualitative. The qualitative evaluation used focus groups with parents at each site after the final workshop, and a separate focus group with the RDN/DI leaders when all sites were finished with the series. Parent focus group discussion guides were developed to probe and learn in detail about participants' experiences, motivations, challenges, and successes in making family environment and behavior changes consistent with the FNPA and the 8 Habits. Focus group guides inquired about participants' reactions to workshop activities, materials, and techniques; perceptions about the workshop leaders and the extent to which they understood the families' contexts and concerns and tailored workshops accordingly; and changes in eating or physical activity that participants' families made through their workshop participation, as well as motivations, barriers, and facilitators for those changes. Moderators for the parent focus groups were recruited by coordinators in each city and selected by the investigators; moderators were required to have prior experience moderating focus groups, and could not be otherwise affiliated with the program. Each moderator completed an online human subjects protection training, reviewed the focus group discussion guide and protocol in advance, and participated in a synchronous focus group training webinar led by one of the authors. During training, the trainer reviewed the focus group discussion guide item by item, including probes and guidance about the research questions and the importance of adhering to the common protocol.

Parents were informed in advance of the opportunity to stay after workshop 4 to participate in the focus group. Participants received a small thank-you gift (\$10 value or less) selected by each program leader. Focus groups were conducted, recorded, and transcribed by the trained moderators in accordance with the institutional review board-approved protocol. Seven focus groups were held, although in one case only a single participant was able to attend; therefore, the discussion guide was

Theme	Description	Exemplary quotes
Small changes	Participants emphasized small behavior changes and substitutions they began making through the workshops	<ul style="list-style-type: none"> • “Learned to eat brown rice.” • “I think once you get use to eating it, it’s no big deal of having to consume it daily. Initially, we added a small amount of brown rice, now we’re adding more.” (F1) • “Like before the workshops I used to drink a lot of soda....a lot of soda and now it’s like more water, more water, more water. You all don’t understand how much soda I drank.” (F3) • “...when we went over, at the first one I came to, which was the second group, they talks about how do we prepare our meals and what was the meals we cooked the day before, what we were cooking that night and I had said fried chicken and spaghetti and I noticed how wrong that was. Maybe it could have been like just spaghetti and a vegetable or baked chicken instead of fried chicken. So I try not to fry any food as much as I used to. I try to bake or broil.” (F3) • “And pitas, because we tried the pocket pitas too and I know my grandmother...I don’t know but a lot of our cultural people come from the South. So they don’t eat the pita breads and you know all of those types of things. You introduce it to your family and it makes this grand change we really don’t pay attention to, but just that one thing alone it really change the order of eating in your house.” (F3) • “I wanted to learn about different things I could substitute—some of the healthier items for some of the nonhealthy items when I’m shopping. Like I learned about new cereal to eat from coming to class that was helpful and I still eat that cereal until this day.” (F4) • “Let’s go back to the diet because I think that more importantly for myself being heavy I think now I’m a little more aware of what I eat as opposed to being nonchalant about what I’m putting into my body. Now I’m a little more aware and I’ll try and watch how much I eat as opposed to eating what I wanted. So that is very important to me personally because that’s a struggle for me. That’s a goal for me to make that a part of my lifestyle.” (F5) • “I mean I am going to continue to do what it is that I’ve learned in class and try to come up with some more ways to actually come up with more dishes that is actually healthy.” (F6)
Label reading	Participants reported increasing their label literacy and use of food labels to make purchase decisions	<ul style="list-style-type: none"> • “For a food item that says high in sugar, we buy less of that product. We learned how to read it now.” (F1) • <i>Participant:</i> “Again label watching. I went back home after one of the classes and I looked at like all of the canned goods and stuff that we had in the cabinets. I think it was like 50/50 as opposed to healthy foods. And

(continued on next page)

Figure 2. Themes regarding the types of changes implemented and participants’ (ie, parents’) reflections on the workshop and related exemplary quotes from participants in the RD Parent Empowerment Program.

Theme	Description	Exemplary quotes
		<p>then changing out or switching out to better foods.” <i>Facilitator:</i> “When you say 50/50, you mean 50% un-healthy and 50% healthy?” <i>Participant:</i> “Yes, right....But just label watching has caused me to switch out from juices, to jellies, just everything.” (F4)</p>
New foods	Participants reported uptake of new foods (ingredients and packaged/processed foods) and recipes introduced at workshops	<ul style="list-style-type: none"> • “We make these snacks at home after the workshop as well. We’ll use what we learned in daily life.” (F1) • “I have so many ways to use salsa nowadays. I had never been a salsa fan but you can spice up just about anything with salsa. I’ve been using it ever since I’ve been coming here. We made some chicken quesadillas and I didn’t know you could make quesadillas without a quesadilla maker.” (F5) • “I think it was the second workshop...she brought these crackers the second workshop right? Instead of giving the kids potato chips, we went to [the grocery store] and bought these crackers so I told them like ‘these are the new potato chips. You need to try them.’ So they all go like ‘can I have some?’ They all want the crackers thinking they potato chips.” (F6) • “One thing they got us to try is Greek yogurt. Now I, I had never thought about trying Greek yogurt. Never thought about substituting it for sour cream. I always thought sour cream was king and that was it. (<i>laughter</i>) But, I learned something about substituting plain Greek yogurt for sour cream, and if it hadn’t been for something like this I never would have tried that....So, just like the bean dip. I had had the bean dip, and I had always had the sour cream with it. Uh, like I said, they had the Greek yogurt there, and when I fixed it at home, of course, I added a little bit more spice, cumin, and a little more hot pepper. And I will say they didn’t fuss about the Greek yogurt.” (F7)
Adding fruit	Participants reported that adding fruit to their diets—especially for snacks—was a novel idea that they are implementing and their children are accepting	<ul style="list-style-type: none"> • “Most times with dinner you consider a veggie a necessity, but I never really thought about making sure you have a fruit at breakfast or making sure that you add a fruit and or a vegetable for lunch. I really never suggested that for snacks for my kids but more so now I’ll try it. Instead of sending them toaster pastry for snacks you know bag up some grapes and they enjoy it... Umm very surprising to me. I have a very finicky son and he’s a big meat eater...I almost have to force him to eat his fruits and veggies. Last night he even asked for some grapes and he’s asking for more grapes and fruit now.” (F5) • “Yeah. That is my problem. You know what...the biggest thing was adding that fruit to our meals, like my son he doesn’t intake a lot of fruits and it was so hard for him to try different foods but now he is open to

(continued on next page)

Figure 2. (continued) Themes regarding the types of changes implemented and participants’ (ie, parents’) reflections on the workshop and related exemplary quotes from participants in the RD Parent Empowerment Program.

Theme	Description	Exemplary quotes
		trying different foods, so you know, that is a good thing." (F3)
Other habits	Participants reported making changes in physical activity and sleep patterns based on the 8 Habits of Healthy Children and Families ^a	<ul style="list-style-type: none"> • "I know another thing was the exercising part. I am a career mom so a lot of times I am always home on the computer a lot and I'm engaged to answering phones and doing what I have to do. But my son....during this I learned to know the advantage of actually engaging with him more and doing the things that he wants to engage in, such as, like I said with music and dancing. He went "Mom let's play music" and once the music comes on, we are dancing. We are up. I am moving and I'm sweating. I am engaged, I'm getting the exercise in and it's fun and it actually builds more energy after you have that moment even if 15 to 30 minutes a day. It's good. It's well-needed and it works." (F3) • "I used to only sleep 3-4 hours a night in the past, I am sleeping 8 hours now." (F2)
Attendance	Participants reported that making time to attend was challenging or that adverse situations got in the way, but after their first experience they were inspired to return	<ul style="list-style-type: none"> • "...I missed days because my brother was in the hospital intensive care, but even under those stressful situations or family emergencies I still would push to try get here because it was that important to me." (F3)
Site Leaders	Participants expressed praise and appreciation for their site leaders and their ability to educate in a nonjudgmental manner	<ul style="list-style-type: none"> • "... she kept everyone engaged, parents and children... [She would] keep everyone involved and make you want to give your input." (F5) • "She makes the workshops pretty interesting." (F1) • "She was not just her informing us what is healthier for us, she also tries the food along with us." (F6) • "They [coleaders] were never judgmental. I mean they were like, 'Oh well, you tried.' You know, but, pat on the back. They never 'well you need to be doing your hour of exercise every day. Why didn't you do that?'" (F7)

^aAcademy of Nutrition and Dietetics Foundation.

Figure 2. (continued) Themes regarding the types of changes implemented and participants' (ie, parents') reflections on the workshop and related exemplary quotes from participants in the RD Parent Empowerment Program.

used to conduct an in-depth interview. In the other six focus groups, the number of participants ranged from four to 13. Focus groups were conducted in English (n=5) and Chinese (n=2). The bilingual moderator translated the two Chinese-language focus groups during transcription.

A telephone focus group was conducted with workshop leaders after the workshops concluded at all sites. The discussion guide paralleled the parent focus group guide, seeking the RDN/DI perceptions of their effectiveness in tailoring workshops to participants' needs and contexts, and their perceptions about changes in participants' family behaviors. The RDN/DI focus group (n=4) was conducted by one of the authors without knowledge of the results of the parent focus groups, and without the presence of the program's designers who had conducted all the RDN training and support webinars.

A thematic analysis process was used to analyze the data.²⁰⁻²² Two of the authors read all transcripts and developed an initial codebook with definitions. Codes were applied to the transcripts by one author using ATLAS.ti (2005, Scientific Software Development GmbH); additional codes were proposed by that author and reviewed by a second in an iterative process during coding. Each coded transcript was reviewed in its entirety by a second author and any points of disagreement were discussed and resolved. A total of 36 codes were developed and applied within ATLAS.ti. Here we focus on codes pertaining to participants' use of workshop experiences to implement changes in their own or their families' behaviors. Seven themes emerged across all focus groups, presented below. Representative quotes from all focus groups are included in the results. Each focus group was numbered and the source group is indicated in parenthesis at

the end of each quote (eg, F1-7). Following this analysis, the transcript of the RDN/DI focus group was reviewed to explore the extent to which RDN/DI perceptions were concordant or discordant with the themes.

Quantitative. FNPA survey analysis focused on the change in mean score aggregated across the sites from surveys identified as being taken at workshop 1 or 2 (pre) and those taken at workshop 4 (post), using a Student *t* test. Data were downloaded into JMP 9.0 (2012, SAS) for analysis and $P < 0.05$ was considered significant.

RESULTS

Attendance

Across sites, a total of 123 parents attended at least one workshop. Mean participation was 9.7 parents per workshop per site, with a median of 8 parents.

Qualitative

Across all focus groups, participants reported making changes in their own behaviors and their parenting practices in ways that were consistent with the 8 Habits:

I know my survey [FNPA] when I first got it, it was a little...ooh... TV, video games, or portion sizes or sleep or, you know, it was like off. So by the end of the workshop, it's like, wow, look how much I have change[d]. I don't do this no more, I don't do that no more, I don't do that no more. I really learned so much. (F3)

Dietary changes were discussed most frequently, with physical activity and sleep changes reported as well. Themes relating to the types of changes implemented, along with exemplary quotes, are presented in [Figure 2](#).

Across the focus groups, participants attributed their success in making changes to their workshop participation. Many examples of lasting changes were mentioned, particularly with respect to new foods or recipes that participants and their children tried during the workshops and subsequently purchased/prepared again at home. Despite this, some participants did report difficulty sustaining changes:

...It was only temporary and not because I didn't want to. Just because it is easy to fall back into old habits. So this is something that I'd have to put more effort, more of an effort to do. (F5)

In the site leader focus group, similar themes emerged. RDNs reported that parents described making small behavior changes stemming from the workshops. Many of the specific examples RDNs provided paralleled examples given by parents in their own focus groups, including substituting water for soda, incorporating vegetables in other foods, and using 20-minute home dance parties as a way to be physically active with their children. RDNs also emphasized the value of the tasting activities: "The parents said they hadn't tried the foods, and were like, 'I'm not going to buy it if I don't know if my kids are going to eat it.'" The RDNs mentioned hummus as an example of this; parents also mentioned hummus as well as tofu, chia seeds, Greek yogurt, and bean dip. Like the participants, the RDNs acknowledged the challenges. In the focus group, one RDN expressed empathy with the parents, saying, "It's hard to make behavior change." Another RDN

noted that although the small changes were encouraging and seemed to "plant a seed" for the future, she wondered, "What about the long run?"

Quantitative

Eighty parents across seven sites completed the pre-intervention FNPA survey, and 66 parents (82.5%) completed the postintervention FNPA survey. Demographic information is in the [Table](#). Participants who completed the pre- and postintervention FNPA did not differ significantly, except the mean age of postintervention respondents' children was significantly older than preintervention (8.9 years vs 7.5 years; $P < 0.02$). FNPA scores did not differ significantly by site (preintervention mean range=63 to 69, postintervention mean range=60 to 75). As shown in the [Table](#), FNPA scores significantly improved from baseline to Workshop 4 by a mean of 4.3 FNPA points (6.5%; $P < 0.01$). Of parents who completed the FNPA at the last workshop, 26% reported having attended two of four workshops, 21% had attended three of four, and 53% had attended all four.

DISCUSSION

These results suggest that the RD Parent Empowerment Program is feasible and effective in prompting behavior changes that are consistent with the 8 Habits. Although the evaluation used a pragmatic rather than a rigorous controlled design, the combination of qualitative and quantitative methods that were focused on the central workshop messages is strong. The triangulation between the parent and leader focus group responses as well as the FNPA—to the extent that similar anecdotes and examples were shared in separate focus groups conducted by different individuals—increases confidence in the validity of the responses. Although the FNPA survey has been validated to predict BMI change in school-aged children¹⁵ and has been used in at least one other study as a measure of behavior change,¹⁹ it is unclear how sensitive or specific a measure of change it is. One strong argument for the use of the FNPA in this evaluation was its versatility for use as an intervention tool as well as a source of quantitative data for program evaluation. This type of pragmatic approach to program evaluation is necessary in situations where evaluation funds are limited and concerns for participant burden are paramount. In the other intervention study that used the FNPA to measure outcomes, Roofe and colleagues²³ reported a 1-point change on the FNPA (using a 10 to 40 scoring system) after a service learning nutrition education program targeted to preschoolers and their families. In our evaluation, the finding of a 4.3-point change on the FNPA scored on a scale of 20 to 80 points is approximately double that of Roofe and colleagues²³ and appears to be a plausible result of the RD Parent Empowerment Program.

The data support the finding that parent education workshops are effective when aiming to increase health behaviors of children and families.¹² Parent programs experience barriers and can be difficult to sustain. When attendance is not mandatory, external demands such as schedule conflicts, tiring days, and urgent family situations (eg, illness or incapacity) can interfere with consistent attendance. The RD Parent Empowerment Program attempted to combat this barrier by offering incentives for

Table. Demographic information for parent participants in the RD Parent Empowerment Program who took part in the Family Nutrition and Physical Activity (FNPA) survey

Characteristic	First Workshop (1 or 2) (n=80)	Workshop 4 (n=66)	P value
	← mean±standard deviation →		
FNPA score	65.6±6.9	69.9±6.6	<0.01 ^{ax}
Child's age (y)	7.5±3.9	8.9±3.9	<0.02 ^{ax*}
Parent's age (y)	39.4±12.0	40.7±12.2	0.27 ^a
	← % →		
Child's sex (female)	52	42	0.3140 ^b
Parent's sex (female)	93	94	1.0 ^b

^aDetermined using Student *t* test.

^bDetermined using 2-tailed Fisher exact test.

**P*<0.01.

***P*<0.05.

parents, including onsite child care, refreshments, and useful small kitchen gadgets targeted to the needs of the participants. In addition, the RD Parent Empowerment Program worked to embed itself within larger structures and existing services such as food pantries or Parent Teacher Association/parent meetings. Together, these strategies may have assisted in retaining participants as well as enhancing the program's effectiveness, consistent with the recommendations of Lindsay and colleagues²⁴ that parent education programs may be most effective when they are part of a larger program. Support from workshop site administrators was crucial for successful parent recruitment, advertising, and workshop implementation.

Limitations of the study included having a small convenience sample with voluntary participation and lack of a control or comparison group. Participants were aware that their FNPA results would be used for research purposes; therefore, the responses may have been subject to social desirability bias. The inclusion of the focus group helps mitigate these concerns, because the very specific and spontaneous examples provided by parents would have been difficult to fabricate. However, not all parents participated in the focus groups, and it is likely that focus group participants were the most enthusiastic parents. In addition, it is unknown whether the changes reported in the focus groups will be maintained. Unfortunately, no Spanish-language focus groups were conducted, although it is possible that Spanish-speaking parents participated in focus groups conducted in English.

Another limitation of our evaluation was the inability to link attendance (program dose) to outcomes, or to link each participant's pre- and post-FNPA data. In addition, we collected baseline data at both the first and second workshop, which would affect dose and outcomes. Communities are always looking for feasible, affordable, evidence-based programs and we see this pragmatic evaluation as responsive to community needs.

To sustain and grow the program, The RD Parent Empowerment Program materials were revised again based on leader feedback and posted to the Academy's Kids Eat Right members-only website (www.kidseatright.org/volunteer) for Academy members to use in their communities. Materials include the program leader guide, community assessment worksheet, and a recorded online training webinar. The parent books are also available to download in English, Spanish, and Chinese. For additional support, sample files are posted, including a site letter of agreement, parent roster, parent workshop evaluation, and parent certificate.

Further work must determine whether the same changes are seen when the program is provided with less guidance and support to leaders than was available in this pilot. Incentives will not be available without further funding in the future. In addition, tailoring the messages was an important component of this pilot project. Tailoring messages for participants is included in the training webinar.

CONCLUSIONS

The strategy of RDN-led, community-based workshops shows promise in empowering parents in low-income families to make positive family environment and behavior changes. Positive results were likely attributable to the consideration of social, cultural, ethnic, environmental, and daily family routines and practices in this intervention. More research is needed to determine how RDNs can play the most effective role in targeting interventions to change family eating practices and related health practices in school and community settings.

Although the program results were encouraging, more research is needed to identify the specific components of the RD Parent Empowerment Program that resulted in the greatest influence on healthy family behaviors. Longitudinal studies may be useful to assess the long-term effect of the program on lasting behavior change and childhood weight.

References

- Centers for Disease Control and Prevention. Basics about childhood obesity. Overweight and obesity. <http://www.cdc.gov/obesity/childhood/basics.html>. Updated April 27, 2012. Accessed December 1, 2012.
- Tai A, Volkmer R, Burton A. Association between asthma symptoms and obesity in preschool (4-5 year old) children. *J Asthma*. 2009;46(4):362-365.
- Jones RA, Hinkley T, Okely AD, Salmon J. Tracking physical activity and sedentary behavior in childhood: A systematic review. *Am J Prev Med*. 2013;44(6):651-658.
- Mannino ML, Lee Y, Mitchell DC, Smiciklas-Wright H, Birch LL. The quality of girls' diets declines and tracks across middle childhood. *Int J Behav Nutr Phys Act*. 2004;1(1):5.
- Bjelland M, Brantsæter AL, Haugen M, Meltzer HM, Nystad W, Andersen LF. Changes and tracking of fruit, vegetables and sugar-sweetened beverages intake from 18 months to 7 years in the Norwegian mother and child cohort study. *BMC Public Health*. 2013;13:793.
- Craigie AM, Lake AA, Kelly SA, Adamson AJ, Mathers JC. Tracking of obesity-related behaviours from childhood to adulthood: A systematic review. *Maturitas*. 2011;70(3):266-284.
- Davison KK, Cutting TM, Birsch LL. Parents' activity-related parenting practices predict girls' physical activity. *Med Sci Sports Exerc*. 2003;35:1589-1595.
- Larson N, MacLehose R, Fulkerson JA, Berge JM, Story M, Neumark-Sztainer D. Eating breakfast and dinner together as a family: Associations with sociodemographic characteristics and

- implications for diet quality and weight status. *J Acad Nutr Diet*. 2013;113(12):1601-1609.
9. Salmon J, Timperio A, Telford A, Carver A, Crawford D. Association of family environment with children's television viewing and with low level of physical activity. *Obes Res*. 2005;13:1939-1951.
 10. Spruyt K, Molfese DL, Gozal D. Sleep duration, sleep regularity, body weight, and metabolic homeostasis in school-aged children. *Pediatrics*. 2011;127(2):e345-e352.
 11. Anderson SE, Whitaker RC. Household routines and obesity in US preschool-aged children. *Pediatrics*. 2010;125(3):420-428.
 12. Campbell KJ, Hesketh KD. Strategies which aim to positively impact on weight, physical activity, diet and sedentary behaviours in children from zero to five years: A systematic review of the literature. *Obes Rev*. 2007;8(4):327-338.
 13. Brown K, Medrow L, Carter BJ. RD Parent Empowerment Program. Speed session at: National Health Promotion Summit, Washington, DC, April 10, 2012.
 14. US Department of Health and Human Services, Administration for Children and Families. Head Start services. <http://www.acf.hhs.gov/programs/ohs/about/head-start>. Accessed November 29, 2012.
 15. Carter BJ, Birnbaum A, Hark L, Vickery B, Potter C, Osborne MP. Using media messaging to promote healthful activity among urban youth. *J Nutr Educ Behav*. 2005;37:98-99.
 16. Ihmels MA, Welk GJ, Eisenmann JC, Nusser SM. Development and preliminary validation of a Family Nutrition and Physical Activity (FNPA) screening tool. *Int J Behav Nutr Phys Act*. 2009;6:14.
 17. Ihmels MA, Welk GJ, Eisenmann JC, et al. Prediction of BMI change in young children with the Family Nutrition and Physical Activity screening tool. *Ann Behav Med*. 2009;38:60-68.
 18. Kumanyika S, Grier S. Targeting interventions for ethnic minority and low-income populations. *Future Child*. 2006;16(2):187-207.
 19. Hawkins RP, Kreuter M, Resnicow K, Fishbein M, Dijkstra A. Understanding tailoring in communicating about health. *Health Educ Res*. 2008;23(3):454-466.
 20. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77-101.
 21. Schindler J, Kiszko K, Abrams C, Islam N, Elbel B. Environmental and individual factors affecting menu labeling utilization: A qualitative research study. *J Acad Nutr Diet*. 2013;113:667-672.
 22. Hingle M, Nichter M, Medeiros M, Grace S. Texting for health: The use of participatory methods to develop healthy lifestyle messages for teens. *J Nutr Educ Behav*. 2013;45:12-19.
 23. Rooft NL. Improving families' nutrition knowledge through service learning. *J Allied Health*. 2011;40(4):194-198.
 24. Lindsay AC, Sussner KM, Kim J, Gortmaker S. The role of parents in preventing childhood obesity. *Future Child*. 2006;16(1):169-186.

AUTHOR INFORMATION

R. K. Hand is a senior manager, Dietetics Practice Based Research Network, Academy of Nutrition and Dietetics, Chicago, IL. A. S. Birnbaum is an evaluation consultant in Montclair, NJ. B. J. Carter is director, Healthy Children, Healthy Futures, Healthy Directions, Huntington, NY. L. Medrow is a Kids Eat Right Project specialist contractor, and K. Brown is national education director, Academy of Nutrition and Dietetics Foundation, Chicago, IL. E. Stern is a clinical dietitian, Morrison Healthcare Foodservice at Mountain States Healthy Alliance, Johnson City, TN; at the time of the study, she was a master's degree candidate, East Tennessee State University, Johnson City.

Address correspondence to: Rosa K. Hand, MS, RDN, LD, Dietetics Practice Based Research Network, Academy of Nutrition and Dietetics, 120 S Riverside Plaza Suite 2000, Chicago IL 60606. E-mail: rhand@eatright.org

STATEMENT OF POTENTIAL CONFLICT OF INTEREST

No potential conflict of interest was reported by the authors.

FUNDING/SUPPORT

The Academy of Nutrition and Dietetics Foundation received an educational grant from MetLife Foundation to develop and evaluate the RD Parent Empowerment Program.

ACKNOWLEDGEMENTS

The authors thank the site leaders who implemented this project: Jordan Clark; Livleen Gill, MBA, RD, LDN; Michelle Lee, PhD, RD, LDN; Esther Qing Situ, MBA, RD; Emily Stern; Carolyn Tampe, MS, RD, LDN; Soraya Valencia, RD, LDN; Ning Wan, MS, RD; and Sarah Waybright, MS, RD. The authors also thank Antonia Acosta, Academy of Nutrition and Dietetics, for creating and maintaining the Family Nutrition and Physical Activity data collection tool website; and Alison Steiber, PhD, RDN, Academy of Nutrition and Dietetics, for participating in formative discussions on the evaluation plan.