

Active transportation and acculturation among Latino children in San Diego County

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Available online 26 January 2008

Abstract

Objectives. To examine multiple measures of acculturation and their association with walking to school in a large population-based sample in San Diego, California.

Methods. The sample consisted of predominantly Latino children and their parents ($n=812$) who participated in a study to maintain healthy weights from kindergarten through 2nd grade (2004–2007). Acculturation and walking/driving to and from school were assessed through parent-proxy surveys.

Results. Children of foreign-born child–parent dyads walked to school more frequently than their counterparts ($F=7.71$, $df=5$, 732, $p<.001$). Similarly, parents who reported living in the U.S. for less than or equal to 12 years reported more walking to school by their children compared with parents living in the U.S. for more than 12 years ($F=10.82$, $df=4$, 737, $p<.001$). Finally, English-speaking females walked to school more frequently than Spanish-speaking and bilingual females.

Conclusion. This study explores Latino children's walking to and from school using four measures of acculturation. In this cross-sectional study, being less acculturated was associated with more walking to school among children living in South San Diego County.

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Keywords: Walking to school; Acculturation; Latino children; Health behavior

Introduction

Daily school commute represents an opportunity for continuous moderate physical activity (PA) for school-aged children (Tudor-Locke et al., 2001). Children who walk for school commute engage in more moderate to vigorous physical activity (MVPA) per week than those children who are driven to school (Cooper et al., 2005; Saksvig et al., 2007; Tudor-Locke et al., 2001). Yet, consistent with the upward trend in the incidence of childhood overweight, rates of active transportation for school commute have declined (CDC, 1998). In 1969, half of school-

aged youth and adolescents in the U.S. walked/bicycled to and from school compared with 16% in 2001 (US Environmental Protection Agency, 2003).

Engaging in less PA, Latino adolescents spend more time being sedentary (e.g., television watching) compared to whites (Carvajal et al., 2002; Gordon-Larsen et al., 1999). This pattern also extends to Latino adults in the U.S. (Crespo et al., 2001). Other findings suggest that PA differs by acculturation level, but findings are mixed due to differences in acculturation measures. Crespo et al. (2001) used language preference at home, birthplace, and years in the U.S. to quantify acculturation. Using all three measures of acculturation, less acculturated individuals reported higher levels of inactivity during leisure time compared to more acculturated Latinos and Spanish-speakers who reported being more sedentary than English-speakers. Berrigan et al. (2006a)

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found a similar trend when they examined associations between language-based acculturation and leisure versus non-leisure time PA. However, the same study showed that less acculturated Latinos engage in higher levels of walking/bicycling for errands and standing/walking around during non-leisure time than more acculturated individuals. When using an acculturation scale (Marin et al., 1987), Marquez and McAuley (2006) showed that less acculturated Latinos reported engaging in more habitual PA (including household and occupational) than more acculturated individuals.

Studies involving Latino youth are largely limited to adolescents. Gordon-Larsen et al. (2003) examined country of origin and found that Mexican-born adolescents watched less television and engaged in fewer bouts of low intensity PA than U.S.-born adolescents. Using generation status, Allen et al. (2007) showed that first and second generation Latino adolescents engaged in less PA (past week) than third generation Latino and white adolescents. Unger et al. (2004) used the U.S. orientation subscale of the AHIMSA Acculturation Scale and concluded that acculturated Latino youth engaged in less PA (past week) compared to their less acculturated counterparts. Using the same measure, Carvajal et al. (2002) reported no association between acculturation and adolescents engaging in heavy exercise (four/more days), or light exercise (five/more days in the last week).

As the number of immigrants in the U.S. grows and the acculturative trajectories of the immigrant population diversify, studies that assess acculturation from a multidimensional perspective are warranted. Given that the acculturation process involves cultural and psychological changes, the construct may not be adequately captured using a single measure of acculturation (Berry, 2006). Acculturation scales (e.g., Acculturation Rating Scale for Mexican Americans; Cuéllar et al., 1980) have been developed to assess factors (e.g. cognition, identity, attitudes and stress) likely to be involved in the acculturation process. However, for lack of a gold standard that best quantifies acculturation, inconsistencies across and within studies continue to exist (Norman et al., 2004).

This study examined the following four measures of acculturation in determining the relationship between acculturation and walking to and from school: (1) parent–child dyads by country of origin; (2) child's language use with family; (3) parent's years living in the U.S.; and (4) parent's acculturation score as measured using the Acculturation Rating Scale for Mexican Americans II (ARSMA-II; Cuéllar et al., 1995). To our knowledge, this is the first published study examining the relationship between walking to and from school and acculturation among children.

As acculturating families adapt more mainstream health behaviors, increasing acculturation may involve less engagement in active transportation. Therefore, when examining acculturation by parent–child dyads by country of origin, parent's years living in the U.S. and parent's acculturation score, we hypothesized that more acculturated families would report less active transportation by their child compared to their counterparts. Conversely, given possible barriers to navigating the environment with less English proficiency, it was hypothesized that children who preferred speaking Spanish would engage in less active transportation than English-dominant or bilingual children.

Methods

Study design

The current cross-sectional study used baseline data collected from parents recruited into a randomized community intervention whose aim was to maintain the healthy weights of kindergarten aged through second-grade children.

Sample

The target community was comprised of 13 schools in three San Diego school districts. All of the schools provided bus transportation to and from school. School sampling eligibility was based on: 1) Latino enrollment of at least 70%, 2) not having participated in an obesity-related study in the past four years, including a walk-to-school program, and 3) a defined attendance boundary. Low- and middle-income families were recruited regardless of their ethnicity. Family was defined as the presence of at least one caregiver and one child between kindergarten and 2nd grade. Recruited families had no major health conditions, resided within the school attendance boundary and had no plans to move away from the attendance boundary within the year. The study recruited 812 Latino parents-child dyads. Sample characteristics are provided in Table 1.

Procedures

Parents were given a pencil and paper survey that was completed on school grounds. The survey was available in English and Spanish and included demographic questions and measures of acculturation, PA, and transportation. Participants signed consent forms approved by the Institutional Review Board of San Diego State University. Bilingual research assistants helped administer surveys taking, on average, 1 h to complete. Participants were given \$20 for completing the survey.

Table 1
Demographics and acculturative characteristics for Latino children from kindergarten through 2nd grade and their parents ($N=800$)

	Children	Parents
<i>Demographics</i>		
Mean age in years (SD)	6.0 (0.9)	34.4 (7.7)
% Female	50% (401)	97% (776)
% born in the U.S.	86% (691)	28% (226)
BMI (%)		
Underweight (<5th percentile)	2% (15)	
Normal (≥5th–85th)	52% (417)	26.6% (213)
At risk for overweight (>85th and <95th)	17% (135)	32.9% (263)
Overweight (≥95th)	29% (229)	40.5% (324)
Employed full or part-time	n/a	38% (305)
Income >\$1500	n/a	38% (285)
High school educated	n/a	65% (518)
<i>Acculturation</i>		
Percent parents who have lived in U.S. ≥ 12 years	n/a	57%
Parent acculturation score		
Very Mexican oriented	n/a	61%
Mexican oriented bicultural	n/a	26%
Slightly Anglo oriented	n/a	10.5%
Anglo oriented bicultural	n/a	2%
Assimilated/Anglicized	n/a	0.5%
Percent by country of origin		
	13% both Mexican-born	
	59% mixed-status	
	28% both U.S.-born	
Child's primary language spoken with family	23% Spanish	
	19% both	
	58% English	

San Diego, California, 2004–2007.

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