



## Environmental Burden and School Readiness: Implications for Child Development

### New research

Bulotsky-Shearer, Rebecca, Mullins, Casey, Mutic, Abby, Molchan, Carin, Campos, Elizabeth, Brown, Scott, and Natale, Ruby. (2025). Environmental burden and school readiness in an urban county: Implications for communities to promote health child development. *Sustainability*, <https://www.mdpi.com/2071-1050/17/15/6692>

Access to health care, quality early learning programs, and safe green communities are community resources that contribute to community health and positive child development. Exposure to environmental risk factors, such as toxic chemicals and pollution, can negatively affect children's physical health and cognitive and social-emotional development. Community residents' exposure to environmental risks is called *environmental burden*. Using census tract-level data, we examined the relationships between race and ethnicity, social vulnerability, environmental burden, and kindergarten readiness scores for an entire cohort of children in Miami-Dade public schools (19,373 five-year-old children). Environmental burden was inequitably distributed across Miami-Dade County, associated with race and social vulnerability, and was negatively associated with school readiness.

### What information we have



**Race and ethnicity** were measured using census data from the American Community Survey (ACS) from 2017-2021.



**Environmental burden** was measured by the Environmental Justice Index (EJI), composed of ratings of environmental quality, such as air quality, hazardous sites, water pollution.



**Social Vulnerability** was measured by the Bruner Child Raising Vulnerability Index, composed of indicators of social, educational and economic disadvantage.



**Kindergarten readiness** was measured by scores on the Florida Kindergarten Readiness Screener assessment taken by all kindergarteners in Miami-Dade public schools during the fall of 2021.

**Is environmental burden distributed equally across Miami-Dade County?**



**No.** Unfortunately, some communities bear a higher environmental burden than others. The most prevalent were high air and water pollution, and less access to resources in the built environment, such as parks and green spaces.

**Are community poverty and race or ethnicity associated with environmental burden?**



**Yes.** Areas of greater social vulnerability were associated with a higher percentage of non-Hispanic Black residents, higher environmental burden, and lower K readiness.

**When accounting for neighborhood race and social vulnerability, does environmental burden still predict kindergarten readiness?**



**Yes.** Environmental burden predicted lower K scores even when accounting for race, ethnicity, and other social vulnerabilities. The effect of environmental burden exposure compounds with other social vulnerabilities to affect K readiness.

## RECOMMENDATIONS

Our results show that many children living in Miami-Dade County communities experience high exposure to toxic chemicals, pollution, and other environmental risks which can negatively affect their school readiness.

Policymakers, in collaboration with community leaders and researchers, can identify assets to strengthen under-resourced communities, including better access to early learning programs in highly burdened communities.