

- [Abstract](#)

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Maternal prenatal anxiety and child brain-derived neurotrophic factor (BDNF) genotype: effects on internalizing symptoms from 4 to 15 years of age.

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Abstract

Multiple behavioral and health outcomes, including internalizing symptoms, may be predicted from prenatal maternal anxiety, depression, or stress. However, not all children are affected, and those that are can be affected in different ways. Here we test the hypothesis that the effects of prenatal anxiety are moderated by genetic variation in the child's brain-derived neurotrophic factor (BDNF) gene, using the Avon Longitudinal Study of Parents and Children population cohort. Internalizing symptoms were assessed from 4 to 13 years of age using the Strengths and Difficulties Questionnaire (n = 8,584); a clinical interview with the adolescents was conducted at age 15 years (n = 4,704). Obstetric and psychosocial risk and postnatal maternal symptoms were included as covariates. Results show that prenatal maternal anxiety predicted internalizing symptoms, including with the diagnostic assessment at 15 years. There was a main effect of two BDNF polymorphisms (rs6265 [val66met] and rs11030104) on internalizing symptoms up to age 13. There was also genetic moderation of the prenatal anxiety effect by different BDNF polymorphisms (rs11030121 and rs7124442), although significant effects were limited to preadolescence. The findings suggest a role for BDNF gene-environment interactions in individual vulnerability to the effects of prenatal anxiety on child internalizing symptoms.