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Parental factors in children's active transport to school

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ABSTRACT

Objective: Identify non-distance factors related to children's active transport (AT) to school, including parental, home, and environment characteristics. Understanding the factors related to children's AT to school, beyond distance to school, could inform interventions to increase AT and children's overall physical activity.

Study design: Participants were in the Neighborhood Impact on Kids Study, a longitudinal, observational cohort study of children aged 6–11 and their parents in King County, WA and San Diego County, CA between 2007 and 2009. Parents reported frequency and mode of child transport to school, perceived neighbourhood, home and family environments, parental travel behaviours, and sociodemographics.

Methods: Children living less than a 20 minute walk to school were in this analysis. Children classified as active transporters (walked/bicycled to or from school at least once per week) were compared with those not using AT as often.

Results: Children using AT were older and had parents who reported themselves using active transport. Having a family rule that restricts the child to stay within sight of the parent or home and more parent working hours were related to lower odds of a child using AT.

Conclusions: Children's AT to school is associated with parental AT to work and other locations. Interventions should be considered that enable whole family AT, ameliorate safety concerns and decrease the need for parental supervision, such as walking school buses.

Introduction

Childhood obesity in the United States has increased to nearly 17% of children.[1] Only 42% of elementary school-aged children achieve the recommended amount of moderate-to-vigorous physical activity (MVPA).[2] In 1969, 41% of children walked or cycled to school, which declined to only 13% in 2001.[3] Children who use active transport (AT) to commute to school attain higher average MVPA.[4] AT to school is also associated with improved cardio-respiratory fitness[5] and improved weight status.[6]

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Distance from home to school is the leading predictor of AT to school in youth.[7] Other recognized barriers are built environment factors (busy roads, unsafe crosswalks or sidewalks[7]) and social factors (parents' concerns for safety[8] and behaviour of other children in the neighbourhood[9]). Nearly 35% of U.S. children live within a mile of school, yet less than half walked or biked.[10] For the present study, children living within a 20 min walk to school were evaluated to help identify non-distance barriers and facilitators of AT, and particularly to examine associations between children's AT and parents' own reported habits.

Methods

Participants

Participants were from the Neighborhood Impact on Kids (NIK) Study, a longitudinal, observational cohort study of children aged 6–11 and their parents in King County, WA and San Diego County, CA.[11] NIK is designed to evaluate the association of neighbourhood environmental factors with children and parent's weight status and related behaviours. Neighbourhoods were assessed for their walkability at the block group level by observation and geographic information system (GIS). Block groups were selected because they represent the lowest level of census geography that has publicly available demographic information, and its smaller geographic level has a more homogenous built environment. GIS methods created environmental metrics and identified neighbourhoods walkability based on walk index and park proximity.

Only children whose parents reported living within a 20 minute walk to the child's school and had accelerometer data available were in this analysis. Distance is the well-established primary barrier to active transport. The authors do have distance data from home to school for their participants and found the following: for those that reported that their walk to school was less than 20 minute, the mean distance was 0.81 (SD = 0.70) miles compared to 3.61 (SD = 3.26) miles for those reporting a greater than 20 minute walk. For those reporting less than 20 minute walk, 75.6% lived less than a mile from their school and 94.1% lived less than 1.5 miles from their school. However, it was concluded that the families' perception of distance, quantified as travel time, was a more representative factor to eliminate children from the cohort that were highly unlikely to be engaged in active transport. A cut off of 20 minute was used, which would include most children living within a 1 mile distance from school and recommended to use AT to school per Healthy People 2020 recommendations. Children are also excluded who were reported to be home-schooled and those whose data collection occurred during the summer when they would have been out of school. Of the 723 total NIK participants, 307 met these criteria with complete available data.

Measures

Parents completed a survey that queried household, parent, and child demographics. Parents reported their own average physical activity over the past year using IPAQ, a validated assessment of adult physical activity behaviours.[12] They also reported their usual mode of travel to work, which was categorized into whether it was active or not. Parents also reported 'yes' or 'no' to participation in vigorous-intensity sports or activities that cause large increases in heart rate and whether they walk or use a bicycle to get to places.

Using valid and reliable measures[13] parents reported their child's active transport. They responded how many days (0–5) in an average week their child walks, bicycles, goes by car or bus to and from school, for a total of ten trips. AT use was defined as at least one trip per week by either walking or bicycling.[14] Parents identified family rules that they enforce, such as: my child must stay close to or within sight of the house/parent, which acted as a proxy for stranger or crime danger, which is a frequently reported barrier to active transport.[14,15]

Analysis

Chi-squared and independent group *t*-test analyses were performed on all variables to determine whether factors differed between AT vs non-AT children. Logistic regression analysis examined significant bivariate variables and those historically known to influence active transport (e.g., age). Because of the NIK study design, neighbourhood walkability was also included in this model.

Results

In bivariate analyses, factors significantly associated with child AT were identified. Older child age, parental use of AT to any location and specifically to work, and a parent without a driver's license were positively related to child AT. Whereas, a parent with a rule regarding staying close to or within sight of the house/parent, and the number of hours parents work per week were negatively related to child AT. Factors not associated with child AT were the number of siblings, parental report of vigorous exercise, household income, and neighbourhood walkability (Table 1).

In the multivariate model, children were more likely to use AT to school if their parent reported AT use to any location, but they were less likely to use AT if their parents had a rule requiring their child to stay close to or within sight of house/parent, or their parent worked greater than 30 hours per week (Table 2).

Discussion

Distance between the school and home is the primary determinant of children's active transport to school. School location has historically been influenced by legislation developed after the 1950s that required schools to have a minimum acreage in order to receive state funding, which pushed new schools to be built in the outskirts of communities. In 2004 these policies were revised, but the impact on distance to school remains.[16] However, this study suggests that even if living proximal to school, not all children actively commute to