

# Exploring Child Physical Activity Environments by Income, Race/Ethnicity, and Segregation Across the United States



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## Introduction

- Childhood obesity has become a major public health concern in the United States (US).
- Researchers and practitioners have placed increased focus on physical activity (PA) environments as mechanisms to combat childhood obesity.
- Environments that promote PA among children are often not equitably distributed by sociodemographic characteristic or by geographic location.
- Few studies have examined disparities in PA environments by income, race/ethnicity, and segregation across the US using a composite physical activity index.

## Purpose

The purpose of this study was to investigate the relationship between child PA environments and income, race/ethnicity, and residential segregation across the country and by four census regions.

## Methods

- A PA environment index was created for all counties in the US (N=3,142) using data on four key variables from diverse secondary sources (see Table 1).
- Each county was ranked and assigned a percentile for all variables.
- A total PA environment index score was created by averaging the ranked percentile for each variable.

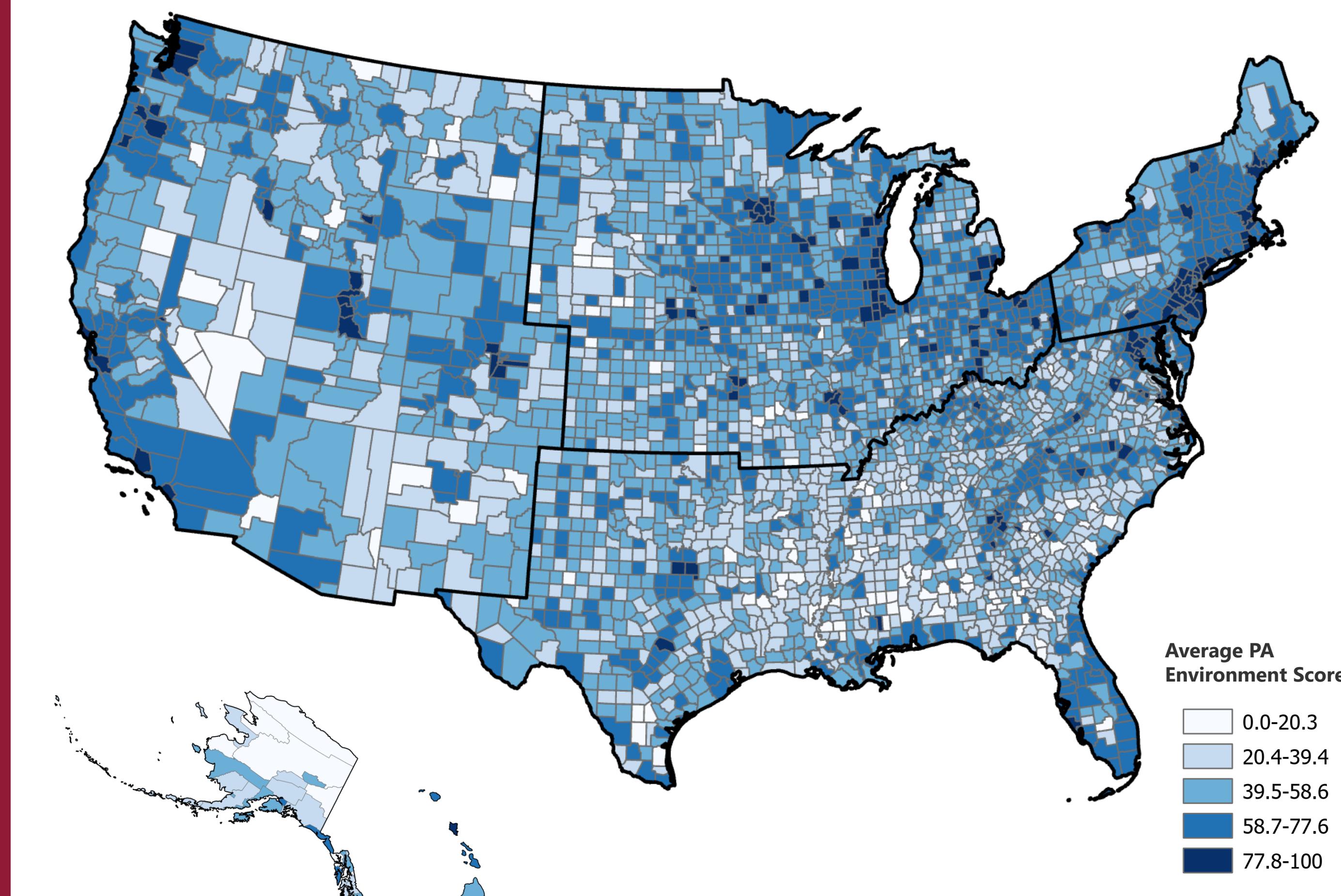
Table 1. Physical Activity Index Variables

Variable	Data Source
Exercise opportunities	County Health Rankings
School proximity	National Center for Education Statistics
Walkability	EPA National Walkability Index
Violent crime*	County Health Rankings

\*Variable was reverse scored

- Spearman's correlation was used to examine the relationship between county PA environment and three county demographic variables derived from the American Community Survey: median household income, percent non-Hispanic white, and residential segregation (between non-white and white residents).
- Analyses were conducted for the entire US and by four US census regions: Northeast, Midwest, South, and West.

## Average Physical Activity Environment Index Score by US County (N=3,142)



- As county income increased, physical activity environments became more favorable, particularly in the Northeast.**
- As minority population increased, physical activity environments became less favorable, but findings varied by region.**
- As residential segregation increased, physical activity environments became more favorable.**



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## Results

- Overall, the PA environment was related to income, race, and segregation, with income showing the strongest relationship.
- A moderate positive correlation was found between the PA environment and income ( $r_s=.53, p<.001$ ).
- This relationship was stronger in the Northeast ( $r_s=.72, p<.001$ ) than in the Midwest ( $r_s=.41, p<.001$ ), South ( $r_s=.50, p<.001$ ), and West ( $r_s=.40, p<.001$ ).
- A weak negative correlation was found between the PA environment and percent non-Hispanic white ( $r_s=-.04, p<.001$ ), but differed by region.
- A strong positive relationship was observed in the Northeast ( $r_s=.61, p<.001$ ) and weaker relationships in the Midwest ( $r_s=.32, p<.001$ ), South ( $r_s=-.08, p<.01$ ), and West ( $r_s=.04, p=.45$ ).
- An overall weak positive correlation was observed between the PA environment and residential segregation ( $r_s=.23, p<.001$ ).
- Similar findings were observed in the Northeast ( $r_s=.21, p<.01$ ), Midwest ( $r_s=.26, p<.001$ ), South ( $r_s=.20, p<.001$ ), and West ( $r_s=-.01, p=.88$ ).

## Conclusions

- This study highlighted the development of a unique, composite index of youth-oriented PA environments and existing disparities according to multiple key demographic and geographic characteristics.
- Targeted policies and interventions (e.g., safe routes to schools, joint use) can address inequalities in areas that need them most to ensure safe and equitable PA access for all.

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