
Attention deficit hyperactivity disorder (ADHD) and executive functioning in affected and unaffected adolescents and their parents: challenging the endophenotype construct.

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BACKGROUND:

The results of twin and sibling studies suggest that executive functioning is a prime candidate endophenotype in attention deficit hyperactivity disorder (ADHD). However, studies have not assessed the co-segregation of executive function (EF) deficits from parents to offspring directly, and it is unclear whether executive functioning is an ADHD endophenotype in adolescents, given the substantial changes in prefrontal lobe functioning, EF and ADHD symptoms during adolescence.

METHOD: We recruited 259 ADHD and 98 control families with an offspring average age of 17.3 years. All participants were assessed for ADHD and EF [inhibition, verbal (VWM) and visuospatial working memory (VsWM)]. Data were analysed using generalized estimating equations (GEEs).

RESULTS:

Parental ADHD was associated with offspring ADHD and parental EF was associated with offspring EF but there were no cross-associations (parental ADHD was not associated with offspring EF or vice versa). Similar results were found when siblings were compared. EF deficits were only found in affected adolescents and not in their unaffected siblings or (un)affected parents.

CONCLUSIONS:

The core EFs proposed to be aetiologically related to ADHD, that is working memory and inhibition, seem to be aetiologically independent of ADHD in adolescence. EF deficits documented

in childhood in unaffected siblings were no longer present in adolescence, suggesting that children 'grow out' of early EF deficits. This is the first study to document ADHD and EF in a large family sample with adolescent offspring. The results suggest that, after childhood, the majority of influences on ADHD are independent from those on EF. This has potential implications for current aetiological models of causality in ADHD.