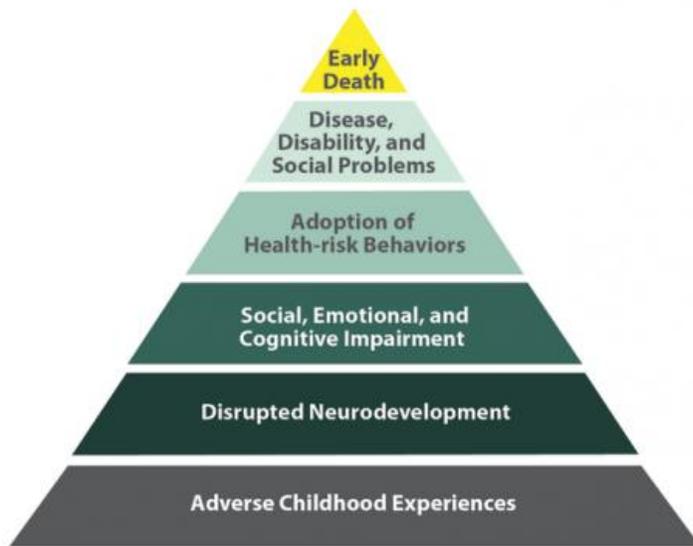


Adverse Childhood Experiences & Impacts of Trauma

The CDC-Kaiser Permanente Adverse Childhood Experiences (ACE) Study is one of the largest investigations of childhood abuse and neglect and later-life health and well-being. The original ACE Study was conducted at Kaiser Permanente from 1995 to 1997 with two waves of data collection. Over 17,000 Health Maintenance Organization members from Southern California receiving physical exams completed confidential surveys regarding their childhood experiences and current health status and behaviors. The CDC continues ongoing surveillance of ACEs by assessing the medical status of the study participants via periodic updates of morbidity and mortality data.



Mechanism by Which Adverse Childhood Experiences Influence Health and Well-being Throughout the Lifespan



More detailed information about the study can be found in the links below or in "Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults," published in the *American Journal of Preventive Medicine* in 1998, Volume 14, pages 245–258.

The ACE Pyramid represents the conceptual framework for the ACE Study. The ACE Study has uncovered how ACEs are strongly related to development of risk factors for disease, and well-being throughout the life course.

As the number of ACEs increases so does the risk for the following*:

*This list is not exhaustive. For more outcomes see [selected journal publications](#).

- Alcoholism and alcohol abuse
- Chronic obstructive pulmonary disease
- Depression
- Fetal death
- Health-related quality of life
- Illicit drug use
- Ischemic heart disease
- Liver disease
- Poor work performance
- Sexually transmitted disease
- Smoking
- Suicide attempts
- Unintended pregnancies
- Early initiation of smoking
- Early initiation of sexual activity
- Adolescent pregnancy
- Risk for sexual violence
- Poor academic achievement
- Financial stress
- Risk for intimate partner violence
- Multiple sexual partners

Impacts of Trauma

- Social and behavioral problems, including, but not limited to: relationship difficulties, risky sexual behavior, aggression and criminal behaviors
- Impaired psychological health throughout the lifespan, including, but not limited to: PTSD, depression, substance use/abuse, and suicide attempts
 - Adverse childhood experiences are related to the onset of a range psychological disorders as well
 - Additionally, adults who had four or more adverse childhood experiences were 7.3 times more likely to have at least one diagnosis from each of the following four types of disorders: mood, anxiety, impulse control, and substance abuse disorders
- Cognitive and academic problems, including, but not limited to: low IQ and reading scores, delayed language and cognitive development, and poor academic performance
- Neuropsychological alterations involving areas of the brain that regulate emotion, control of emotions, judgment, and problem solving , in addition to the stress response system
- Impaired physical health that can endure for decades, such as increased risk of cancer, heart disease, liver disease, pulmonary disease, auto-immune disease, and obesity
- Higher use of mental health and medical services
- Increased rates of unemployment, poverty, and Medicaid usage
- Childhood mortality or early death

Effects of Trauma on the Brain

- Trauma affects brain development, causing structural and hormonal changes that manifest in adverse physical and mental outcomes.
If exposure to stress and trauma is unrelenting, the brain adapts in ways that can make learning and socialization difficult. For example, when confronted with a dangerous situation, the brain initiates the fight, flight, or freeze response. Although this response is helpful in getting through brief, stressful situations, persistent exposure to toxic stress during childhood can have serious developmental consequences that may last well past the time of stress exposure. Constant exposure to stress can induce the following in children:
 - A persistent fear response that “wears out” neural pathways*
 - Hyperarousal that causes children to overreact to nonthreatening triggers*
 - Dissociation from the traumatic event in which the child shuts down emotionally*
 - Disruptions in emotional attachment, which can be detrimental to learning*

Content Resources:

<https://www.cdc.gov/violenceprevention/acestudy/about.html>

https://gucchdtacenter.georgetown.edu/TraumaInformedCare/issueBrief1_UnderstandingImpactTrauma.pdf

<http://www.teachtrauma.com/information-about-trauma/impact-of-trauma/>