Adverse Childhood Experiences and their Relationship to Adult Well-being and Disease: Turning gold into lead

A collaborative effort between Kaiser Permanente and the Centers for Disease Control

Robert F. Anda, M.D.
Vincent J. Felitti, M.D.

Office on Women’s Health, US Dept. of HHS
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Origins of the ACE Study

What is the core problem here?

51 weeks later
408 → 132 lbs

>400 lbs.
in a shorter period of time than the weight was lost.

Why?
ACE Study Design

Survey Wave I
71% response (9,508/13,454)
N=13,000
All medical evaluations abstracted

Survey Wave II
N=13,000
All medical evaluations abstracted

Mortality
- National Death Index

Morbidity
- Hospitalization
- Doctor Office Visits
- Emergency Room Visits
- Pharmacy Utilization

Present
Health Status
N = 17,337

Prevalence of Adverse Childhood Experiences

Abuse, by Category
Psychological (by parents) 11%
Physical (by parents) 28%
Sexual (anyone) 22%

Neglect, by Category
Emotional 15%
Physical 10%

Household Dysfunction, by Category
Alcoholism or drug use in home 27%
Loss of biological parent < age 18 23%
Depression or mental illness in home 17%
Mother treated violently 13%
Imprisoned household member 5%

Adverse Childhood Experiences Score
Number of categories (not events) is summed...

ACE Score  Prevalence
0       33%
1       25%
2       15%
3       10%
4       6%
5 or more 11%*

- Two out of three experienced at least one category of ACE.
- If any one ACE is present, there is an 87% chance at least one other category of ACE is present.
* Women are 50% more likely than men to have a Score >5.
"In my beginning is my end.Ó

T.S. Eliot, *Quartets*

**Depression:**

Most say depression is a disease. Many say depression is genetic. Some say it is due to a chemical imbalance.

**Childhood Experiences Underlie Chronic Depression**
**Childhood Experiences Underlie Suicide Attempts**

- **Graph 1:**
  - Y-axis: % Attempting Suicide
  - X-axis: ACE Score
  - ACE Score: 0, 1, 2, 3, 4+
  - Suicide attempt rates increase with higher ACE scores.

- **Graph 2:**
  - Y-axis: Prescription rate per 100 person-years
  - X-axis: ACE Score
  - ACE Score: 0, 1, 2, 3, 4, 5 or more
  - Prescription rates increase with higher ACE scores.

**Mental Health, Costs**

**ACE Score and Rates of Antidepressant Prescriptions**

- Approximately 50 years later

- **Graph:**
  - Prescription rate per 100 person-years
  - ACE Score: 0, 1, 2, 3, 4, 5 or more
  - Prescription rates increase with higher ACE scores.

**ACE Score and Hallucinations**

- **Graph:**
  - Y-axis: Ever Hallucinated (%)
  - X-axis: ACE Score
  - ACE Score: 0, 1, 2, 3, 4, 5, 6, >=7
  - No/Yes adjusted for age, sex, race, and education.

*Adjusted for age, sex, race, and education.*
The traditional concept:

“Addiction is due to the characteristics intrinsic in the molecular structure of some substance.”

The ACE Study shows that:

Addiction highly correlates with characteristics intrinsic to that individual’s childhood experiences.
Childhood Experiences Underlie Later Being Raped

ACE Score and the Risk of Perpetrating Domestic Violence

ACE Score and Indicators of Impaired Worker Performance
The ACE Score and the Prevalence of Liver Disease (Hepatitis/Jaundice)

ACE Score vs. COPD

ACEs Increase Likelihood of Heart Disease*

- Emotional abuse 1.7x
- Physical abuse 1.5x
- Sexual abuse 1.4x
- Domestic violence 1.4x
- Mental illness 1.4x
- Substance abuse 1.3x
- Household criminal 1.7x
- Emotional neglect 1.3x
- Physical neglect 1.4x

How and why do Adverse Childhood Experiences exert their influence throughout life?

Why is treatment so difficult?
In Summary, the ACE Study indicates:

Adverse childhood experiences are the most *basic and long-lasting* determinants of health risk behaviors, mental illness, social malfunction, disease, disability, death, and healthcare costs.

*A Public Health Paradox*

What are conventionally viewed as Public Health *problems* are often personal *solutions* to long-concealed adverse childhood experiences.

“It’s hard to give up something that almost works.”

Translating Research into Practice

*a beginning*

1.3 million comprehensive patient evaluations since 1975
An Individual, Population-based Health Appraisal System: A Biopsychosocial Concept

- Comprehensive history (not symptom-initiated) obtained at home by detailed questionnaire, better by Internet.

  Includes ACE Questions

Biopsychosocial evaluation: 35% reduction in DOVs in subsequent year.
(120,000 patient sample)

Biomedical evaluation: (Control group) 11% reduction in DOVs in subsequent year.
(700 patient sample)

Unconventional R.O.S. Questions of Demonstrated Value

- Have you ever lived in a war zone?
- Have you been a combat soldier?
- Who in your family has committed suicide?
- Who in your family has been murdered?
- Who in your family has had a nervous breakdown?
- Were you molested as a child?
- Have you ever been held prisoner?
- Have you been tortured?
- Have you been raped?

Benefits of a Biopsychosocial Preventive Approach
Final Insights from the ACE Study

- Adverse childhood experiences are common but typically unrecognized.
- Their link to major problems later in life is strong, proportionate, and logical.
- They are the nation’s most basic public health problem.
- It is comforting to mistake intermediary mechanism for basic cause.
- What presents as the ‘Problem’ may in fact be an attempted solution.
- Treating the solution may be threatening and cause flight from treatment.
- Primary prevention is presently the only feasible population approach.
- Using this information clinically will be resisted, by us.

Further Information

www.acestudy.org

Google or Medline  (Anda or Felitti as author name)

VJFMDSDCA@mac.com

info@cavalcadeproductions.com  (Documentary DVDs)

www.HumaneExposures.com  (3 books)