

Imaging study looks at brain effects of early adversity, mental health disorders

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Adversity during the first six years of life was associated with higher levels of childhood internalizing symptoms, such as depression and anxiety, in a group of boys, as well as altered brain structure in late adolescence between the ages of 18 and 21, according to an article published online by *JAMA Pediatrics*.

Both altered [brain structure](#) and an increased risk of developing internalizing symptoms have been associated with adversity early in life.

Edward D. Barker, Ph.D., of King's College London, and coauthors examined how adverse experiences within the first six years of life relate to variations in cortical gray matter volume in the brains of adolescent males, both directly and indirectly, through increased levels of childhood internalizing symptoms.

The study included a group of 494 mother-son pairs whose mothers reported on family adversities encountered by their sons through age 6. Mothers also reported on levels of internalizing symptoms (depressive and/or anxiety) when the boys were ages 7, 10 and 13. Imaging data from MRIs was collected in late adolescence.

The authors found that among the 494 men included in the analysis, early adversity was associated with alterations in brain structure. Childhood internalizing symptoms were associated with lower gray matter volume in a brain region. Early adversity was associated with [higher levels](#) of internalizing symptoms, which in turn were associated

with a region of lower gray matter volume, which is an example of an indirect effect, according to the results.

The authors note limitations of the study, including that it was limited to male participants.

"The finding that childhood experiences can affect the brain highlights early [childhood](#) not only as a period of vulnerability but also a period of opportunity. Interventions toward adversity might help to prevent children from developing internalizing [symptoms](#) and protect against [abnormal brain development](#)," the study concludes.

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