

# Nearly 1 million children potentially misdiagnosed with ADHD

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Todd Elder, assistant professor of economics. Photo by G.L. Kohuth

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EAST LANSING, Mich. — Nearly 1 million children in the United States are potentially misdiagnosed with attention deficit hyperactivity disorder simply because they are the youngest – and most immature – in their kindergarten class, according to new research by a Michigan State University economist.

These children are significantly more likely than their older classmates to be prescribed behavior-modifying stimulants such as Ritalin, said Todd Elder, whose study appears in the September issue of the *Journal of Health Economics*.

Such inappropriate treatment is particularly worrisome because of the unknown impacts of long-term stimulant use on children's health, Elder said. It also wastes an estimated \$320 million-\$500 million a year on unnecessary medication – some \$80 million-\$90 million of it paid by Medicaid, he said.

Elder said the "smoking gun" of the study is that ADHD diagnoses depend on a child's age relative to classmates and the teacher's perceptions of whether the child has symptoms.

"If a child is behaving poorly, if he's inattentive, if he can't sit still, it may simply be because he's 5 and the other kids are 6," said Elder, assistant professor of economics. "There's a big difference between a 5-year-old and a 6-year-old, and teachers and medical practitioners need to take that into account when evaluating whether children have ADHD."

ADHD is the most commonly diagnosed behavioral disorder for kids in the United States, with at least 4.5 million diagnoses among children under age 18, according to the Centers for Disease Control and Prevention.

However, there are no neurological markers for ADHD (such as a blood test), and experts disagree on its prevalence, fueling intense public debate about whether ADHD is under-diagnosed or over-diagnosed, Elder said.

Using a sample of nearly 12,000 children, Elder examined the difference in ADHD diagnosis and medication rates between the youngest and oldest children in a grade. The data is from the Early Childhood Longitudinal Study Kindergarten Cohort, which is funded by the National Center for Education Statistics.

According to Elder's study, the youngest kindergartners were 60 percent more likely to be diagnosed with ADHD than the oldest children in the same grade. Similarly, when that group of classmates reached the fifth and eighth grades, the youngest were more than twice as likely to be prescribed stimulants.

Overall, the study found that about 20 percent – or 900,000 – of the 4.5 million children currently identified as having ADHD likely have been misdiagnosed.

Elder used the students' birth dates and the states' kindergarten eligibility cutoff dates to determine the youngest and oldest students in a grade. The most popular cutoff date in the nation is Sept. 1, with 15 states mandating that children must turn 5 on or before that date to attend kindergarten.

The results – both from individual states and when compared across states – were definitive. For instance, in Michigan – where the kindergarten cutoff date is Dec. 1 – students born Dec. 1 had much higher rates of ADHD than children born Dec. 2. (The students born Dec. 1 were the youngest in their grade; the students born Dec. 2 enrolled a year later and were the oldest in their grade.)

Thus, even though the students were a single day apart in age, they were assessed differently simply because they were compared against classmates of a different age set, Elder said.

In another example, August-born kindergartners in Illinois were much more likely to be diagnosed with ADHD than Michigan kindergartners born in August of the same year as their Illinois counterparts. That's because Illinois' kindergarten cutoff date is Sept. 1, meaning those August-born children were the youngest in their grade, whereas the Michigan students were not.

According to the study, a diagnosis of ADHD requires evidence of multiple symptoms of inattention or hyperactivity, with these symptoms persisting for six or more months – and in at least two settings – before the age of seven. The settings include home and school.

Although teachers cannot diagnose ADHD, their opinions are instrumental in decisions to send a child to be evaluated by a mental health professional, Elder said.

"Many ADHD diagnoses may be driven by teachers' perceptions of poor behavior among the youngest children in a kindergarten classroom," he said. "But these 'symptoms' may merely reflect emotional or intellectual immaturity among the youngest students."

The paper will be published in the Journal of Health Economics in conjunction with a related paper by researchers at North Carolina State University, Notre Dame and the University of Minnesota that arrives at similar conclusions as the result of a separate study.

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