Multiple neurodevelopmental conditions may lead to worse educational outcomes

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Scottish children with multiple neurodevelopmental conditions experience greater school absenteeism and exclusion, poorer exam attainment and increased unemployment, according to a study published October 13 in the open-access journal *PLOS Medicine* by Michael Fleming of the University of Glasgow, and colleagues.

Children with neurodevelopmental conditions such as attention deficit hyperactivity disorder (ADHD), autism spectrum disorder (ASD), depression and intellectual disability often experience difficulties at school. Multiple neurodevelopmental conditions commonly coexist, but this phenomenon, known as neurodevelopmental multimorbidity, has received relatively little attention in children compared to adults.

To address this gap in knowledge, Fleming and his collaborators investigated the prevalence of neurodevelopmental multimorbidity in Scottish schoolchildren and their educational outcomes compared to their peers. The authors linked together five Scotland-wide health and education databases to identify neurodevelopmental multimorbidity in 766,244, four- to 19-year-old children attending school in Scotland between 2009 and 2013. Study limitations are that 96.2% of the participants were white, so the findings may not generalize to more ethnically diverse populations, and the use of prescriptions rather than formal clinical diagnoses to identify children with depression and ADHD.

Multimorbidity was defined as presence of 2 or more of the following conditions in a child: depression, attention deficit hyperactivity disorder (ADHD), autism, intellectual disabilities. Compared to children with no conditions, children with one or more of these conditions experienced increased school absenteeism and exclusion, poorer exam attainment, and increased unemployment. Coexisting depression was the strongest driver of absenteeism, and coexisting ADHD was the strongest driver of exclusion.

Girls were less likely to have multimorbidity, but if they did, they experienced greater adverse impact on educational outcomes than did boys. Additional analysis showed that the increased risk of poor exam results was in part explained by higher rates of absence and exclusion from school, and that poorer exam results, in turn, explained the increased risk of unemployment. This finding suggests that interventions should focus on reducing school absence and exclusion, or their respective impact, on affected children to minimize long-term adverse outcomes.

According to the authors, the standard practice of structuring healthcare systems and training around single conditions may disadvantage children with neurodevelopmental multimorbidity by failing to recognize their increased risk of poor educational outcomes and address all of their needs.

More information: Michael Fleming et al, Neurodevelopmental multimorbidity and educational outcomes of Scottish schoolchildren: A population-based record linkage cohort study,

PLOS Medicine (2020). DOI: 10.1371/journal.pmed.1003290