Using a social marketing approach to develop *Healthy Me, Healthy We*: a nutrition and physical activity intervention in early care and education

Amber E. Vaughn,¹ Rachel Bartlett,¹ Courtney T. Luecking,² Heidi Hennink-Kaminski,³ Dianne S. Ward^{1,2}

¹Center for Health Promotion and Disease Prevention, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

²Department of Nutrition, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

³School of Media and Journalism, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

Abstract

Although social marketing principles have been successfully employed in school-based interventions to prevent obesity, use in early care and education (ECE) settings has been limited. This paper describes the use of the social marketing approach to develop an ECE-based intervention that encourages an ECE provider–parent partnership to improve the quality of preschool children’s diets and their level of physical activity. A six-step social marketing approach for public health interventions guided the development of this ECE-based intervention. These steps were as follows: (i) initial planning, (ii) formative research, (iii) strategy development, (iv) program development, (v) implementation, and (vi) monitoring and evaluation. During this process, we reviewed current literature, conducted focus groups with ECE providers and parents, developed a detailed conceptual model and content map, created and tested the campaign concept, and developed final campaign materials along with strategies for its implementation. The final intervention resulting from this process was an 8-month campaign known as *Healthy Me, Healthy We*. The campaign is delivered by the child care center and includes branded materials for use in the classroom and at home. The final campaign is being evaluated in a cluster-randomized trial. *Healthy Me, Healthy We* offers an innovative approach to promoting healthy eating and physical activity during early childhood, a key developmental period, that leverages partnership between ECE providers and parents to affect behavior change.

Key words

Social marketing, Diet, Physical activity, Child care, Healthy behaviors

BACKGROUND

Early childhood (the period from 0 to 5 years old) is a time of rapid growth and development, laying the foundation for children’s future physical, emotional, and cognitive health [1]. Overweight and obesity during this period are associated with a myriad of negative physical, emotional, and social consequences (e.g., cardiovascular disease; metabolic, pulmonary, gastrointestinal, skeletal, and neurocognitive complications; lower self-esteem; depression; and reduced academic performance) [2–5]. Children who are overweight or obese in childhood are more likely to be obese as adults [6], and they carry the morbidity of these traditionally adult-onset chronic conditions longer [2]. Preventing overweight and obesity

Implications

Practice: For practitioners, this paper offers guidance on how to enhance any planned or ongoing obesity prevention initiatives by focusing messages on critical target audiences (e.g., children, parents, and providers), specific behaviors that have the greatest potential for enhancing the initiative’s impact, and strategies to enhance communications.

Policy: For policymakers, this paper solidifies the importance of early care and education-based initiatives in efforts to promote child health and the opportunity they afford to leverage ECE providers who are very motivated to support child health; however, additional training for these ECE providers will likely be needed to take full advantage of this opportunity.

Research: The multistep process used to develop *Healthy Me, Healthy We* offers many valuable insights for intervention researchers into important behavioral targets in obesity prevention initiatives, motivators that can move key target audiences into action, and potential pitfalls that will require careful navigation (e.g., provider feelings of superiority and parent feelings of guilt).

in early childhood is recognized as imperative for improving health across the lifespan [7]; however, public health efforts have made limited progress [8]. Nearly one in four children aged 2–5 years is considered overweight or obese [8]. Hence, more effective interventions to support the development of healthy lifestyle behaviors to prevent obesity in early childhood are needed [9, 10].

Nutrition and physical activity behaviors during this important developmental period have immediate and lasting impact on food preferences and physical activity habits, which in turn affect children’s physical, psychosocial, and cognitive health [11–17]. Dietary Guidelines for Americans offer guidance for all individuals aged 2 years and older

Correspondence to: A Vaughn, avaughn@email.unc.edu

Cite this as: *TBM* 2019;9:669–681
doi: 10.1093/tbm/iby082

© Society of Behavioral Medicine
2018. All rights reserved.
For permissions, please e-mail:
journals.permissions@oup.com.

on healthy eating patterns (e.g., eating a variety of dark colored vegetables, whole fruits, whole grains, and fat-free and low-fat dairy while limiting added sugars and saturated fats) [18]. Recommendations from the National Association for Sport and Physical Education offer specific guidance about physical activity for children under 5 years (e.g., promoting 60 min of structured and 60 min or more of unstructured physical activity for preschool-age children) [19]. Sadly, studies consistently show that young children fall short of key recommendations, eating diets that are often low in vegetables and whole grains and high in refined grains and empty calories [20], getting insufficient physical activity [21], and spending excessive time engaging in sedentary activities [22]. Interventions targeting early childhood that support the development of healthy eating and activity habits are worthy investments in our children's future health and success [1, 9, 10, 23].

Early care and education (ECE) is an important setting for delivering these interventions as they play an influential role in the development of children's eating and physical activity habits [24–27]. In the USA, ECE centers serve nearly one-third of children under the age of 6 [28]. ECE-based interventions addressing policies, programming, environments, and/or caregiver behaviors have proven effective for improving what children eat, increasing their minutes of physical activity, and decreasing sedentary or screen time [24–26]. However, the impact on children's behaviors has often been modest and inconsistent [26].

ECE-based interventions with effective parent engagement have greater impact due to the reinforced support for children's healthy habits at home [26, 29, 30]. ECE centers offer a natural opportunity to communicate with parents about fostering healthy eating and physical activity behaviors in children [24]. Interventions have used many strategies to involve parents (e.g., informational sessions, family events, phone calls, home activities, and brochures); however, meaningful engagement is often illusive [29, 31, 32].

Social marketing provides a systematic approach to intervention development that could address the challenge of creating ECE-based interventions that engage both ECE providers and parents in support of children's healthy eating and activity behaviors [33, 34]. The social marketing approach applies commercial marketing principles and techniques to the development and implementation of interventions to influence target audiences to voluntarily perform socially desirable and/or healthful behaviors [33, 35]. The social marketing approach emphasizes the importance of understanding the perspectives of all target audiences and what drives their behaviors [36]. Formative work and concept testing are key steps in development, ensuring that the intervention considers the perspectives of the target audiences, not solely researchers. Social

marketing-based interventions also address four key elements: (i) product—clearly defined target behavior(s) and the goods or services that will help the target audience perform the behavior(s), (ii) price—the monetary and nonmonetary costs associated with the adopting the behavior(s), (iii) place—key locations through which the product can be delivered to the target audience, and (iv) promotion—persuasive communications designed and delivered to inspire the target audience into action. To promote greater understanding of the approach and evaluation of its application, The National Social Marketing Centre put forward Social Marketing Benchmark Criteria (SMBC), which encourage attention to behavior, customer orientation, theory, insight, exchange, competition, segmentation, and methods mix [36]. Application of social marketing principles in school-based interventions to prevent obesity has been shown to be effective [37], but its use in ECE-based interventions has been limited [38].

The Healthy Me, Healthy We intervention study is the first cluster randomized control trial to evaluate the effectiveness of a comprehensive ECE-based nutrition and physical activity intervention designed with a social marketing approach [39]. This paper describes the Healthy Me, Healthy We campaign development using the social marketing approach.

METHODS

The Healthy Me, Healthy We campaign was envisioned as a program that could be delivered through ECE settings, specifically child care centers, to improve children's nutrition and physical activity behaviors. To maximize its impact on children, the program needed to change the behaviors of adult caregivers, at the ECE program (i.e., ECE providers) and at home (i.e., parents), to be more supportive of children's nutrition and physical activity. Development of this campaign followed the six steps proposed by Grier and colleagues for applying social marketing to public health, which includes the following: (i) initial planning, (ii) formative research, (iii) strategy development, (iv) program development, (v) implementation, and (vi) monitoring and evaluation [34]. The thorough development process ensured that the final campaign addressed all SBMC (i.e., behavior, customer orientation, theory, insight, exchange, competition, segmentation, and methods mix) [36]. Development was led by study investigators; however, the process incorporated multiple opportunities to gather perspectives and feedback from ECE providers and parents. Development of Healthy Me, Healthy We was conducted in central North Carolina (USA) between July 2014 and August 2015.

Step 1: initial planning

The purpose of initial planning is to gather “relevant information to help identify preliminary behavioral

objectives, determine target markets, and recognize potential behavioral determinants and strategies” (p. 326) [34]. In this study, initial planning focused on the creation of a detailed conceptual model that would provide a roadmap for *improving children’s diet quality* and *increasing their physical activity* – our two primary intervention goals (Fig. 1). This conceptual model needed to identify the target audiences and target behaviors for each of these audiences, and factors that would drive change in these behaviors. Existing literature and theory were used to fill in these details. As part of this effort, we conducted a systematic review of ECE-based obesity prevention interventions and their use of social marketing principles [38]. Searches of qualitative and quantitative descriptive studies were not systematic. PubMed was the primary search engine used to identify articles describing ECE provider and parent perspectives about child nutrition and physical activity (e.g., diet, nutrition, “physical activity,” “active play,” weight, or health), strategies they used to promote healthy habits, and factors influencing selection of strategies. Searches were limited to English language articles with preschool-age children (2–5 years old). Reviews of qualitative studies were restricted to articles from the previous 5 years (primarily 2010–2015) because of the abundance of relevant studies (e.g., focus groups with parents about childhood obesity). Information from these articles was

extracted in order to define clear behavioral targets that would lead to children’s improved diet quality and increased physical activity as well as increased support for these behaviors by ECE providers and parents (e.g., feeding and physical activity practices). Theories were incorporated into this conceptual model to help identify factors influencing ECE providers’ and parents’ behaviors (e.g., supportive practices), and existing literature was used to operationalize the factors identified.

Step 2: formative research

The purpose of formative research is “to investigate factors identified during the initial planning phase to segment audiences and determine those factors that must be addressed to bring about behavior change” (p. 327) [34]. The formative research for this study, described in detail elsewhere, was used to confirm our understanding of ECE provider and parent perspectives gleaned from the literature and to address gaps in knowledge about parent engagement and opportunities for ECE provider–parent partnerships [40]. We conducted three focus groups with ECE providers ($n = 17$) and four focus groups with parents ($n = 20$) to understand the strategies used to instill healthy habits in children and the perceived usefulness of ECE provider–parent partnerships. All participants were recruited from either Orange or Alamance County in NC (to avoid contaminating the

Fig 1 | Conceptual model developed for the Healthy Me, Healthy We campaign including the target behaviors and behavioral determinants for children, providers, and parents.

sample of ECE providers and parents that would be recruited later for campaign evaluation). Focus group guides were developed to help structure the hour-long discussions. All focus groups were recorded and transcribed. Transcripts were analyzed using the constant comparative method, which allows the researcher to identify trends or discover relationships from the ideas presented [41, 42]. Focus group protocols were approved by the Institutional Review Board and informed consent was obtained from all participants. Themes from these focus groups informed the development of the campaign concept.

Step 3: concept development and testing

During concept development and testing, “a realistic marketing plan comprised of specific, measurable objectives and a step-by-step work plan” is prepared and then piloted with the target audiences [34]. The conceptual model from step 1 and the thematic analysis of focus groups from step 2 informed the development of the campaign concept, including its mission statement, positioning, and methods mix. This campaign concept, including draft materials for all products, was then pretested with center directors ($n = 5$), classroom teachers ($n = 10$), and parents ($n = 14$) using individual interviews and focus groups [40]. Participants were recruited from either Alamance or Beaufort County in NC (to avoid contamination of the sample needed later for campaign evaluation). Interview and focus group guides were developed to help structure the 30–60 min long discussions. Discussions were recorded and transcribed. Once again, transcripts were analyzed using the constant comparative method [34, 35]. Concept testing protocols were approved by the Institutional Review Board and informed consent was obtained from all participants. Results were used to refine the campaign concept and materials.

Step 4: program development

Once the concept has been vetted, “campaign strategies and materials are... developed, pretested, piloted, and revised prior to program implementation” (p. 327) [34]. In this study, we created a 6-week version of the Healthy Me, Healthy We campaign, and piloted it with one child care center to assess feasibility and acceptability. Feedback on feasibility and acceptability was obtained through training evaluation forms and postintervention interviews with the director and teachers. Results of the pilot were again used to refine the campaign components and materials so that the final version could be developed. In the final version, the campaign was expanded to include four 6-week units delivered over the course of 7–8 months.

Step 5: implementation

To support successful implementation of the program, the implementation protocol was refined

based on lessons learned during the pilot. Specifically, we identified where ECE providers had encountered challenges to campaign implementation and enhanced trainings. We also expanded the number of trainings and added check-in visits between units to accommodate for the additional units and expanded duration of the campaign.

Once the final campaign and implementation plan were developed, the intervention was implemented in 48 child care centers as part of a randomized control trial. Centers were recruited in two waves (May–July of 2015 and 2016) from central North Carolina. Community partners that have established working relationships with ECE programs were asked distribute information and endorse participation. These efforts were followed by direct recruitment by the study team using mail, email, and telephone calls. Because Healthy Me, Healthy We was being offered as part of a randomized control trial, participating centers had to meet eligibility criteria (i.e., have a dedicated classroom for 3- to 4-year-old children, have a quality rating of 3–5 stars, provide lunch, and not serve exclusively special needs children).

Step 6: monitoring and evaluation

Ongoing monitoring and evaluation during implementation helps “to identify any necessary program revisions, as well as to understand program effectiveness and make midcourse corrections as needed” (p. 327) [34]. In this study, the Healthy Me, Healthy We social marketing campaign is being evaluated in a two-arm cluster randomized control trial. Full details of the randomized control trial protocols are described in detail in a separate paper [39]. Primary outcomes evaluate intervention impact on children’s diet quality and physical activity. Secondary outcomes include children’s weight, ECE provider and parent feeding and physical activity practices, ECE provider and parent eating and physical activity behaviors, and center and home environments. Measures are collected at baseline and postintervention (8–10 months later) to assess change in all outcomes. Analyses will be conducted under the intent-to-treat principle using Generalized Linear Mixed Models that account for clustering of children within child care centers. Process evaluation data collected throughout campaign implementation (e.g., training evaluation forms, technical assistance visit observations, and teacher and parent evaluation surveys) will be used to assess center and classroom adoption, feasibility, and fidelity, as well as parent reach, use, and content awareness.

RESULTS

Important lessons were learned during each step of campaign planning and development that ultimately resulted in the Healthy Me, Healthy We

campaign. Results from the work conducted during each of these steps illustrate the iterative process of intervention development and how each step builds off of information learned previously.

Step 1: initial planning

Development of the conceptual model started with the identification of target audience, specifically, children, ECE providers, and parents. Three- and 4-year-old children were the downstream audience whose health behaviors we wanted to improve, whereas ECE providers and parents were midstream audiences that controlled environments most influential on children's behaviors.

Behavioral targets

Literature describing children's nutrition and physical activity behaviors helped us to identify where children's current behaviors were falling short of recommendations and where there were opportunities for improvement. Specifically, studies of children's diets demonstrate low intakes of vegetables, whole fruit, whole grains, and seafood and plant proteins, and high intakes of sugary beverages, refined grains, saturated fat, and sodium [43, 44]. Furthermore, studies of children's physical activity show inadequate active play, limited outdoor play, and excessive screen time [45–47]. Hence, the campaign would need to target these problematic dietary and physical activity behaviors.

To support children's healthy diets, studies suggest that ECE providers and parents role model healthy eating habits, use positive food practices (e.g., offering praise and encouragement, providing nutrition education, avoiding restriction, pressure, and bribes), and create a supportive physical environment (e.g., availability of healthy foods, visuals that promote healthy eating) [48–51]. However, qualitative studies show that they use a variety of strategies, both positive (e.g., role modeling, providing healthy food choices, and providing repeated exposures) and negative (e.g., pressure, bribes, and permissiveness) [52–58]. Hence, the campaign would need to encourage the use of positive feeding practices instead of negative ones.

To support children's physical activity, studies suggest that ECE providers and parents role model and engage with children in physical activity, offer opportunities for active play, use positive practices (e.g., praise and encouragement, education, and screen time limits), and create a supportive physical environment (e.g., space and active play toys) [59–62]. However, qualitative studies indicate that ECE providers and parents believe that children are already sufficiently active [63, 64], which may explain why they dedicate little effort and time to these practices. Qualitative studies also suggest that ECE providers rely more on structured and unstructured playtime to get children active [65–68], whereas parents use

role modeling, involvement, and restriction of sedentary activities/TV [58, 67]. Hence, the campaign's behavioral targets for caregivers would need to encourage use of a wider range of practices known to support child physical activity.

Behavioral drivers

The Social Ecological Framework (SEF) [69], Exchange Theory (ET) [70, 71], and Social Cognitive Theory (SCT) [72] were used to identify the drivers of behavior change. The SEF was a natural complement to our conceptual model as it recognizes that individuals' health behaviors are influenced by interactions at multiple levels (intrapersonal, interpersonal, organizational, community, and policy) [69]. To affect children (downstream audience) and their eating and physical activity behaviors, the intervention would need to engage ECE providers and parents (midstream audiences) and improve their feeding and physical activity practices. These practices, in turn, would shape ECE provider and parent interactions with children (interpersonal) and ECE and home environments (organizational).

ET is fundamental to social marketing, explaining individuals' health behaviors as the result of weighing the benefits of the new behavior against the costs and barriers to behavior change [70, 71]. In terms of children's eating, ECE providers' most common barrier is picky eating [54, 73], whereas parents' common barriers are time, cost, and child unwillingness to try or give up certain foods [74–78]. In terms of children's physical activity, ECE providers and parents report similar barriers, including weather, time, cost, lack of opportunities, safety concerns, and popularity of sedentary activities [65, 74, 76–79].

SCT identifies behavioral capacity (knowledge and skills), self-efficacy, expectations, and expectancies as important behavioral determinants [72]. Qualitative studies show a lack of behavioral capacity, as demonstrated by ECE providers and parents admission to using many negative practices in their efforts to improve children's diets [52–58]. Studies also show a lack of knowledge about children's physical activity as demonstrated by the widespread belief that children are sufficiently active. The literature also suggests that ECE providers and parents have low self-efficacy and want more education and training [65, 74, 80].

This initial planning phase resulted in a detailed conceptual model identifying key target audiences (i.e., children, parents, classroom teachers, and center directors) and target behaviors to improve children's diet quality and increase their physical activity. Theory also aided the identification of behavioral drivers (knowledge, skills, self-efficacy, barriers, and benefits). However, it also revealed a critical gap in knowledge about how to enhance parent engagement to promote ECE provider-partner partnership.

Step 2: formative research

Focus groups with 17 ECE providers (47% white, 47% African American) and 20 parents (70% white, 25% African American) allowed us to confirm what we had learned from the literature about behavioral drivers and to gather more information about enhancing ECE provider–parent partnerships. A key motivator reported by both ECE providers and parents was that healthy eating and physical activity supported development of the “whole child,” benefitting physical, emotional, and mental health. ECE providers felt that they played an essential role in instilling healthy habits and many believed their contributions surpass those of parents. ECE providers were generally confident in their ability to teach healthy eating and physical activity and reported few barriers. In comparison, parents reported several barriers to healthy eating, including cost, lack of time, personal preferences, conflicts over food, and eating schedules—themes similar to the qualitative literature. Parents also expressed guilt over not always doing what they knew they should to support healthy eating. Physical activity was of less concern. Discussions revealed great interest in ECE-home partnership but also a need for more intentional ECE provider and parent communication.

This formative research provided valuable *insight* into what motivates ECE providers and parents to change their practices. The campaign would need to emphasize how their support for healthy eating and physical activity would promote development of the whole child. Also, ECE providers’ feelings of responsibility for instilling healthy habits would need to be effectively channeled. Instead of judging parents on their failures, ECE providers should be offering parents support and advice for how they might work together toward common goals. The formative research also identified the relative

costs—both actual and perceived—associated with adopting these behaviors (e.g., cost, lack of time, personal preferences, conflicts over food, eating schedules), which informed our understanding of *exchange*. The campaign would need to maximize perceived benefits while minimizing the perceived costs. The formative work also informed our understanding of *competition*, potential competitors for parents’ and ECE providers’ time, attention, and intent to change target behaviors. Specifically, the campaign should be mindful of parents’ guilt, encouraging parents toward progress but not demanding perfection. And finally, the formative research strengthened our *customer orientation*, ensuring that the wants, needs, and problems of the target audience remain a central focus (e.g., keeping things simple, incorporating flexibility, and positioning the ECE provider and center as a resource and partner). Conceptual models for ECE providers and parents were subsequently refined and used to develop content maps with clear performance objectives (i.e., ECE provider and parent behaviors) along with the knowledge, skills, barriers, and benefits associated with each (i.e., behavioral determinants). Excerpts are provided in [Tables 1](#) and [2](#).

Step 3: concept development and testing

Information gathered in these initial steps was funneled into the development of the campaign concept, including its mission statement, positioning, and methods mix. The mission statement summarized the goal of the campaign, and it read as follows: “Our goal is to create a partnership between parents and ECE providers to encourage nutritious eating and active play in early childhood. This partnership will help fulfill our dreams of healthy, nurtured children by building a community that supports positive habits to foster a lifetime of wellbeing.”

Table 1 | Excerpt from Healthy Me, Healthy We content map for parents

Program Aim	Performance Objective	Behavioral Determinants			
		Knowledge	Skills	Barriers self-efficacy	Benefits/expectations
Child consumes a healthy diet	PO.1 Parent and child eat meals together while parent enthusiastically role models healthy eating	K1.1 Know that parent does not have to eat every meal and snack with child, but should aim for at least one a day	S1.1 Able to create a mealtime routine	B1.1 Able to overcome lack of time	E1.1 Aware that family meals benefit the whole child
		K1.2 Know the positive effect that parent role modeling has on child eating	S1.2 Able to provide a healthy meal and allow child to decide how much to eat	B1.2 Able to overcome different eating schedules	E1.2 Believe healthy eating is good for me and my child
		K1.3 Know healthy strategies for encouraging children to eat vegetables	S1.3 Able to role model healthy eating to child		E1.3 See mealtimes as quality time for the family
			S1.4 Able to enjoy mealtimes without TV		E1.4 Understand that using healthy feeding strategies reduces stress at meals
			S1.5 Able to keep realistic expectations		E1.5 Understand the importance of small, gradual changes

Table 2 | Excerpt from Healthy Me, Healthy We content map for teachers

Program Aim	Performance Objective	Behavioral Determinants			
		Knowledge	Skills	Barriers self-efficacy	Benefits/expectations
Child increases time spent being physically active	PO.2 Talk with parents about physical activity done at the center and share strategies for what can be done at home	K2.1 ECE providers and parents have a shared vision for healthy children K2.2 Good communication between ECE providers and parents contributes to program success	S2.1 Able to identify opportunities to communicate with parents, finding occasions in general and within the campaign	B2.1 Able to overcome lack of confidence in engaging parents B2.2 Able to find ways to change routines to increase communication with parents B2.3 Able to use campaign resources to aid parent communication	E2.1 Understand the important role of the ECE provider in supporting and educating families about child physical activity E2.2 See the benefit of small, gradual changes in parent communication

Campaign positioning, which refers to how the campaign is branded and described to make it stand out, had to ensure appeal to all audiences—children, ECE providers, and parents. Based on the formative work, it was determined that positioning (depicted in Fig. 2) should emphasize easy implementation, fun and age-appropriate activities, support for child and adult wellbeing, and a “just try it” approach to reduce guilt. To take advantage of the traditional school calendar used by many ECE programs, the

campaign would kick off around October, provide four units (each lasting about 6 weeks and providing fresh content), and conclude around April or May.

The *methods mix* helped solidify the campaign components based on the “four Ps”: place, product, promotion, and price. These elements are depicted as “campaign ecosystem” in Fig. 2 and described in Table 3. Place for the campaign would be primarily the child care center as it offered access to all target audiences. However, campaign products would

Fig 2 | Campaign positioning and campaign ecosystem created for Healthy Me, Healthy We.

Table 3 | Methods mix used in the Healthy Me, Healthy We campaign

Methods Mix Component	Definition	Application for the campaign
Place	where products may be distributed so they reach the target audience(s) to facilitate or prompt the behavior	center, classroom, home
Products	the physical items, services, and behaviors offered to support behavior adoption	Promise (home and classroom), Unit Posters, Activity Cue Cards, Our Turn tokens, Family Activity Guides, Activity Trackers
Promotion	communication strategies and tactics used to increase awareness, attitudes, self-efficacy, perceived norms and intent to try product, services and behaviors offered	Our Turn Tokens, Resource Binder, Wellness Portal
Price	financial, psychological, social, opportunity, and other costs associated with the behavior	time, commitment, sacrifice with “just try it” approach

extend the campaign into the home, thus allowing the campaign to influence the two most common places where children eat and play.

Products necessary to support campaign delivery would include a Fit Family Promise, Unit Posters, Activity Cue Cards, Our Turn tokens, Fit Family Activity Guides, and Activity Trackers. Classroom and home versions of the Fit Family Promise would be signed by children, ECE providers, and parents and serve as a pledge to take a “just try it” approach to healthy eating and physical activity. Promises would also provide a visual reminder of the pledge. Unit Posters (one per unit) would provide a visual reminder in the classroom about the unit goals. Activity Cue Cards would help ECE providers lead classroom activities and demonstrate alignment with core curriculum. Our Turn tokens would be sent home by ECE providers on days an activity was done in class to prompt completion of a similar activity at home. A Fit Family Activity Guide would be sent home at the start of each unit to describe the home activities referenced by the Our Turn tokens and increase parent knowledge of the benefits of healthy habits. Activity Trackers would offer paper-based logs that helped families track completion of the home activities. Additional promotional tools would include a Resource Binder for each classroom and an online Wellness Portal with a repository for campaign materials. Content within these products and promotional tools would address price (i.e., ECE provider and parent barriers to adopting behaviors to support children’s nutrition and physical activity).

Pretesting of the campaign concept [40] with five center directors (60% white, 40% African American), 10 classroom teachers (77% white, 23% African American), and 14 parents (43% white, 57% African American) demonstrated campaign resonance with all audiences. It was generally perceived as feasible; however, concern was raised about engaging and maintaining parent interest. After concept testing, the campaign was rebranded as “Healthy Me, Healthy We.” Additional artwork was incorporated into the Promise, Unit Posters, and Activity Cue Cards to enhance branding, cues to action,

and child comprehension. Our Turn tokens were replaced with cards. Family Activity Guides incorporated call-out boxes and infographics to enhance readability.

Step 4: program development

Pilot testing

The abbreviated 6-week campaign that was piloted included a kick-off event, one 4-week unit, and a celebration event. To prepare for campaign implementation, the center director and teachers participated in a 90 min training on key pieces of the campaign, how to promote partnership with families, planning the kick-off event, and practice leading classroom activities. Feedback gathered following participation was generally positive. Campaign products were visually appealing, cohesive, and comprehensive. The campaign was seen as highly compatible and easy to integrate into classroom activities. Parent engagement was a concern as there was no requirement for parents to report back on home activities. Teachers suggested asking parents to return completed Activity Trackers, framing it as a competition and offering prizes. Teachers also suggested that products directed to parents be made shorter, have less text and more visuals, and be made interactive. To aid implementation, teachers also suggested spreading out the training, providing more guidance on how to explain the program to parents, having a project staff member present at the kick-off event, and facilitating communication between the center directors and teachers throughout the program. Most suggestions were incorporated, but some contradicted earlier formative work or were not feasible long-term. For example, an Activity Tracker competition might induce feelings of parent guilt that we wanted to avoid. Also, having a project staff member present at every kick-off event might inhibit future dissemination.

The final Healthy Me, Healthy We campaign

Many elements in the original campaign concept were retained in the final Healthy Me, Healthy We

campaign, including the mission statement, positioning, and much of the methods mix. Campaign products used in the pilot were refined and additional products were developed for the remaining three units. Each unit was given a theme and six goals offering specific calls to action around children's diet and physical activity behaviors. Relevant ECE provider and parent performance objectives (i.e., target behaviors) from the content map were identified for each unit goal. Alignment of unit themes, child behavior goals, and ECE provider and parent behaviors is described in [Supplementary Material](#).

Final products developed for the Healthy Me, Healthy We campaign included a Banner, Promise Posters (classroom and home versions), Unit Posters, Activity Cue Cards, a Resource Box, Our Turn Cards, Family Guides, and Activity Trackers (described below). A professional graphic designer helped ensure consistent branding with the Healthy Me, Healthy We theme across products. An illustrator developed cartoon images for each of the unit goals and infographics. In addition, content developers incorporated several behavior change techniques (BCT) into products to address the behavioral determinants [81].

The Banner (30 × 48 inches vinyl poster) read "Join us on this year's journey toward health." The banner (one per center) was hung at the start of the campaign and center directors were encouraged to keep them posted for the remainder of the year.

The classroom Promise (24 × 36 inches poster) displayed the campaign's overarching message, "Play Smart, Eat Smart, and Rest the Tech." Children and classroom teachers signed the promise as part of kick-off activities signifying a commitment (BCT 1.9 commitment) to adopt target behaviors. The phrase "just try it" appeared on the promise to emphasize the "no guilt" concept. The home Promise was visually similar, just smaller (8.5 × 11 inches). Children and parents signed and displayed it at home.

A Unit Poster (24 × 36 inches) was hung at the beginning of each unit to introduce the respective theme and goals. Text was kept minimal and a cartoon illustration was provided for each goal. The poster also provided space for tracking completed classroom activities (BCT 2.3 self-monitoring of behavior).

Sixteen Activity Cue Cards (8.5 × 5.5 inch cards bound together on a ring) were provided for each unit containing brief descriptions of indoor and outdoor activities teachers and children could do together to teach nutrition and physical activity concepts (BCT 13.1 identification of self as role model). Teachers were encouraged to lead at least two activities per week (one nutrition and one physical activity). To mitigate the barrier of conflicting priorities, relevant North Carolina early learning standards (e.g., Cognitive Development Goal 11: Children compare, sort, group, organize, and measure objects and create patterns in their everyday environment

[82]) were identified for each activity and listed on the card (BCT 13.2 framing/reframing). In addition, quick reference icons appeared on cards promoting the activity's alignment with arts, literacy, math, science, gross motor activity, or energizer. To mitigate the barrier of access to resources, activities were designed to require only materials commonly available in classrooms or those provided as part of the Resource Box. Each center received two boxes (valued at US\$100 each), including polypots, beanbags, food cards, and books (e.g., *Potter the Otter Loves Water*; BCT 12.5 adding objects to the environment).

Our Turn Cards were designed to be collected like trading cards. A cartoon illustration from a unit goal appeared on the front. Teachers distributed cards on days when they led a classroom activity. They wrote the letter of the activity on the card, thus letting parents know which activity to do at home.

Family Activity Guides were designed to resemble magazines and served as the primary program material for parents. Magazines opened with advice from the fictitious expert, Dr. Fitbodi, who distilled the best medical science into simple and easy-to-understand suggestions (BCT 9.1 credible source). Dr. Fitbodi's column introduced the unit theme and encouraged parent behaviors in support of unit goals. The first half of the guide contained information about each goal, why the goal was important, parent behaviors that would support the goal, and how to overcome common challenges. This organization allowed us to address behavioral determinants from the content map (i.e., knowledge, skills, barriers, and benefits). Common strategies used to present content included quizzes or checklists about the benefits of target behaviors (BCT 5.1 and 5.3 information about health, social, and environmental consequences), advice from other parents about barriers (BCT 1.2 problem solving), steps or quick tips about how parents can encourage healthy behaviors (BCT 4.1 instruction on how to perform behavior), and just try it challenges (BCT 8.1 behavioral practice/rehearsal). The guide also contained 16 home activities—one linked to each classroom activity—showing parents how they could build on concepts introduced in the classroom (BCT 8.1 behavioral practice/rehearsal). An Activity Tracker (paper-based log) was included with each magazine for tracking completed home activities (BCT 2.3 self-monitoring of behavior). A sample Activity Cue Card, Our Turn Card, and Family Activity Guide excerpt are depicted in [Fig. 3](#) to illustrate how materials were designed to link classroom and home activities.

Step 5: implementation

To support the delivery of the Healthy Me, Healthy We campaign by child care centers, a rigorous implementation plan was developed that included training, technical assistance, and resource materials for center directors and teachers. Specifically,

Fig 3 | Examples of the Activity Cue Cards, Our Turn Cards, and home activities from the Family Activity Guide linking the classroom and home.

they received two trainings and three technical assistance visits from the study's interventionist. Timing ensured contact prior to each unit.

The initial training was a 3 hr interactive educational meeting designed to familiarize center directors and teachers with campaign implementation. Trainings were conducted in groups with multiple centers. The training included time for planning the kick-off event (BCT 1.4 action planning) and practicing classroom activities (BCT 6.1 demonstration of the behavior, BCT 8.1 behavioral practice/rehearsal). In response to challenges with parent engagement (in the first cohort of centers), trainings were enhanced to incorporate more time to practice describing the campaign to parents (BCT 8.1 behavioral practice/rehearsal) and to promote ongoing parent communication (BCT 1.2 problem solving). At this training, center directors and teachers received kick-off and unit 1 products as well as a Resource Binder with educational materials to guide program implementation. For example, materials offered to facilitate kick-off included a sample kick-off plan, parent invitation templates, and suggested activities.

Within 2 weeks of training, each center received an in-person technical assistance visit from the study's interventionist. The purpose was to provide ongoing consultation and assistance in the center's planning of their kick-off event (BCT 1.4 action planning).

Each center received a second visit at the end of unit 1 to deliver unit 2 products and corresponding Resource Binder materials. The interventionist also provided ongoing consultation about any barriers encountered (BCT 1.2 problem solving).

At the end of unit 2, center directors and teachers participated in a 2 hr midpoint training. These educational meetings were conducted in groups with multiple centers. Content focused on addressing commonly encountered barriers (BCT 1.2 problem solving), introducing target ECE provider behaviors that would support unit 3 and unit 4 goals (BCT 4.1 instruction on how to perform a behavior), and practicing classroom activities (BCT 6.1 demonstration of the behavior, BCT 8.1 behavioral practice/rehearsal). Trainings with the second cohort incorporated more focused role-play activities on parent engagement (BCT 8.1 behavioral practice/rehearsal). During this training, center directors and teachers received all unit 3 products and corresponding material for the Resource Binder.

Toward the end of unit 3, each center received another in-person technical assistance visit. Like previous visits, the interventionist delivered materials for the final unit and offered ongoing consultation on any barriers encountered (BCT 1.2 problem solving). In addition, the interventionist inquired about plans for the celebration event. Toward the end of unit 4, the interventionist followed up by telephone

to help centers finalize plans for the celebration event (BCT 1.4 action planning).

Step 6: monitoring and evaluation

Primary and secondary outcomes were assessed at baseline and postintervention, and process data were collected during and after implementation. Outcome measures will allow us to evaluate the effectiveness of the Healthy Me, Healthy We campaign in improving children's diet quality and physical activity (primary outcomes), as well as children's weight, ECE provider and parent feeding and physical activity practices, ECE provider and parent eating and physical activity behaviors, and center and home environments. Process data will allow us to evaluate implementation of the campaign. Currently, these data are being prepared for planned analyses. Results of the study's effectiveness and process evaluation will be the focus of subsequent papers.

DISCUSSION

The Healthy Me, Healthy We campaign addresses a critical gap in the current literature about the use of social marketing in ECE-based nutrition and physical activity interventions for children. Although social marketing has proven to be effective in other settings, such as schools [37, 83–86], it has rarely been applied in the ECE setting [38]. The few ECE-based interventions that have used social marketing found it to be effective in changing child food preferences and caloric intake [87, 88]. The six steps laid out by Grier and colleagues guiding application of the social marketing approach for public health interventions provided a structured, detailed, and rigorous process. The resulting campaign should benefit from the integration of literature, formative work, concept testing, and piloting. The development process assembled a wealth of information that can inform future interventions. As detailed in the results, the literature identified important behavioral targets for ECE providers and parents that will increase support for children's nutrition and physical activity. The literature and formative work also identified perceived benefits that can be leveraged to motivate change (e.g., feelings of responsibility and development of the whole child). The formative work also confirmed the barriers to change observed in the literature (e.g., cost, lack of time, personal preferences, conflicts over food, and eating schedules). This work offers valuable insights that can inform future interventions wanting to engage ECE providers and parents in a united effort to support children's health.

The social marketing approach demanded that great attention be given to understanding the perspectives of all target audiences, which may be particularly beneficial in efforts to enhance parent engagement and ECE provider-parent partnerships. Although reviews of ECE-based interventions have

recognized the importance of parent engagement, studies to date have often struggled to achieve parent engagement in a meaningful way [26, 29]. By recognizing and including parents as a target audience during initial planning, we were able to better develop campaign mission statement, positioning, and methods mix that considered what may actually move parents to action.

Use of the social marketing approach strengthened intervention development; however, our application of the process had some limitations and provided valuable lessons. One challenge encountered during initial planning was being able to fully glean the knowledge available from existing literature. Ideally this information would be collected via systematic reviews. Existing reviews proved insufficient; therefore, we reviewed and extracted an extensive amount of literature directly, but not always with fully systematic methods. Challenges such as these are likely unavoidable; hence, it is critical to prioritize questions and to allot sufficient time for these searches. Another challenge, encountered during the formative work, was the selection of appropriate theories. Although SMBC recognize the importance of integrating theory, little guidance is provided about which theories to use. The theories we selected assume that behaviors are the result of rational and deliberate decision processes. However, there is growing recognition of the importance of accounting for more implicit processes and the integration of related theories [89]. A final challenge that is important to acknowledge is the effort required to fully implement this structured, rigorous, multistep development process within a 1 year period. Successful application required constant evaluation of and attention to priorities. Pragmatic concessions were necessary (e.g., piloting a 6 week version of the campaign instead of the full 9 month campaign). Even with thorough planning and development, implementation of the actual campaign identified where additional improvements were needed (e.g., adjustments to implementation between the first and second cohorts).

Social marketing was a valuable approach for developing this ECE-based campaign to improve children's nutrition and physical activity as it compiled a wealth of information about critical audience targets, behavioral targets, and behavioral drivers. Results of the evaluation will be necessary before we truly understand the effectiveness of this social marketing campaign. Although this social marketing approach has been successful in school-based interventions, this study will allow us to assess how well it translates into the ECE setting. This innovative approach appears to hold great promise to promote healthy eating and physical activity during early childhood, a key developmental period, by leveraging partnership between ECE providers and parents to affect behavior change.

SUPPLEMENTARY MATERIAL

Supplementary material is available at *Translational Behavioral Medicine* online.

Acknowledgments: We would like to thank the following people who contributed to the development and execution of the HMHW project: Sydney Henson, Chioma Ihekweazu, Stephanie Mazzucca, Cody Neshteruk, Gina Tripicchio, Sally Scruggs, and Karoon McDowell, as well as the participating centers, providers, and families. This study was funded by the National Heart, Lung, and Blood Institute of the National Institutes of Health under Award Number R01-HL120969. This project was conducted out of the Center for Health Promotion and Disease Prevention at The University of North Carolina at Chapel Hill (UNC), which is a Prevention Research Center funded through a Cooperative Agreement with the Centers for Disease Control and Prevention (U48-DP005017). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. The sponsor had no role in the study design, collection, analysis, or interpretation of the data; writing of the article; or decision to publish this article.

Compliance with Ethical Standards

Conflicts of Interest: Authors Amber E. Vaughn, Rachel Bartlett, Courtney Luecking, Heidi Hennink-Kaminski, and Dianne S. Ward declare that they have no conflicts of interest to report.

Authors' Contributions: All authors were engaged throughout the development process. AEV and CTL led literature reviews conducted in step 1. HHK led the focus groups and interviews in steps 2 and 3. DSW and RB led development of campaign content and materials with assistance from AEV, CLT, and HHK. RB served as the interventionist and led the development of the implementation plan in step 5. DSW and AEV led the development of the monitoring and evaluation protocol described in step 6. All authors contributed to the writing and editing of this manuscript and have approved the final version.

Ethical Approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the University of North Carolina Institutional Review Board (IRB #13-2379) and with the 1964 Helsinki declaration and its later amendments. This article does not contain any studies with animals performed by any of the authors.

Informed Consent: Informed consent was obtained from all individual participants included in the study.

References

- Committee on Integrating the Science of Child Development. *From Neurons to Neighborhoods: The Science of Child Development*. Washington, DC: National Academies Press (US); 2000.
- Yanovski JA. Pediatric obesity. An introduction. *Appetite*. 2015;93:3–12.
- Hesketh K, Wake M, Waters E. Body mass index and parent-reported self-esteem in elementary school children: evidence for a causal relationship. *Int J Obes Relat Metab Disord*. 2004;28(10):1233–1237.
- Krukowski RA, West DS, Philyaw Perez A, Bursac Z, Phillips MM, Raczynski JM. Overweight children, weight-based teasing and academic performance. *Int J Pediatr Obes*. 2009;4(4):274–280.
- Daniels SR, Arnett DK, Eckel RH, et al. Overweight in children and adolescents: pathophysiology, consequences, prevention, and treatment. *Circulation*. 2005;111(15):1999–2012.
- Whitaker RC, Wright JA, Pepe MS, Seidel KD, Dietz WH. Predicting obesity in young adulthood from childhood and parental obesity. *N Engl J Med*. 1997;337(13):869–873.
- Centers for Disease Control and Prevention. Vital signs: obesity among low-income, preschool-aged children—United States, 2008–2011. *MMWR*. 2013;62(31):629–634.
- 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(21):2292–2299.
- Institute of Medicine. *Early Childhood Obesity Prevention Policies*. Washington, DC: The National Academies Press; 2011.
- World Health Organization. *Report of the Commission on Ending Childhood Obesity*. Geneva, Switzerland: World Health Organization; 2016.
- Nicklaus S. Development of food variety in children. *Appetite*. 2009;52(1):253–255.
- Birch LL, Fisher JO. Development of eating behaviors among children and adolescents. *Pediatrics*. 1998;101(3 Pt 2):539–549.
- 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.
- Funtikova AN, Navarro E, Bawaked RA, Fito M, Schröder H. Impact of diet on cardiometabolic health in children and adolescents. *Nutr J*. 2015;14:118.
- Timmons BW, Leblanc AG, Carson V, et al. Systematic review of physical activity and health in the early years (aged 0–4 years). *Appl Physiol Nutr Metab*. 2012;37(4):773–792.
- Hinkley T, Teychenne M, Downing KL, Ball K, Salmon J, Hesketh KD. Early childhood physical activity, sedentary behaviors and psychosocial well-being: a systematic review. *Prev Med*. 2014;62:182–192.
- Tandon PS, Tovar A, Jayasuriya AT, et al. The relationship between physical activity and diet and young children's cognitive development: a systematic review. *Prev Med Rep*. 2016;3:379–390.
- U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2010*. 7th ed. Washington, DC: U.S. Government Printing Office; 2010.
- National Association for Sport and Physical Education. *Active Start: A Statement of Physical Activity Guidelines for Children Birth to Five Years*. 2nd ed. Reston, VA: NASPE Publications; 2009.
- Banfield EC, Liu Y, Davis JS, Chang S, Frazier-Wood AC. Poor adherence to US dietary guidelines for children and adolescents in the national health and nutrition examination survey population. *J Acad Nutr Diet*. 2016;116(1):21–27.
- Beets MW, Bornstein D, Dowda M, Pate RR. Compliance with national guidelines for physical activity in U.S. preschoolers: measurement and interpretation. *Pediatrics*. 2011;127(4):658–664.
- Tandon PS, Zhou C, Lozano P, Christakis DA. Preschoolers' total daily screen time at home and by type of child care. *J Pediatr*. 2011;158(2):297–300.
- Conti G, Heckman JJ. Understanding the early origins of the education-health gradient: a framework that can also be applied to analyze gene-environment interactions. *Perspect Psychol Sci*. 2010;5(5):585–605.
- Larson N, Ward DS, Neelon SB, Story M. What role can child-care settings play in obesity prevention? A review of the evidence and call for research efforts. *J Am Diet Assoc*. 2011;111(9):1343–1362.
- Sisson SB, Krampe M, Anundson K, Castle S. Obesity prevention and obesogenic behavior interventions in child care: a systematic review. *Prev Med*. 2016;87:57–69.
- Ward DS, Welker E, Choate A, et al. Strength of obesity prevention interventions in early care and education settings: a systematic review. *Prev Med*. 2017;95 (Suppl):S37–S52.
- National Academies of Sciences E, and Medicine. *Obesity in the Early Childhood Years: State of the Science and Implementation of Promising Solutions: Workshop Summary*. Washington, DC: The National Academies Press; 2016.
- Mamedova S, Redford J. *Early Childhood Program Participation, From the National Household Education Surveys Program of 2012*. Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education; 2015.
- Morris H, Skouteris H, Edwards S, Rutherford L. Obesity prevention interventions in early childhood education and care settings with parental involvement: a systematic review. *Early Child Dev Care*. 2015;185(8):1283–1313.
- Golley RK, Hendrie GA, Slater A, Corsini N. Interventions that involve parents to improve children's weight-related nutrition intake and activity patterns – what nutrition and activity targets and behaviour change techniques are associated with intervention effectiveness? *Obes Rev*. 2011;12(2):114–130.
- Lyn R, Evers S, Davis J, Maalouf J, Griffin M. Barriers and supports to implementing a nutrition and physical activity intervention in child care: directors' perspectives. *J Nutr Educ Behav*. 2014;46(3):171–180.
- Johnson SL, Ramsay S, Shultz JA, Brannen LJ, Fletcher JW. Creating potential for common ground and communication between early childhood program staff and parents about young children's eating. *J Nutr Educ Behav*. 2013;45(6):558–570.
- Andreasen AR. Social marketing – its definition and domain. *J Public Policy Mark*. 1994;13(1):108–114.
- Grier S, Bryant CA. Social marketing in public health. *Annu Rev Public Health*. 2005;26:319–339.
- Lee N, Kotler P. *Social Marketing: Changing Behaviors for Good*. Vol. 5th. Thousand Oaks, CA: Sage Publications, Inc. 2015.
- National Social Marketing Centre. Social Marketing Benchmark Criteria. Available at [file:///C:/Users/avaughn/Downloads/benchmark-criteria-090910%20\(2\).pdf](file:///C:/Users/avaughn/Downloads/benchmark-criteria-090910%20(2).pdf). Accessibility verified September 25, 2017.
- Aceves-Martins M, Llauradó E, Tarro L, et al. Effectiveness of social marketing strategies to reduce youth obesity in European school-based interventions: a systematic review and meta-analysis. *Nutr Rev*. 2016;74(5):337–351.

38. Luecking CT, Hennink-Kaminski H, Ihekweazu C, Vaughn A, Mazzucca S, Ward DS. Social marketing approaches to nutrition and physical activity interventions in early care and education centres: a systematic review. *Obes Rev*. 2017;18(12):1425–1438.
39. Hennink-Kaminski H, Vaughn AE, Hales D, Moore RH, Luecking CT, Ward DS. Parent and child care provider partnerships: protocol for the Healthy Me, Healthy We (HMHW) cluster randomized control trial. *Contemp Clin Trials*. 2018;64:49–57.
40. Hennink-Kaminski H, Ihekweazu C, Vaughn A, Ward DS. *Using formative research to develop the Healthy Me, Healthy We campaign: Partnering Child Care and Home to Promote Healthy Eating and Physical Activity Behaviors in Preschool Children*. 2018;64:49–57.
41. Charmaz K. *Constructing Grounded Theory*. 2nd ed. Thousand Oaks, CA: Sage. 2014.
42. Corbin J, Strauss A. *Basics of Qualitative Research*. 4th ed. Thousand Oaks, CA: Sage. 2015.
43. Hiza HA, Casavale KO, Guenther PM, Davis CA. Diet quality of Americans differs by age, sex, race/ethnicity, income, and education level. *J Acad Nutr Diet*. 2013;113(2):297–306.
44. Laster LE, Lovelady CA, West DG, et al. Diet quality of overweight and obese mothers and their preschool children. *J Acad Nutr Diet*. 2013;113(11):1476–1483.
45. Anderson SE, Economos CD, Must A. Active play and screen time in US children aged 4 to 11 years in relation to sociodemographic and weight status characteristics: a nationally representative cross-sectional analysis. *BMC Public Health*. 2008;8:366.
46. Lambourne K, Donnelly JE. The role of physical activity in pediatric obesity. *Pediatr Clin North Am*. 2011;58(6):1481–91, xi.
47. Kwon S, Janz KF, Letuchy EM, Burns TL, Levy SM. Developmental trajectories of physical activity, sports, and television viewing during childhood to young adulthood: Iowa bone development study. *JAMA Pediatr*. 2015;169(7):666–672.
48. Benjamin Neelon SE, Briley ME; American Dietetic Association. Position of the American Dietetic Association: benchmarks for nutrition in child care. *J Am Diet Assoc*. 2011;111(4):607–615.
49. Thompson ME. Parental feeding and childhood obesity in preschool-age children: recent findings from the literature. *Issues Compr Pediatr Nurs*. 2010;33(4):205–267.
50. Hurley KM, Cross MB, Hughes SO. A systematic review of responsive feeding and child obesity in high-income countries. *J Nutr*. 2011;141(3):495–501.
51. Larsen JK, Hermans RC, Sleddens EF, Engels RC, Fisher JO, Kremers SP. How parental dietary behavior and food parenting practices affect children's dietary behavior. Interacting sources of influence? *Appetite*. 2015;89:246–257.
52. Lynch M, Batal M. Child care providers' strategies for supporting healthy eating: a qualitative approach. *J Res Child Educ*. 2012;26(1):107–121.
53. Lindsay AC, Salkeld JA, Greaney ML, Sands FD. Latino family childcare providers' beliefs, attitudes, and practices related to promotion of healthy behaviors among preschool children: a qualitative study. *J Obes*. 2015;2015:409742.
54. Mita SC, Li E, Goodell LS. A qualitative investigation of teachers' information, motivation, and behavioral skills for increasing fruit and vegetable consumption in preschoolers. *J Nutr Educ Behav*. 2013;45(6):793–799.
55. Carnell S, Cooke L, Cheng R, Robbins A, Wardle J. Parental feeding behaviours and motivations. A qualitative study in mothers of UK pre-schoolers. *Appetite*. 2011;57(3):665–673.
56. Evans A, Seth JG, Smith S, et al. Parental feeding practices and concerns related to child underweight, picky eating, and using food to calm differ according to ethnicity/race, acculturation, and income. *Matern Child Health J*. 2011;15(7):899–909.
57. Reimer K, Smith C, Reicks M, Henry H, Thomas R, Atwell J. Child-feeding strategies of African American women according to stage of change for fruit and vegetable consumption. *Public Health Nutr*. 2004;7(4):505–512.
58. Pagnini DL, Wilkenfeld RL, King LA, Booth ML, Booth SL. Mothers of preschool children talk about childhood overweight and obesity: The Weight of Opinion study. *J Paediatr Child Health*. 2007;43(12):806–810.
59. Xu H, Wen LM, Rissel C. Associations of parental influences with physical activity and screen time among young children: a systematic review. *J Obes*. 2015;2015:546925.
60. Gray C, Gibbons R, Larouche R, et al. What is the relationship between outdoor time and physical activity, sedentary behaviour, and physical fitness in children? A systematic review. *Int J Environ Res Public Health*. 2015;12(6):6455–6474.
61. Trost SG, Ward DS, Senso M. Effects of child care policy and environment on physical activity. *Med Sci Sports Exerc*. 2010;42(3):520–525.
62. Ward DS, Vaughn A, McWilliams C, Hales D. Interventions for increasing physical activity at child care. *Med Sci Sports Exerc*. 2010;42(3):526–534.
63. Pocock M, Trivedi D, Wills W, Bunn F, Magnusson J. Parental perceptions regarding healthy behaviours for preventing overweight and obesity in young children: a systematic review of qualitative studies. *Obes Rev*. 2010;11(5):338–353.
64. De Craemer M, De Decker E, De Bourdeaudhuij I, et al. Physical activity and beverage consumption in preschoolers: focus groups with parents and teachers. *BMC Public Health*. 2013;13:278.
65. Bellows L, Anderson J, Gould SM, Auld G. Formative research and strategic development of a physical activity component to a social marketing campaign for obesity prevention in preschoolers. *J Community Health*. 2008;33(3):169–178.
66. Copeland KA, Kendeigh CA, Saelens BE, Kalkwarf HJ, Sherman SN. Physical activity in child-care centers: do teachers hold the key to the playground? *Health Educ Res*. 2012;27(1):81–100.
67. De Decker E, De Craemer M, De Bourdeaudhuij I, et al.; ToyBox-study group. Influencing factors of screen time in preschool children: an exploration of parents' perceptions through focus groups in six European countries. *Obes Rev*. 2012;13 (Suppl 1):75–84.
68. Sevimli-Celik S, Johnson JE. I need children to move and so do the children. *Int Educ Stud*. 2013;6(5):1–10.
69. McLeroy KR, Bibeau D, Steckler A, Glanz K. An ecological perspective on health promotion programs. *Health Educ Q*. 1988;15(4):351–377.
70. Bagozzi R. Marketing as exchange: a theory of transactions in the marketplace. *Am Behav Sci*. 1978;21(4):535–556.
71. Lee NR, Kotler P. *Social Marketing: Changing Behaviors for Good*. 5th ed. Thousand Oaks, CA: Sage Publications, Inc; 2016.
72. Bandura A. Health promotion by social cognitive means. *Health Educ Behav*. 2004;31(2):143–164.
73. Derscheid LE, Umoren J, Kim SY, Henry BW, Zittel LL. Perceptions of nutrition and physical activity practices for preschoolers. *J Res Child Educ*. 2010;24(3):248–265.
74. Rodríguez-Oliveros G, Haines J, Ortega-Altamirano D, et al. Obesity determinants in Mexican preschool children: parental perceptions and practices related to feeding and physical activity. *Arch Med Res*. 2011;42(6):532–539.
75. Horodyski MA, Stommel M, Brophy-Herb HE, Weatherspoon L. Mealtime television viewing and dietary quality in low-income African American and Caucasian mother-toddler dyads. *Matern Child Health J*. 2010;14(4):548–556.
76. Haerens L, De Bourdeaudhuij I, Barba G, et al.; IDEFICS consortium. Developing the IDEFICS community-based intervention program to enhance eating behaviors in 2- to 8-year-old children: findings from focus groups with children and parents. *Health Educ Res*. 2009;24(3):381–393.
77. Lindsay AC, Sussner KM, Greaney ML, Peterson KE. Influence of social context on eating, physical activity, and sedentary behaviors of Latina mothers and their preschool-age children. *Health Educ Behav*. 2009;36(1):81–96.
78. Dwyer J, Needham L, Simpson JR, Heeney ES. Parents report intrapersonal, interpersonal, and environmental barriers to supporting healthy eating and physical activity among their preschoolers. *Appl Physiol Nutr Metab*. 2008;33(2):338–346.
79. Copeland KA, Sherman SN, Kendeigh CA, Kalkwarf HJ, Saelens BE. Societal values and policies may curtail preschool children's physical activity in child care centers. *Pediatrics*. 2012;129(2):265–274.
80. Taveras EM, LaPelle N, Gupta RS, Finkelstein JA. Planning for health promotion in low-income preschool child care settings: focus groups of parents and child care providers. *Ambul Pediatr*. 2006;6(6):342–346.
81. Michie S, Richardson M, Johnston M, et al. The behavior change technique taxonomy (v1) of 93 hierarchically clustered techniques: building an international consensus for the reporting of behavior change interventions. *Ann Behav Med*. 2013;46(1):81–95.
82. North Carolina Foundations Task Force. *North Carolina Foundations for Early Learning and Development*. Raleigh, NC; 2013:1–164. Available at https://ncchildcare.ncdhs.gov/Portals/0/documents/pdf/N/NC_Foundations.pdf
83. van de Gaar VM, Jansen W, van Grieken A, Borsboom G, Kremers S, and Raat H. Effects of an intervention aimed at reducing the intake of sugar-sweetened beverages in primary school children: a controlled trial. *Int J Behav Nutr Phys Act*. 2014;11:98.
84. Carriedo Á, Bonvecchio A, López N, et al. [Use of social marketing to increase water consumption among school-age children in Mexico City]. *Salud Publica Mex*. 2013;55 (Suppl 3):388–396.
85. Blitstein JL, Cates SC, Hersey J, et al. Adding a social marketing campaign to a school-based nutrition education program improves children's dietary intake: a quasi-experimental study. *J Acad Nutr Diet*. 2016;116(8):1285–1294.
86. Alaimo K, Carlson JJ, Pfeiffer KA, et al. Project FIT: a School, community and social marketing intervention improves healthy eating among low-income elementary school Children. *J Community Health*. 2015;40(4):815–826.
87. Johnson SL, Bellows L, Beckstrom L, Anderson J. Evaluation of a social marketing campaign targeting preschool children. *Am J Health Behav*. 2007;31(1):44–55.
88. Bellows L, Silvernail S, Caldwell L, et al. Parental perception on the efficacy of a physical activity program for preschoolers. *J Community Health*. 2011;36(2):231–237.
89. Marteau TM, Hollands GJ, Fletcher PC. Changing human behavior to prevent disease: the importance of targeting automatic processes. *Science*. 2012;337(6101):1492–1495.