

## H E A L T H

## Is Life Expectancy Reduced by a Traumatic Childhood?

A 10-year study finds that people who experienced adverse childhood events also lose years off their lives

By Carina Storrs on October 7, 2009

A difficult childhood reduces life expectancy by 20 years among adults who experienced six or more particular types of abuse or household dysfunction as kids, while those who suffered fewer types of trauma lost fewer years of life, a large-scale epidemiological study finds.

The study, published this week in the *American Journal of Preventive Medicine*, reports that participants who were exposed to six or more different types of adverse childhood events (ACEs), such as physical or sexual abuse, were also 54 percent more likely to die during the 10-year period of the study. On the other hand, people who reported fewer than six ACEs did not have a statistically increased risk of death compared with the control group (those reporting no adverse childhood events). Still, those with one to five ACEs who did pass away during the study period were on average three to 5.4 years younger than those who died in the control group.

"As far as we know, this is the first cohort study to examine the association between ACEs and mortality," wrote David Brown, an epidemiologist at the U.S. Centers for Disease Control and Prevention (CDC) and lead author of the study.

To explore the effect that childhood trauma could have on life span, the Kaiser Permanente San Diego Department of Preventive Medicine, in collaboration with the CDC, mailed questionnaires to adults who were 18 years and older, and who had visited the Kaiser clinic in San Diego from 1995 to 1997. Overall, the study subjects were middle-class and had good health coverage. The participants were asked about their exposure to eight categories of abuse or dysfunction based on previous Kaiser studies. Three were direct abuse—emotional, physical or sexual—and the remaining five addressed household dysfunctions: separated or divorced parents; domestic violence against the mother; a household member who abused drugs, was mentally ill or in prison.

One third of the 17,337 participants who replied to the questionnaires had an ACE score of zero, meaning they had not been exposed to any of the eight types of abuse or household dysfunction. The majority of the remaining responders registered a score of between one and four, whereas about 8 percent of the scoring participants were rated five, and roughly three percent, six to eight.

The most commonly reported abuses were physical, followed by two of the dysfunctions: a household member with a substance abuse problem and then by separated or divorced parents. The rates of certain abuses calculated in the ACE study (for instance, 16 percent sexual abuse among of men and 25 percent among women) were in keeping with results from earlier national surveys.

During the next decade, the study authors, kept records of which of the 17,337 participants passed away by matching identifying information such as Social Security numbers from the questionnaire with data from the National Death Index. In total 1,539 of the participants died during the follow-up period.

When the increased number of deaths in those subjects with an ACE score of six or greater was compared with the control group, their mortality risk was 1.5 times higher than for people whose childhoods had been free of all eight types of abuse. They lost about 20 years from their lives, living to 60.6 years on average, whereas the average age of death for the control group was 79.1.

Although a similar number of people died who had an ACE score of five or less as in the control group, the average age at which they died varied depending on score. People in the control group died on average at 79.1 years, whereas the average age of death for people who had had two ACEs was 76; for people with three to five ACEs it was 73.5.

The fact that subjects with a score of less than six lost fewer years from their lives could mean that the authors would see a difference in mortality risk if they followed the subjects over more than 10 years, the CDC's Brown wrote. "There is really no way to tell, but there are plans to repeat the match to the National Death Index in a few years to capture an additional five years of follow-up," he says.

It is unclear why the authors saw more deaths during the 10-year period only for the group with an ACE score of six or greater. Previous studies by these authors found that the risk of chronic illnesses, such as heart disease, lung disease and cancer, was greater only for people with these high ACE scores. In contrast, the risk of substance abuse and suicide increased stepwise from low to high scores. The authors found that ACE-related health risks, namely mental illness, social problems and prescription medication use, accounted for about 30 percent of the 50 percent greater risk of death seen in this population. "As would be expected, the documented ACE-related conditions among participants appear to account for some, although not all, of the increased risk of premature death observed in the current study," Brown wrote.

As Brown notes, various types of childhood abuse and household dysfunction are highly interrelated. For example, people who reported one ACE were 52 percent more likely to report at least three other types of ACEs, according to an earlier study by Kaiser and the CDC.

"The central message of the publications from the ACE Study," Brown says, "is that our children are confronted with a terrible burden of stressors that negatively affect their [development], which leads to health problems and diseases throughout the life span."

---

ADVERTISEMENT

---

## ABOUT THE AUTHOR(S)

### **Carina Storrs**

Carina Storrs is a freelance writer in New York City. The Pulitzer Center on Crisis Reporting provided travel support for this story, which originally appeared in *Nature*.

---

Scientific American is part of Springer Nature, which owns or has commercial relations with thousands of scientific publications (many of them can be found at [www.springernature.com/us](http://www.springernature.com/us)). Scientific American maintains a strict policy of editorial independence in reporting developments in science to our readers.

© 2019 SCIENTIFIC AMERICAN, A DIVISION OF SPRINGER NATURE AMERICA, INC.

ALL RIGHTS RESERVED.