

## Kick Start Your Day: A Pilot Investigation of a Family Based Nutrition and Physical Activity Program Targeting Low-Income Latino Families

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### Abstract

Obesity rates among Hispanic/Latino youth are 5-10% higher than Caucasian youth. Kick Start Your Day was a six-week intervention that was pilot tested in a low-income, predominantly Latino community. The intervention consisted of nutrition education for parents, fun physical activities for children, low glycemic breakfasts and snacks for parents and children, and bilingual resources (e.g., recipe books) to take home. Fifty-six Latino parents (n= 25 intervention, n= 31 control) and their children ages 6-12 participated, and completed both baseline and end-of-program self-report questionnaires. Logistic regression models were used to examine intervention effects on increases in nutrition knowledge, while linear regression models were used to examine intervention effects on changes in parents' and children's physical activity. All models adjusted for outcome scores at baseline. Results indicated that intervention group parents were more likely to learn that eating breakfast can help their child pay attention and can prevent moodiness, and that nutrition labels contain information about sodium content. Intervention group parents also had greater increases in vigorous physical activity. This study provided preliminary evidence that a low-cost, family-centered intervention can lead to increases in knowledge and behavior change.

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### Introduction

Obesity rates among Hispanic/Latino youth are consistently 5-10% higher than that of their Caucasian peers (Ogden, Carroll, Curtain, Lamb, & Flegal, 2010), and the growth rate of the Hispanic/Latino population in California has been over 18 times that of other ethnicities in the past 10 years (U.S. Census Bureau, 2011). In Orange County, California, where this study was conducted, nearly 1 million children are overweight or obese (Children Now, January 4, 2010).

In response to the growth of the Hispanic/Latino population and their increased risk for obesity, recent studies have examined factors related to obesity among Hispanic/Latino populations. For example, compared to non-Latino children, Latino children ages 5-8 have less access to physical activity equipment and locations (e.g., parks; Corder et al., 2011). Speaking Spanish at home, a proxy for low acculturation to the U.S.,

is associated with higher rates of obesity among elementary school youth (Wojcicki, Schwartz, Jiménez-Cruz, Bacardi-Gascon, & Heyman, 2011).

Despite these environmental and acculturation barriers, research suggests that including parents in interventions targeting their children's obesity risk may be effective. The Centers for Disease Control (CDC) promotes family involvement in the development and implementation of healthy eating and physical activity, policies, practices and programs (Yancey, Kumanyika, Ponce, McCarthy, Fielding, Leslie & Akbar, 2004; Gruber & Haldeman, 2009). For example, a promotora-based nutrition and physical activity intervention for K-2nd graders and their parents led to increases in parental monitoring of children's food intake and fruit/vegetable consumption (Crespo et al., 2012). Such findings are promising, because dietary intake patterns (e.g., eating breakfast daily) is a protective factor against obesity for Latino

children (Wojcicki, Schwartz, Jiménez-Cruz, Bacardi-Gascon, & Heyman, 2011). Also overweight/obese Latino preadolescents are more likely to lose weight if their parents also lose weight during that same time period (Barkin, Gesell, Póe, & Ip, 2011).

### **Kick Start Your Day**

This study describes the results of a pilot program called Kick Start Your Day, a six-week, low-literacy, culturally sensitive, community-based educational intervention. The program targeted Latino parents and their children between the ages of 6-12. The overall goal of the program was to teach families the importance of eating nutrient dense, low glycemic and low calorie foods and exercising regularly. Current literature suggests that the consumption of low glycemic foods can increase feelings of satiety, thereby curbing one's appetite and potentially preventing obesity (McMillan-Price & Brand-Miller, 2006). Programmatic components were the following: (1) teach parents and children the importance of "kick starting" their day with a nutritious breakfast and physical activity; (2) introduce low glycemic foods to parents and children during breakfast and snack times while in the program; (3) teach parents what an appropriate portion size is for different food groups, and how to read/evaluate nutrition labels; (4) distribute a bilingual (English/Spanish) booklet that reiterated key messages of the curriculum, as well as other promotional materials that included healthy recipes; and (5) engage children in brief exercise sessions to demonstrate/teach fun and easy activities that they were encouraged to remember and share with their parents.

This study is novel for a number of reasons: (1) it took place in an underserved Mexican American community of low income and high rates of overweight/obesity, (2) it engaged both parents and children in behaviors to prevent obesity and (3) it emphasized the importance of including low glycemic foods in the diet.

## **Methods**

### **Participants and Recruitment**

Participants consisted of Latino parents with children between ages six and twelve, who were utilizing the services of a community center located in Northern Orange County, California. Participants were recruited through flyers and brochures distributed by the community center and a nearby local clinic. In addition, presentations were conducted at a parent-teacher association meeting at a local school, and a community leader forum at a local community center. Flyers and brochures were written both in English and in Spanish. Undergraduate student interns and community center staff assisted with the recruitment process. All study procedures were approved by the Institutional Review Board (IRB) at the authors' institution.

Of the 83 participants who completed a baseline survey, 56 of them (67.5%; n=25 intervention group, and n=31 in the control group) completed both the pretest and posttest assessments, and therefore comprised the analytic sample. To determine whether attrition rates varied according to any background characteristics and variables of interest, comparisons were made between the 56 participants who completed both surveys and the 27 participants who completed the baseline survey only. No differences were found between these two groups of participants on any of the demographic characteristics (parents' marital status, ethnicity, education, BMI status, and age), parents' knowledge (about breakfast, nutrition labels, and high/low-glycemic food items), and both parents' and children's physical activity levels.

### **Development of Program**

The nutrition portion of the program was designed to help communities of color engage in healthy eating and active living. The impetus for the design of the program came from a review article focusing on interventions published between 1970 and 2003 (Yancey et al, 2004).

The authors indicated that obesity prevention can be obtained by increasing nutrition knowledge, increasing the perceived importance of consuming fruits and vegetables, and providing taste tests of nutritious food items. The children's physical activity sessions were adapted from packaged programs including Sports, Play and Active Recreation for Kids (SPARK; Dowda, Sallis, McKenzie, Rosengard, & Kohl, 2005) and Community Access to Child Health (CATCH, American Academy of Pediatrics, 2012). The physical activities chosen consisted of stretching, jumping, and other aerobic and anaerobic movements focused on soccer skills, as soccer was a popular sport among these Latino children. A physical activity consultant and a nutrition consultant reviewed the program for the quality of its content prior to finalizing the curriculum. Partial costs for the program were deferred by a grant from the CDC and a private, anonymous donation of breakfast foods.

## **Procedures**

### *Program Implementation*

Kick Start Your Day was held for 90 minutes at a local community center once a week, during Tuesday evenings, for six weeks. Family members signed in for attendance during the initial portion of each session. Parents then met in a classroom, while children were gathered and grouped on the playground to participate in their physical activity sessions. Childcare was provided to infants, toddlers, and young children (<5 years of age) at the back of the training room. Parents received the nutrition education by two graduate students that also had multiple years working in community settings. Lessons were delivered in English and translated into Spanish. At the end of each session, parents received items to reinforce the key points of the given session; items included low glycemic foods (cereals with oats, whole wheat, fruits, etc.), measuring cups, and exercise equipment. Parents received the bilingual (English/Spanish) booklet and nutritious recipes at the final session. The booklet was geared towards the children; it described fun physical activities that could be performed at home and also included simple yet important facts about nutrition.

As an incentive for participation, families were included in weekly raffles of items including healthy breakfast cereals, jump ropes, exercise balls, and measuring cups. A local business donated three iPods to be included in a raffle for only those participants who attended at least five of the six once-a-week sessions. At the completion of the final questionnaire a \$25.00 gift certificate to Target was provided to participating members.

The control group had access to the community center but did not participate in the weekly meetings. Some of the community center members participated in English as a second language workshops and other related trainings. They completed both the initial and final questionnaire. After completion of the final questionnaire a \$25.00 gift certificate was provided to control group participants.

### *Assessments and Measures*

Trained data collectors administered self-report questionnaires to the parents at baseline and at the end of the six-week program. Demographic questions including parents' age, marital status, ethnicity, and education level were included in the baseline questionnaire. The outcomes of interest were in the baseline and follow-up surveys, and included nutrition knowledge questions and weekly physical activity (PA) questions. The nutrition questions all had yes/no answers, and asked parents about: (1) the benefits of breakfast (help pay attention, prevent moodiness, keep a healthy weight, and get necessary nutrients), (2) whether or not nutrition labels contain information about calcium, calories, and sodium, and (3) whether or not a given fruit or cereal product (e.g., an apple, Cheerios) has a low glycemic index. The data collectors also weighed the parents and measured their height at baseline. Four questions were used to assess the frequency of each types of physical activity during the week: (1) parents' light/moderate PA, (2) parents' vigorous PA, (3) children's light/moderate PA, and (4) children's vigorous PA. The questionnaire indicated that light/moderate PA included activities such as bicycling, vacuuming, gardening, or anything else that causes only light sweating or small

increases in breathing or heart rate. Vigorous PA included activities such as running, aerobics, playing soccer, or anything else that causes heavy sweating or large increases in breathing or heart rate. Answers ranged on a five-point scale from “Never” to “More than 3 Times/Week.”

### Statistical Analyses

The treatment and control groups were compared on baseline characteristics with chi-square and independent samples t-test calculations. Next, odds ratios were calculated to determine differences between the treatment and control groups in knowledge gained regarding each individual breakfast and nutrition item (seven in total). In these analyses the outcome

was answering correctly post-program (yes or no), controlling for answering correctly at baseline. The independent variable was group status (intervention or control). Last, linear regression models were estimated to determine treatment and control group differences in: (1) the total number of food items answered correctly regarding its glycemic content (out of 12 items total), (2) parents’ light/moderate PA, (3) parents’ vigorous PA, (4) children’s light/moderate PA, and (5) children’s vigorous PA. Similarly, in these analyses the outcome was post-program answers, controlling for the same answers at baseline, while the independent variable was group status.

**Table 1**

**Pre-test and Post-test Comparisons on Knowledge Outcomes**

|   | Intervention (n= 25)    |                          | Control (n= 31)         |                          | <u>AOR<sup>a</sup></u> |
|---|-------------------------|--------------------------|-------------------------|--------------------------|------------------------|
|   | Pretest<br><u>n</u> (%) | Posttest<br><u>n</u> (%) | Pretest<br><u>n</u> (%) | Posttest<br><u>n</u> (%) |                        |
| <i>Parents’ knowledge about breakfast (that it <u>is</u> important to....)</i>              |                         |                          |                         |                          |                        |
| Help pay attention.   | 11 (44.0)               | 19 (76.0)                | 14 (45.2)               | 16 (51.6)                | 10.00*                 |
| Prevent moodiness.  | 6 (24.0)                | 22 (88.0)                | 7 (22.6)                | 13 (41.9)                | 13.49***               |
| Keep a healthy weight.  | 15 (60.0)               | 21 (84.0)                | 16 (51.6)               | 19 (61.3)                | 3.28                   |
| Get necessary nutrients.  | 19 (76.0)               | 21 (84.0)                | 23 (74.2)               | 25 (80.6)                | 1.25                   |
| <i>Parents’ knowledge that nutrition labels <u>do</u> contain information about....</i>     |                         |                          |                         |                          |                        |
| Calcium   | 17 (68.0)               | 22 (88.0)                | 24 (77.4)               | 23 (74.2)                | 2.59                   |
| Calories  | 22 (88.0)               | 25 (100.0)               | 23 (74.2)               | 26 (83.9)                | 3.26                   |
| Sodium  | 12 (48.0)               | 23 (92.0)                | 16 (51.6)               | 19 (61.3)                | 7.54*                  |
|   | <u>M (SD)</u>           | <u>M (SD)</u>            | <u>M (SD)</u>           | <u>M (SD)</u>            | <u>β</u>               |
| <i>Parents’ knowledge of food items that have a low glycemic index (out of 12 possible)</i> | 4.63 (3.00)             | 4.72 (1.93)              | 4.94 (2.75)             | 6.06 (3.19)              | -0.19                  |

\* p < .05, \*\*p < .01, \*\*\*p < .001.

a Adjusted odds ratios (AOR) and Beta (β) refers to intervention versus control group effect on knowledge post-program, controlling for knowledge at baseline.

## Results

### Demographic Characteristics

The entire sample of parents (n=56), majority (73.2%) were married, 64.3% had less than a high school degree, 32.1% were overweight, and 25.0% were obese. Mean age of parents was 37.0 years (SD= 7.1). No differences between control and intervention groups on any of the demographic characteristics.

### Pre-test and Post-test Comparisons on Knowledge Outcomes

Table 1 presents information regarding changes in knowledge outcomes from pre-test to post-test. Relative to the control group, the treatment

group demonstrated significant increases in knowing that eating breakfast is important for paying attention (intervention group= 32.0% increase, control group= 6.4% increase;  $p < .05$ ), and preventing moodiness (intervention group= 64.0% increase, control group= 19.3% increase;  $p < .001$ ), and that nutrition labels contain information about sodium (intervention group= 44.0% increase, control group= 9.7% increase;  $p < .05$ ). There was no other significant treatment versus control group differences on the remaining knowledge variables.

### Pre-test and Post-test Comparisons on Physical Activity

Table 2 presents information regarding changes

**Table 2**

**Pre-test and Post-test Comparisons on Physical Activity Outcomes**

|  | Intervention (n= 25)    |                          | Control (n= 31)         |                          | $\beta$ |
|--|-------------------------|--------------------------|-------------------------|--------------------------|---------|
|  | Pretest<br><u>n</u> (%) | Posttest<br><u>n</u> (%) | Pretest<br><u>n</u> (%) | Posttest<br><u>n</u> (%) |         |
| <i>Parents' light/moderate physical activity</i>   |                         |                          |                         |                          | 0.12    |
| Never  | 0 (0.0)                 | 0 (0.0)                  | 1 (3.2)                 | 1 (3.2)                  |         |
| Rarely   | 2 (8.7)                 | 1 (4.0)                  | 1 (3.2)                 | 2 (6.5)                  |         |
| Once a week  | 2 (8.7)                 | 1 (4.0)                  | 1 (3.2)                 | 1 (3.2)                  |         |
| Twice a week                                       | 0 (0.0)                 | 1 (4.0)                  | 7 (22.6)                | 4 (12.9)                 |         |
| More than 3 times/week                             | 19 (82.6)               | 22 (88.0)                | 21 (67.7)               | 23 (74.2)                |         |
| <i>Parents' vigorous physical activity</i>         |                         |                          |                         |                          | 0.26*   |
| Never  | 2 (8.7)                 | 0 (0.0)                  | 2 (6.7)                 | 3 (9.7)                  |         |
| Rarely   | 10 (43.5)               | 3 (12.0)                 | 5 (16.7)                | 5 (16.1)                 |         |
| Once a week  | 1 (4.3)                 | 5 (20.0)                 | 5 (16.7)                | 4 (12.9)                 |         |
| Twice a week                                       | 5 (21.7)                | 5 (20.0)                 | 5 (16.7)                | 6 (19.4)                 |         |
| More than 3 times/week                             | 5 (21.7)                | 12 (48.0)                | 13 (43.3)               | 13 (41.9)                |         |
| <i>Children's light/moderate physical activity</i> |                         |                          |                         |                          | 0.19    |
| Never  |                         | 0 (0.0)                  |                         | 1 (3.3)                  |         |
| Rarely   | 2 (8.3)                 | 0 (0.0)                  | 3 (11.1)                | 1 (3.3)                  |         |
| Once a week  | 1 (4.2)                 | 0 (0.0)                  | 1 (3.7)                 | 1 (3.3)                  |         |
| Twice a week                                       | 5 (20.8)                | 2 (8.3)                  | 4 (14.8)                | 6 (20.0)                 |         |
| More than 3 times/week                             | 16 (66.7)               | 22 (91.7)                | 19 (70.4)               | 21 (70.0)                |         |
| <i>Children's vigorous physical activity</i>       |                         |                          |                         |                          | -0.14   |
| Never  | 1 (4.2)                 | 0 (0.0)                  | 0 (0.0)                 | 1 (3.3)                  |         |
| Rarely   | 1 (4.2)                 | 1 (4.0)                  | 2 (6.9)                 | 1 (3.3)                  |         |
| Once a week  | 1 (4.2)                 | 1 (4.0)                  | 2 (6.9)                 | 0 (0.0)                  |         |
| Twice a week                                       | 5 (20.8)                | 8 (32.0)                 | 7 (24.1)                | 7 (23.3)                 |         |
| More than 3 times/week                             | 16 (66.7)               | 15 (60.0)                | 18 (62.1)               | 21 (70.0)                |         |

\*  $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

<sup>a</sup> Beta ( $\beta$ ) refers to intervention versus control group effect on behavior at Time 2, controlling for behavior at Time 1.

in parents' and children's weekly PA levels from pre-test to post-test. Intervention group parents' self-reported vigorous PA levels significantly increased relative to the control group ( $p < .05$ ). In the intervention group, parents "never" or "rarely" engaging in vigorous PA decreased from 52.2% to 12.0%, while engaging in vigorous PA 3+ times per week increased from 21.7% to 48.0%. Changes in the other PA outcomes were not statistically significant.

### Discussion

Kick Start Your Day provided education and resources for Latino parents, fun physical activities for children, and healthy meals and snacks for both of them. Our preliminary findings at the end of the six-week program demonstrated that parents gained knowledge about the importance of eating breakfast, and that food labels contain information about sodium content. Further follow-up assessments would be needed to determine whether such knowledge is associated with more proximal factors linked to children's obesity, such as parents purchasing food items with lower sodium, fat, and sugar content, preparing foods in healthier ways (e.g., baking instead of frying), and monitoring children's dietary intake more closely. Although the intervention taught parents about the importance of eating low glycemic foods, parents who received the intervention did not significantly improve their ability to identify low glycemic fruits and cereals. It is possible that participants gained knowledge that it is important to include many fruits and whole grains to their diet in general, but their ability to distinguish between high glycemic and low glycemic foods within the major food groups (e.g., fruit group, bread, cereal, rice, and pasta group) did not improve. In the future, focus groups could help determine how to modify the Kick Start Your Day curriculum to more effectively present the glycemic index.

A promising finding was that parents reported a significant increase in their own frequency of vigorous physical activity. Such findings may be the result of the education that they received from Kick Start Your Day, or that children were encouraged to share with their parents the fun

physical activities that they learned during the program. It is our hope that increases in parents' levels of physical activity will indirectly result in their children engaging in more physical activity as well. Although parents were asked about their children's activity level, this study did not specifically address children's activity level through the use of checklists or any other formal mechanism. Parents reported of their children's activity level based on the time when they were with their children but not asked to determine levels of physical activity at or after school. Thus, parental reports of children's physical activity may not have accurately indicated children's actual participation in physical activity throughout the day. Olvera et al. (2010) evaluated a community-based, mother-daughter healthy lifestyle intervention for low-income Latino families. The daughters who participated in the intervention demonstrated significant increases in aerobic capacity and fruit and vegetable consumption relative to the control group. However, similar to our study, Olvera et al. found no observed increases in daughters' physical activity levels, and attributed this lack of a significant finding to measurement issues as well. They suggested that ideally, physical activity levels should be measured using 7-day accelerometry data. Given the limited resources available for this study, accelerometry assessments were not possible.

The major strengths of this study were that it targeted an underserved community with high rates of overweight/obesity, engaged both parents and children, and attempted to teach participants about the glycemic index. Limitations included a small sample size, and that the study findings may or may not be generalizable to other low-income Latino communities throughout the United States, and Latino families who are not involved with their local community centers. Recognizing the importance of family behavior in obesity prevention is essential in creating healthy lifestyles. The CDC encourages tailoring culturally specific messages and targeting captive audiences. It is through families and communities that healthy lifestyles can be achieved.

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