

Poverty in early childhood appears associated with brain development

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Poverty in early childhood appears to be associated with smaller brain volumes measured through imaging at school age and early adolescence, according to a study published by *JAMA Pediatrics*.

Poverty is known to be associated with a higher risk of poor cognitive outcomes and school performance, according to the study background.

Joan Luby, M.D., of the Washington University School of Medicine, St. Louis, and colleagues investigated the effect of poverty on [brain development](#) by examining white and cortical gray matter, as well as hippocampus and amygdala volumes in a group of children ages 6 to 12 years who were followed since preschool. The 145 children were recruited from a larger group of children who participated in a preschool depression study.

The authors report that "exposure to poverty during [early childhood](#) is associated with smaller white matter, cortical gray matter, and hippocampal and amygdala volumes," the authors write.

Study findings also indicate that the effects of poverty on [hippocampal volume](#) were mediated (influenced) by caregiving and stressful life events.

"The finding that the effects of [poverty](#) on hippocampal development are mediated through caregiving and [stressful life events](#) further underscores the importance of high-quality early childhood caregiving, a

task that can be achieved through parenting education and support, as well as through preschool programs that provide high-quality supplementary caregiving and safe haven to vulnerable young [children](#)," the study concludes.

In a related editorial, Charles A. Nelson, Ph.D., of Boston Children's Hospital and Harvard Medical School, writes: "Whether we adopt the term developmental programming or biological embedding, the construct remains the same: early experience weaves its way into the neural and biological infrastructure of the child in such a way as to impact developmental trajectories and outcomes."

"The article by Luby et al represents an example of how early adversity impacts brain structure," Nelson continues.

"Exposure to early life adversity should be considered no less toxic than exposure to lead, alcohol or cocaine, and, as such, it merits similar attention from public health authorizes," Nelson concludes.

More information: *JAMA Pediatr.* Published online October 28, 2013. [DOI: 10.1001/jamapediatrics.2013.3139](https://doi.org/10.1001/jamapediatrics.2013.3139)
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