ECHO
Environmental influences on Child Health Outcomes
A program supported by the NIH

Study Summary

How does a mother's mental and physical health during and after pregnancy affect their child's behavior during early childhood?

Authors: Lauren C. Shuffrey, et al.

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?

Previous research has linked gestational diabetes (a type of diabetes mothers develop during pregnancy) to prenatal and postpartum depression in mothers. However, studies have not examined how the combination of gestational diabetes, prenatal depression, and postpartum depression affect early childhood behavior.

What were the study results?

The study found that gestational diabetes, prenatal maternal depressive symptoms, and postnatal maternal depressive symptoms were each associated with increased child externalizing (e.g., acting out, aggression, hyperactivity) and internalizing (e.g., anxiety, depression) behavior problems. This study also found that gestational diabetes was associated with increased autism behaviors only among children exposed to above average perinatal maternal depressive symptoms. Finally, the researchers observed gestational diabetes was only associated with child behavioral problems for male children, and not for female children.

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.

What was the impact?

These findings suggest that children born to mothers who had both gestational diabetes and symptoms of depression during pregnancy should receive additional monitoring for behavioral problems during early childhood.

Who was involved?

This study included 2,379 children from ECHO cohorts located in Colorado, Massachusetts, New York, Pennsylvania, and Tennessee. More than half of participants were male, and 216 participants were born to mothers with gestational diabetes during pregnancy.

More than half of maternal participants were from an underrepresented minority group with 32% self-identifying as Black, 23% as Hispanic, 15% as mixed race, and 4% as Asian.

What happened during the study?

ECHO researchers used the Preschool Child Behavior Checklist (CBCL) to examine the behavior of children ages 2 to 5. They also collected information from the mothers including gestational diabetes diagnosis and self-assessments of depression symptoms during and after pregnancy. The study evaluated how gestational diabetes, prenatal depression, and postpartum depression affected children's behavioral outcomes using the CBCL.

What happens next?

ECHO researchers are currently analyzing blood samples collected during pregnancy to investigate potential inflammatory mechanisms that may influence the associations between gestational diabetes, maternal depression, and early childhood behavior.

Where can I learn more?

Access the full journal article titled, "Gestational Diabetes Mellitus, Perinatal Maternal Depression, and Early Childhood Behavioral Problems: An Environmental Influences on Child Health Outcomes (ECHO) Study" in *Child Development*.

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