

Childhood adversity may lead to unhealthy stress response in adult life

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Seemingly healthy adults, if they were abused or neglected during childhood, may suffer physiological consequences decades later. In research published online last week by the journal *Neuropsychopharmacology*, a team led by psychiatrists at Brown University and Butler Hospital found that healthy adults who reported being mistreated as kids appear to have an elevated inflammatory response to stress compared to adults who had happier childhoods.

Lead author Linda Carpenter, associate professor of psychiatry and [human behavior](#), said that prior research has revealed preliminary associations between inflammatory markers, (such as [cytokines](#) or proteins released in the bloodstream such as interleukin-6) and depression and [anxiety disorders](#), so this new finding could ultimately improve doctors' understanding of how [stressors](#) in childhood shape the risk people face for developing those conditions later in life.

"Animal models have given us some signals about how the functioning of an organism's [stress response](#) system can run amok for the rest its life as a result of some of the earliest environment exposures — adverse ones in particular," said Carpenter, who also treats patients with mood disorders at Butler. "This is one of a number of studies we've been doing with generally healthy adults, looking at the effects of adverse early environment and how it might create a biological abnormality that could predispose somebody to future depression or another medical disorders."

A study in 2006 at Emory University had shown that men who were

mistreated as kids and were now struggling with symptoms of depression as adults had an elevated inflammatory response to stress, Carpenter said. The goal of her team in this pilot study was to find out whether the same is true of adults who endured early life adversity, but are not experiencing psychiatric disorders like depression. The results supported the idea that people who struggled with childhood abuse and neglect have exaggerated immune system reactions later in life, Carpenter said, perhaps indicating a trajectory toward future health challenges.

Stress test

To conduct the research, the team recruited 69 adults, ranging in age from their late teens to early 60s. After administering a battery of tests to ensure that the subjects were psychiatrically healthy and not taking any medicines or drugs that would bias the results, the team surveyed them extensively about their childhood experiences. Of the group, 19 reported moderate to severe neglect or abuse.

To measure each group's inflammatory response to stress, the researchers then asked them to undergo a laboratory role-play called the Trier Social Stress Test, in which they had to appear before a panel of "judges" and both speak about their qualifications for their job and then count backward from a number by 13s. All the while, the researchers were measuring various vital signs and collecting blood samples.

Among the subjects who reported adverse childhood experiences, the concentrations of interleukin-6 in their blood were always elevated above those of the control group, and the gap widened considerably as the subject recovered from the psychological stress during several hours after the role-play.

Advancing disease understanding

Further research is necessary — for instance, expanding this small study to incorporate a larger sample size, Carpenter said. That, combined with more work exploring the connection between immune system function and depression, could eventually lead to a blood test that would be used to assess a patient's risk for developing depression or other medical disorders. It might also guide the choice of treatments or prevention measures.

"We're not yet at a point, where we can say to healthy people 'Go get your stress-test cytokine profile done' as a tool to prevent, diagnose, or treat medical disorders," she said. "But what's clear is that a life of excessive stress-induced inflammatory chemicals in your bloodstream is unlikely to be a good thing."

In the future, the way to help some patients, Carpenter added, might be in finding ways to ratchet down that [inflammatory response](#) to stress.

Provided by Brown University

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