ADHD treatment and diagnosis in relation to children's birth month: Nationwide cohort study from Norway.

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Abstract

BACKGROUND:
Studies from several countries have reported that children youngest in grade are at higher risk of attention-deficit/hyperactivity disorder (ADHD) diagnosis and treatment. Norwegian children start school the year they turn six, making children born in December youngest in their grade. We used data on medication, specialist healthcare diagnoses, and primary healthcare diagnoses from national registers to investigate associations between birth month and ADHD.

METHODS:
All children born in Norway between 1998 and 2006 (N=509,827) were followed from age six until 31 December 2014. We estimated hazard ratios for ADHD medication and diagnoses by birth month in Cox proportional-hazards models. We compared risk among siblings to control for potentially confounding socioeconomic factors and assessed risk of receiving ADHD medication by birth month while attending different grades in cross-sectional time-series analyses.

RESULTS:
At end of follow-up, 5.3% of boys born in October-December had received ADHD medication, compared with 3.7% of boys born in January-March. Corresponding numbers for girls were 2.2% and 1.3%, respectively. The adjusted hazard ratio for ADHD medication for children born in October-December (reference: January-March) was 1.4 (95% confidence interval: 1.4-1.5) for boys and 1.8 (1.7-2.0) for girls. Analyses with diagnoses as outcome showed consistent results and analyses restricted to siblings within the study population also supported the findings. Analysis by grade revealed an increased risk for children born late in the year from grade 3 onwards, with most marked differences in higher grades.

CONCLUSIONS:
Children youngest in grade had the highest risk of receiving ADHD treatment. Differences were most marked among older children.