

## **New research suggests how parents protect children from the long-term effects of stress**

When young children experience violence or poverty, the effect can last well into adulthood. But new research from the Emory School of Medicine suggests that a strong parental relationship could override some of these effects, by changing how children perceive the environmental cues that help them distinguish between what's safe or dangerous.

To study the impact of the caregiver relationship, a research team led by Jennifer Stevens and Tanja Jovanovic used functional magnetic resonance imaging (fMRI) to observe activity in the amygdala, a key area of the brain that processes fear and emotion. The researchers showed children aged 8-13 a series of photos of adult faces that were either neutral or expressing fear. The amygdalae of children who had experienced violence in their lives grew more active in response to both types of faces, which suggests that these children may engage emotional, fight-or-flight responses even for social cues that are not particularly threatening. This may be an adaptive response to growing up in an unpredictable or dangerous environment. In children who hadn't experienced violence, amygdalae were more only active in response to the fearful faces.

In another part of the experiment, the researchers had children and their mothers collaborate on a challenging Etch-a-Sketch task and rated the mothers' expressions during the interaction. Then they had the children look at photos of faces. When the mothers had been more positive towards their children, the amygdalae of the younger children, aged 8-10, showed a decrease over time in response to the fearful faces. This suggests that in young children, the relationship with a mother affects the brain's response to potential environmental threats. The same effect wasn't observed in older children.

The findings build on earlier research by the same team, which established that the physical distance between young children and their mothers can influence how the children assess danger. In the previous study, young children who were physically nearer to their mothers were better able to differentiate between safe and threatening stimuli. Once again, older children didn't show the same effect.

The findings indicate that even if a child grows up in a stressful environment, parental relationships can protect them, says Stevens. "Interventions such as parent training designed to help parents respond positively to young children, might be especially important in situations that are really challenging or where there are low resources," she says.

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