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## Heritable, Prenatal, and Postnatal Influences on Child Cortisol and Internalizing Symptom Development

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### ABSTRACT

Predictors of children's internalizing symptoms are often studied independently, including heritable risk, prenatal distress, postnatal parent internalizing symptoms and child hypothalamic-pituitary-adrenal (HPA) activity. Additionally, child HPA activity may mediate prenatal influences on child behavior, with more prenatal distress associated with lower cortisol. Using data from the Early Growth and Development Study ( $n=361$ ), a prospective parent-offspring adoption design, we examined heritability, prenatal distress, and postnatal parental internalizing symptoms as predictors of children's morning cortisol levels and internalizing symptoms from childhood to early adolescence. Heritable risk was indexed by birth parent (BP) internalizing symptoms and diagnoses. Birth mothers reported on internalizing symptoms during pregnancy. Adoptive parents (AP) self-reported internalizing symptoms when children were 9-, 18-, and 27-months-old. At age 4.5, home collection of child cortisol occurred on three consecutive mornings within 30 minutes of waking. APs reported on child internalizing symptoms when children were age 4.5, 6, 7, 8, and 11. Using structural equation modeling, we found that BP internalizing and prenatal internalizing symptoms were not significantly associated with children's cortisol levels or internalizing symptoms. AP internalizing symptoms were associated with children's internalizing symptoms at age 4.5 ( $\beta=0.90, p<.01$ ). Linear trajectories indicated overall decreases in children's internalizing symptoms from ages 4.5 to 11, with children's morning cortisol positively associated with children's internalizing symptom change (i.e., less decrease and flatter slope) ( $\beta=0.16, p=.03$ ). Results suggest that HPA axis activity is independently associated with change in internalizing symptoms. Postnatal parent symptoms are related to proximal assessments of children's internalizing symptoms, but not change over time.

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