

Abstract

J Child Psychol Psychiatry. 2010 May;51(5):594-602.

Lower maternal folate status in early pregnancy is associated with childhood hyperactivity and peer problems in offspring.

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BACKGROUND: Maternal nutrition during pregnancy has been linked with fetal brain development and psychopathology in the offspring. We examined for associations of maternal folate status and dietary intake during pregnancy with brain growth and childhood behavioural difficulties in the offspring.

METHODS: In a prospective cohort study, maternal red blood cell folate (RCF) was measured at 14 weeks of pregnancy and total folate intake (TFI) from food and supplements was assessed in early and late pregnancy. The offspring's head circumference and body weight were measured at birth and in infancy, and 100 mothers reported on children's behavioural difficulties at a mean age of 8.75 years using the Strengths and Difficulties Questionnaire.

RESULTS: Lower maternal RCF and TFI in early pregnancy were associated with higher childhood hyperactivity (RCF: beta = -0.24 ; $p = .013$; TFI: beta = -0.24 ; $p = .022$) and peer problems scores (RCF: beta = -0.28 ; $p = .004$; TFI: beta = -0.28 ; $p = .009$) in the offspring. Maternal gestational RCF was positively associated with head circumference at birth (adjusted for gestational age), and mediation analyses showed significant inverse indirect associations of RCF with hyperactivity/inattention and peer problems via fetal brain growth. Adjustment for mother's smoking and drinking alcohol during pregnancy did not change the results.

CONCLUSIONS: Although the associations are small and residual confounding is possible, our data provide preliminary support for the hypothesis that lower folate status in early pregnancy might impair fetal brain development and affect hyperactivity/inattention and peer problems in childhood.

PMID: 19874428