Childhood mental health problems resulting from early-life adversity drive poorer cognitive performance in adolescence

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Early-life adversity—such as poverty, illness or family conflict—has long been linked to mental health difficulties and poorer cognitive

functioning as children grow up. But how these factors interact and evolve over time has so far been unknown.

Now, a new study by researchers at the University of Cambridge, together with colleagues in Nigeria, has revealed the interplay between early-life adversity, mental health difficulties and cognitive functioning over the course of childhood. The results, published today in *The Journal of Child Psychology and Psychiatry*, show that childhood mental health influences the extent to which early-life adversity impacts on later cognitive functioning.

Scientists analyzed data from the ongoing Millennium Cohort Study, which has assessed 13,287 children on a variety of tests at ages three, five, seven, eleven and fourteen. They selected measures of early-life adversity (which they classified as taking place before the age of three), mental health and cognitive functioning—namely, working memory and vocabulary.

The team from the MRC Cognition and Brain Sciences Unit, University of Cambridge used a statistical technique designed to tease out the extent to which mental health affects the relationship between early-life adversity and cognitive functioning later in childhood.

They found that early-life adversity is associated with poorer performance on working memory and vocabulary through its impact on mental health across childhood. For example, poorer mental health across ages 3-14 resulting from early-life adversity accounted for 59% of the variance in poorer working memory performance at age 11 and explained 70% of poorer performance in vocabulary at age 14.

The researchers showed that early-life adversity at age three strongly predicted poorer mental health across ages 3-14, with the association strongest at three but getting progressively weaker over time. In other

words, children who experienced early-life adversity were most likely to experience mental health difficulties from age three to age fourteen, although poorer mental health was greater at age 3 than in the later years. This suggests that exposure to early-life adversity at this developmentally sensitive time has a negative long-term impact on mental health.

They also found that decreases in mental health difficulties over time were associated with improvements in working memory and vocabulary. This suggests that if behavioral and psychological difficulties can be addressed when children are young, the effects of early-life adversity on later cognition could be alleviated. This finding has important implications for clinicians, educators and parents involved in interventions.

"Our findings suggest that early-life adversity can lead to prolonged periods of poor mental health, which in turn may have lasting effects on cognitive performance, such as working memory and vocabulary," said lead author Dr. Tochukwu Nweze from the MRC Cognition and Brain Sciences Unit.

"We already know that poor mental health and cognition are associated with numerous behavioral problems which affect life quality and satisfaction. This reinforces the need for early interventions to give children the best possible life-outcomes."

The researchers say that, at a time of rising mental health challenges among teenagers and young people, made worse by contemporary risk factors such as conflicts, pandemics and climate change, educators and clinicians need to focus on building resilience in children who have experienced early-life adversity.

"In this way, we can hope to break the self-sustaining mental health difficulties faced by individuals who have experienced early-life

adversity," said Dr. Nweze.

More information: Childhood mental health difficulties mediate the long-term association between early-life adversity at age 3 and poorer cognitive functioning at ages 11 and 14, *Journal of Child Psychology and Psychiatry* (2023). DOI: 10.1111/jcpp.13757

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