Imaging Study Shows How Family Violence Changes Brain Activity

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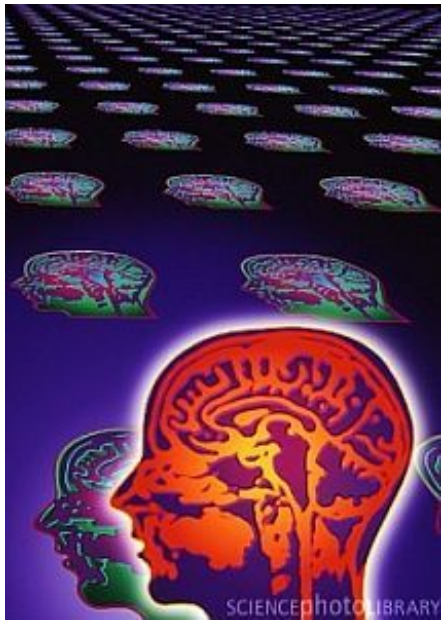

Family violence appears to increase a child's sensitivity to detect potential additional threats, as researchers found brain changes are analogous to those found in soldiers exposed to combat.

The study, found in the journal *Current Biology*, is the first to apply functional brain imaging to explore the impact of physical abuse or domestic violence on the emotional development of children.

"Enhanced reactivity to a biologically salient threat cue such as anger may represent an adaptive response for these children in the short term, helping keep them out of danger," said Eamon McCrory, Ph.D., of University College London.

"However, it may also constitute an underlying neurobiological risk factor increasing their vulnerability to later mental health problems, and particularly anxiety."

Anxiety and depression during adulthood are often a result of childhood maltreatment. Still, McCrory said, "relatively little is known how such adversity 'gets under the skin' and increases a child's later vulnerability, even into adulthood."

The new study shows that children with documented exposure to violence in the home differ in their brain response to angry versus sad faces.

When presented with angry faces, children with a history of abuse show heightened activity in the brain's anterior insula and amygdala, regions involved in detecting threat and anticipating pain.

Previous fMRI studies that scanned the brains of soldiers exposed to violent combat situations have shown the same pattern of heightened activation in these two areas of the brain, which are associated with threat detection. The authors suggest that both maltreated children and soldiers may have adapted to be "hyper-aware" of danger in their environment.

McCrory says the changes don't reflect damage to the brain. Rather, the patterns represent the brain's way of adapting to a challenging or dangerous environment. Still, those shifts may come at the cost of increased vulnerability to later stress.

Although the results may not have immediate practical implications, they are nonetheless critical given that a significant minority of children are exposed to family violence, McCrory says.

"This underlines the importance of taking seriously the impact for a child of living in a family characterized by violence. Even if such a child is not showing overt signs of anxiety or depression, these experiences still appear to have a measurable effect at the neural level."

Source: Cell Press

APA Reference

Nauert PhD, R. (2011). Imaging Study Shows How Family Violence Changes Brain Activity. *Psych Central*. Retrieved on December 7, 2011, from http://psychcentral.com/news/2011/12/06/imaging-study-shows-how-family-violence-changes-brain-activity/32238.html