Are there distinct cognitive and motivational sub-groups of children with ADHD?

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Abstract

BACKGROUND:
Attention-deficit/hyperactivity disorder (ADHD) is proposed to be a neuropsychologically heterogeneous disorder that encompasses two distinct sub-groups, one with executive function (EF) deficits and one with delay aversion (DA). However, such claims have often been based on studies that have operationalized neuropsychological deficits using a categorical approach - using intuitive but rather arbitrary, clinical cut-offs. The current study applied an alternative empirical approach to sub-grouping in ADHD, latent profile analysis (LPA), and attempted to validate emerging subgroups through clinically relevant correlates.

METHODS:
One hundred medication-naïve children with ADHD and 96 typically developing children (6-14 years) completed nine EF and three DA tasks as well as an odor identification test. Parents and teachers provided reports of the children's behavior (ADHD and EF). Models of the latent structure of scores on EF and DA tests were contrasted using confirmatory factor analysis (CFA). LPA was carried out based on factor scores from the CFA and sub-groups were compared in terms of odor identification and behavior.

RESULTS:
A model with one DA and two EF factors best fit the data. LPA resulted in four sub-groups that differed in terms of general level of neuropsychological performance (ranging from high to very low), odor identification, and behavior. The sub-groups did not differ in terms of the relative EF and DA performance. Results in the ADHD group were replicated in the control group.

CONCLUSIONS:
While EF and DA appear to be dissociable constructs; they do not yield distinct sub-groups when sub-grouping is based on a statistical approach such as LPA.