Inequities in Active Travel Infrastructure Coverage across School Neighborhoods in Central Texas

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Background

• Active travel is an important contributor to children’s physical activity

• 10% of US children actively commute to school\(^1\)

• Few studies to look at sidewalk and bike lane infrastructure coverage around school neighborhoods\(^2\)

• Limited evidence to reveal inequities in active travel infrastructure across school neighborhoods\(^3\)


\(^3\)Hwang J, Joh K, Woo A. Social inequalities in child pedestrian traffic injuries: Differences in neighborhood built environments near schools in Austin, TX, USA. *Journal of Transport & Health*. 2017;6:40–49.
Study Aims

To assess pedestrian and cycling infrastructure coverage across school neighborhoods in Central Texas

To determine if neighborhood-level sociodemographic characteristics was associated with infrastructure coverage
Methods

• Part of STREETS 5-year natural experiment

• Geocoded 94 elementary schools in central Texas

• “School neighborhoods” defined by a 1-mile Euclidean buffer around each school
Methods

- Publicly available City of Austin, GIS spatial data to create 2 outcomes:
  1. **Sidewalk coverage** (length of sidewalk/length of road)
     - Range: [0 = none to 2 = full coverage, both sides road]
     - High coverage ≥1.5
  2. **Bike lane coverage** (length of bike lane/length of road)
     - Range: [0 = no coverage to 2= full coverage, both sides road]
     - High coverage ≥0.5

- Census data and spatial apportionment to create 2 exposures:
  1. **Median household income**
     - Quartiles
  2. **Percentage of minority residents per neighborhood**
     - Low: <20%, some: 20-50%, high: ≥50%

- Logistic regression models
Results – infrastructure coverage

**Sidewalk Coverage**
- 68 school neighborhoods
- 57% (n=39) low coverage

**Bike lane Coverage**
- 86 school neighborhoods
- 88% (n=76) low coverage
Results - Inequities

• High and mid-high income school neighborhoods had 7 (95% CI: [1.5-35.6]) and 12 (95% CI: [2.7-66.2]) times higher odds of high sidewalk coverage compared to low-income.

• Neighborhood-level racial/ethnic composition was not significantly associated with sidewalk coverage.

• Neighborhood-level sociodemographics were not significantly associated with bike lane coverage.
Discussion

Most school neighborhoods low infrastructure coverage
High income neighborhoods higher coverage
Need more investment in active travel infrastructure
Focus on low-income school neighborhoods
Thank you!

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