



# ECHO

Environmental influences  
on Child Health Outcomes

A program supported by the NIH

## Study Summary

### ***How do family hardships and newborn health outcomes affect the behavior and well-being of children?***

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#### Who sponsored this study?

This research was supported by the Environmental influences on Child Health Outcomes (ECHO) Program, Office of The Director, National Institutes of Health.

#### Why was this study needed?

Emotional and behavioral difficulties during early childhood can predict later problems such as anxiety, depression, attention deficits, and aggression. This study aims to describe children's behavioral development from 18 to 72 months of age, examining risk factors for continuing behavioral problems that can inform early interventions to improve behavioral and emotional regulation.

#### What were the study results?

Children born preterm, males, and those exposed to more family hardships had more behavioral difficulties that persisted over time, including anxiety/depression, attention deficits, and aggression. Other factors that increased the risk for behavioral difficulties in children were prenatal substance exposure and higher maternal psychosocial and economic difficulties during pregnancy. Some children who experienced fewer family hardships showed improved behavior over time when receiving early support. The researchers were able to identify early life factors that may increase a child's risk for experiencing behavioral and emotional difficulties later in childhood.

Footnote: Results reported here are for a single study. Other or future studies may provide new information or different results. You should not make changes to your health without first consulting your healthcare professional.

#### Impact

This study suggested that support and services for families to help them cope with newborn health challenges and other family hardships may help improve young children's behavioral and emotional difficulties. Specifically, preterm births and prenatal substance exposures may be used to identify children who may benefit from early support. Individualized support to meet the specific needs of children may prevent later behavioral problems and improve future outcomes for vulnerable children and their families.

#### Who was involved?

The study included 3,934 children born between 1990 and 2019 and their mothers from 20 ECHO cohorts across the United States. About 80% of the children were born at term (at or beyond 37 weeks of gestation), and about 20% were born preterm (before 37 weeks of gestation).

### What happened during the study?

The researchers collected caregiver self-reports, demographics, and medical and social environment information about the mothers and children before and during pregnancy and from infancy through age 6. Caregivers also completed the Child Behavior Checklist at multiple study visits to describe their child's behavior at different ages. Researchers compared the trajectory of children's scores for dysregulation behaviors (anxiety, depression, attention, and aggression) across the first six years of life. Researchers described three patterns of behavioral trajectories observed in these children 1) high and increased dysregulation (2.3%); 2) borderline and stable dysregulation (12.3%); and 3) low and decreasing dysregulation (85.6%).

### What happens next?

Future ECHO studies may examine how the behavior of children continues to develop after six years of age. These new studies could focus on identifying additional risk and protective factors for emotional and behavioral well-being and patterns across middle childhood and adolescence.

### Where can I learn more?

Access the full journal article, titled "Psychosocial and Neonatal Risk Factors Associated with Behavioral Dysregulation Trajectories Among Young Children from 18 through 72 Months of Age," in [JAMA Network Open](#).

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