

# Low hair cortisol concentration and emerging attention-deficit/hyperactivity symptoms in preschool age.

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Dev Psychobiol. 2018 Mar 23.

doi: 10.1002/dev.21627.

Previous research demonstrated hypoactivity of the HPA axis in children with attention-deficit/hyperactivity disorder (ADHD) or externalizing symptoms. We analyzed the predictive association between the long-term HPA axis activity and increasing symptoms of ADHD in the preschool period. The sample consisted of  $n = 125$  4-year-old children and their families (including  $n = 64$  children with elevated ADHD symptoms). ADHD symptoms were assessed by a structured clinical interview with the mother and by parent- and teacher-report questionnaires. The long-term HPA axis activity was assessed by the hair cortisol concentration (HCC) (over a 3-month period). After controlling for potential confounders, low HCC predicted an increase in ADHD symptoms between the age of 4 and 5 years. Exploration of gender effects revealed that cross-sectional and predictive associations were significant in boys but not in girls. Low HCC might thus be regarded as an early marker of a possibly gender-related developmental pathway to ADHD.