# Siblings of children with autism or ADHD are at elevated risk for both disorders

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Meghan Miller, PhD. Credit: UC Davis Health

Later-born siblings of children with autism spectrum disorder (ASD) or attention-deficit/hyperactivity disorder (ADHD) are at elevated risk for both disorders, a new study led by Meghan Miller, assistant professor in the Department of Psychiatry and Behavioral Sciences and at the UC Davis MIND Institute, has concluded. The findings appear today in *JAMA Pediatrics*.

The study suggests that families who already have a child diagnosed with ASD or ADHD may wish to monitor younger siblings for symptoms of both conditions.

Symptoms of ADHD include difficulty focusing, nonstop talking or blurting things out, increased activity, and trouble sitting still. ASD, on the other hand, involves significant challenges with social interaction and communication, as well as the presence of unusual interests or repetitive behaviors like hand flapping or lining up objects.

"We've known for a long time that younger siblings of children with autism are at higher-than-average risk for autism, but the field didn't have adequate data to tell whether they were at increased risk for ADHD," said Miller. "Despite the fact that autism and ADHD appear very different in their descriptions, this work highlights the overlapping risk; younger siblings of children with ASD are at elevated risk of both ADHD and autism, and younger siblings of children with ADHD are at elevated risk not only for ADHD, but also for autism."

Miller's research team looked at medical records of 730 later-born siblings of children with ADHD, 158 later-born siblings of children with ASD, and 14,287 later-born siblings of children with no known diagnosis. Only families who had at least one younger child after a diagnosed child were included in the study.

"Evaluating recurrence risk in samples that include only families who have had an additional child after a diagnosed child is important because recurrence may be underestimated if researchers include families who decided to stop having children after a child was diagnosed with ASD or ADHD," explained Miller.

Researchers found in the study that compared to later-born siblings of non-diagnosed children, the odds of an ASD diagnosis were 30 times higher in later-born siblings of children with ASD, and 3.7 times higher for a diagnosis of ADHD. Alternatively, compared to later-born siblings of non-diagnosed children, the odds of an ADHD diagnosis were 13 times higher in later-born siblings of children with ADHD whereas the odds of an ASD diagnosis were 4.4 times higher.

ADHD and ASD are believed to share some genetic risk factors and biological influences. This study supports the conclusion that ASD and ADHD are highly heritable and may share underlying causes and genetics.

Reliable recurrence risk estimates of diagnoses within the same disorder and across other disorders can aid screening and early-detection efforts and enhance understanding of potential shared causes of the disorders. The ability to diagnose ASD and ADHD early could improve both treatment and quality of life.

"There are reliable screening measures and practices for the diagnosis of autism in very young children," Miller said. "Unfortunately, we don't have any clinical standards or adequate tools for screening for ADHD at such young ages. We are currently working on identifying early markers of autism and ADHD in infants and toddlers who have an older diagnosed sibling, since these younger siblings are at elevated risk for ASD and ADHD."

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