Genetic and environmental contributions to the association between ADHD and affective problems in early childhood-A Swedish population-based twin study.

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Abstract

Few twin studies have explored the relative contribution of genetic and environmental factors to the association between attention deficit hyperactivity disorder (ADHD) and affective problems, and no study has focused on preschool children. We used the classical twin design to explore the genetic and environmental overlap between ADHD symptoms and affective problems in preschool children, based on 879 five-year-old twin pairs born in Sweden 2004-2005. Questionnaire-based parent-ratings were used to measure ADHD symptoms and affective problems. A bivariate twin design was used to decompose variance in ADHD and affective problems into genetic and environmental components, and to test the degree to which these components overlapped across the two traits. Our results showed that there was a significant correlation of 0.34 (95% Confidence Interval [CI] 0.29-0.38) between ADHD and affective problems. This correlation was mostly explained by additive genetic factors (64%, 95%CI 37-93%), and to a lesser extent by shared environmental factors (35%, 95%CI 10-59%). Nonshared environmental factors did not contribute to the correlation between ADHD and affective problems (0%, 95%CI -9 to 10%). These findings show that there is a significant association between ADHD and affective problems in preschool children that are mostly explained by genetic influences. This adds important knowledge about the etiology of both ADHD and affective problems by indicating that these phenotypes are linked from as early as preschool years. This also needs to be taken into consideration when diagnosing young children and clinicians should consider assessing both affective problems and ADHD if one is present.