

Salud America!

The Robert Wood Johnson Foundation Research
Network to Prevent Obesity Among Latino Children



RESEARCH REVIEW

July 2013

Increasing Out-of-School and Out-of-Class Physical Activity among Latino Children

Abstract

Increasing physical activity is a vital part of preventing overweight and obesity among Latino children in the United States, although several factors decrease opportunities for physical activity in this population. Access to and safety of physical activity sites in Latino communities, school policies, Latino parenting styles, and levels of acculturation all have been shown to make physical activity more difficult. Implementing programs that address these barriers may increase opportunities for physical activity among Latino children.

This comprehensive research review summarizes the current evidence on barriers to physical activity among Latino children and potential solutions for increasing their physical activity levels during school and non-school time.

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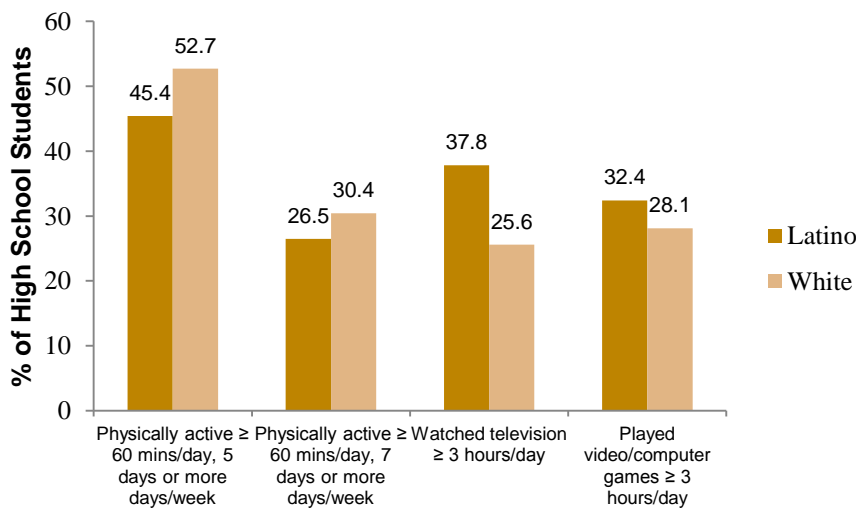
Introduction

Latino children are at increased risk of overweight and obesity compared with White children.¹ Physical activity is important for preventing childhood obesity and has been found to provide other benefits associated with physical and cognitive growth and development, including improved overall health and academic performance.² According to current guidelines from the United States Department of Health and Human Services, children should participate in at least 60 minutes of moderate-intensity physical activity per day.³ Studies suggest that Latino children are less likely to meet the recommendations for daily physical activity and are more likely to engage in sedentary behaviors than White children (Figure 1).^{1,4}

Current literature suggests that many factors may be associated with lower levels of physical activity among Latino children, and addressing these factors may lead to improved levels of physical activity.² The purpose of this research review was to identify factors that are associated with decreased physical activity among Latino children and summarize current school- and community-based initiatives, such as structured educational and physical activity programs, joint use agreements, and neighborhood programs, to increase physical activity among Latino children.

Studies suggest that Latino children are less likely to meet the recommendations for daily physical activity and are more likely to engage in sedentary behaviors than White children.

Figure 1
Physical Activity and Sedentary Behaviors among High-School Students in the United States, 2010



Data source: Eaton DK, Kann L, Kinchen S et al. Youth risk behavior surveillance - United States, 2009. *MMWR Surveill Summ* 2010;59:1-142.

Methodology

For this comprehensive research review, electronic searches of PubMed, Google Scholar and government and organization websites were performed to identify literature relevant to increasing physical activity among Latino children, defined as

individuals younger than 18.⁵ Combinations of the following keywords and MeSH terms were used: adolescent, child, community, neighborhood, Hispanic Americans, Mexican Americans, Latino, motor activity, obesity, physical activity, recreation, and schools.

Included in this review were studies, policy statements, and legislation published between 2000 and 2012 that address Latino childhood obesity and strategies for increasing physical activity among Latino children. Most studies included children younger than 18, although in isolated cases, studies included individuals who were up to 19. Exclusion criteria included articles written in non-English language, studies conducted outside the United States, narrative reviews and editorials. Studies involving adults were included only if they contributed significant insight or recommendations on increasing physical activity among children. Titles and abstracts were reviewed for relevance and inclusion/exclusion criteria. Full text was obtained for relevant articles meeting the inclusion criteria. Additional literature was found through hand searches of the bibliographies of articles captured through the initial electronic searches. All findings were reported, including those that were contradictory.

The literature identified for this review is comprised primarily of survey-based research (interviews and questionnaires) and non-comparative studies. Few randomized controlled trials of physical activity programs in Latino children were identified, suggesting the need for further research in this area. As Latino communities in the United States are often economically disadvantaged compared with White communities, studies involving Latino communities were sought. However, when these were not available, studies on other economically disadvantaged populations and communities were included. Additionally, it is important to note that data on disparities in physical activity levels and access to physical activity sites may be confounded by a number of factors; therefore, more research is needed to determine if and how race/ethnicity, income and other factors are contributing to these disparities.

Key Research Results

- Latino children have fewer opportunities to engage in physical activity than White children because there are often fewer parks and recreation sites in their communities.
- Parenting styles, perceptions and behaviors may influence the level of physical activity in Latino children. Educating Latino parents about monitoring and rewarding healthy behaviors may improve the level of physical activity in their children.
- Level of acculturation may influence the level of physical activity among Latino children, although results are mixed as to whether less or more acculturation negatively impacts physical activity levels.
- Characteristics of neighborhoods and the built environment may affect the frequency of active transport to sites available for recreation and physical activity. Addressing the factors that negatively impact active transport to these sites may increase physical activity among Latino children.

Latino children have fewer opportunities to engage in physical activity than White children because there are often fewer parks and recreation sites in their communities.

- Latino children have few options for physical activity during the school day. Increasing opportunities for physical activity at school by implementing structured programs that engage children in physical activity (e.g., physical education, recess, or after-school programs), may increase overall activity levels and improve obesity-related outcomes in among Latino children.
- Community-based approaches that engage all members of the community and incorporate culturally-relevant messages about healthy living may increase physical activity among Latino children during out-of-school time.

Studies Supporting Key Research Results

Latino children have fewer opportunities to engage in physical activity than White children because there are often fewer parks and recreation sites in their communities.

Disparities in family income and socioeconomic status exist between Latino and White children.^{6,7} The poverty rate among Latino children is nearly three times that of their White counterparts (34.1% vs. 12.5%, respectively).⁶ Studies have shown that recreational resources differ by neighborhood income level and racial/ethnic composition.⁸⁻¹⁴

Data from the 2003 California Health Interview Survey revealed that adolescents living in neighborhoods with higher concentrations of poverty had less access to parks and lower levels of participation in physical activity than those living in areas with lower concentrations of poverty ($P < 0.05$).¹²

In an assessment of physical activity facilities and programs for inner-city children in Boston (for which 23% of study participants were Latino), children from less economically advantaged neighborhoods had less access to recreation facilities and were less likely to be physically active than children from more advantaged neighborhoods.¹⁴ Additionally, inner-city areas of Boston had fewer recreation facilities per child (one facility per 117 children) than those in medium- and high-income suburban communities (one per 65).

A study of Hall County, Ga. (26% Latino; of those, 84% are of Mexican ancestry), found that Latinos have less access to parks than Whites, as estimated by their proximity to local parks.¹⁵ Among the population living within walking distance to a park, 55 percent were White and only 33 percent were Latino. In an assessment of quarter-mile buffers around each park in Hall County, 67 were comprised of primarily White populations, but only two were primarily (>50%) Latino. Moreover, the mean parkland acreage per 1,000 people was much lower in the Latino buffers compared with the White buffers (1.4 vs. 345).

Another study investigated the availability of recreational resources in three diverse areas of the United States. The number and characteristics of neighborhood parks and commercial and public recreational facilities (not including those at schools or churches) were assessed. Latino neighborhoods were less likely to have recreational facilities than White neighborhoods.⁸ Approximately 81 percent of Latino neighborhoods and 38 percent of White neighborhoods did not have a recreational

facility (Figure 2). However, the probability of not having a park was not significantly different between the neighborhoods.

These studies suggest that access to sites that promote physical activity is inadequate for Latino populations.

Parenting styles, perceptions and behaviors may influence the level of physical activity among Latino children. Educating Latino parents about monitoring and reinforcing healthy behaviors may improve the level of physical activity in their children.

Several studies have evaluated parenting styles, perceptions and behaviors in relation to physical activity among Latino children.¹⁶⁻¹⁸ Results of a systematic review suggest that Latina mothers often fail to perceive their children as overweight and associate moderate overweight with being healthy and happy.¹⁶ They often believe that weight is determined by genetics and that children will eventually reach a healthy weight as they age. Thinner children are often perceived as unhealthy. These perceptions may result from the environment in which some Latino parents were raised, such as rural areas with high rates of malnutrition and dysentery. However, because this study did not explore how these perceptions impacted physical activity levels among Latino children, further research is needed to explore the connection between parents' perceptions of child weight and child physical activity.

A study of 106 Latino parent-child dyads (children ages 3-5) in Nashville, Tenn., found significant correlations between sedentary behaviors and activity levels between parents and their preschool-aged children.¹⁸ Overall, parents were more sedentary and less physically active than the children, but strong correlations between parents and children were found in the percentage of awake time spent in sedentary behavior per day ($r = 0.60$; $P < .0001$), as well as low ($r = 0.89$; $P < .0001$) and moderate ($r = 0.74$; $P < .0001$) physical activity. These results suggest that Latino parents are highly influential in setting physical activity patterns in their children, and that interventions aimed at parents may help to increase physical activity among Latino children.

A survey of 812 parent-child dyads (children in grades K-2) from 13 elementary schools in San Diego, Calif., (in which at least 70% of students were Latino) found that children of parents who monitored and rewarded physical activity behaviors were more physically active compared with the children of parents who did not use these parenting styles ($P < .001$).¹⁷ Controlling or authoritarian styles regarding physical activity were used most often by unemployed ($P < .05$) and less acculturated ($P < .001$) parents; however, parental control was not significantly associated with the child's physical activity. Thus, in this study, it appeared that authoritarian parenting styles did not help to improve physical activity among Latino children.

Because perceptions, behaviors and parenting styles among Latino parents may influence the level of physical activity among their children, interventions should focus on changing perceptions about healthy weight and obesity and teaching parents appropriate ways to monitor and reinforce their child's behaviors to improve physical activity levels in Latino children. The parenting strategies for eating and activity

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scale (PEAS) is a valid and reliable tool for assessing Latino parenting strategies for physical activity and may be helpful for developing interventions.¹⁹ The 26-item tool assesses factors such as limit setting, monitoring, discipline, control and reinforcement by parents in relation to diet and activity in their children.

Level of acculturation may influence the level of physical activity among Latino children, although results are mixed as to whether less or more acculturation negatively impacts physical activity levels.

Acculturation may play a role in physical activity among Latino children, but findings are inconsistent.²⁰⁻²⁶ Some studies suggest that more acculturated children are more physically active; others suggest the contrary.

In a study that compared physical activity among Latino children by generation, first- and second-generation adolescents were less likely to obtain the recommended physical activity compared with third-generation adolescents. Additionally, Latino children living in homes where English was not the primary language were also less likely to obtain the recommended levels of physical activity.²⁵ However, in a study investigating the association between acculturation and obesity-related behaviors in Asian-American and Latino adolescents in Southern California, being more acculturated was associated with being less physically active.²³ These results have been corroborated by another study.²⁴

In these studies, Latina mothers attributed sedentary behaviors to the American lifestyle, reporting that their home countries offered more opportunities for physical activity. The mothers believed a fast life pace, long work hours, multiple work shifts, and multiple family responsibilities have decreased opportunities for families to engage in physical activity. Mothers also cited modes of transportation that reduce the need for activity, such as automobiles, buses, escalators, and elevators. Another study found that children of less-acculturated families walked to school more frequently than more-acculturated children.²⁶

The inconsistencies in the results of these studies could be attributed to differences in how each study defined acculturation. Therefore, to adequately identify and address the impact of acculturation on physical activity among Latinos, standardized methods of measuring acculturation are needed.

Characteristics of neighborhoods and the built environment may affect how frequently children are able to walk or bike to parks and other recreational facilities. Addressing the factors that negatively impact active transport to these sites may increase physical activity among Latino children.

Characteristics of neighborhoods and the built environment—man-made features in the community, such as sidewalks, streets, and buildings—may prevent active transport to recreation and physical activity sites among Latino.²⁷⁻³⁰ In a survey of parents and adolescents from three U.S. metropolitan areas (10% of participants were Latino), various environmental factors were associated with the use of and active transport to recreation sites for physical activity. Proximity to home and easy access to the site by walking/biking were significantly associated with more frequent use of

the sites by children and adolescents. On multivariate analysis, higher perceived traffic safety, better pedestrian infrastructure, and lower crime were significantly associated with more frequent walking/biking to a recreation site ($P < 0.01$ for all).²⁹ As noted by the study above, neighborhood crime may influence active transport in Latino communities. A study investigating physical activity and outdoor recreation among Latino children in the South Lawndale community of Chicago (83% Latino; of those, 92% are Mexican American), also referred to as Little Village, found that Latino children in the area are often exposed to violent crime in the neighborhood, as a witness and/or victim,³¹ and that their fear of crime was negatively related to their levels of physical activity and outdoor recreation. The participants reported less use of parks or locations requiring them to cross gang boundaries and reported being less active after dark, with some children not participating in any physical activity due to safety concerns. Other research from U.S. urban areas has also documented that Latino children are more likely to live in unsafe areas.³²

Elementary schools with primarily Latino students were less likely than those with primarily White students to offer 20 minutes of recess daily.

Implementing street-scale improvements, such as improving neighborhood infrastructure and facilitating safe routes for active transport, may increase the use of such sites for physical activity by children in underserved communities. The National Complete Streets Coalition aims to make neighborhood streets safer for use by pedestrians and bicyclists, and many states, cities and towns are adopting Complete Streets planning policies.³³ Efforts are underway in Latino communities such as Santa Ana and Los Angeles, Calif.^{34;35}

The Safe Routes to School National Partnership provides resources for increasing the safety of neighborhood streets to facilitate walking and biking in underserved communities.³⁶ A case study describes the implementation of the Safe Routes to School program at Maybury Elementary School in southwest Detroit (approximately 600 students, nearly 90% of whom are Latino).³⁷ During the program planning phase, the school sought parent feedback and conducted “walking audits” to identify factors that may be inhibiting active transport to school. Based on these assessments, the school made improvements to decaying sidewalks and installed more street lights. By using geographic information system (GIS) maps, which are generated from several forms of computerized geographical data, and crime data for the neighborhood, the safest routes to school were identified, and a walking school bus program, led by parent volunteers, was implemented on those routes, which increased rates of active transport to school.

Latino children have few options for physical activity during the school day. Increasing opportunities for physical activity at school by implementing structured programs that engage children in physical activity may increase overall activity levels and improve obesity-related outcomes among Latino children.

Studies suggest that Latino children may have fewer opportunities to engage in physical activity at a school than their White counterparts. In a study evaluating physical education and recess practices among U.S. public elementary schools,³⁸ elementary schools with primarily Latino students were less likely than those with primarily White students to offer 20 minutes of recess daily. Latino schools were also

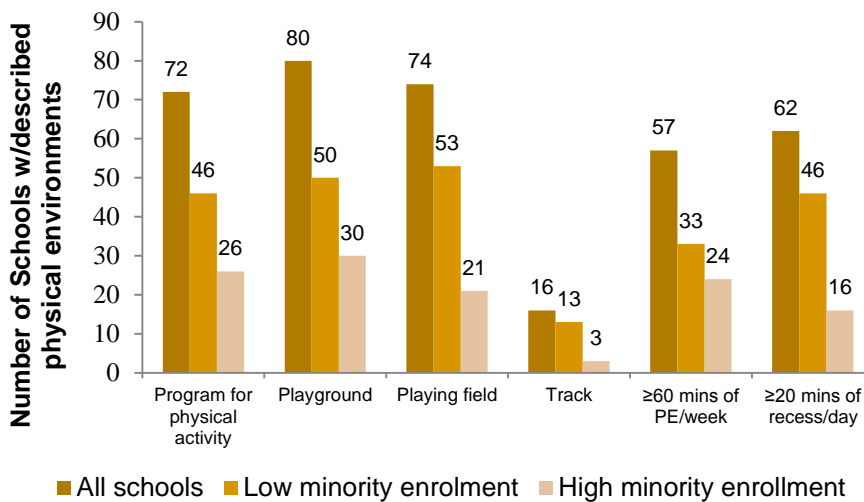
less likely than White schools to offer physical education for at least 150 minutes per week, although the difference did not reach statistical significance.

Another national study revealed that lower physical activity levels among Latino adolescent girls were attributable to differences in the schools that they attended.³⁹ Latino females attended schools that were poorer and more racially segregated than those attended by White females, and activity levels at those schools were lower than higher-income and more ethnically-diverse schools. No differences were found in physical activity levels between Latino and White girls who attended the same schools, but interestingly, Latino males had higher levels of activity than White males who attended the same schools.

A study of 102 public elementary schools in Rhode Island revealed that schools with high minority enrollment ($\geq 10\%$ African American, $\geq 25\%$ Latino, or both) offered fewer programs supporting healthy eating and physical activity than schools with low minority enrollment.⁴⁰ Schools with high minority enrollment were less likely to offer physical activity ($P < .05$), and children at those schools were less likely to participate in 20 minutes or more of recess play per day ($P < .001$). Additionally, children in high-minority schools had less access to physical activity facilities, such as playing fields and tracks (Figure 2). No differences were found in access to physical education between low- and high-minority schools.

Even when states have policies for increasing physical activity, schools are often challenged to implement them due to competing priorities, lack of resources, insufficient knowledge about the policy among school administrators, and insufficient enforcement of policy.⁴¹ Consistent school policies and programs targeted at increasing physical activity are needed to prevent childhood obesity.

Figure 2
Access to Physical Activity Programs and Facilities among Low- and High-Minority Elementary Schools in Rhode Island, 2001-2002



Data source: Pearlman DN, Dowling E, Bayuk C, Cullinen K, Thacher AK. From concept to practice: using the School Health Index to create healthy school environments in Rhode Island elementary schools. *Prev Chronic Dis* 2005;2 Spec no:A09. Epub;2005 Nov 1.:A09.

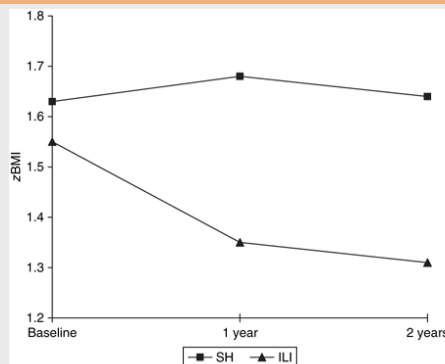
Studies have shown that schools can help increase physical activity and promote healthy behaviors in Latino children by providing structured physical activity programs. In *Get Moving!*, a school-based intervention aimed at increasing physical activity and decreasing sedentary behaviors in 459 middle school girls (73% Latina), girls who received the intervention were significantly less sedentary ($P < 0.05$) and more intrinsically motivated to engage in regular exercise ($P < 0.05$) compared with girls who received no intervention.⁴² Participants in the Grand Canyon Trekkers program, a 16-week structured walking program among low-income Latino children, showed a 37.1-percent improvement in cardiorespiratory fitness compared with baseline.⁴³ Younger children may also benefit from structured physical activity programs. In a study of 423 primarily Mexican-American preschool children (90% Latino) in Head Start centers in San Antonio, Texas, the *Miranos!* program significantly increased active play levels ($P < 0.05$) among children who participated in treatment groups compared with those in the control group.⁴⁴ Walking school buses have also shown some success among Latino school children, as mentioned previously in the case study of Maybury Elementary.³⁷ A randomized trial investigated the walking school bus in 149 4th-grade children (61% Latino) from eight low-income public elementary schools in the Houston Independent School District in Texas.⁴⁵ Compared with the control group, children who participated in the walking school bus intervention significantly increased their active commuting ($P < .001$) and moderate-to-vigorous physical activity ($P = .029$). A study of 25 Latino elementary students (ages 5-11) in Albuquerque, N.M., reported slight increases in weekly physical activity compared with baseline, but the difference was not significant ($P = .08$).⁴⁶ Challenges to implementing the walking school bus have been cited. In the Maybury case,³⁷ parent participation was the main barrier to widespread implementation. Work- and family-related demands often prevent parents from volunteering for the program. With the help of additional grants, the Maybury staff hopes to provide monetary incentives such as coupons for food or drugstore items to help parents struggling with poverty. Rotating walking school bus leaders and coordinating with the nearby high school to recruit older students to help with the program may help to retain the current routes and expand to additional routes. Another goal of the program is to equip the school with areas for securing bikes to allow for biking school buses in the future.

Increasing physical activity during school may lead to improved obesity-related outcomes. A randomized, controlled trial compared a school-based weight management program with a self-help program for 60 overweight Mexican-American children (ages 10-14) at a charter school in Houston.⁴⁷ Both programs aimed to increase healthy eating and physical activity. Participants in the school-based program participated in an instructor/trainer-led intervention (ILI) for 24 weeks in which they received daily sessions Monday through Friday. Participants in the self-help (SH) program used a 12-week parent-guided manual to promote weight loss and long-term management. ILI participants showed significantly greater decreases in standardized BMI (zBMI) at 1 and 2 years ($P < 0.001$, $P < 0.05$,

respectively) compared with SH controls (Figure 3). ILI participants also showed greater improvements in body composition ($P < 0.01$), total cholesterol ($P < 0.05$), and triglycerides ($P < 0.05$) compared with SH controls. The authors suggest that the success of the program may stem from school and community involvement. The school leveraged its strong ties to the Mexican-American community and relationships between teachers, parents, and students to retain student involvement in the program.

Structured, school-based physical activity programs may help increase physical activity levels and improve obesity-related outcomes among Latino children. Although many of the programs described above had some success increasing physical activity among Latino children, some showed no significant changes in weight or BMI, perhaps suggesting that more time would be needed to fully evaluate program impact.

Figure 3
Change in Standardized BMI after 2 Years of a School-Based Weight Management Intervention in Mexican-American Children



Standardized BMI (zBMI) at baseline, 1, and 2 years for completers only. SH, self-help condition; ILI, instructor-led intervention condition.

Data source: Johnston CA, Tyler C, Fullerton G et al. Effects of a school-based weight maintenance program for Mexican-American children: results at 2 years. *Obesity (Silver Spring)* 2010;18:542-547.

Community-based approaches that engage all members of the community and incorporate culturally-relevant messages about healthy living may increase physical activity among Latino children during out-of-school time.

Providing community access to school physical activity facilities during non-school time is one way to increase physical activity among Latino children. Since 2000, the U.S. Department of Health and Human Services (DHHS) Healthy People 2020 initiative has worked to increase access to school physical activity facilities.⁴⁸ Although some schools have successfully opened their facilities to the community,⁴⁹ interim data suggest that little progress has been made in reaching the overall goal; fewer schools provided access to their physical activity facilities in 2006 (29%) than the baseline in 2000 (35%).⁵⁰

Liability concerns may also prevent the shared use of facilities. In a 2009 survey study investigating community access to school recreational facilities in underserved communities (where 32 of residents were Latino), 69 percent of 361 respondents indicated that their school facilities were open to the community. However, 82 percent of respondents overall and 91 percent of those whose school facilities were not open to the community were concerned about liability associated with providing access to school facilities.⁵¹ Other perceived barriers include maintenance, operational resources, and scheduling.⁵² Joint use agreements (JUAs) and other forms of partnerships may provide opportunities to share liability and resources, potentially reducing risks and costs for both entities while providing benefits to the community.^{51;53-55} Currently, 20 states have statutes that allow for JUAs,⁵⁶ and some communities have been successful in implementing them. For example, the Fruitvale neighborhood (46% Latino) of Oakland, Calif., built strong relationships between public officials, school administrators, and community members to establish a JUA with the Unity Council, a nonprofit community development agency, to offer evening sports leagues on school grounds for more than 500 children. Outreach was critical to engaging the community and instilling a sense of ownership in the program.⁵²

Other types of community partnerships have been successful at increasing physical activity among Latino children. BOUNCE (Behavior Opportunities Uniting Nutrition, Counseling, and Exercise) was a 12-week community-based study that aimed to increase physical fitness and activity in 46 low-income Latino mother-daughter dyads through the use of physical activity (e.g., Latin dance, sports, or free play), education, and behavioral counseling.⁵⁷ Participants were assigned to an intervention or control group. In the intervention group, participants engaged in three weekly physical activity sessions, two weekly nutrition sessions, and one weekly behavioral counseling session. Participants in the control group met with an instructor once weekly and received written educational materials on various nutrition and counseling topics and then engaged in light intensity physical activity. Although no changes in physical activity or BMI were observed between the mother-daughter dyads in the intervention group and those in the control group, aerobic capacity was significantly improved in daughters who participated in the intervention group ($P = 0.044$). This study is limited by its small sample size and nonrandomized design; however, BOUNCE is a community-based example that builds on the natural interactions between mothers and daughters and incorporates culturally-appropriate activity, such as Latin dance, to engage participants.

Another program aimed at increasing physical activity among Latino children is the Active Living Logan Square program in a predominantly Latino (71%) urban community in Chicago.¹³ The program promoted partnerships between school administrators, local policymakers and community members to create safe, inviting places for physical activity in the community by connecting neighboring communities with an Open Streets model, where 4 miles of Chicago streets connecting three inner-city communities were closed to motorized vehicles to allow residents to engage in physical activity. The program was modeled after a program in Bogota, Colombia, called *Ciclovía* (Spanish for “bike path”). Since the start of the pilot program, more than 10,000 residents from five diverse communities have

participated. The success of Open Streets has led to additional pilot programs in Chicago and other cities in the country. Social and cultural competence among planners and program staff contributed to the success of the program. Ethnicity, language, and culture of place were considered in the development and implementation of all programs. To increase awareness about the program within the community, messages about upcoming activities were delivered to the residents by other bilingual community members.

Another successful community-based program was VERB, a marketing campaign that promoted physical activity among U.S. children ages 9-13 years and four specific racial/ethnic groups, including Latinos.⁵⁸ Participants received appealing messages through VERB-branded radio and TV advertisements with the tag line, “It’s what you do!” For Latinos in particular, the tag line was modified to “Ponte las Pilas,” or “Get going” (the literal translation is “put in your batteries”). The advertisements emphasized family values, had an emotional tone, and were delivered in Spanish by authority figures and media personalities who were well respected in the Latino community. After one year of the program, the Latino group met the goals for VERB awareness, but the awareness was not translating to increased physical activity. Investigators concluded that the VERB messages needed to reach Latino children through additional outlets to improve physical activity outcomes. After distributing a bilingual schedule planner and increasing marketing to parents, positive associations were observed between exposure to VERB and increased physical activity at the 2-year follow-up. Incorporation of culturally relevant messages was a successful strategy for personalizing the VERB brand to Latinos and the other racial/ethnic subgroups studied.

These studies suggest that community-based interventions should be culturally-appropriate and incorporate multidimensional interventions to increase opportunities for success. Additionally, research has shown the importance of interim measurements of program effectiveness in building on the most successful elements and tailoring programs for specific community needs.⁵⁹

Conclusions and Policy Implications

CONCLUSIONS

- Latino children in the United States have fewer opportunities for physical activity than White children due to limited recreation facilities in their communities and higher ratios of children per recreation site. Addressing barriers to physical activity in underserved communities may increase physical activity levels among Latino children.
- More research on increasing physical activity among Latino children is needed, as few Latino-specific studies were identified on this topic. Results from low-income and whole-population studies informed conclusions when Latino-specific studies were not available. In those cases, some of the data presented may not be generalizable to Latino populations, but they may generate hypotheses for Latino-specific studies.

- Factors associated with parenting, such as parenting styles and parent perceptions and beliefs, may determine whether Latino children achieve adequate levels of physical activity. Improving Latino parents' perceptions about healthy weight and increasing their skills for monitoring and reinforcing their child's activity may improve physical activity levels among Latino children.
- Acculturation may influence levels of physical activity among Latino children, but study results are inconsistent as to whether more or less acculturation negatively impacts physical activity. Standardized definitions of acculturation are needed to better evaluate the impact of culture on physical activity.
- Characteristics of neighborhoods and the built environment may prevent active transport to recreation and physical activity sites in the Latino communities. Addressing barriers that prevent active transport, such as improving neighborhood infrastructure and devising routes that avoid high-crime areas, may improve active transport to recreation and physical activity sites.
- Structured school- and community-based programs have demonstrated some success in increasing physical activity among Latino children. Partnerships between school administrators, local policymakers, communities and families can facilitate the identification and implementation of successful solutions for increasing physical activity opportunities to prevent obesity in Latino children.

POLICY IMPLICATIONS

The findings of this review have several implications for legislators, policymakers, school administrators, and community members. Efforts should focus on meeting the following needs to increase physical activity in Latino children:

- Local governments, policymakers and planners should generate and evaluate neighborhood maps of physical activity resources to identify the need and appropriate areas for the development of parks and recreation spaces in Latino communities.
- Community leaders and policymakers should develop programs to educate Latino parents on childhood overweight and obesity and the benefits of physical activity. Programs should focus on educating parents about effective strategies for reducing sedentary behaviors and increasing physical activity among Latino children.
- Local governments, policymakers and planners should implement street-scale improvements (e.g., repairing sidewalks and installing more street lights) and develop programs that improve safety (e.g., Safe Routes to School, Complete Streets) to increase active transport and use of physical activity sites in the community.
- State and local governments and school administrators should develop and promote policies, such as joint use agreements, that allow access to school recreational facilities during non-school hours.
- Health departments should work with stakeholders in school- and community-based settings on ways for Latino children to achieve the federal government's recommended 60 minutes of daily physical activity for all children.

FUTURE RESEARCH NEEDS

To increase opportunities for physical activity among Latino children, further research is needed to identify the factors that may interfere with physical activity. Studies should focus on determining the specific effects of family income, socioeconomic status, availability of resources in underserved communities and schools, and other social forces on physical activity levels. Appropriate tools for evaluating parenting strategies and acculturation should be developed and validated. School- and community-based physical activity programs that have shown some success should be investigated further or on a larger scale to assess their impact on long-term physical activity and obesity prevention. Interventions that have been highly successful in some Latino populations should be evaluated further to assess their generalizability and cost-effectiveness in other Latino populations.

ABOUT THE PROGRAM

Salud America! The RWJF Research Network to Prevent Obesity Among Latino Children is a national program of the Robert Wood Johnson Foundation. The program aims to educate and support researchers, decision-makers, community leaders, and the public in contributing towards healthier Latino communities and seeking environmental and policy solutions to the epidemic of Latino childhood obesity. The network is directed by the Institute for Health Promotion Research at The University of Texas Health Science Center at San Antonio.

For more information, visit <http://www.salud-america.org>.

ABOUT THIS RESEARCH REVIEW

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