

# Maternal Biomarkers of Acetaminophen Use and Offspring Attention Deficit Hyperactivity Disorder

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## Abstract

Previous studies have suggested a positive association between self-reported maternal acetaminophen use during pregnancy and risk of attention deficit hyperactivity disorder (ADHD) in offspring. We sought to examine the prospective association between maternal plasma biomarkers of acetaminophen intake and ADHD diagnosis in the offspring. This report analyzed 1180 children enrolled at birth and followed prospectively as part of the Boston Birth Cohort, including 188 with ADHD diagnosis based on electronic medical record review. Maternal biomarkers of acetaminophen intake were measured in plasma samples obtained within 1–3 days postpartum. Odds ratios for having ADHD diagnosis or other developmental disorders were estimated using multinomial logistic regression models, adjusting for pertinent covariables. Compared to neurotypical children, we observed significant positive dose-responsive associations with ADHD diagnosis for each maternal acetaminophen biomarker. These dose-responsive associations persisted after adjusting for indication of acetaminophen use and other pertinent covariates; and were specific to ADHD, rather than other neurodevelopmental disorders. In the stratified analyses, differential point estimates of the associations were observed across some strata of covariates. However, these differences were not statistically significant. Maternal acetaminophen biomarkers were specifically associated with increased risk of ADHD diagnosis in offspring. Additional clinical and mechanistic investigations are warranted.