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Research Article

Healthy Choices Can Be Fun: An Overview of an In-School Nutritional Program for Middle School Girls

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Abstract

Objective: To evaluate the effectiveness of a 11-week pilot program of a school-based educational nutrition and fitness program for underserved middle-school girls

Methods: A one-group pre- and post-test design of middle-school girls between the ages of 11-14. Survey monkey was used to collect and analyze the data.

Results: Overall the program did improvement the number of times fruits and vegetables were consumed, and the number of times healthy snacks are chosen. Some increase in physical activity and a small change in the number of sweetened drinks consumed was also observed; along with an increase in food safety.

Conclusions and Implications: The outcomes of this program demonstrate the feasibility of integrating such a program into the school curriculum that would help improve health outcome of low-income children.

Keywords: African American or Black, Middle-school girls, Nutrition, School-based

Introduction

Being overweight or obese is a major public health problem that contributes to increased morbidity and mortality due to its association with high blood pressure, cardiovascular disease, and diabetes [1]. In Camden, New Jersey 39% of Camden boys and 40% of Camden girls are either overweight or obese compared to 32% boys and 31% girls nationally [2]; and they fail to meet the recommendation for vegetable consumption, often consuming a diet of fast foods, sugary beverages and unhealthy snacks [3]. Additionally, In Camden, 58% of children (ages 3-18) do not meet required physical activity levels [2]. Childhood obesity has a significant impact on a child's physical, social, and emotional health [4, 5]. Therefore, the purpose of this project was to conduct and evaluate a pilot program aimed at enhancing middle-school girls' ability to make healthier decisions regarding food choices and physical activity. *Healthy Choices Can Be Fun!, was a* 9-week educational nutrition and fitness program conducted at two middle-schools in Camden, New Jersey among 7th and 8th grade girls. The two schools used in this study were selected due to their location (underserved communities), and only girls were used due to the mission of the sponsoring organization. Plus minority girls tend to be more overweight or obese than boys or other ethnic groups [6].

Project Description

The *Healthy Choices Can Be Fun!* Program was developed and implemented by Women of the Dream (www.womenofthdream.org), an organization providing programs and services to girls and young women ages 12-18 in underserved communities and preparing them for personal, career, and economic success [7]. The CEO of Women of the Dream obtained ethical approval to conduct this program and collect pre- and post-survey data from the New Jersey State Board of Education and supported by the principals of both schools. Parental consent was obtained from all girls participating in the program, as well as assents from the girls. The program was conducted in the schools, during regular scheduled class times. It was made clear to the girls that their participations were completely voluntary, and they were free to quit the program at any time; failure to participate would not in any way effect their standing within the school. Girls who volunteered to participate were released from their usually class to participate during these sessions.

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The program was based on the U. S. Department of Agriculture and the U. S. Department of Health and Human Services evidence-based curriculum, known as "*The Power of Choice,"* The curriculum is designed to help build decision-making skills that promote healthier eating habits and physical activity choices in real-life settings among youth [8]. The Power of Choice material is reproducible and available for use (http://www.esc1.net/cms/lib/TX21000366/Centricity/Domain/89/Power_of_Choice.pdf)

A key objective was to make participants aware that they can make responsible decisions that affect their health. The classes were held every Wednesday for 1.5 hours for nine weeks, during regular school hours. The classes were designed to be culturally specific by selecting recipes more commonly eaten in their homes but prepared healthier. The curriculum addressed nutrition and healthy choices/lifestyle, and it also provided hands-on experiences with the preparation of healthy meals. A trained facilitator (from the NJ Expanded Food and Nutrition Education Program, housed at Rutgers University-Camden) guided the program, offering participants an opportunity to learn by doing. Once a week (Wednesdays) for1.5 hours, participants prepared and consumed healthy food associated with that week's lesson plan. For many of them, it was their first exposure to such foods as cauliflower, squash, kale, pears and berries. The participants prepared healthy drinks, food and snacks, and were encouraged to continue the practice at home. Incentives were provided to students after each class, such as healthy foods to take home.

The girls also had the opportunity to participate in off-site activities, such as a trip to a supermarket to learn from the store's nutritionist how to read labels and buy healthier food on a budget. Another off-site activity was *Cooking with Campbell's Chefs* at Campbell Soup Company (Camden, NJ) where they were given tips for healthy cooking and assisted in preparing and serving a healthy full-course meal. These off-site activities still took place on Wednesday as previously described.

In addition to nutrition and food preparation, physical fitness was built into the program at the Salvation Army's Kroc Center in Camden. The Kroc Center is a community center that offers a variety of services to the Camden community, such as health and wellness programs. The participants attended a total of three 1-hour sessions at the Kroc Center and were introduced to water activities, dance (Zumba) and fitness classes. The activities at the Kroc Center were still on Wednesdays, but after school hours (in addition to the food preparation class).

Method

A total of 23 (N=23) girls in the 7th and 8th grades volunteered to participate in this program (67% were Black and 32% were Hispanic) between the two schools (n=11 & n=12). A one-group pre- and post-test design was used to assess a 9-week pilot program of a school-based educational nutrition and fitness program for underserved middle-school girls. Survey monkey was used to collect and analyze the data. The same questionnaire was administered pre- and post- to assess participants' understanding of important health topics and their behavior regarding healthful eating and exercise. The questionnaire was developed by the primary investigator from the review of the literature. Sample questions asked were: "How many times per week do you consume vegetables (not counting French fries)?" none, 1 time, 2 times, 3 times. "How many times per week do you consume fruit?" none, 1 time, 2 times, 3 times. "During the past 7 days (week), how many days were you physically active for at least 1 hour?" none, 1-day, 2-days, 3-days, 4-days, 5-days, 6-days, 7-days. Most of the questions were in this format.

Result and Implications

A summation of the key responses with noted changes are illustrated in (Table 1). Numbers in the table represents the percentages of students who showed improvement with respect to healthier food choices and physical activity. Although these findings are descriptive and not statistically significant; the results do demonstrate that the program resulted in a positive trend towards behavior improvement. For example, before the program, no girls (0%) consumed vegetables 3 times per day, but after the program 11% of the girls was now consuming vegetables 3 times per day. Before the program 45% of the girls consumed sweetened drinks at least 2 times per day, after the program only 22% consumed sweetened drinks 2 times per day. The girls did make healthier choices after participating in the program. Some increase in physical activity was also observed, along with an increase in food safety habits. The focus of the program was on healthier choices and behavior changes versus weight loss,

Table 1: Pre- to Post-Survey Results (N=23)

Topic	Pre-	Post-
Consumption of vegetables 3 times per day (not counting French fries)	0%	11%
Consumption of fruit:		
a). 2 times per day	9%	44%
b). 4 times per day	0%	11%
Consumption of sweetened drinks (soda & fruit-flavored drinks):		
a). 1 time per day	18%	11%
b). 2 times per day	45%	22%
Consumption of whole grains (how often):		
a). Once in a while	27%	33%
b). Sometimes	36%	67%
When you eat out at a restaurant or fast food place, how often do you make healthy choices when deciding what to eat?		
a). Once in a while	27%	33%
b). Most of the time	0%	11%
During the past 7 days(week), how many days were you physically active for at least 1 hour?		
a). 1-days per week	0%	11%
b). 2-days per week	9%	33%
c). 7-days per week	9%	11%
During the past 7 days, how often were you so active that your heart beat fast and you breathed hard most of the time? (2-times per week)	36%	67%
How many hours a day do you spend watching TV or movies, playing electronic games, or using a computer for something that is not schoolwork?		
a). 4-hours per day	18%	11%
b). 5-hours per day	27%	0%
How often do you wash fruits and vegetables before eating them? = *Always*	45%	78%
When you take foods out of the refrigerator, how often do you put them back within 2 hours? = *Always*	27%	44%
How confident are you in using measuring cups and measuring spoons? = *Totally confident*	18%	44%
Total do not equal 100%, because only responses with noted changes are shown in this table. Most questions were based on events that occurred on *yesterday* or the day prior to responding to the questionnaire.		

although weight loss could invariably be a by-product of making healthier food choices.

This small pilot study suggest that healthier habits can be achieved through such an interactive program, but a more robust evaluation design is needed to confirm the effectiveness of this program. The program was well received with a 95% attendance rate, and its outcomes demonstrate the feasibility of integrating a program into the school curriculum that could help improve health outcome of low-income children. Other studies support that school-based programs can effectively improve nutritional and physical activity behavior among students [9, 10].

Lessons learned

The buy-in and support of the principals and other school personnel is a must. The support of the school is extremely necessary to allow students out of class on these selected days. It was important to coordinate the schedule, so the student would not miss an essential class (held during a free-period). The ideal method would be to have a weekly class dedicated to *Healthy Choices Can Be Fun!* This program could be conducted with both boys and girls. School can integrate nutritional classes and programs into the school curriculum to help foster better eating habits and behavior.

Another initial goal was to get parental support at home with meal preparation and some food changes. However, despite efforts to reach parents (completely unresponsive to letters, text messages, and phone calls), there were no parental involvement with this program. Based on the girls' post-evaluation responses, most of the girls indicated that more help at home would help them to continue making healthy choices. Therefore, we recognize that more parental involvement would be beneficial. Study support that parents play a significant role in the prevention of childhood obesity and promotion of physical activity [4, 11].

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