Parental Smoking During Pregnancy and ADHD in Children: The Danish National Birth Cohort.

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Abstract

BACKGROUND:

Prenatal maternal smoking has been associated with attention-deficit/hyperactivity disorder (ADHD) in children, but the causal nature of this association is still under scrutiny. We examined the association with maternal smoking and nicotine replacement use during pregnancy, using association with paternal smoking as a marker of potential genetic or social confounding.

METHODS: We included 84,803 singletons who participated in the Danish National Birth Cohort. Information on parental smoking was reported by the mothers during pregnancy. Children with ADHD were identified from the Danish Psychiatric Central Register, the Danish National Patient Register, and the Register of Medicinal Product Statistics by the International Classification of Diseases, 10th Revision diagnosis or medication. We also used hyperactivity/inattention score of the parent-reported Strengths and Difficulties Questionnaire, included in the 7-year follow-up of the National Birth Cohort.

RESULTS: Maternal and paternal smoking during pregnancy were associated with an elevated risk of ADHD defined by hospital diagnosis, medication, and hyperactivity/inattention score, but the association was stronger for maternal smoking than for paternal smoking. Compared with children born to nonsmoking mothers and smoking fathers, children born of smoking mothers and nonsmoking fathers had a higher risk of ADHD (adjusted hazard ratio = 1.26; 95% confidence interval, 1.03 to 1.53). We also saw a higher risk of ADHD in children of mothers who used nicotine replacement during pregnancy.

CONCLUSIONS: Our findings indicate that the association between prenatal maternal smoking and ADHD may overestimate a causal link, but nicotine exposure or related factors may still play a causal role.