Active and Healthy Families: A Randomized Controlled Trial of a Culturally Tailored Obesity Intervention for Latino Children

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ABSTRACT

OBJECTIVE: There is a critical need for culturally relevant interventions to address obesity among Latino children, who have a greater risk of obesity and diabetes than non-Hispanic white children. To test the impact of a family-centered, culturally tailored obesity intervention delivered through group medical appointments on body mass index (BMI) and other measures of cardiovascular risk among Latino children.

METHODS: In a randomized controlled trial, 55 parent-child dyads were assigned to Active and Healthy Families (AHF) or a usual care wait-list control condition. Dyads were eligible if they spoke Spanish and if the child received care in a federally qualified health center, was aged 5 to 12 years, had a BMI in the 85th percentile or higher, and had not participated in AHF. The 10-week AHF intervention included biweekly group sessions delivered by a registered dietitian, physician, and promotora triad. Sessions covered topics such as parenting, screen time, healthy beverages, physical activity, and stress due to immigration.

RESULTS: Child BMI (kg/m^2) decreased (−0.50) in the AHF group and increased (+0.32) in the control group, yielding an adjusted difference in change of −0.78 (95% confidence interval [CI] −1.28, −0.27). Children assigned to AHF also exhibited relative improvements over controls in BMI *z* score (−0.10; 95% CI −0.19, −0.02) and triglycerides (−26.8 mg/dL; 95% CI −50.1, −3.6), but no significant between-group differences were observed for blood pressure or other fasting blood measures.

CONCLUSIONS: AHF resulted in reductions in child BMI, BMI *z* score, and triglycerides. AHF, which was designed for low-income Latino families, has potential to reduce health disparities, but future studies are needed to determine long-term impact.

KEYWORDS: child; community health center; family; Hispanic American; obesity

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WHAT'S NEW

There is a dearth of randomized trials of primary care approaches to address obesity among Latino children. This 10-week trial of a group appointment intervention is the first culturally tailored program to show significant body mass index improvements among Latino children aged 5 to 12.

OVERWEIGHT AND OBESITY affect one-third of children in the United States,[1] posing one of the most serious public health challenges of our time. Minority[1] and low-income youth[2] bear a disproportionate burden of obesity, further increasing their risk of type 2 diabetes and other serious health conditions.[3] Consequently, developing and evaluating targeted strategies to address obesity in minority and low-income populations has been identified as a national research priority.[4,5]

Latinos represent the largest and fastest growing racial/ethnic minority group in the United States.[6] Thus, addressing the especially high prevalence of obesity among Latino youth[1] is of utmost public health importance. Many Latinos face unique barriers to maintaining good health, such as those related to low wages and limited access to employer-provided health insurance, language, culture, and immigration.[7,8] For instance, only 23% of first-generation Latinos are fluent in English.[9] Also, there appears to be a cultural perception that heavier children are healthier.[10,11] As such, it is imperative to develop and evaluate culturally and linguistically tailored obesity interventions for this population.

Thus far, systematic reviews of childhood obesity interventions support the efficacy of multicomponent,[4] family-based approaches.[12,13] Therefore, this study sought to determine the extent to which a multicomponent, family-centered, and culturally tailored intervention delivered through group medical appointments could

improve body mass index (BMI), as well as other measures of cardiovascular risk, among Latino children aged 5 to 12 years seen in federally qualified health centers (FQHCs). Financial implications of the intervention were also examined.

METHODS

STUDY DESIGN

The 10-week Active and Healthy Families (AHF), or Familias Activas y Saludables, intervention was assessed with a balanced (1:1), unblinded, multisite, parallel-group randomized controlled trial (RCT). AHF was implemented in fall 2012 and spring 2013 in 2 FQHCs in Contra Costa County, California. FQHCs are publicly funded health centers providing comprehensive services to underserved populations. Stratified by FQHC, parent-child dyads were randomized to AHF or a usual-care wait-list control condition using computer-generated randomization lists. AHF was offered to controls approximately 1 to 2 months after trial completion. This study was approved by the University of California, Berkeley's Committee for the Protection of Human Subjects and the Contra Costa Regional Medical Center and Health Centers Investigational Review Committee. ClinicalTrials.gov, www.clinicaltrials.gov, NCT02044705.

PARTICIPANTS AND RECRUITMENT

Primary care physicians in 2 FQHCs referred Latino families with overweight or obese children to AHF. Promotoras—lay health workers from the families' community—called families to assess interest in AHF and prescreen for study eligibility. Eligible families spoke Spanish and had a child aged 5 to 12 years, with a BMI in the 85th percentile or higher for age and sex,[14] and with no previous participation in an AHF pilot series. A trained research assistant met with interested families to conduct eligibility screenings, obtain informed consent/assent, and take baseline measures. Participants were informed of intervention allocation by phone. The planned sample size of 60 provided 80% power to detect a difference in BMI change between groups of 0.5 kg/m^2. Five of the 60 participants who attended the baseline screening appointment were deemed ineligible. Therefore, 55 participants were randomized (Figure).

INTERVENTION

The culturally tailored AHF intervention consisted of five 2-hour group medical appointments every other week for 10 weeks in the families' medical home. These sessions occurred on weekdays from 3 to 5 PM or 4 to 6 PM, depending on FQHC. Sessions were delivered by a provider triad: a registered dietitian, who coordinated and taught the curriculum; a physician, who taught the curriculum and provided leadership, medical expertise, and credibility; and a promotora, who engaged families and facilitated understanding of content. The promotoras and dietitian were bilingual, native Spanish speakers. In one clinic, the physician was fluent in Spanish, and in the other, the physician spoke basic Spanish. Between sessions, promotoras called families twice to check on progress, answer questions, and remind families about the next session.

AHF's content was based on evidence-based practice guidelines from the Expert Committee Recommendations on the Assessment, Prevention, and Treatment of Child and Adolescent Overweight and Obesity[15] and from the American Academy of Pediatrics.[16] Content also focused on obesogenic behaviors for which disparities exist between Latino and non-Hispanic white children, including screen time[17] and consumption of sugar-sweetened beverages.[18] AHF was designed to be family-centered with a focus on parenting (due to the efficacy of family-based obesity interventions),[19] the importance of familism in Latino culture across country of origin,[20] and evidence that parenting style is associated with child eating patterns and obesity among Latinos.[21,22] Having evolved from a shorter program that was not culturally specific, AHF was additionally tailored in several ways: a promotora was added; sessions focused on foods and beverages commonly consumed by the target population (eg, pan dulce, tortillas, Sunny Delight); families received a culturally appropriate recipe book and in-session snacks; AHF targeted cultural perceptions and practices, (eg, viewing overweight children as healthy, reluctance denying children additional helpings, and using food as a reward); and a module on immigration was added. Tailoring was informed by interviews with Latino parents of children in local elementary schools, field visits to local food markets, and focus groups with parents participating in AHF pilot series.

Before each AHF session, a medical assistant measured children's vitals. Each session included one-on-one meetings with the physician, who assessed obesity-related problems and checked on progress meeting behavioral goals.

AHF group sessions (Table 1) covered the following topics: definition and consequences of obesity, sugar-sweetened beverages, parenting, nutrition labels, healthier snacks and fast food, portion size, meal planning, screen time, physical activity, emotional eating, and stress and immigration. The curriculum included interactive activities, such as role playing how to set screen time limits and a physical activity game for children incorporating identification of healthy and unhealthy foods. Open discussions were encouraged. Parents and children participated together, except for advanced or sensitive topics (eg, immigration, parenting and family dynamics, and child's weight status), during which children partook in physical activity. Families received take-home items, such as a pedometer, water pitcher, and appropriately sized cereal bowl. During the last session, children received a physical activity item of their choice (eg, soccer ball). For a family missing a session, the dietitian conducted a brief review before the next session, and the family still received the missed session's handouts and giveaways.

AHF was informed in part by the Transtheoretical Model and addressed processes of change. For instance, stimulus control techniques included advising parents to turn off TV during meals and use the provided water pitcher and cereal bowl to encourage water consumption and healthy