

Project Title: Northeast Community Center, California Family Center: *Summer for Change* – A healthy living promotion program to prevent childhood obesity and its long-term consequences

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Abstract

Purpose: A cross-sectional study on the relevance, effectiveness, feasibility and sustainability of a pilot summer program in promoting healthy living for the pediatric patients visiting California Family Center (CFC) of Northeast Community Center (NECC) in downtown Los Angeles between July 10th and July 20th of 2012. The purpose of the study is to ensure that the pilot program meets the needs of the patients and could be implemented at CFC. **Methods:** The program targets both the pediatric patients and their parents that visit CFC. Physicians, front desk staff members and health educators participated in direct recruitment by handing out program flyers. Each day, 90-120 minutes of class time provide nutrition lessons, physical activities and cooking lessons. The effectiveness, feasibility and sustainability of the program were assessed via surveys and quizzes. All children 5 to 14 years old were given quizzes and evaluations and the parents who participated in the lessons were also asked to fill out the program evaluations. The data collected are used to measure the three factors that would form the foundation in constructing a successful health-promoting program for CFC. **Results:** 1) *Relevance* - 53 children and parents participated in the program. 100% parents reported that they would want their children to participate in the program. 100% participants reported that they “like” the class they attended. When asked about the portions of fruits and vegetables the children eat, 3/10 reported that they eat the correct portions of fruits, 2/10 reported that they eat correct portions of vegetables. 2) *Effectiveness* – Average percentage on quizzes given to the children before class is 50.5% versus 76.9% when given after the classes. 3) *Feasibility and sustainability* – Class usually ended shorter than planned, from 60 to 90 minutes. The cost of materials used for the teaching lessons were \$100 total and the ingredients for the cooking sessions averaged \$20 for each day. **Conclusion:** The data collected suggested that the pilot program is relevant to the

needs and interests of the parents and the children with some necessary modifications. It is also shown to have some effectiveness in increasing the children's knowledge on nutrition and healthy living practices. The program overall is feasible and sustainable due to its low cost and low maintenance after shortening class time and dividing teaching responsibilities. This pilot program is designed to meet the needs and the resources of CFC, and with modifications, it has great potential to be a valuable resource to promote healthy living in both the children and the parents. The long-term goal is to contribute to the effort of reducing childhood obesity and the diseases associated with it, such as diabetes mellitus type 2.

Background

The World Health Organization (WHO) has described childhood obesity as a “global epidemic” because it remains one of the most prevailing and challenging public health issues among industrialized countries and a growing problem worldwide (Dattilo et al., 2012). Approximately 17% of US children and adolescents ages 2-19 years are obese according to a data from the 2007-2008 National Health and Nutrition Examination Survey (ahrq.gov, 2011). The obesity prevalence among different age groups doubled (children aged 2-5) and tripled (children aged 6-11 and 12-19) between 1976-1980 and 2007-2008 with the highest prevalence in the 6-11 years age group. Greater prevalence in some minority groups such as Hispanics and African American. However, the patterns are complicated because not all minority groups are at high risk nor does low-socioeconomic status directly correlates with greater incidence in all ethnic groups.

The causes of obesity are the result of complex interactions between biological, behavioral, social, environmental and economic factors. Within each of these factors are sub-factors that make it more complex. WHO and an Institute of Medicine expert panel have recommended that multiple and comprehensive interventions are needed to fight the growing epidemic (arhg.gov, 2011).

Studies have shown that obesity is a major risk factor for many chronic diseases including type 2 diabetes, hypertension, high cholesterol stroke, heart disease, nonalcoholic fatty liver disease, certain cancers, arthritis and higher mortality (arhg.gov, 2011). Type 2 diabetes was once considered an adult disease but it is now seen in children as a result of childhood obesity. According to Freedman and colleagues (Freedman et al., 2007), about 70% of diabetes cases in the U.S are caused by excess weight. Beside chronic disease, psychosocial consequences such as eating disorders, depression and low self-esteem are also the outcomes of childhood obesity (Li et al., 2011).

The economic impact of childhood obesity on the U.S. health care system is also significant. It is estimated that the health care costs of an overweight or obese child is about three times higher than the average child because they are two to three times more likely to be hospitalized and much more likely to be diagnosed with health disorders than non-obese children (Thompson, 2006 and Bray, 1998). It is therefore also important from an economic standpoint to help children develop life-long healthy lifestyles and to prevent obesity at young ages.

The causes and consequences of childhood obesity may have been identified and equally many solutions have been proposed. However, these efforts seem to fall short of the escalating

epidemic. It is imperative then to reexamine the approaches and solutions to see whether they are effective and sufficient. Of the hundreds of programs that have been established, only a handful are effective. The effectiveness can be significantly attributed to the comprehensiveness of the program that includes both educational and active components while involving both parents and children.

A randomized controlled trial done by Sacher and colleagues (Sacher et al., 2010) investigated the effectiveness of the MEND program, a multicomponent community-based childhood obesity intervention, showed a statistically significant reduction in waist circumference and BMI in children that were in the program for six months compared to controlled groups. MEND is a multi-component healthy lifestyle program that engages families in the process of weight management by addressing three components necessary for individual-level behavioral change: (1) education (2) skills training and (3) motivational enhancement. The results indicated that participants had greater improvements in the degree of adiposity as well as indicators of cardiovascular health, psychological well being and other measurements including BMI and waist circumference. These effects were sustained for nine months after the intensive part of the intervention (Sacher et al 2010). What is significant about this study exemplifies the necessity of multidisciplinary interventions since the causes of obesity are a result of many interacting factors.

Despite the fact that California is among the states with lowest rate of childhood obesity, the rate in the Los Angeles County belongs on top of the list. About 42% of the children of LA County were obese or overweight in 2011 (Gorman, 2011). This staggering prevalence of childhood obesity is a concern for the Los Angeles community, and as a community center that serves its community, California Family Center (CFC) of Northeast Community Clinic (NECC) reflects this statistics and concern. Scholars have cited that parental feeding practices, if not causative for weight status in young children, are strongly associated with body weight and healthy food choices throughout childhood (Clark et al., 2007). This strong association is likely suggestive of factors such as the lack parental teachings, knowledge or practices that negatively influence their children's behavior and health. These factors are the more prevailing ones at the clinic.

There are several reasons for this. Since the majority are Spanish speakers, language is a huge barrier to access available resources. Limited socioeconomic and educational backgrounds are also significant in determining how much exposure and access to the resources they have. Last but not least, cultural practices also play a lasting effect. Unfortunately, with the overflow of patients and the limited resources available, health care providers (HCPs) face with the problem of not having enough time to educate and counsel their patients appropriately.

This problem is also seen in the pediatrics. While it may be difficult to influence adults to change their behaviors, it is virtually impossible to transmit any lasting information to a child by telling him or her to eat more vegetables. Yet, HCPs say it all the time not because they think that would be sufficient but because they are restrained to an allotted 15 minutes visit per patient.

Helping the children develop healthy living practices requires proper teachings that start early. Parents have a major role in the teaching as well as being a role model while HCPs can provide useful resources and guidance. When these important influences are lacking, they can be built

back up with appropriate interventions. The goal of this project is to develop a practical program that help the children as well as their parents becoming more knowledgeable and involved in healthy living practices. By providing nutrition and physical exercise lessons and targeting children of all ages and their parents, the goal is to encourage both parents and children becoming better role models for one another. Ultimately, we hope that the program can be a part of a community center to provide resources and motivation in an effort to help alleviating childhood obesity and its associated consequences.

Method

In order to establish the best health promotion program at NECC, there are several important factors that must be taken into account in designing the program: (1) relevance of patients' needs (2) effectiveness (3) feasibility and sustainability.

(1) The relevance of the program is based on the community's needs and the participants' needs. The participants' needs are assessed at each class depending on their interests and level of knowledge. A class with the majority of first graders would receive a different type of lessons as compared to a group with older kids or a group with 10 participants versus 3 participants. Therefore, the lesson plan may be predetermined but a wide selection of lessons and activities are always ready, enabling the health educator to easily change the lessons to meet the needs of the participants.

(2) The effectiveness of the program is assessed via evaluations and surveys of participants' gain in knowledge after the program, returning rates, and satisfaction.

(3) The feasibility and sustainability go hand in hand. We focus on whether there are enough human and financial resources to easily run the program and maintain it for a long time. The important components that favor feasibility and sustainability are low costs, minimal management, and few human resources that are needed to maintain the program.

Recruitment Strategies

Flyers and schedules of each day's event are given to pediatricians and checkout desk personnel to advertise to the pediatric patients and parents. Direct recruitment before each class was also done by health educators to provide parents full descriptions of the program and to allow them the opportunity to ask questions. The children were also asked for their participation with parents' consent. Both parents and the pediatrics were then taken to the conference room directly. The flyers which contain information about the program and recipes of the day were also used to make popcorn holders to give out during recruitment.

Improvement: Recruitment strategies could be improved to increase participants. One way is to have a bulletin board dedicated to the program. The board needs to be kid-attractive and contains up-to-date calendar of the month and of each day. Clearer direction to the conference room where the classes are held would also make it more accessible.

Knowledge Assessment

The program aims to design a program that is feasible, sustainable and effective in improving both parents' and the children's knowledge on and practices of healthy living. Children from 5 years old and older were assessed on their knowledge of nutrition before and after each class. They were given a 5 to 10 questions quiz relating to the topic of the day. Their scores for pre and post classes are averaged and compared.

Program Evaluations

The evaluations of the program are given to both parents and children to assess their satisfaction, their subjects of interest and their suggestions for improvements.

Improvement

Due to a variety of topics covered within the 2 weeks of the program, the knowledge assessment data were not standardized and sufficient to be statistically significant. It would have been better to narrow down the topics taught to get enough data for each topic. If the program can continue and the assessments continued to be done, then enough data could be generated.

Program Structure

To promote healthy living in children, the program will focus on increasing the children's knowledge on nutrition and engagement in physical activities. Parents are also encouraged to be involved. The program is designed to ensure that the children of a wide age range as well as their parents could learn something new from each class. Each class is 60 minutes to 90 minutes long and embodies three essential components: physical activities, nutritional lessons, cooking lessons. The breakdown of the schedule for the day is detailed in table 1, providing the average time spent with each activity that varies each day.

The goal of the program is to make the concept and teaching points tangible and practical. The nutrition lessons would provide both the parents and their children the basic understanding. However, the act of involving the children and parents in making the foods would make the lessons more tangible and therefore more likely to be practiced at home. Practicality is also about making healthy foods that the children like to eat while making it easy and fast for both the parents and the children to prepare. Furthermore, the foods that are presented in class are often healthy and also affordable. The recipes are also in Spanish to provide convenience to the Spanish speaking parents. The recipes also include the price of each ingredient from local groceries such as Trader Joe's.

Another practicality of the lesson is also having the children and the parents do physical exercises together in class. After a discussion on the different types of exercises, its importance and how much exercise is needed each day, we do 25 - 50% of the recommended physical activities for that day and then encourage the parents and the children to plan the activities they would do to fulfill the remaining time at home.

Table 1: Schedule of the day

Activities	Times (Minutes)
Exercises	10 - 15
Nutritional lessons	20 - 30
Organ system & diseases videos	5
Cooking lesson & eating	15 - 30
Course summary & quizzes	10
Surveys	5

Results

The evaluations and surveys are conducted throughout the program and evaluated at the end of the program. The descriptive analysis of the data collected are categorized to assess three key factors of the pilot program: 1) Relevance of the program 2) Effectiveness of the lessons on improving the children's knowledge on nutrition and healthy living practices 3) Feasibility and sustainability of the program. The categories are as followed:

1) Relevance in meeting the needs and interests of the children and the parents

Based on the data, the total of 53 participants are broken down to 37 children under 14 years old and 16 guardians with an average of 7-8 participants a day. Surveys for parents showed that 100% want their children to eat healthier and exercise more. 100% participants reported that they "like" the class they attended. 100% want their children to return to the classes after first day. However, return rate is only 15% and those returned because their parents return for an appointment. When asked about the portions of fruits and vegetables the children eat, 3/10 eat the correct portions of fruits, 2/10 eat correct portions of vegetables. Upon assessing the topics of interest, the children were asked to give a star to the lesson or lessons of the class that they like. Of the 7 randomly picked children of different days, 6 liked the cooking session, 4 liked the nutrition lesson, 2 liked watching the video.

2) Effectiveness of the lessons on improving the children's knowledge on nutrition and healthy living practices

Knowledge on nutrition and physical activity is assessed based on average percentage on quizzes given to the children before class is 50.5% versus 76.9% when given after the classes.

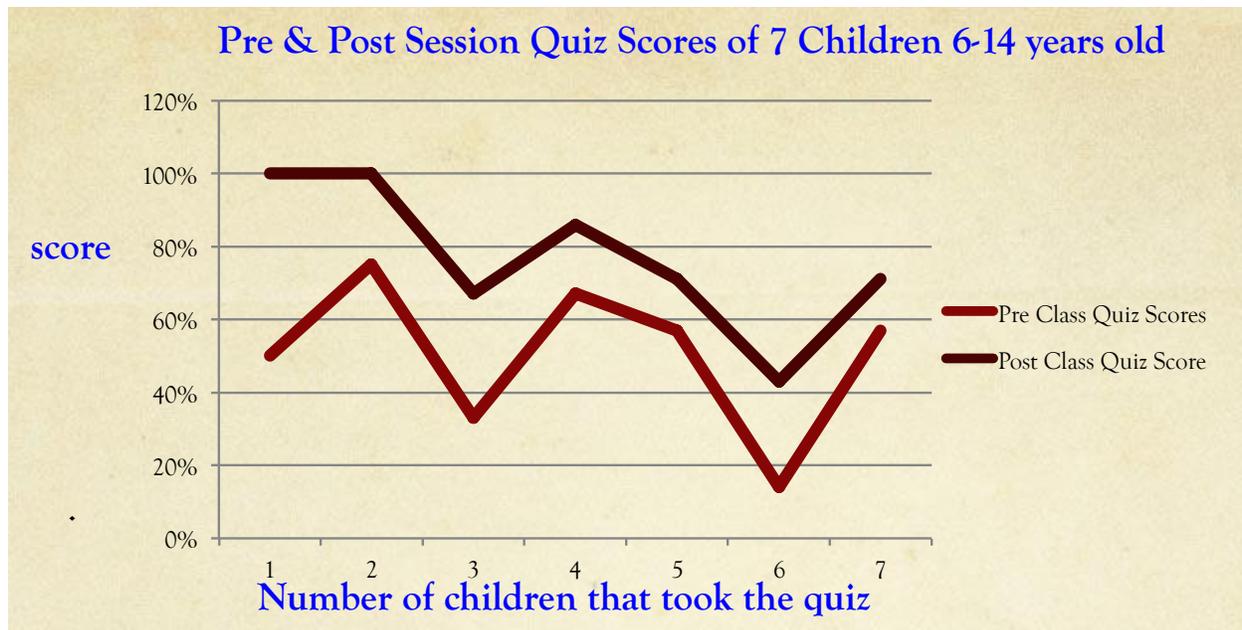


Figure 1.1: Pre & Post Session Quiz Score of 7 Children 6-14 Years Old. The graph shows an increase in absolute score on the quizzes that the children took.

3) Feasibility and sustainability of the program

The time for each class usually ended shorter than planned, 60 to 90 minutes. The cost of materials used the teaching lessons costs \$100 total, foods for the cooking sessions cost an average of \$20 a day. 5/6 children age 8 and older had exposure to nutrition at school.

Discussion

The **recruitment strategies** used are effective. Handing out flyers and having the physicians, front desk staffs and health educator participate in the recruitment process are crucial in the beginning steps. Furthermore, the more encouragement the parents and the children have from different parties, the more convinced they are about the importance of healthy living to attend the lessons.

The data collected from the surveys indicated that the pilot program, Northeast Community Center: Summer for Change, delivered lessons on nutrition and physical exercises was **relevant** and met the needs of the children and the parents that visit NECC. Surveys for the parents showed that 100% want their children to eat healthier and exercise more. 100% of the participants reported that they “like” the class they attended. 100% want their children to return to the classes. Return rate however, is only 15% and the children returned because their parents return for an appointment. The low return rate may be attributed to the fact that parents do not have the time or the transportation to bring their children back. Therefore, the program is designed to provide the most relevant and practical lesson for each day without depending on previous lessons for the group of children and parents visiting clinic that day. The relevance of

the program is also assessed with the feedbacks from the children, which indicated both physical activities and cooking lessons should be prioritized and emphasized. However, the lessons on nutrition and showing of physiology videos should be modified either to have it partly integrated during the cooking session or increasing hand-on activities for the children to do during these lessons. With these modifications on the lesson plans, the children will become more engaged.

Despite the needs for modifications, the current lesson plans have proven to be **effective** in increasing the knowledge of the children. Because their knowledge is assessed right after the lessons, it is uncertain how long they will retain the materials. It would be more effective to have these children return for more lessons. If the program continues to run throughout the summer, there will be more chance that they can return. Their knowledge can also be assessed several weeks later as well.

Starting the program may take some time in the beginning to have all materials ready, but once the program is established, it is **feasible and sustainable**. The cost is minimal and the health educators can be recruited as volunteers. There are a few modifications that would make the program more feasible. For instant, the responsibility of the health educator can be divided between two volunteers. One is in charge of leading the physical activities while another lead the cooking lessons. This way, two shorter sessions of 30 minutes each could be held separately and in any order.

Conclusion

The data collected suggested that the pilot program is relevant to the needs and interests of the parents and the children with some necessary modifications. It is also shown to have some effectiveness in increasing the children's knowledge on nutrition and healthy living practices in the short term. Whether it has any long term effect could only be assessed when the program is sustained for the whole summer and each summer. The program overall is feasible and sustainable due to its low costs and low maintenance after having shortened the class time and dividing the teaching responsibilities to two rather than one health educator.

This pilot program is designed to meet the needs of the community and the resources available at CFC. With modifications, it has great potential to be a valuable resource to promote healthy living in both the children and the parents. It is relevant in the Latin community of Los Angeles where obesity and diabetes have been a prevailing public health issues. The ultimate goal is to help all children and parents develop good habits, be healthier and happier, and for the children to become role models for their family members and future children. The long-term goal is to stop another child from becoming overweight or obese, from developing diabetes, and from developing chronic diseases in the future. Consequently, we hope that our effort could contribute to building a healthier future generation and better society.

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