

Relative age within the school year and diagnosis of attention-deficit hyperactivity disorder: a nationwide population-based study.

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Abstract

BACKGROUND:

Findings are mixed on the relationship between attention-deficit hyperactivity disorder (ADHD) and younger relative age in the school year. We aimed to investigate whether relative age is associated with ADHD diagnosis in a country where prescribing rates are low and whether any such association has changed over time or relates to comorbid disorders (eg, conduct disorder [CD], oppositional defiant disorder [ODD], or learning disorder [LD]).

METHODS:

We used nationwide population-based registers to identify all Finnish children born between Jan 1, 1991, and Dec 31, 2004, who were diagnosed with ADHD from age 7 years onwards (age of starting school). We calculated incidence ratios to assess the inter-relations between relative age within the school year, age at ADHD diagnosis, and year of diagnosis (1998-2003 vs 2004-11).

FINDINGS:

Between Jan 1, 1998, and Dec 31, 2011, 6136 children with ADHD were identified. Compared with the oldest children in the school year (ie, those born between January and April), the cumulative incidence of an ADHD diagnosis was greatest for the youngest children (ie, those born between September and December); for boys the incidence ratio was 1·26 (95% CI 1·18-1·35; $p < 0·0001$) and for girls it was 1·31 (1·12-1·54; $p = 0·0007$). The association between relative age and age at ADHD diagnosis reflected children diagnosed before age 10 years, and the strength of this association increased during recent years (2004-11). Thus, compared with children born between January and April, for those born between May and August, the ADHD incidence ratio was 1·37 (95% CI 1·24-1·53; $p < 0·0001$) and for those born between September and December, the incidence ratio was 1·64 (1·48-1·81; $p < 0·0001$). The relative age effect was not accounted for by comorbid disorders such as CD, ODD, or LD.

INTERPRETATION:

In a health service system with low prescribing rates for ADHD, a younger relative age is associated with an increased likelihood of receiving a clinical diagnosis of ADHD. This effect has increased in recent years. Teachers, parents, and clinicians should take relative age into account when considering the possibility of ADHD in a child or encountering a child with a pre-existing diagnosis.

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