

5th International Conference on **Pediatrics and Neonatal Care**

July 21-22, 2026 | Vienna, Austria



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Understanding the impact of prenatal acetaminophen use on children's birth outcomes and neurodevelopment: a nationwide study

Acetaminophen is among the most commonly used over-the-counter medications used during pregnancy. In light of recent reports suggesting potential associations with adverse child health outcomes, further research is warranted. This study examined associations between self-reported acetaminophen use during pregnancy and (1) birth outcomes including birthweight, preterm birth, small-for-gestational-age (SGA), and large-for-gestational-age (LGA), as well as (2) childhood neurodevelopmental conditions including attention-deficit/hyperactivity disorder (ADHD) and autism spectrum disorder (ASD). Using prospectively collected data from the U.S. Environmental influences on Child Health Outcomes (ECHO) consortium, relationships were evaluated with covariate-adjusted, mixed-effects regression, following imputation of missing data and application of inverse probability weighting. In the analysis focused on birth outcomes, 59% of pregnant people reported using acetaminophen during pregnancy; average birthweight was 3,026 grams; 19% of infants were preterm; 6% of infants were SGA; and 16% infants were LGA. Prenatal acetaminophen use was significantly associated with lower odds of LGA (adjusted odds ratio (aOR): 0.87; 95% CI: 0.79, 0.96) but not with preterm birth (aOR, 0.99; 95% CI, 0.86, 1.14), birthweight (β , -7.52 g; 95% CI, -27.80, 12.77) or SGA (aOR, 1.02; 95% CI, 0.88, 1.18). In the analysis focused on neurodevelopment, 54% of pregnant people reported prenatal acetaminophen use; 9% of children were diagnosed with ADHD; and 4% of children were diagnosed with ASD. Following covariate adjustment, prenatal acetaminophen use was not significantly associated with increased odds of ADHD (aOR, 0.88; 95% CI, 0.74 to 1.04) or ASD (aOR, 1.01; 95% CI, 0.80 to 1.29). Overall, the results demonstrate a statistically significant association between prenatal acetaminophen use and lower odds of LGA but not with offspring birthweight, preterm birth, SGA, ADHD, or ASD.

Keywords: acetaminophen, prenatal, birth outcomes, neurodevelopment

Biography

Rebecca Fry, Ph.D., is the Carol Remmer Angle Distinguished Professor in Children's Environmental Health and Chair of Environmental Sciences and Engineering at UNC-Chapel Hill. Dr. Fry is global leader in environmental epigenetics and toxicogenomics; her research examines how prenatal toxic exposures affect health and disease. Dr. Fry leads major programs funded by the National Institutes of Health (NIH) including a cohort within the Environmental Influences on Child Health Outcomes Program, and the UNC Superfund Research Program. She has published over 300 papers, edited two books, advises national and international agencies, and is an award-winning educator, mentor, and scientific leader.