



Green Space May Improve Young Children's Mental Health

Children ages 2 to 5 who live in areas with more green spaces had fewer symptoms of anxiety and depression.

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Mental health problems affect millions of children in the U.S., and some have recently been on the rise. The symptoms of mental health disorders fall into two categories: internalizing (staying within) and externalizing (acting out). Examples of internalizing symptoms include anxiety and depression. Examples of externalizing symptoms are aggression and rule breaking.

Evidence suggests that exposure to green space is associated with improved mood and reduced risk of mental disorders. But most research has been limited to one or a few cities at a time and has focused on adolescent and adult health. Few studies have looked at whether green space is associated with mental health symptoms in children.

A team of researchers from NIH's Environmental Influences on Child Health Outcomes (ECHO) Program led by Dr. Nissa Towe-Goodman at the University of North Carolina at Chapel Hill, aimed to address this gap. They studied more than 2,000 children born between 2007 and 2013 and living in almost 200 counties across 41 states.

The team used satellite imagery to estimate live vegetation density up to three-quarters of a mile around each child's home. Parents reported the children's internalizing and externalizing symptoms using standard checklists. The researchers looked for associations between green space and symptoms in early childhood (ages 2 to 5 years) and middle childhood (ages 6 to 11 years). Results appeared in [JAMA Network Open](#) on April 10, 2024.

Green space around the home was associated with fewer internalizing and externalizing symptoms during early childhood. For internalizing symptoms, the association remained strong after accounting for the child's sex, prematurity, parent education, age at birth, and neighborhood socioeconomic vulnerability. For externalizing symptoms, accounting for these factors, particularly neighborhood socioeconomic vulnerability, reduced the association with green space.

No relationships were found between green space and any symptoms during middle childhood. The researchers suggest this may be because children in this age range spend more time at school and less at home.

The results suggest that improving access to green spaces might be good for children's mental health nationwide. Ways to do this include parks, urban forest programs, and protected natural areas. The researchers recommend further research to confirm whether increasing access to green space leads to better mental health in children.

"Our research supports existing evidence that being in nature is good for kids," Towe-Goodman says. "It also suggests that the early childhood years are a crucial time for exposure to green spaces."

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