

Adverse Childhood Experiences (ACE) Study

Relationships between Childhood Trauma and Adult Health and Well-Being

Background

The purpose of the ACE study is to identify whether and how ACEs impact adult physical, mental, and social well-being. From 1995-1997, Kaiser Permanente administered a questionnaire to 17,337 members (9,367 women; 7,970 men) of its health plan in the United States. The questionnaire asked participants to report whether they had experienced several types of abuse, neglect, or household dysfunction during childhood, aka adverse childhood experiences or ACEs. All participants were also given a comprehensive physical examination to assess their health at the time of the questionnaire. Since the administration of the ACE questionnaire, the researchers have been following the participants in order to determine relationships between ACEs and a range of health issues (see following page). More than 50 articles have been published from this cohort and ACE measurements have been incorporated into health assessments by a range of organizations, including the World Health Organization. These studies have found significant relationships between ACEs and poor adult physical, mental, and social well-being.

Prevalence of ACEs:

Self-reported childhood experiences of individual ACEs:¹ (total prevalence-both sexes; male/female)

Abuse

- Emotional abuse (10.6%; ♀ 13.1% / ♂ 7.6%)
- Physical abuse (28.3%; ♀ 27.0% / ♂ 29.9%)
- Sexual abuse (20.7%; ♀ 24.7/♂ 16.0)

Neglect

- Emotional neglect (14.8%; ♀ 16.7 / ♂ 12.4%)
- Physical neglect (9.9; ♀ 9.2% / ♂ 10.7%)

Household Dysfunction

- Mother treated violently (12.7%; ♀ 12.7% / ♂ 11.5%)
- Household substance abuse (26.9%; ♀ 29.5% / ♂ 23.8%)
- Household mental illness (19.4%; ♀ 23.3% / ♂ 14.8%)
- Parental Separation or Divorce (23.3%; ♀ 24.5% / ♂ 21.8%)
- Incarcerated household member (4.7%; ♀ 5.2% / ♂ 4.1%)

Childhood experiences of multiple ACEs²

- 0 ACEs (36.1%; ♀ 34.5% / ♂ 38.0%)
- 1 ACE (26.0%; ♀ 24.5% / ♂ 27.9%)
- 2 ACEs (15.9%; 15.5% / 16.4% ♂)
- 3 ACEs (9.5%; 10.3% ♀ / 8.6% ♂)
- ≥ 4 ACEs (12.5%; 15.2% ♀ / 9.2% ♂)



¹ <http://www.cdc.gov/ace/prevalence.htm>

² <http://www.cdc.gov/ace/prevalence.htm>

Relationships between ACEs and adult mental, physical, and social well-being: Key Findings

Adult Mental Health:

Adults who experienced ACEs were more likely than adults without ACEs to have **poor mental health** (measured via a short-form health survey).³ For example, 9.5% of women with no childhood maltreatment had a low mental health score; 18.9% of women who witnessed maternal battering and experienced childhood physical and sexual abuse had low mental health scores. Similar results were found among male participants: 6.8% of men with no childhood maltreatment had a low mental health score; 9.5% of men who witnessed maternal battering and experienced childhood physical and sexual abuse had low mental health scores.³

Adult Substance Use

Adults with ACEs were more likely than their peers to report **early initiation** of drug use as well as **any drug use in their lifetime**. Additionally, there appears to be a positive dose-response relationship between the number of ACE types experienced and the likelihood of starting drug use under age 18 as well as lifetime drug use. This relationship holds true after adjustment of data for gender, baseline age, race, and educational attainment. For example, individuals with 3 ACEs were 4 times as likely as individuals with 0 ACEs to have initiated drug use at age 14 or younger. Individuals with 3 ACEs were also 2.5 times as likely as individuals with 0 ACEs to report drug use during their lifetime; those with 4 ACEs were three times as likely as individuals with 0 ACEs to report drug use during their lifetime.⁴ There is also a relationship between ACEs and the likelihood of **smoking tobacco** during adulthood. An analysis of data from five states using ACE questions found adults with 5 or more ACEs to be 2.6 times as likely as adults with no ACEs to be a current smoker.⁵

Adult Physical Health

ACEs appear to increase the likelihood of numerous health problems in later life, including leading causes of death such as cancer, liver, cardiovascular, and chronic lung disease.⁶ For example, adults who were sexually abused in childhood or witnessed their mothers being subjected to intimate partner violence were 50 percent as likely to report having **liver disease** as adults who did not have these childhood experiences⁷ In addition, adults with 5 or more ACEs were 2.6 times as likely as adults with 0 ACEs to have **chronic obstructive pulmonary disease (COPD)**.⁸

Intimate Partner Violence

ACE study participants who experienced physical or sexual abuse or witnessed violence against their mother during childhood appear to be at increased risk of becoming a victim or perpetrator of intimate partner violence compared to participants without this type of childhood experience. For example, women participants who experienced two types of violence or witnessed violence during childhood were 3.3 times as likely as those who did not have this experience to be subjected to intimate partner violence during adulthood. Male participants with a childhood history of two types of violence or who witnessed their mothers being abused by an intimate partner were 3.3 times as likely as men without this experience to become a perpetrator of intimate partner violence during adulthood.⁹

³ Edwards et al, 2003, *Am J Psychiatr* 160:8; 1453-1460.

⁴ Dube et al, 2003, *Pediatrics* 111:3; 564-572.

⁵ Ford et al, 2011, *Prev Med.* 53; 188-193.

⁶ Felitti et al, 1998, *Am J Prev Med.* 14:4; 245-258.

⁷ Dong et al, 2003, *Arch Intern Med.* 163; 1949-1956.

⁸ Anda et al, 2008, *Am J Prev Med.* 34:5; 396-403.

⁹ Whitfield et al, 2003, *J Interpers Violence* 18:2; 166-185.

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