

Mixed-handed children more likely to have mental health, language and scholastic problems

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Children who are mixed-handed, or ambidextrous, are more likely to have mental health, language and scholastic problems in childhood than right- or left-handed children, according to a new study published today in the journal *Pediatrics*.

The researchers behind the study, from Imperial College London and other European institutions, suggest that their findings may help teachers and health professionals to identify [children](#) who are particularly at risk of developing certain problems.

Around one in every 100 people is mixed-handed. The study looked at nearly 8,000 children, 87 of whom were mixed-handed, and found that mixed-handed 7 and 8-year old children were twice as likely as their right-handed peers to have difficulties with language and to perform poorly in school.

When they reached 15 or 16, mixed-handed adolescents were also at twice the risk of having symptoms of attention deficit/[hyperactivity](#) disorder ([ADHD](#)). They were also likely to have more severe symptoms of ADHD than their right-handed counterparts. It is estimated that ADHD affects between 3 to 9 percent of school-aged children and young people.

The adolescents also reported having greater difficulties with language

than those who were left- or right-handed. This is in line with earlier studies that have linked mixed-handedness with [dyslexia](#).

Little is known about what makes people mixed-handed but it is known that handedness is linked to the hemispheres in the brain. Previous research has shown that where a person's natural preference is for using their right hand, the left hemisphere of their brain is more dominant.

Some researchers have suggested that mixed-handedness indicates that the pattern of dominance is not that which is typically seen in most people, i.e. it is less clear that one hemisphere is dominant over the other. One study has suggested that ADHD is linked to having a weaker function in the right hemisphere of the brain, which could help explain why some of the mixed-handed students in today's study had symptoms of ADHD.

Dr Alina Rodriguez, the lead researcher on the study from the School of Public Health at Imperial College London, said: "Mixed-handedness is intriguing - we don't know why some people prefer to make use of both hands when most people use only one. Our study is interesting because it suggests that some children who are mixed handed experience greater difficulties in school than their left- and right-handed friends. We think that there are differences in the brain that might explain these difficulties, but there needs to be more research.

"Because mixed-handedness is such a rare condition, the number of mixed-handed children we were able to study was relatively small, but our results are statistically and clinically significant. That said, our results should not be taken to mean that all children who are mixed-handed will have problems at school or develop ADHD. We found that mixed-handed children and adolescents were at a higher risk of having certain problems, but we'd like to stress that most of the mixed-handed children we followed didn't have any of these difficulties," added Dr

Rodriguez.

To study the effects of mixed-handedness, Dr Rodriguez and her colleagues looked at prospective data from a cohort of 7,871 children from Northern Finland. Using questionnaires, the researchers assessed the children when they reached 7 to 8 years of age and again at 15 to 16 years of age.

When the children were aged 8, the researchers asked parents and teachers to assess their linguistic abilities, scholastic performance and behaviour. The teachers reported whether children had difficulties in reading, writing or mathematics and rated the children's academic performance as below average, average or above average.

The adolescents' parents and the [adolescents](#) themselves completed follow-up questionnaires when they were 15-16 years of age, with the children evaluating their school performance in relation to their peers and the parents assessing their children's behaviour, on a questionnaire that is widely used to identify ADHD symptoms.

More information: “Mixed-Handedness Is Linked to Mental Health Problems in Children and Adolescents,” *Pediatrics*, Monday 25 January 2010

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