Niños Sanos Familia Sana’s impact on physical activity and BMI of Mexican-heritage children
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Abstract

Background: Childhood obesity in Mexican-origin communities in the Central Valley of California is above the national average. Niños Sanos Familia Sana (NSFS) is a multifaceted childhood obesity intervention tested in two of these communities.

Methods: The three-year intervention included school-based component to increase physical activity through PE classes. Physical activity of children was assessed each year using an accelerometer watch. Anthropometric measurements of children were conducted by trained staff. Data were compared by gender and community.

Results: Results show that objective physical activity monitoring via wearable device is feasible in this hard to reach, culturally nuanced population. Data collected suggest that boys and girls may respond differently to increased physical activity.

Conclusion: Over three study years, the NSFS intervention has shown moderate impacts on physical activity and health of sampled children.

Introduction

Niños Sanos, Familia Sana (NSFS; Healthy Children, Healthy Family) is a multifaceted intervention study to decrease the rate of BMI growth in Mexican-origin children in low-income, rural communities in California’s central valley. NSFS was developed using a community-based participatory research (CBPR) approach in two Central Valley school districts. Both districts are demographically and geographically similar; both are rural, have a populations are over 80% Mexican-origin and the primary employment base is agricultural. Community members in both towns are largely monolingual Spanish speaking, immigrant with low income and very low educational levels.

The intervention included a school-based physical education component that used the SPARK (Sports, Physical Activity, Recreation for Kids) research-based PE curriculum for elementary and preschools. Family based education was designed to educate parents about children’s nutrition and physical activity. A subsample of children was followed to assess changes in physical activity each year of the intervention.

Methods

Anthropometric measurements included weight, height and calculations of age adjusted BMI, BMI z-score and BMI percentile. Physical activity was assessed using the PolarActive™ accelerometer (Figure 1). This wrist-worn, waterproof device provides continuous 24-hour measurement of time in five intensity zones, sleep duration, number of active steps and total energy expenditure. A community based participatory research (CBPR) approach employed a combination of collaborative strategies between research and field staff, school staff and health promoters to distribute devices to individual children during community events, health fairs, home visits, field office appointments, etc.

Results

Results present analyses of BMI and physical activity data collected over three years of intervention. Tables 1 & 2 present physical activity variables collected from eligible children over 6 time points during the 3-year study period, by treatment group.

Table 1. BMI of children by at 5 time points

Table 2. Children’s MVPA over 3 years

Table 3. Children’s kcal expenditure vs. sleep time over 3 years

Table 4. BMI changes in boys and girls

Conclusions

After three years of intervention, these preliminary data suggest that NSFS may have positive impacts on children’s physical activity and BMI, especially among girls. Further work is needed to examine the various influences on these outcomes.

References


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