Research Article

Does the *Kids Café Program's* Nutrition Education Improve Children's Dietary Intake? A Pilot Evaluation Study

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ABSTRACT

Objective: To evaluate the *Kids Café Program* (KCP) nutrition education and assess its impact on children's diet quality and body mass index (BMI) percentile.

Design: An experimental design consisting of pretest-posttest comparison groups using mixed methods to evaluate a 6-session nutrition education intervention.

Setting: Four Boys and Girls Club sites

Participants: A total of 120 9- to 12-year-old children in the KCP (60 intervention and 60 comparison); 89% completed posttest evaluations.

Intervention: Trained KCP site staff taught the nutrition education curriculum at intervention sites.

Main Outcome Measures: Healthy Eating Index–2010 using 24-hour dietary recall data (primary) and BMI percentile (secondary)

Analysis: Repeated-measures mixed-effects modeling

Results: Mean age of children was 10.2 years; mean BMI percentile was about 79; 95% were from food-insecure households. The total Healthy Eating Index–2010 score for both groups at baseline and posttest ranged from 50 to 60. At posttest, compared with baseline scores, children from both groups scored significantly lower for total vegetables, and greens and beans; the intervention group children had significantly higher sodium scores. Process evaluation indicated that 60-minute lecture-based sessions were too long after children were in school all day.

Conclusion: This pilot study suggests that the KCP nutrition education curriculum needs improvement. Further research based on behavioral constructs is needed to refine the curriculum to encourage healthier food choices among children and using the MyPlate and the 2015-2020 Dietary Guidelines for Americans.

Key Words: dietary intake, food insecurity, HEI-2010, *Kids Café* (*J Nutr Educ Behav*. 2017;■■:■■–■■.)

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INTRODUCTION

Recent national data for the US showed that the rates of overweight and obesity were higher among children from low-income families, and the children were more likely to have behavior-related risk factors for chronic diseases.[1] Children from low-income families were more likely to report food insecurity and poor diet, both of which increase the risk for obesity and related health conditions, compared with children from higher-income families.[2] Unfortunately, the majority of the children in the US do not meet the recommended intakes for fruits and vegetables, whole grains, beans and legumes, and dairy, and overconsume high energy–dense foods and sugar-sweetened beverages,[3-5] which are positively associated with increased body weight and obesity risk.[6]

Food insecurity and obesity share many underlying risk factors and often affect the same people.[7] Children tend to become obese when reared in a low-income household.[8] Because obesity in youth tends to continue throughout life, efforts to maintain energy balance should begin in childhood. The increasing prevalence of obesity in youth may increase the risk for chronic diseases in the future.[8] Thus, innovative intervention strategies are needed that target children and their dietary environment to reduce obesity rates. The *Kids Café Program* (KCP), sponsored by Feeding America, is a national program

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that provides snacks and nutrition education for low-income children.[9]

Feeding America is the nation's largest hunger relief organization, serving all 50 states and Puerto Rico.[10] It networks with about 200 food banks and 60,000 food pantries and meal programs providing food and services to more than 46 million people each year. Launched nationally in 1993, currently more than 1,200 KCPs operate in the US through Feeding America.[10] It uses federal funding from the *Child and Adult Care Food Program* and targets children in after-school care settings who are at risk for hunger.[10] Eligible participants must qualify for the free or reduced-cost school lunch program.[10] The *Kids Café Program* is 1 of the nation's largest nutrition programs providing children with nourishment they may not get at home, as well as nutrition education.[10,11]

In southeast Texas, the KCP is administered by the Houston Food Bank (HFB).[11] The program is a collaboration of chefs, dietitians, students, and volunteers.[11] The *Kids Café Program* provides free meals and snacks to low-income children aged 1–18 years, in a variety of community locations where children gather during after-school hours throughout the school year, such as Boys and Girls Clubs, YMCAs, churches, or public schools.[11] In financial year 2016, 26% of children in the 18-county HFB service area were food insecure; 720,766 meals and 96,803 snacks were served to hungry children in 116 after-school care sites in the Houston area.[11]

Evaluations of the KCP across the US were conducted for compliance with federal food preparation safety standards and meal preparation guidelines, especially when the program was sponsored by a *Child and Adult Care Food Program* grant.[12] At the HFB, monitoring includes regular site visits to evaluate meals for nutritional quality, sanitation, food storage, and food handling practices.[11] In addition to food safety and nutritional issues, daily records are kept to track the number of children and meals served and any comments the children or parents may have about the program. Because of the large amount of money that is spent on the KCP with no available data on its effectiveness, it is important to conduct a formal evaluation. This article presents results from a pilot study that aimed to evaluate the impact of the KCP on children's diet quality (primary outcome), and body mass index (BMI) percentile and self-efficacy (secondary outcomes).

METHODS

The study was conducted in fall, 2010 and was approved by Baylor College of Medicine's Institutional Review Board.

Participants and Recruitment

The researchers obtained parental informed consent and child assent for all participating children. A total of 120 children aged 9–12 years were recruited from the 4 KCP sites. Children aged <8 years were not included because of the difficulty of obtaining accurate 24-hour recalls from them. Children aged >16 years were not included because of the reduced parental influence. Exclusion criteria included children who received prescription medications that affected weight and/or appetite, or who were homeless. Parents completed a short screener at the time of consent to assess whether the children were in the required age range, if they were receiving prescription medications, and their housing status (rented or owned apartment or home, shared living, or shelter).

Design

A cluster-randomized design consisting of a pretest-posttest comparison group was used. Mixed methods were used to evaluate the KCP's impact on children's diet quality. The researchers randomized 4 after-school programs into intervention and comparison groups, with 2 programs in each group. These sites were selected from different areas of Houston to prevent information contamination and were matched for ethnicity. After matching, sites were assigned to either the intervention or the comparison condition, with 2 sites in each (60 children/condition).

Intervention

The existing KCP nutrition education curriculum had 6 sessions with lessons on MyPyramid,[13] grains, fruits, vegetables, protein and calcium, and breakfast and healthy snacks. The lessons were lecture-based followed by a short group activity. Participants were also given a take-home challenge. In addition, children were encouraged to eat healthy foods and to request parents to make healthier foods available and accessible at home. An implementation manual was developed to ensure that the curriculum was taught in a standardized way at all sites participating in the study; consistent implementation would facilitate its evaluation by minimizing possible contamination associated with variable implementation. The manual was developed based on HFB and KCP staffs' needs and skill level, and included a project overview, detailed time schedule, protocols, and curriculum materials (topics, lesson plans, modules).

Two KCP staff members from the HFB were assigned to each participating site and completed an intensive 1-day training to ensure standardized implementation of the 6-session nutrition education curriculum. These staff members had nutrition education experience through the HFB before being trained for standardized implementation of the KCP. The classes were led by only 1 staff member. The other staff member was trained as a backup in case the lead staff member could not teach the class on any particular day. The training manual was provided to all KCP staff members.

Trained intervention KCP site staff taught the KCP nutrition education curriculum using the standardized implementation protocol in addition to KCP meals that were provided. The 6 1-hour weekly sessions were conducted over 6 weeks (1 session/wk). The sites in the comparison group continued with the regular KCP meals but did not provide the nutrition education component that was made available to them after the evaluation study was completed. All children at a particular site attended the sessions at the same time.

Measures

The researchers conducted 24-hour food recalls, questionnaires (demographics and self-efficacy), and