

Exploring Physical Health Outcomes in a Clinical Sample of Young Children with and without ADHD: The Role of Neighborhood Factors



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BACKGROUND

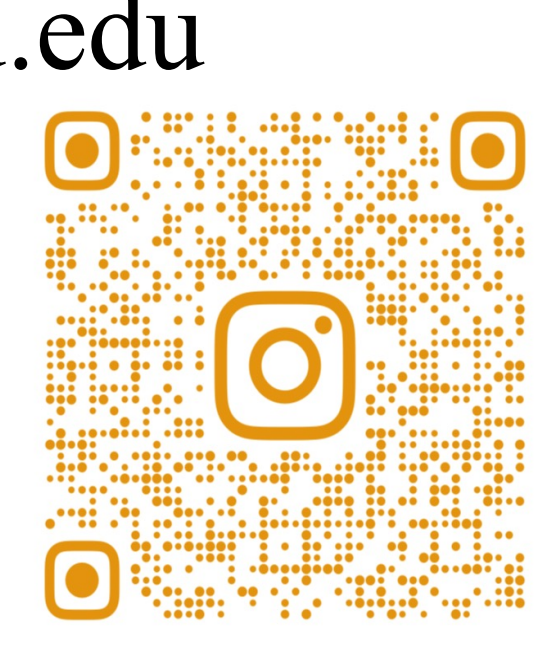
- Community factors are associated with both children's mental health and physical health (Bitsko et al., 2016; Kersten et al., 2018).
- One measure of community factors, the Child Opportunity Index 2.0 (COI), is a composite index measured at the census tract level that captures neighborhood resources and conditions.
- While greater COI has been found to relate to better overall physical health in older children (e.g., lower body mass index; Aris et al., 2022), less research has related the COI to individual health behaviors.
- This study examines the associations between COI and physical health metrics within a diverse clinical sample of young children with and without Attention-Deficit/Hyperactivity Disorder (ADHD).

RESEARCH QUESTION

- Are there associations between COI and physical health outcomes that differ among young children with and without ADHD?

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METHOD

Participants


- 223 children (65.9% male; $M_{age} = 5.47$, $SD = .74$)
- Ethnicity/Race:** 81.6% Hispanic/Latino; 93.3% White; 8.1% Black/African American; 3.1% Asian; 1.8% American Indian/Alaska Native
- Diagnosis:** 127 children with ADHD (57%), 96 typically developing (TD) children (43%)

Measures


Neighborhood



Physical Activity & Fitness



Nutrition



Child Opportunity Index 2.0 (COI; DiversityDataKids.org, 2020). The COI is a composite index measured at the census tract level that measures and maps neighborhood resources and conditions (e.g., employment rate, access to parks). COI was collected from a government website based on the home address provided by parents. Scores on the COI range from very low (1) to very high (5) with higher scores indicating greater neighborhood resources and conditions.

Family Nutrition and Physical Activity (FNPA; Peyer et al. 2017) The FNPA is a parent-reported assessment that evaluates children's home environments and behaviors that may predispose them to obesity. A physical activity subscore was calculated (FNPA-PA) with higher scores indicating greater levels of physical activity.

Side Jumps (SJ; Bös et al., 2004). Children completed a side-to-side jump test as part of the Karlsruhe motor screening test battery. The number of jumps in the 30-second period measured fitness with higher scores indicating better fitness.

Calories & Healthy Eating Index (HEI; USDA, 2020). Caregivers completed three daily food recalls for their child. Food recalls were inputted into the Automated Self-Administered 24-hour (ASA24®) Dietary Assessment Tool where nutritional profiles were created. Nutritional profiles calculated consumed calories (kcal) and were used to derive a healthy eating index (HEI). The HEI calculates proximity to meeting the Dietary Guidelines for Americans 2020-2025 (USDA, 2020). Scores closer to 100 indicate greater adherence to the guidelines and are used as a measure of nutritional quality (Krebs-Smith et al., 2018).

DISCUSSION & IMPLICATIONS

- Greater neighborhood resources, as indexed by COI, was related to greater physical activity, healthy eating, and fitness in young children. The benefits of greater neighborhood resources as it relates to fitness was only for TD children, not for children with ADHD. This distinction may be attributed to the gross motor difficulties commonly associated with ADHD; however, further research is necessary to confirm this hypothesis.
- Future studies should assess how community factors and child opportunity levels impact additional child-related outcomes, including mental health and educational outcomes, to inform the development of targeted supports and interventions for children, particularly those in low-opportunity communities.

RESULTS

Table 1. Linear Regression Analyses of ADHD, COI, and their interaction Predicting Physical Activity, Fitness, & Nutrition

	β	t	p
FNPA			
ADHD	-.12	-1.54	.125
COI	.17	2.30	.022
ADHD x COI	.42	1.55	.123
Calories			
ADHD	.17	2.32	.023
COI	-.05	-.73	.469
ADHD x COI	-.04	-.14	.891
HEI			
ADHD	-.17	-2.03	.044
COI	.18	2.34	.021
ADHD x COI	-.34	-1.25	.213
Side Jumps			
ADHD	.42	1.84	.067
COI	.37	3.66	<.001
ADHD x COI	-.69	-2.87	.005

All analyses controlled for cohort, maternal education, age, sex. The calories model covaried for weight (kg), the HEI model covaried for calories (kcal); ADHD = ADHD diagnostic status (ADHD = 1; Typically Developing = 0).

Figure 1. Interaction of COI & ADHD Diagnostic Status Predicting Fitness

