

# Childhood Stress Can Make You Ill as an Adult

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✓ Fact Checked

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## STORY AT-A-GLANCE

- › Prolonged stress can have life-threatening consequences not only for adults but also for children. Adverse childhood experiences (ACEs) can predispose them to any number of health problems later in life
- › In 2020, California is allocating \$105 million to promote screening for ACEs, which have been shown to trigger toxic stress responses and epigenetic changes linked to a variety of health problems
- › Biological switches flipped during ACEs increase a child's risk for nicotine, alcohol and drug abuse, mental illness and suicide, impaired immune function, heart disease, cancer and dementia later in life
- › ACEs known to impact health include psychological, physical and sexual abuse, domestic abuse, living with household members who are substance abusers, mentally ill or suicidal, early death of a parent, living in a household in which a member has been or is imprisoned, neglect, separation and divorce
- › Nearly 1 in 6 adults (15.6%) has experienced four or more types of ACEs, raising their risk for at least five of the top 10 leading causes of death

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**Prolonged stress can have life-threatening consequences not only for adults but also for children. Research shows adverse childhood experiences (ACEs) can predispose them to any number of health problems later in life.**

In the early days of mankind's evolution, the stress response saved our lives by enabling us to run from predators or take down prey. Today, however, such dire circumstances are few and far between, yet we still turn on the same "life-saving" reaction to cope with countless everyday situations.

Constantly being in a stress response may have you marinating in corrosive hormones around the clock, which can raise your blood pressure, add fat to your belly, shrink your brain and even unravel your chromosomes.<sup>1</sup>

Stress disrupts your neuroendocrine and immune systems and appears to trigger a degenerative process in your brain that can result in Alzheimer's disease. Stress can also accelerate aging by shortening your telomeres, the protective genetic structures that regulate how your cells age. In the words of Dr. Lissa Rankin, author of "Mind Over Medicine":<sup>2</sup>

*"Our bodies know how to fix broken proteins, kill cancer cells, retard aging, and fight infection. They even know how to heal ulcers, make skin lesions disappear and knit together broken bones! But here's the kicker – those natural self-repair mechanisms don't work if you're stressed!"*

## **Childhood Stress and Mental Health**

In a March 2020 Newsweek article,<sup>3</sup> Adam Piore discusses the work of Dr. Nadine Burke Harris, founder of a children's medical clinical in one of San Francisco's poorest neighborhoods.

A surprisingly large portion of her young patients struggled with symptoms of **attention deficit hyperactivity disorder** (ADHD), the hallmarks of which include an inability to focus, impulsivity and abnormal restlessness. Many also had severe health problems and depression. Piore writes:

*"Burke Harris noticed something else unusual about these children. Whenever she asked their parents or caregivers to tell her about conditions at home, she almost invariably uncovered a major life disruption or trauma.*

*One child had been sexually abused by a tenant, she recalls. Another had witnessed an attempted murder. Many children came from homes struggling with the incarceration or death of a parent, or reported acrimonious divorces. Some caregivers denied there were any problems at all, but had arrived at the appointment high on drugs.”*

Alarmed by the obvious trend she was witnessing in her clinic, Harris began searching for answers in the medical literature. Was childhood trauma responsible for the poor state of health of so many of her young patients?

*“Childhood stress can be as toxic and detrimental to the development of the brain and body as eating lead paint chips off the wall or drinking it in the water – and should be screened for and dealt with in similar ways, in Burke Harris' view. As California's first Surgeon General ... she is focusing on getting lawmakers and the public to act,” Piore writes.<sup>4</sup>*

## **Adverse Childhood Experiences Screening**

In 2020, California is allocating \$105 million to promote screening for ACEs, which have been shown to trigger toxic stress responses and epigenetic changes linked to a variety of health problems. As reported by Piore, the biological switches flipped during ACEs increase a child’s risk for:<sup>5</sup>

Nicotine, alcohol and drug abuse	Heart disease
Suicide	Cancer
Mental illness	Dementia
Impaired immune function	

What’s more, these stress-induced epigenetic changes can be passed on to future generations. Indeed, you will often find that childhood trauma “runs in families,” with

each subsequent generation playing out the same interpersonal dramas as their parents. According to Harris, "The social determinants of health are to the 21st century, what infectious disease was to the 20th century."<sup>6</sup>

## The ACE Study

Much of what we now know about ACEs are the result of the 1998 ACE Study,<sup>7</sup> which examined the relationship between childhood trauma and subsequent risky behaviors and diseases in adulthood. Categories of ACEs examined included:<sup>8,9</sup>

Psychological abuse	Physical abuse
Sexual abuse	Violence against the mother
Living with household members who were substance abusers	Living with mentally ill or suicidal household members
Living in a household in which a member has been or is imprisoned	Early death of a parent
Neglect	Separation or divorce

Of the 13,494 adults who received the questionnaire and had completed a standard medical evaluation, 70.5% responded. Of those, more than half reported experiencing at least one ACE; one-fourth reported two or more.

Not only did they find a direct "dose-dependent" relationship between the number of ACEs and future health problems and risky behaviors, childhood trauma appeared to be an independent risk factor for leading causes of death. According to the authors:<sup>10</sup>

*"We found a graded relationship between the number of categories of childhood exposure and each of the adult health risk behaviors and diseases that were studied.*

*Persons who had experienced four or more categories of childhood exposure, compared to those who had experienced none, had 4- to 12-fold increased health risks for alcoholism, drug abuse, depression, and suicide attempt; a 2- to 4-fold increase in smoking, poor self-rated health, > or = 50 sexual intercourse partners, and sexually transmitted disease; and 1.4- to 1.6-fold increase in physical inactivity and severe obesity.*

*The number of categories of adverse childhood exposures showed a graded relationship to the presence of adult diseases including ischemic heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease.*

*The seven categories of adverse childhood experiences were strongly interrelated and persons with multiple categories of childhood exposure were likely to have multiple health risk factors later in life.”*

## **Origins of ACEs**

In the June 2019 issue of the American Journal of Preventive Medicine, (full text is behind a paywall)<sup>11</sup> Dr. Vincent J. Felitti commented on his 1998 ACE Study:

*“The ACE Study was a direct outgrowth of significant counterintuitive findings derived from ... the treatment of obesity in Kaiser Permanente’s Department of Preventive Medicine in San Diego, California. Unexpectedly, we discovered that such major weight loss was actually threatening to many patients.*

*Pursuing this, we came to realize that obesity, a major public health problem from a societal standpoint, was from the involved patient’s standpoint often an unconsciously chosen solution to unrecognized traumatic life experiences that were lost in time and further protected by shame, secrecy, and social taboos against exploring certain realms of human experience.”*

Upon investigation, 55% of 286 patients enrolled in the Kaiser Permanente weight loss study acknowledged sexual abuse – an absolutely staggering statistic Felitti could

hardly believe at first. Many of these patients also spoke about other childhood traumas.

Since these patients unconsciously used obesity as a defense mechanism, their weight loss efforts were often unsustainable, and they'd gain all the weight back. Since the publication of the 1998 ACE Study, Felitti and co-principal investigator Dr. Robert Anda have published more than 75 articles on its findings and other follow-up investigations.

## **The Importance of Sharing and Acceptance**

Unfortunately, while interest in ACEs has grown, there's been a strong resistance to using the information in clinical medical practice. For example, there were fears that questions about ACEs might enrage patients or trigger suicide.

However, when Felitti conducted an investigation, he found that when the ACE questions were included in an adult medical history intake, outpatient visits were actually reduced by 35% and emergency room visits declined by 11% in the subsequent year, compared to the year before the ACE questions were added.

They also found there was no rise in referrals to psychotherapy, so the reduction was not due to more people seeking psychiatric help. What they eventually discovered was that the mere ability to talk about their ACEs had a tremendously beneficial effect. Felitti writes:<sup>12</sup>

*"We learned from patients that our apparent acceptance of them after hearing their dark secret was of profound importance. After lengthy consideration, we came to see that 'Asking' ... followed up by face-to-face 'Listening' and 'Accepting' was a powerful form of 'Doing.'*

*In other words, we had come upon a mechanism for reducing traumatic shame, which shame had the secondary effect of causing stress-related symptoms and hence doctor visits. Given our sample size, the economic implications of a reduction of this magnitude in medical utilization are in the multibillion-dollar range for any large organization.*

*Numerous legislatures, state and federal, have become involved because of the multibillion-dollar implications of the ACE Study findings for population health as well as medical care budgets.*

*The WHO has been collecting data annually with an International Version of the ACE Questionnaire in more than two dozen European and Asian nations, and the CDC has added since 2009 an ACE module to its annual Behavioral Risk Factor Surveillance Study, with almost all states currently participating.*

*Thus, in spite of the slow progress over the past 20 years, the international breadth and strength of interest in understanding the implications and extent of the ACE findings strongly suggest that our keynote AJPM article will ultimately have a major role in advancing well-being and medical care.”*

## **Mind-Body Connection**

In the two decades since the ACE Study came out, researchers have investigated the connection between childhood trauma and adult disease states from a variety of angles, looking for biological mechanisms to explain it.

One proposed mechanism involves the hypothalamic-pituitary-adrenal (HPA) axis, which controls stress reactions and regulates immune function, energy storage and expenditure, moods and emotions by way of hormones. A key hormone involved is cortisol, which plays a role in energy regulation. As explained by Piore:<sup>13</sup>

*“When all is calm, the body builds muscle or bone and socks away excess calories for future consumption as fat, performs cellular regeneration and keeps its immune system strong to fight infection. In the case of a child, the body fuels normal mental and physical development.*

*In an emergency, however, all these processes get put on hold. The HPA axis floods the bloodstream with adrenaline and cortisol, which signals the body to kick into overdrive immediately. Blood sugar levels spike and the heart pumps harder to provide a fast boost in fuel ...*

*When the emergency goes on for a long time – perhaps over an entire childhood of abuse – the resulting high levels of cortisol take a big and lasting toll.”*

## **ACEs and Cortisol Dysregulation**

Interestingly, researchers have discovered that different ACEs impact cortisol regulation in different ways. Children who experience severe emotional, physical or sexual abuse tend to have abnormally high cortisol levels first thing in the morning, while children experiencing severe neglect tend to have abnormally low morning levels.

Low morning cortisol has been linked to delinquency and alcohol use, while high morning cortisol levels are associated with anxiety, depression and post-traumatic stress disorder.

Excessive amounts of cortisol also lower immune function, thus raising the risk of infection, and raises the risk of high blood pressure, insulin resistance, Type 2 diabetes, obesity and heart disease.

On the other hand, too little cortisol increases the risk of an inflammatory immune response and exaggerated inflammatory response to stress. “Sickness behavior” – lack of appetite, fatigue, social withdrawal, depressed mood, irritability and poor cognitive functioning – has also been shown to be related to insufficient cortisol, Piore reports.

## **Genetics Also Play a Role**

Researchers have also discovered that the presence of ACEs is in and of itself not enough to trigger toxic stress. Genetics also appear to play a role, as does interpersonal intervention. If someone is around to offer soothing reassurance, a sense of safety can be restored, allowing cortisol levels to normalize.

The problem is that chronic abuse is typically because no one is intervening on the child’s behalf. “Adversity and stress without adequate buffering can turn on genes that



flood the system with enzymes that prime the body to respond to further stress by making it easier to produce adrenaline and reactivate the fight-or-flight response quickly, which can make it harder for children with toxic stress to control their emotions,” Piore notes.<sup>14</sup>

## **Childhood Trauma Is a Significant Health Risk**

In 2019, the U.S. Centers for Disease Control and Prevention analyzed data from 144,017 individuals in 25 states, finding:<sup>15,16</sup>

- Nearly 1 in 6 adults (15.6%) has experienced four or more types of ACEs
- ACEs raise the risk of at least five of the top 10 leading causes of death
- Preventing ACEs could reduce adult depression rates by as much as 44%, asthma rates by 24% and stroke by 15%
- Preventing ACEs could also prevent up to 1.9 million cases of heart disease and up to 2.5 million cases of overweight or obesity

## **Interventions to Combat the Stress Response**

The good news is that as the role of ACEs and toxic stress is becoming more widely recognized, doctors can begin to address these issues, which is what Harris is pushing for in California. Caregivers of stressed or traumatized children also need to be educated on the importance of emotional and physical buffering. Piore writes:<sup>17</sup>

*“Buffering includes nurturing caregiving, but it can include simple steps like focusing on maintaining proper sleep, exercise and nutrition.*

*Mindfulness training, mental health services and an emphasis on developing healthy relationships are other interventions that Burke Harris says can help combat the stress response.*

*The specifics will vary on a case-by-case basis, and will rely on the judgment and creativity of the doctor to help adult caregivers design a plan to protect the child – and to help both those caregivers and high-risk adults receive social support services and interventions when necessary ... ‘Most of our interventions are essentially reducing stress hormones, and ultimately changing our environment,’ says Burke Harris.”*

A 2017 paper<sup>18</sup> in Health & Justice delineates further “action steps using ACEs and trauma-informed care” to improve patient resiliency without retraumatizing them.

Resilience is the ability of your body to rapidly return to normal, physically and emotionally, after a stressful situation. One way to improve resilience is through breath work, as described in “Simple Techniques to Reduce Stress and Develop Greater Resiliency.”

The Health & Justice paper<sup>19</sup> also highlights the importance of incorporating neuroscience concepts to trauma-informed care programs and therapies, and stresses the use of a resilience-oriented approach in order to move “from trauma information to neuroscience-based action with practical skills to build greater capacity for self-regulation and self-care in both service providers and clients.”

## **Problems and Challenges: ACE Score May Be Misleading**

California’s Department of Health Care Services ACEs Aware Initiative kicked off January 1, 2020.<sup>20</sup> Health care providers in the state are encouraged to screen patients for ACEs that might influence their health, and connecting patients in need with the appropriate interventions and resources.

Some, however, including Anda, who helped develop the ACE score with Felitti, worry that the ACE score might not work well when applied to individual patients, as it does not take into account caregiver buffering and other factors that tend to be protective. Piore writes:<sup>21</sup>

*“The problem with applying it to individual patients, he says, is that it doesn't take into account the severity of the stressor. Who's to say, for instance, that someone with an ACE score of one who was beaten by a caregiver every day of their life is less prone to disease than someone with an ACE score of four who experienced these stressors only intermittently?”*

*On a population level, surveying thousands, the outliers would cancel each other out. But on the individual level they could be misleading.”*

While screening tools can indeed be misused and lead to inappropriate labeling, recognizing the influence of ACEs in public health is an important step forward. In coming years, we're likely to see more advances in screening methods as well.

## Sources and References

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