

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



Loma Linda University-Fuller Theological Institute
Pasadena, CA July 23, 2013

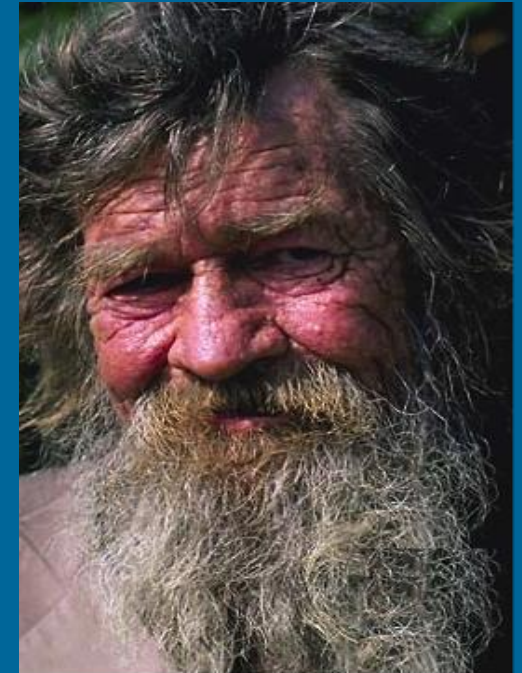
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The Adverse Childhood Experiences (ACE) Study



The largest study of its kind ever to examine over the lifespan the medical, social, and economic consequences of adverse childhood experiences.

(>17,000 participants)



The ACE Study Summary of Findings:

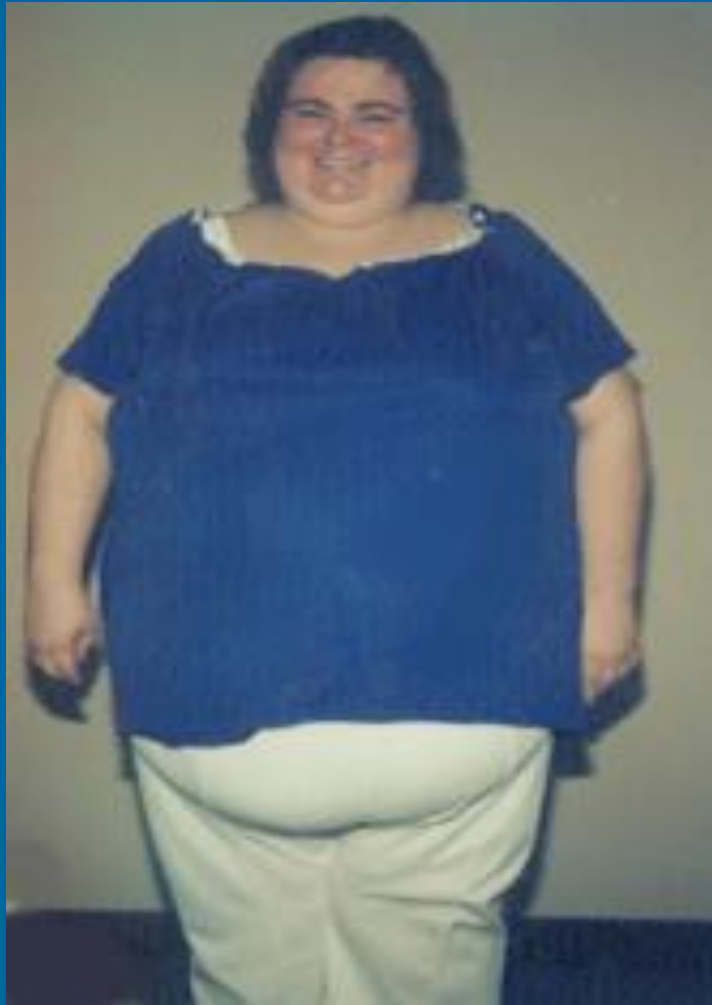
- Adverse Childhood Experiences (ACEs) are very common, and disturbing, and hence remain mostly unrecognized.
- They are powerful predictors of adult social functioning, well-being, health risks, disease, and death.
- This combination makes ACEs *the leading* determinant of the health, social well-being, and economy of the nation.



What is the *Core* Diagnosis Here?



Age 8



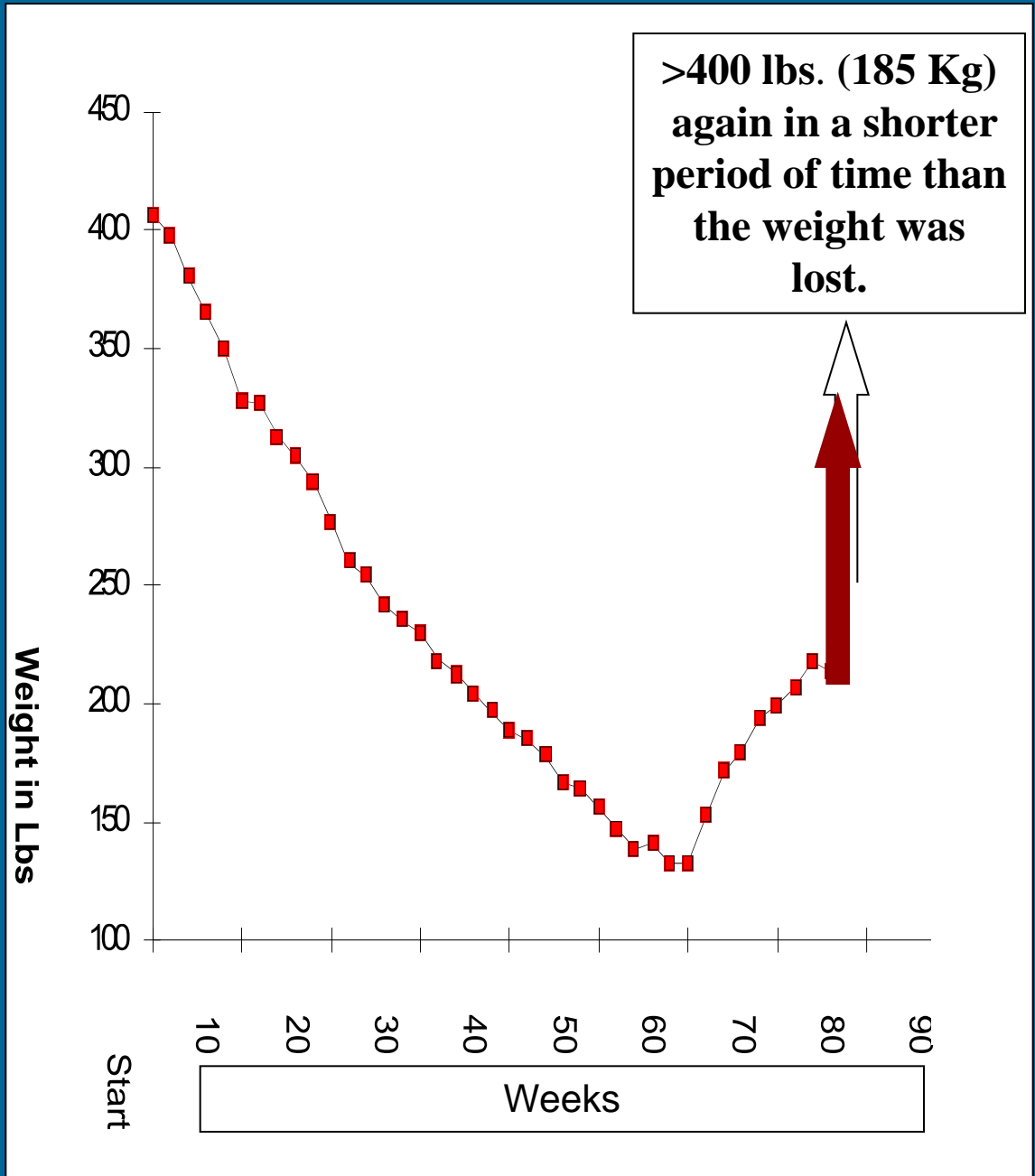
Age 28

In 51 weeks:
408 ➡ 132 lbs.

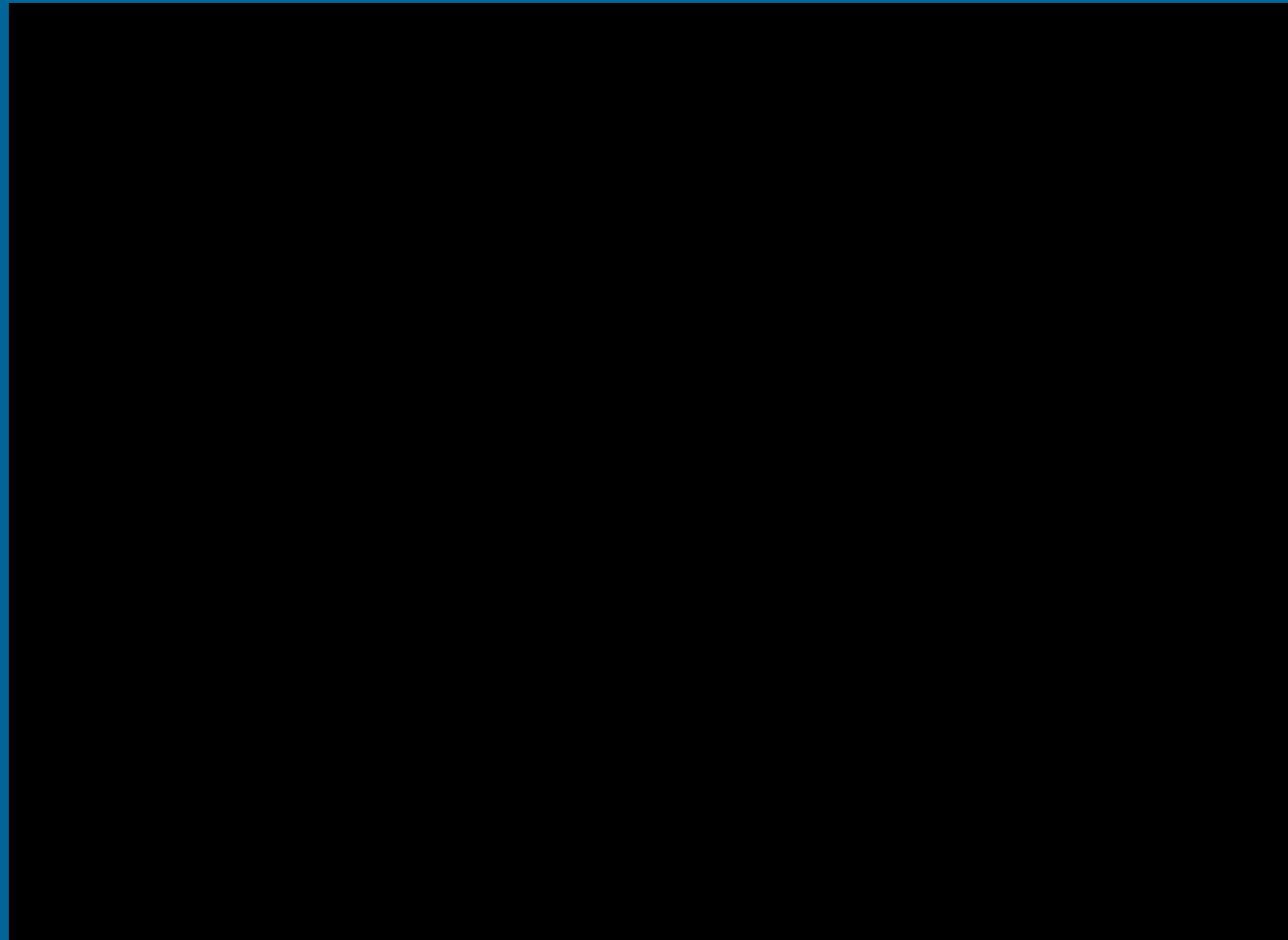


Age 29

Which photo represents the patient's *problem*?



The BENEFITS of a Health Risk



How often does this occur?

ACE Study Design

Survey Wave 1

n=13,000

71% response

*All medical
evaluations
abstracted*

Survey Wave II

n=13,000

*All medical evaluations
abstracted*

vs.

*Present
Health Status*

17,337 adults

Mortality

National Death Index

Morbidity

Hospital Discharges

Doctor Office Visits

Emergency Room Visits

Pharmacy Costs

& →

Categories of Adverse Childhood Experiences

	Prevalence (%)
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 <18	23%
Depression or mental illness in home	17%
Mother treated violently	13%
Imprisoned household member	5%

Adverse Childhood Experiences Score

The number of categories (not events) is summed...

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



- Two out of three adults experienced at least one *category* of ACE.
- Women are 50% more likely than men to have an ACE Score >5.
- If *any* one ACE is present, there is an 87% chance *at least* one other ACE category is present, and a 50% chance of 3 others.

Risk Behaviors: 'Addictions'

Smoking to Self-Medicate



Psychoactive *benefits* of addiction

Addiction is the unconscious,
compulsive use of psychoactive
materials or agents.

*“It ’s hard to get enough of something
that almost works.”*

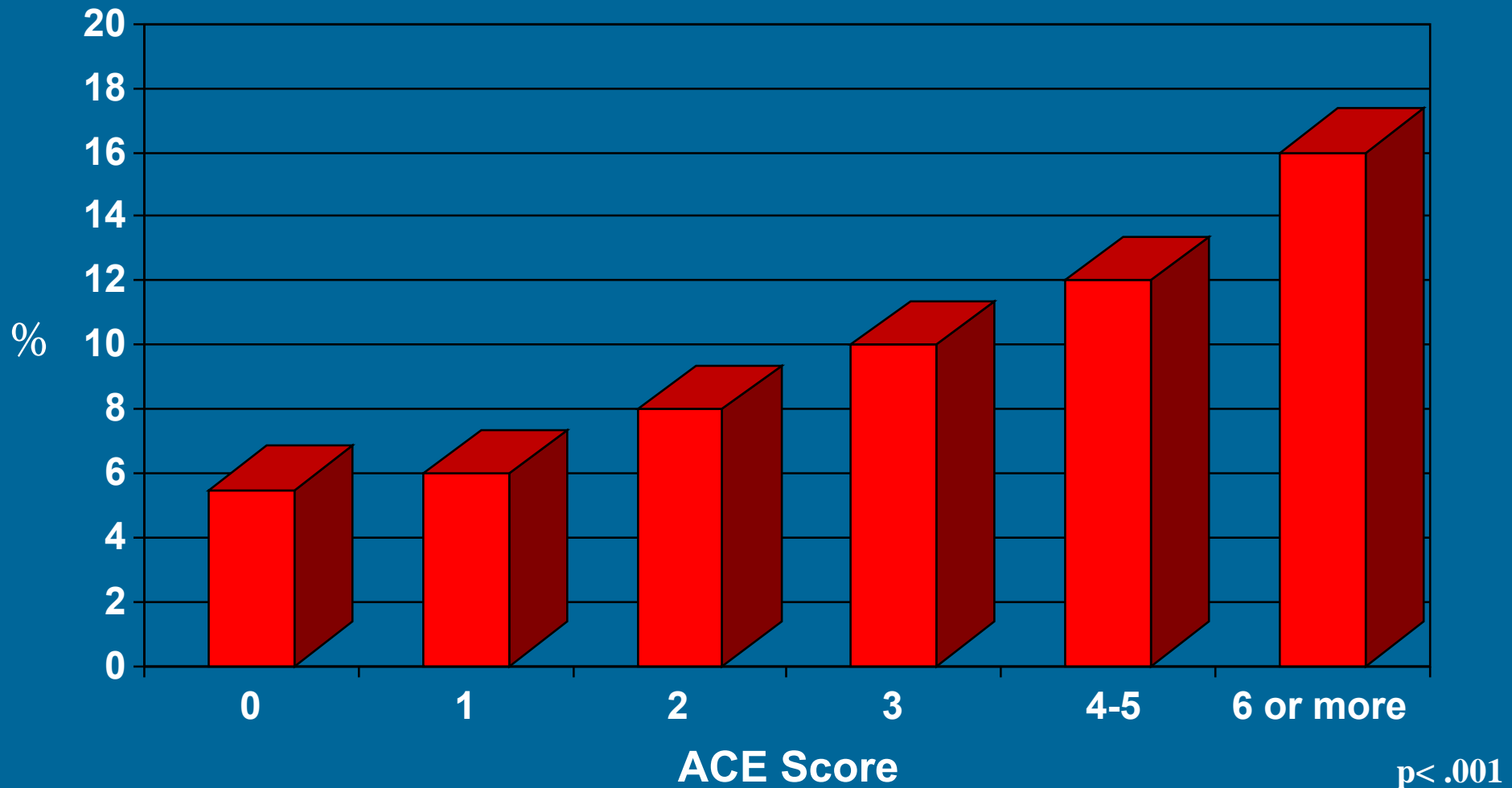
The traditional concept:

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

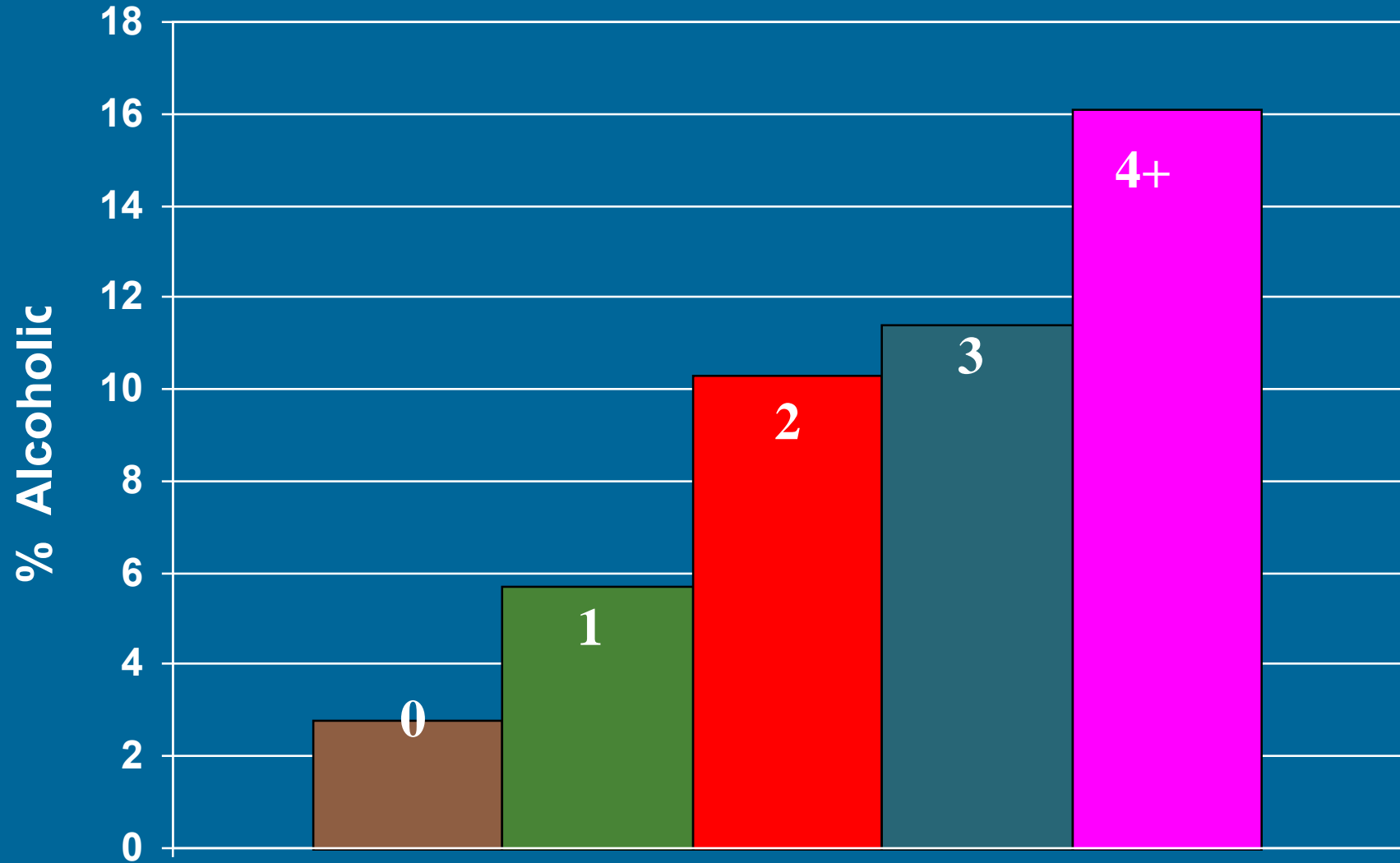
In the ACE Study, we found that:

“Addiction highly correlates with characteristics intrinsic to that individual’s childhood experiences.”

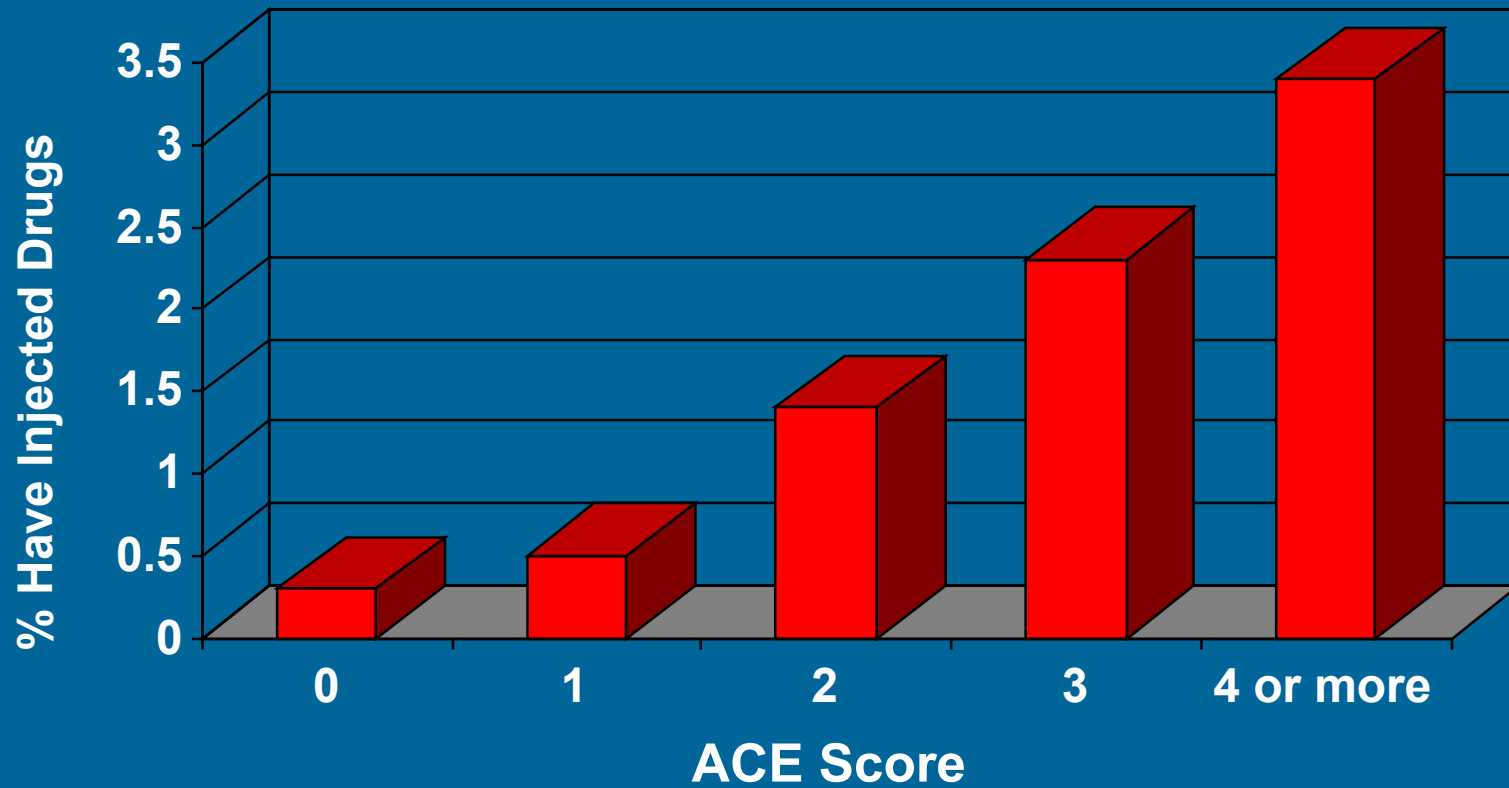
Adverse Childhood Experiences vs. Smoking as an Adult



Childhood Experiences vs. Adult Alcoholism



ACE Score vs Intravenous Drug Use



$p < 0.001$

An ad from the 1940s, for the Profession

'Amphedroxyn Hydrochloride'
(Methamphetamine Hydrochloride, *Lilly*)



One Pint (475 cc.) No. 28

**ELIXIR
AMPHEDROXYN
HYDROCHLORIDE**
(Methamphetamine Hydrochloride)
2.5 mg. per 4 cc.

Contains Alcohol 3 Percent
Contains 10% Potassium
Methamphetamine
Hydrochloride 42.5 mg.
Contraindicated in cardiovascular disease, especially when accompanied by hypertension, hyperthyroidism, and in epilepsy or glaucoma-like drugs.

CAUTION—To be dispensed only to patients who are under the supervision of a physician.

9079-45382
Eli Lilly and Company
INDIANAPOLIS, U.S.A.

100 No. 1732
Tablets
AMPHEDROXYN
HYDROCHLORIDE
2.5 mg.

9079-45381
Eli Lilly and Company
INDIANAPOLIS, U.S.A.

100 No. 1732
Tablets
AMPHEDROXYN
HYDROCHLORIDE
5 mg.

CAUTION—To be dispensed only to patients who are under the supervision of a physician.

9079-45383
Eli Lilly and Company
INDIANAPOLIS, U.S.A.

IS OFTEN PREFERABLE TO OTHER FORMS OF AMPHETAMINE—
because—
smaller doses produce longer cerebral stimulation, with a minimum of undesirable excitement and other side-effects.

When patients with depression, narcolepsy, alcoholism, or obesity are selected as suitable cases for stimulant therapy, 'Amphedroxyn Hydrochloride' is a prudent choice of drug.

Detailed information and literature on 'Amphedroxyn Hydrochloride' are personally supplied by your Lilly medical service representative or may be obtained by writing to
Eli Lilly and Company, Indianapolis 6, Indiana, U.S.A.

Lilly
SINCE 1876

Dismissing addictions as “bad habits”
or “self-destructive behavior”
comfortably hides
their functionality.



Functional aspects of 'dysfunctional' behavior


Physical safety in
being obese ...

Lost 158 pounds in Program.
Why did he *gain* it?

The Hidden Threat of Weight Loss

Ella H. says "No" to
Bariatric Surgery

Molestation in Childhood



Patty's Sister

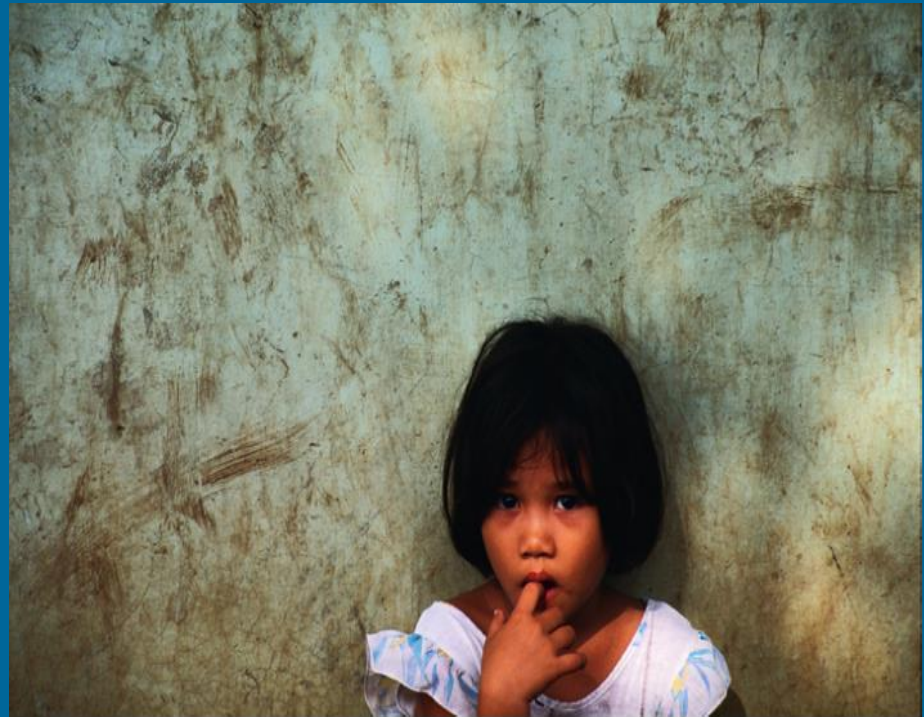
Is it genetic? It's certainly familial.

Depression:

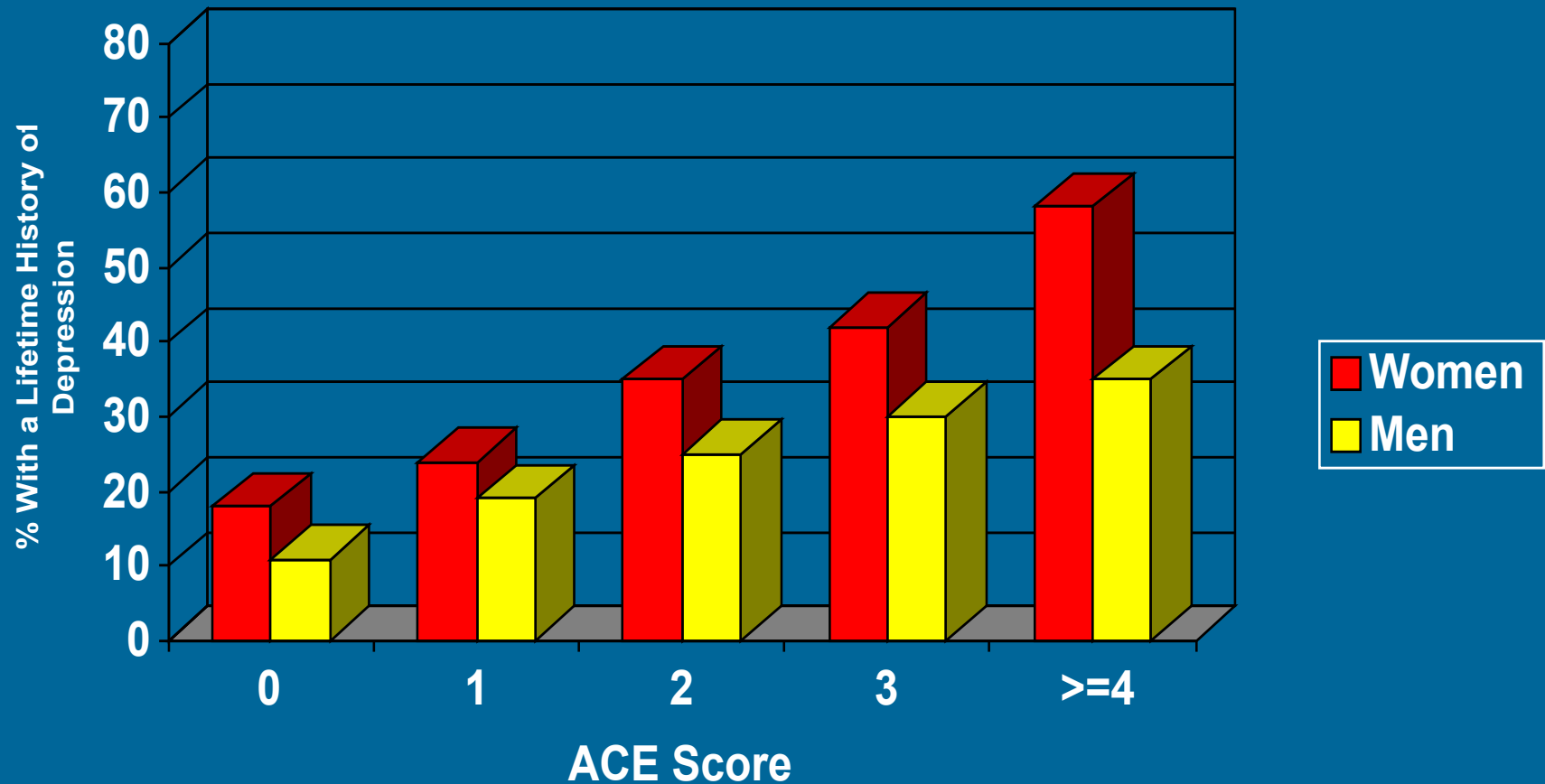
Most people say depression is a disease.
Many say depression is genetic.
Some say it is due to a chemical imbalance.



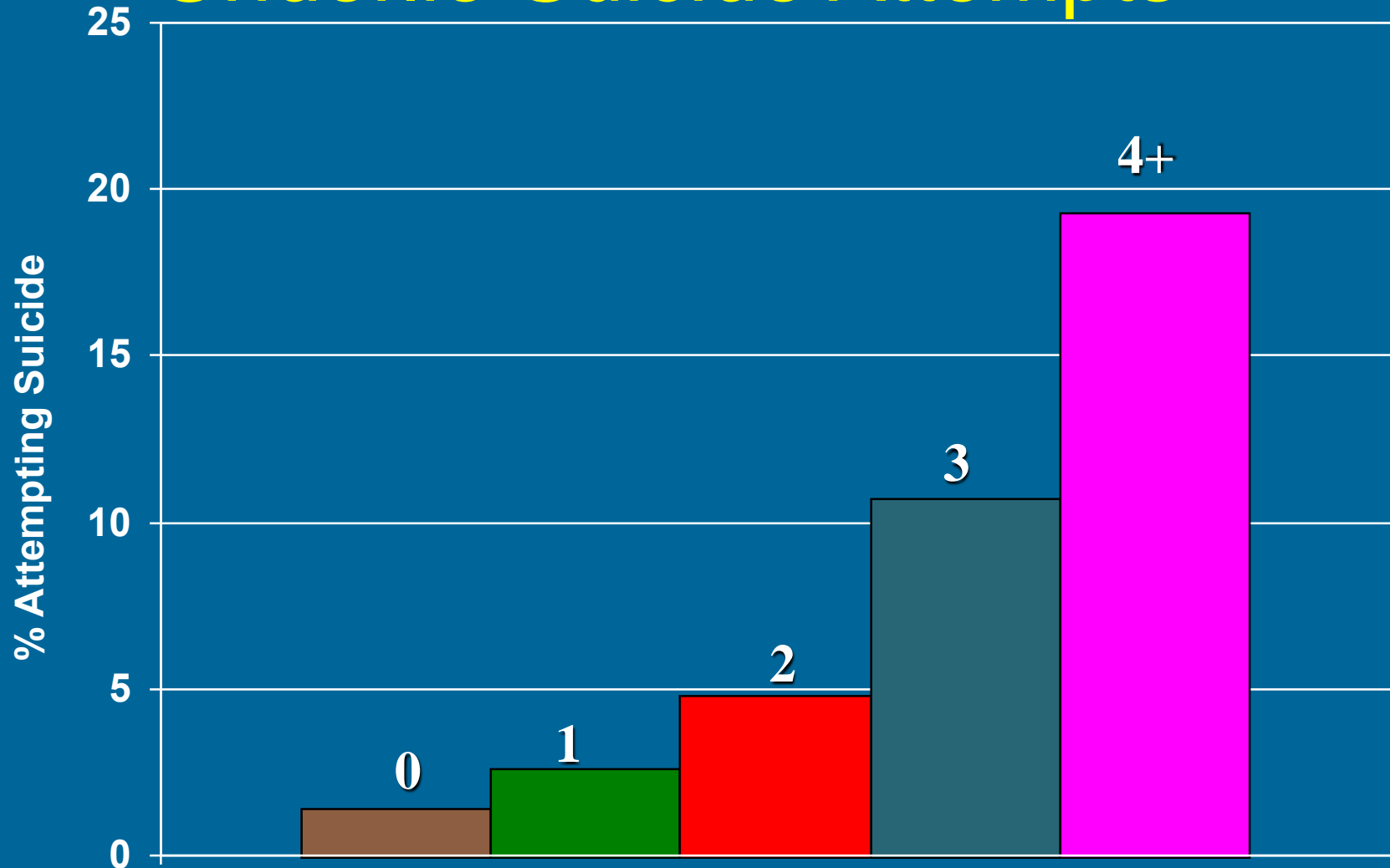
What if depression were *not* a disease,
but a *normal response* to
abnormal life experiences?



Childhood Experiences Underlie Chronic Depression

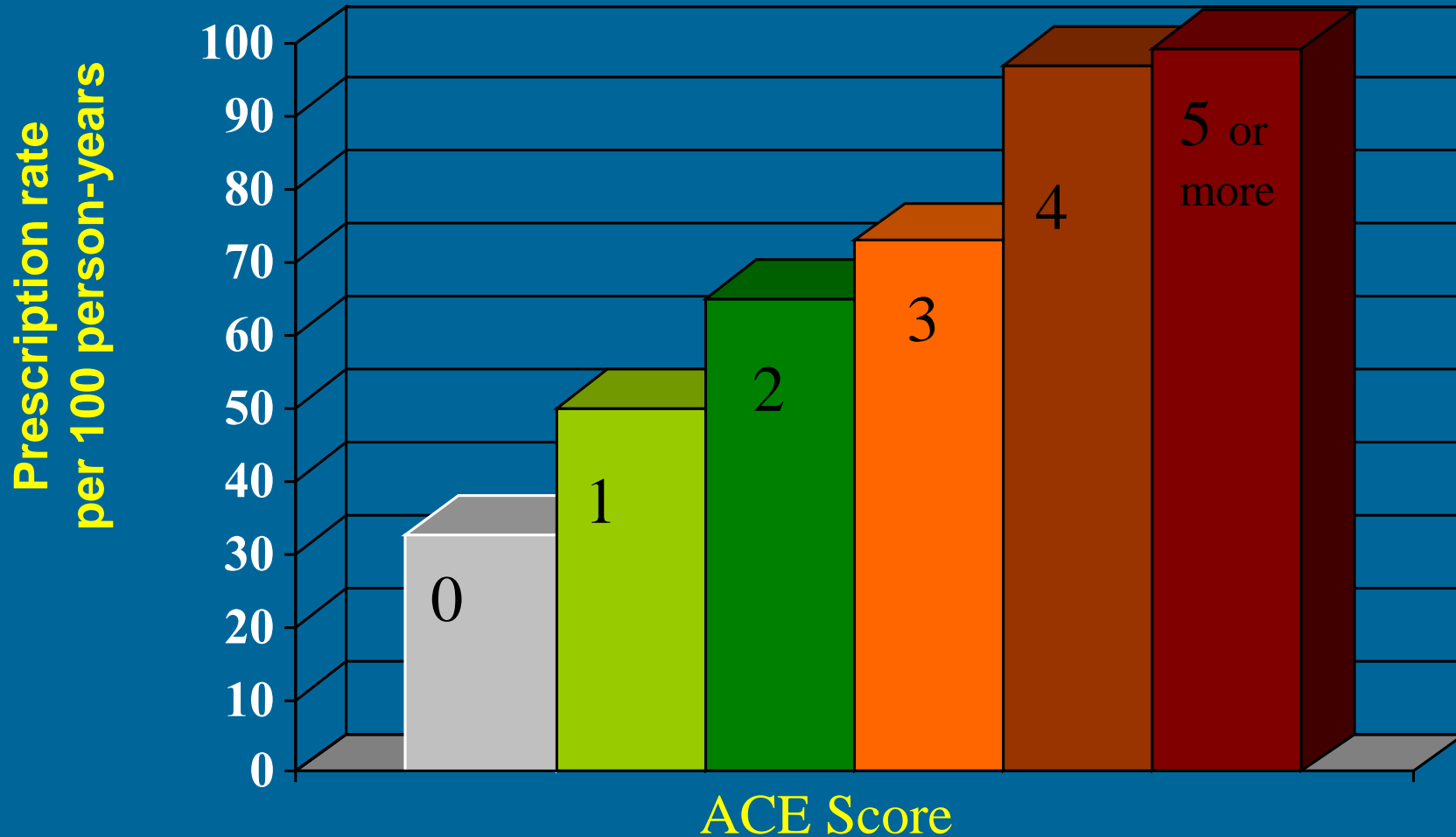


Childhood Experiences Underlie Suicide Attempts



ACE Score and Rates of Antidepressant Prescriptions

approximately 50 years later

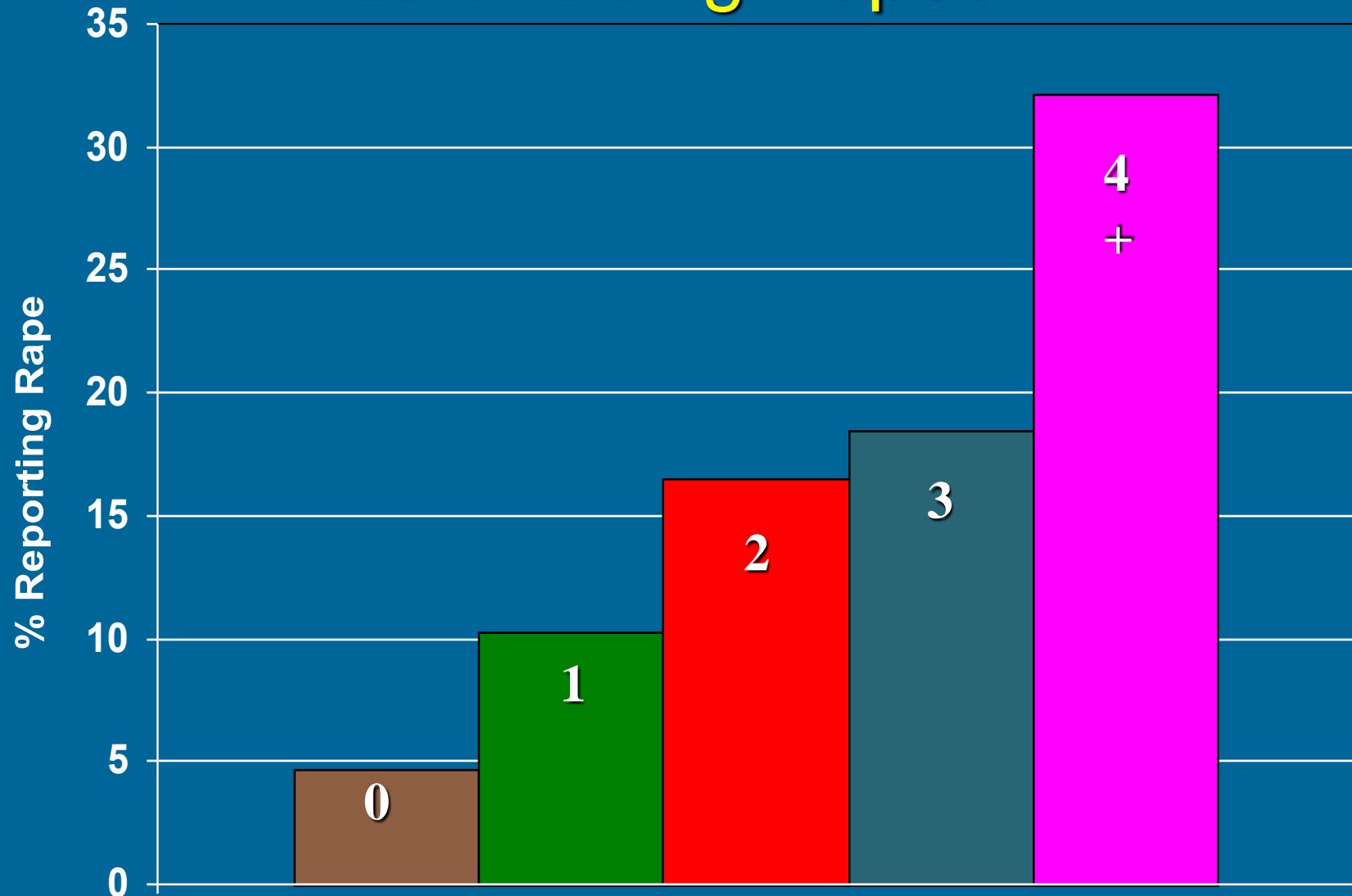


Estimates of the Population Attributable Risk* of ACEs for Selected Outcomes in Women

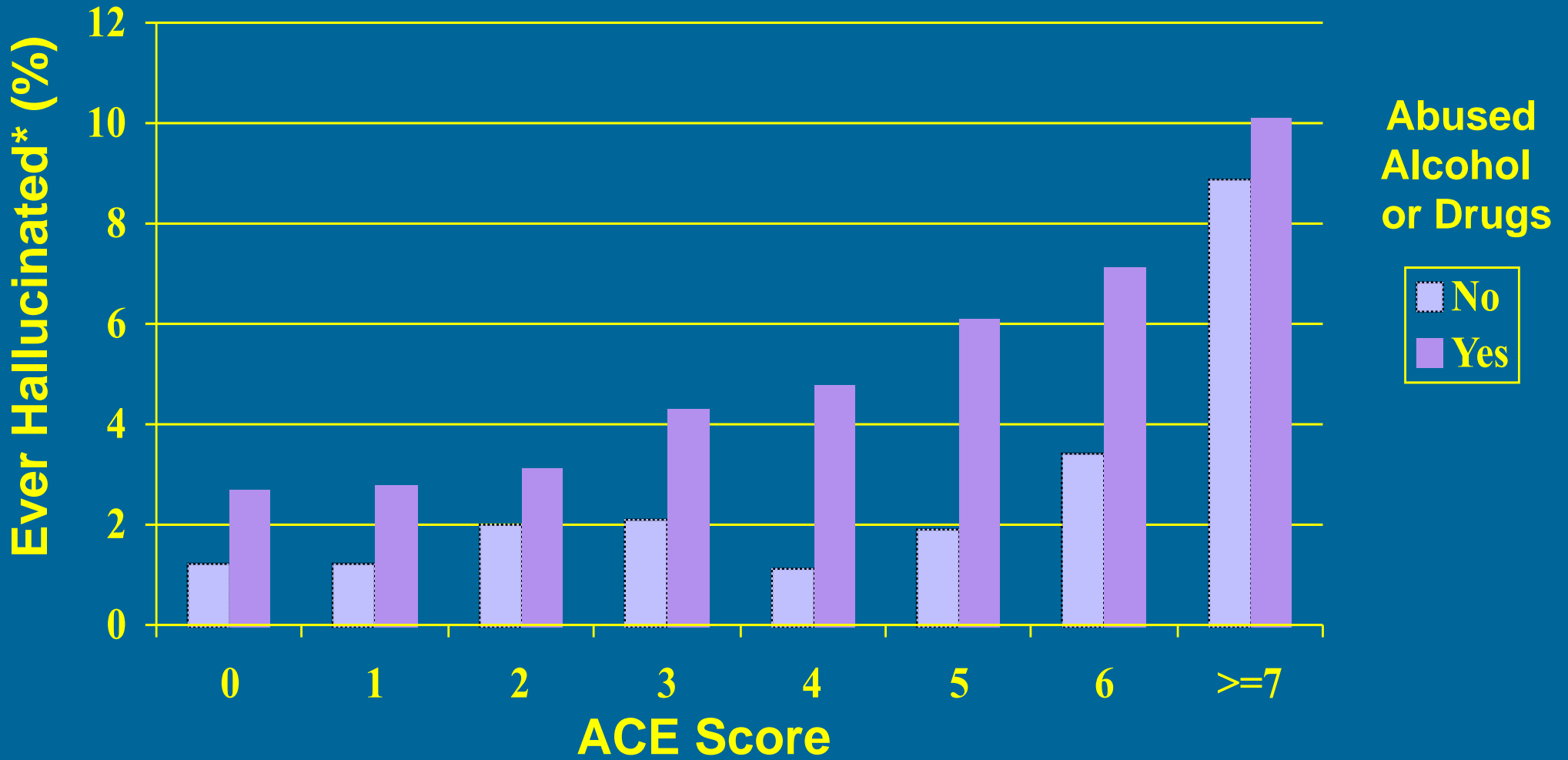
Mental Health	PAR
Current depression	54%
Chronic depression	41%
Suicide attempt	58%

*That portion of a condition attributable to specific risk factors

Childhood Experiences Underlie Later Being Raped



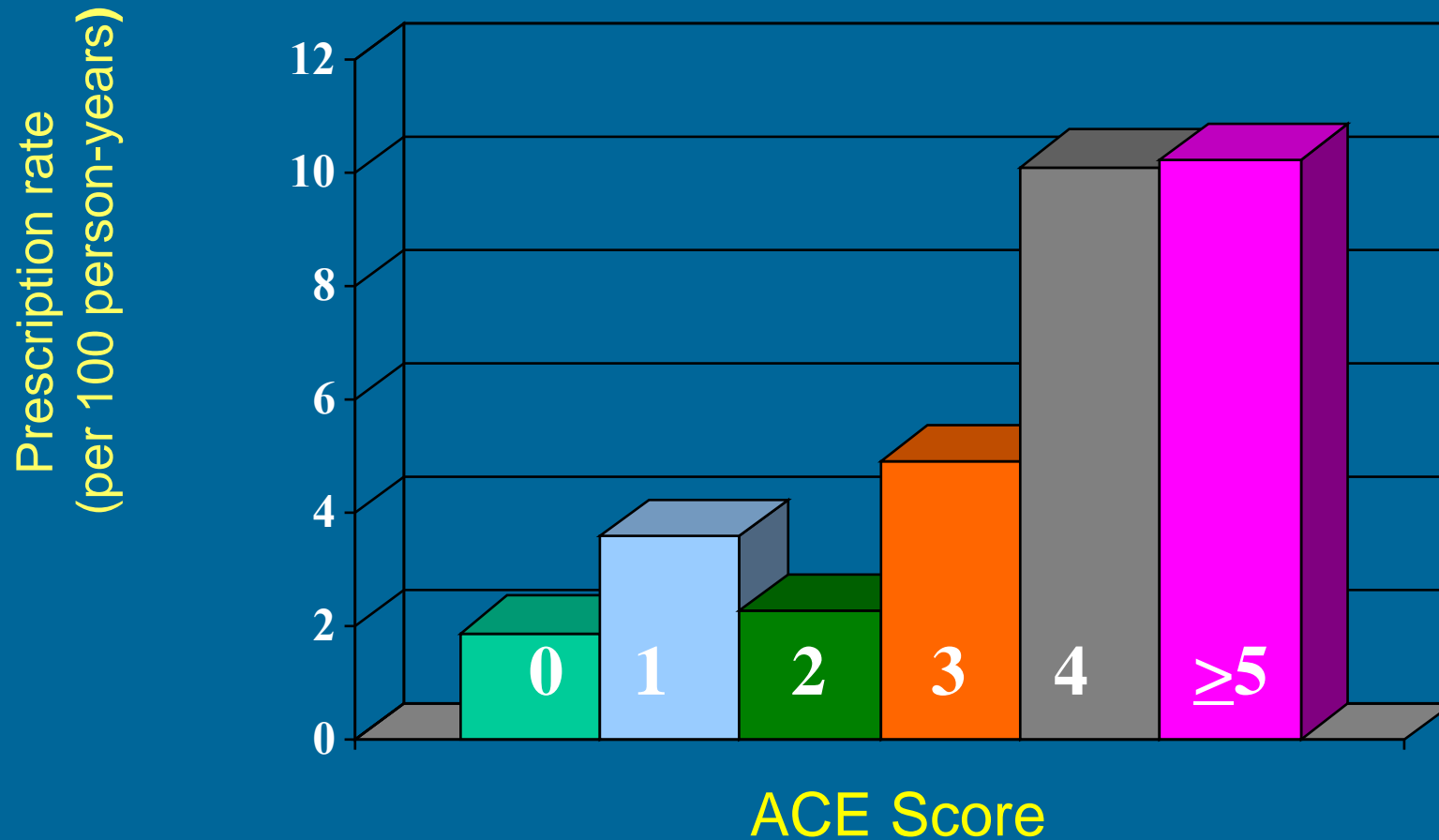
ACE Score and Hallucinations



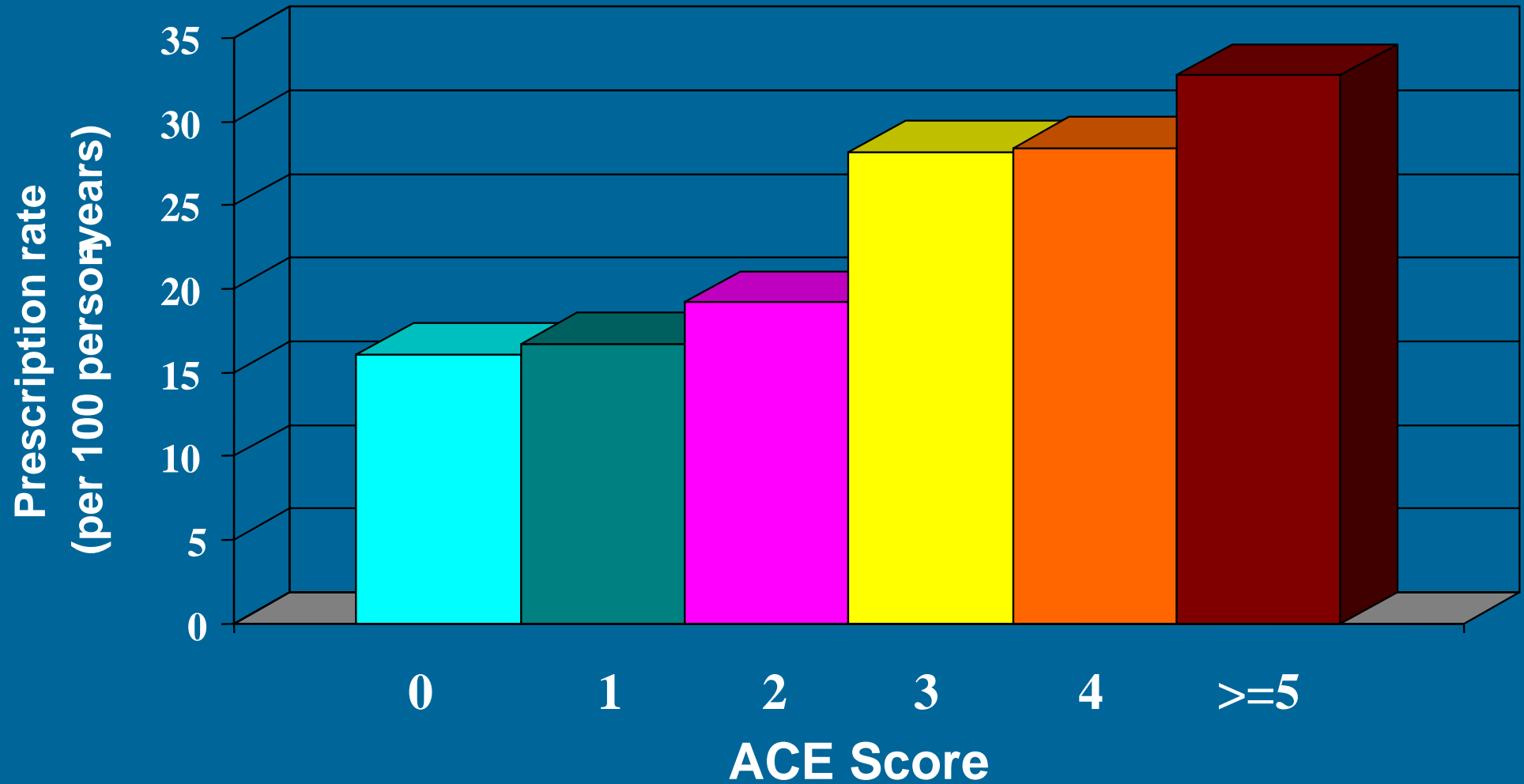
*Adjusted for age, sex, race, and education.

ACE Score and Rates of Antipsychotic Prescriptions

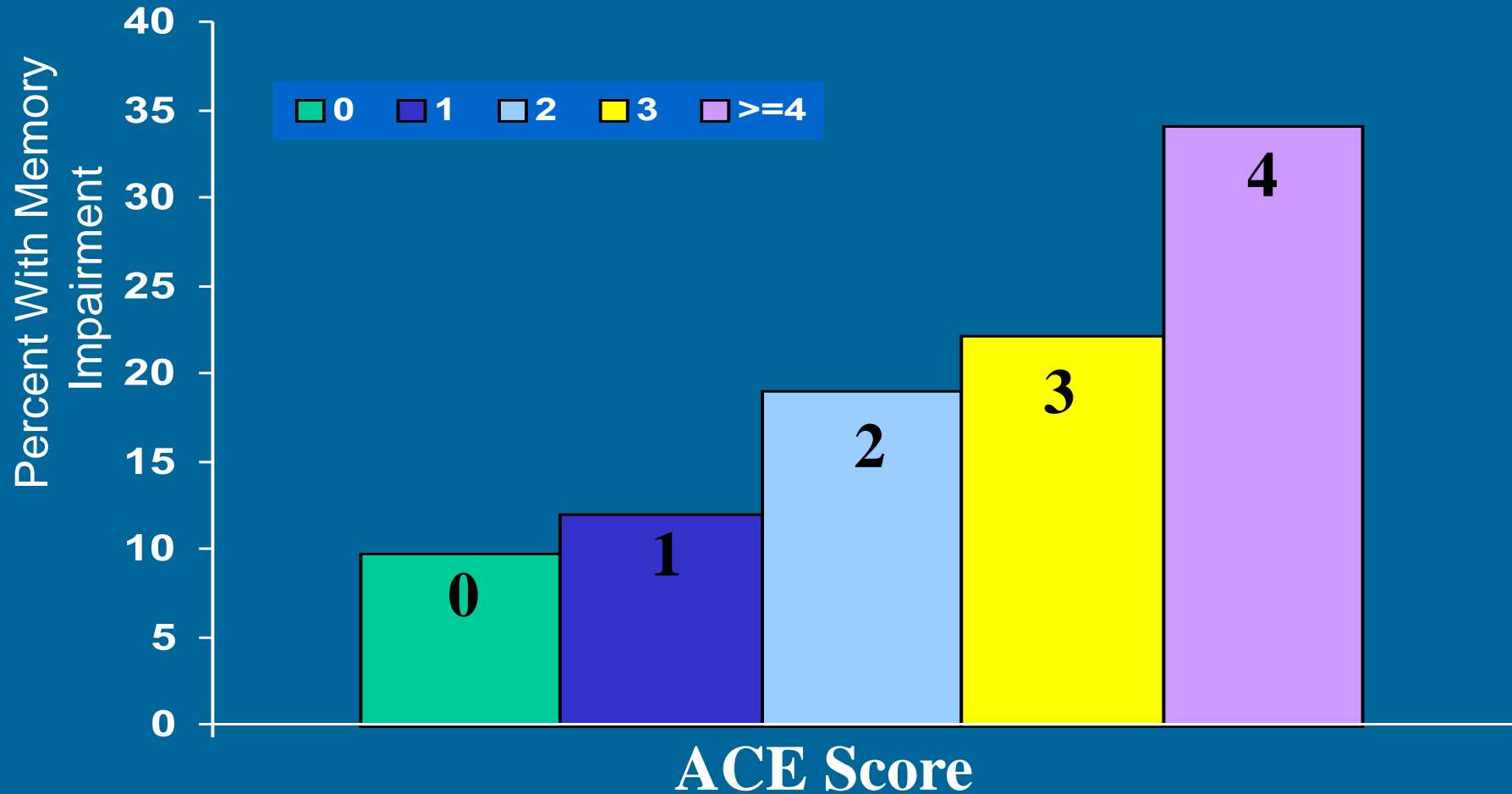
A half-century later, on average



ACE Score and Rates of Anxiolytic Prescriptions

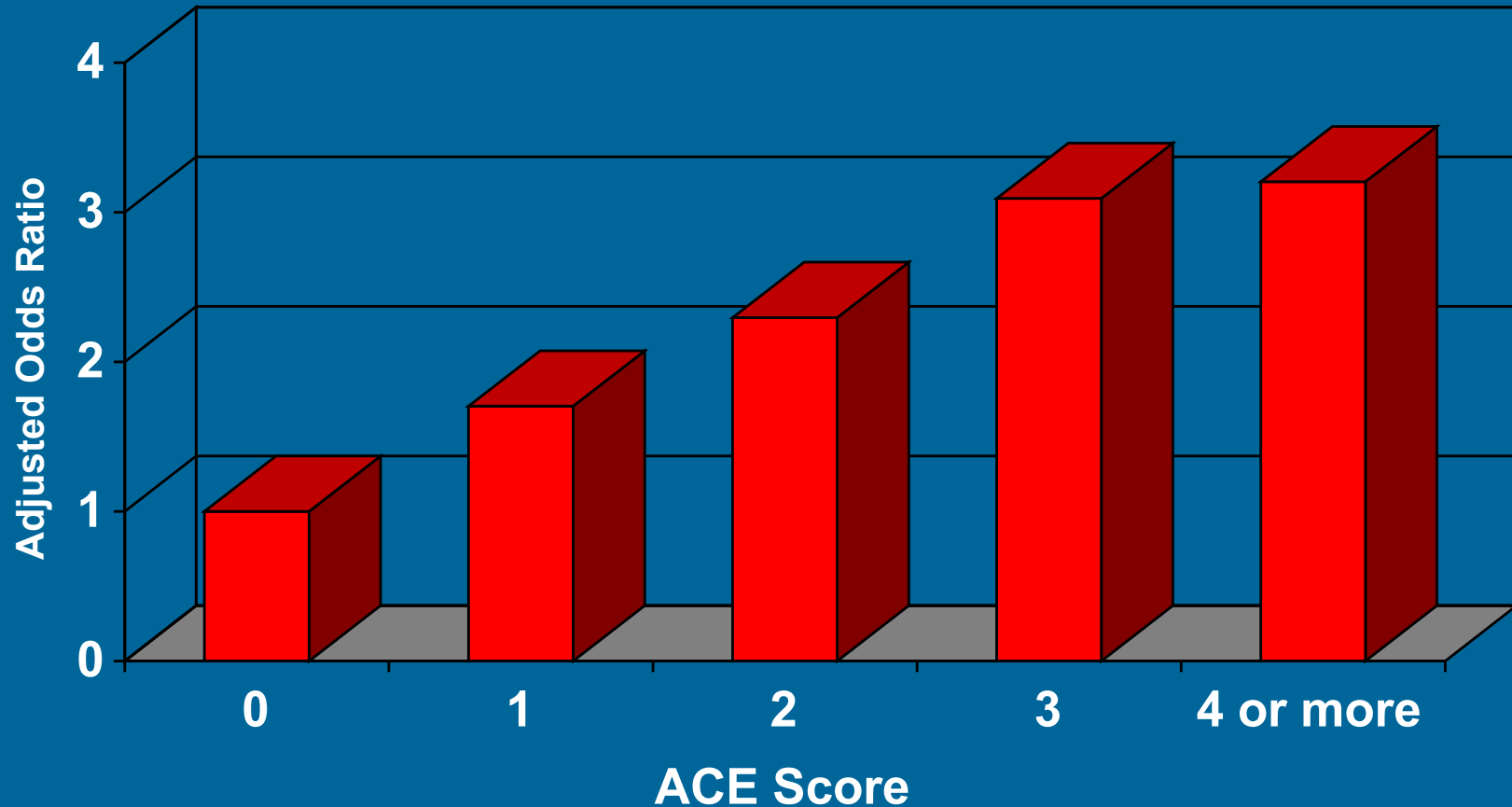


ACE Score and Impaired Memory of Childhood

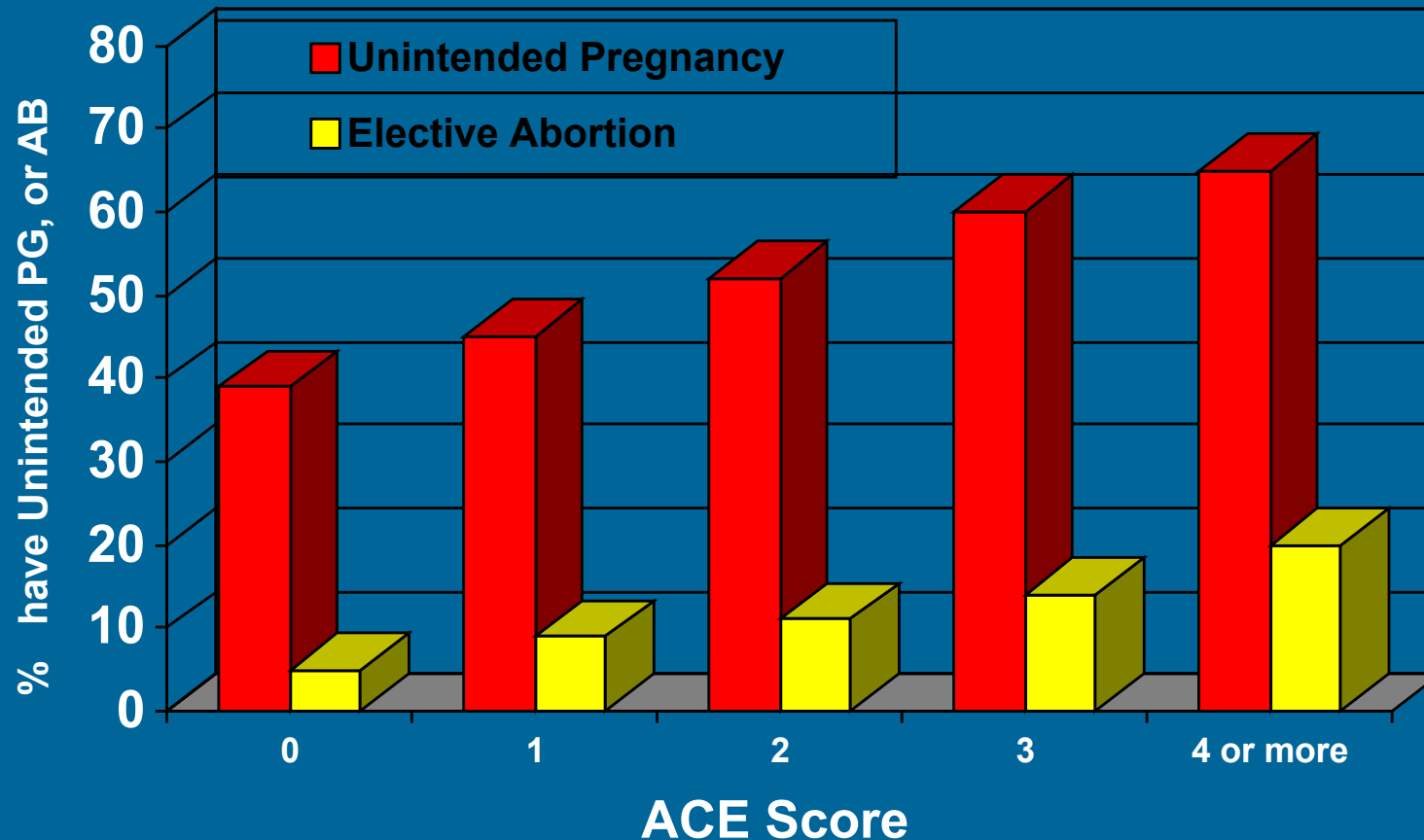


Health risks

Adverse Childhood Experiences vs. Likelihood of > 50 Sexual Partners



ACE Score vs. Unintended Pregnancy or Elective Abortion

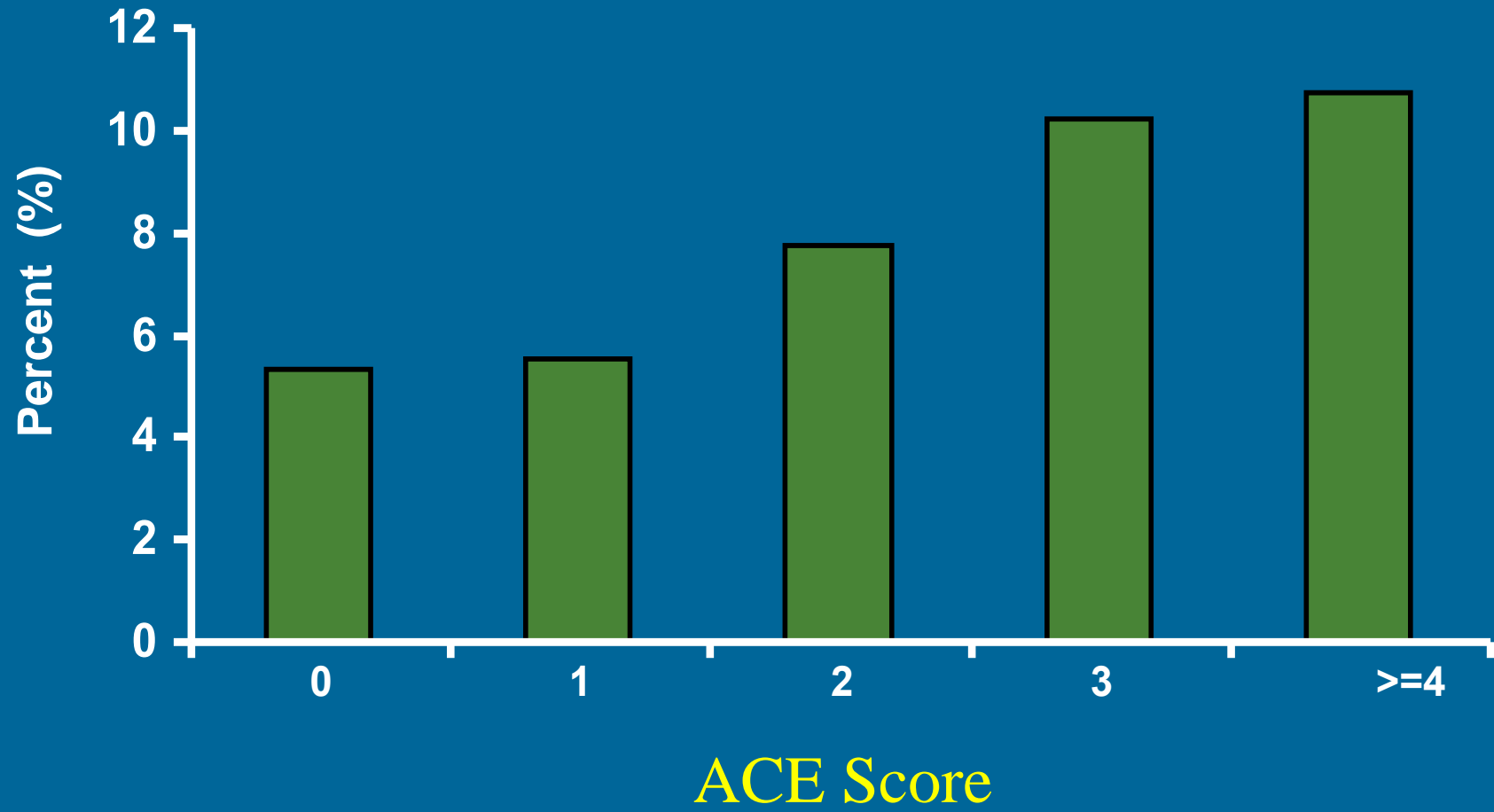


Estimates of the Population Attributable Risk* (PAR) of ACEs for Selected Outcomes in Women

Mental Health:	PAR
Current depression	54%
Depressed affect	41%
Suicide attempt	58%
Promiscuity	48%
Drug Abuse:	
Alcoholism	65%
Drug abuse	50%
IV drug abuse	78%
Crime Victim:	
Sexual assault	62%
Domestic violence	52%

Biomedical Disease

ACE Score and Later Liver Disease (Hepatitis/Jaundice)



ACEs Increase Likelihood of Heart Disease*

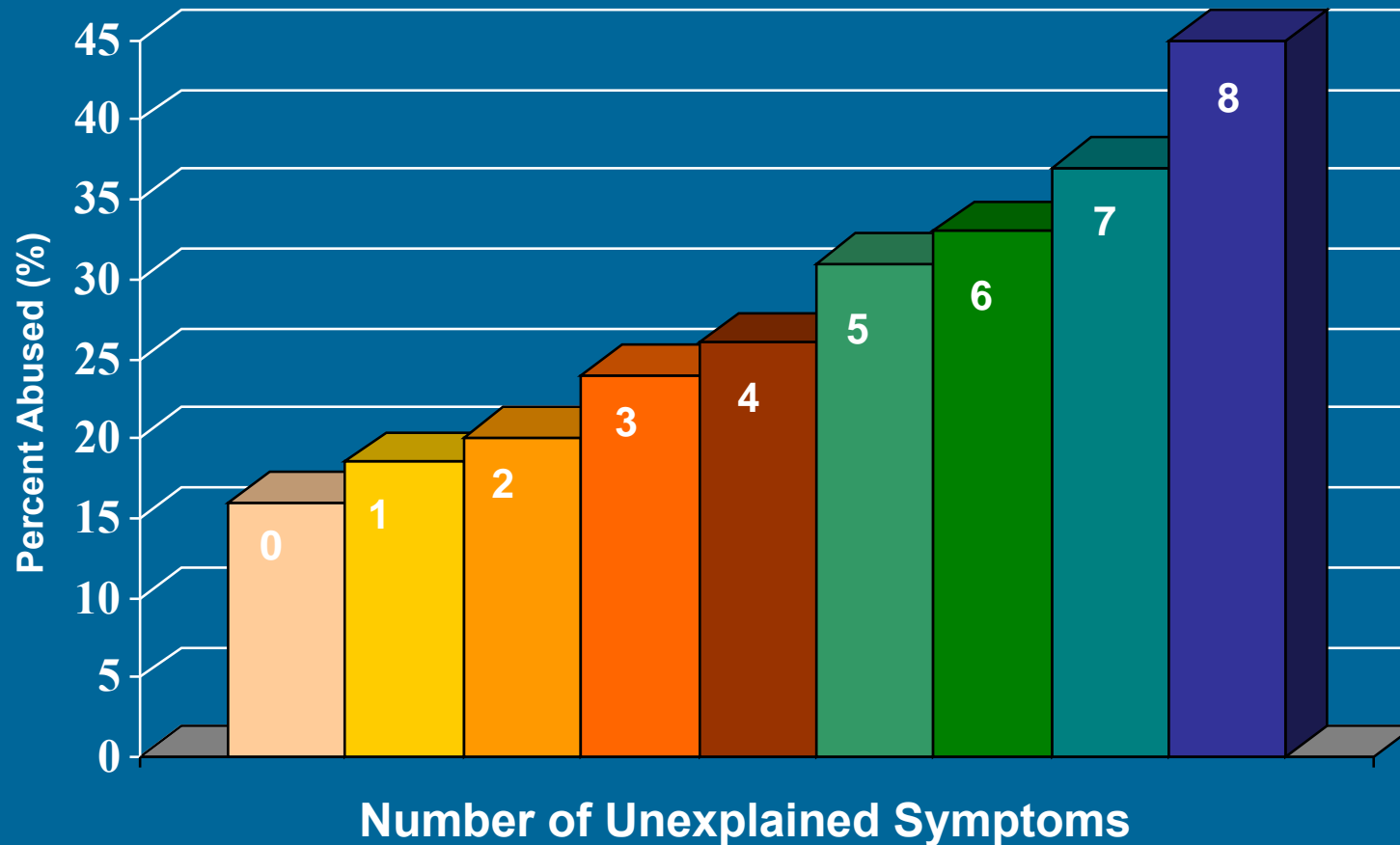
- **Emotional abuse** 1.7x
- **Physical abuse** 1.5x
- **Sexual abuse** 1.4x
- **Domestic violence** 1.4x
- **Mental illness** 1.4x
- **Substance abuse** 1.3x
- **Household criminal** 1.7x
- **Emotional neglect** 1.3x
- **Physical neglect** 1.4x



*After correction for age, race, education, and conventional risk factors like smoking and diabetes.

Circulation, Sept. 2004

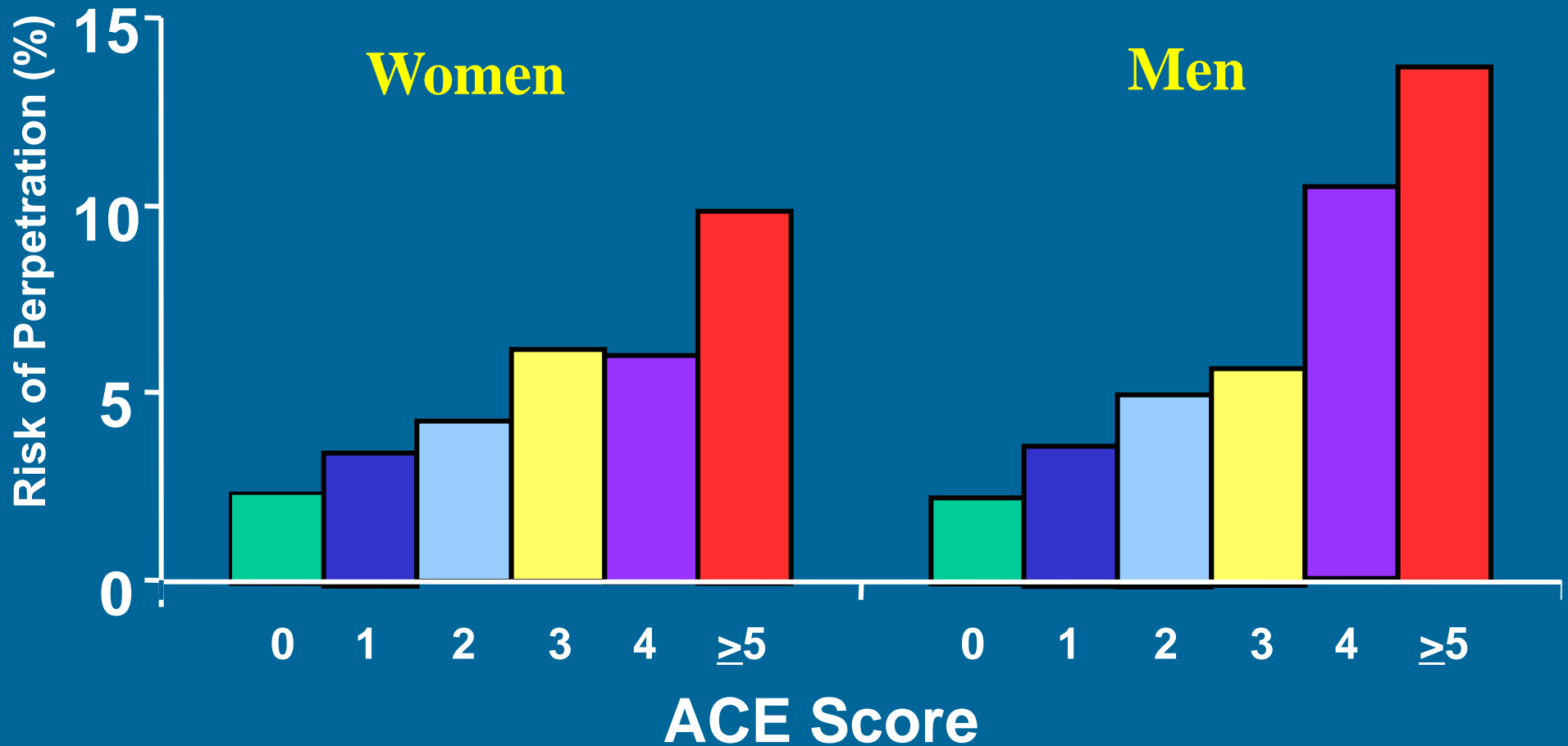
Childhood Sexual Abuse and the Number of Unexplained Symptoms





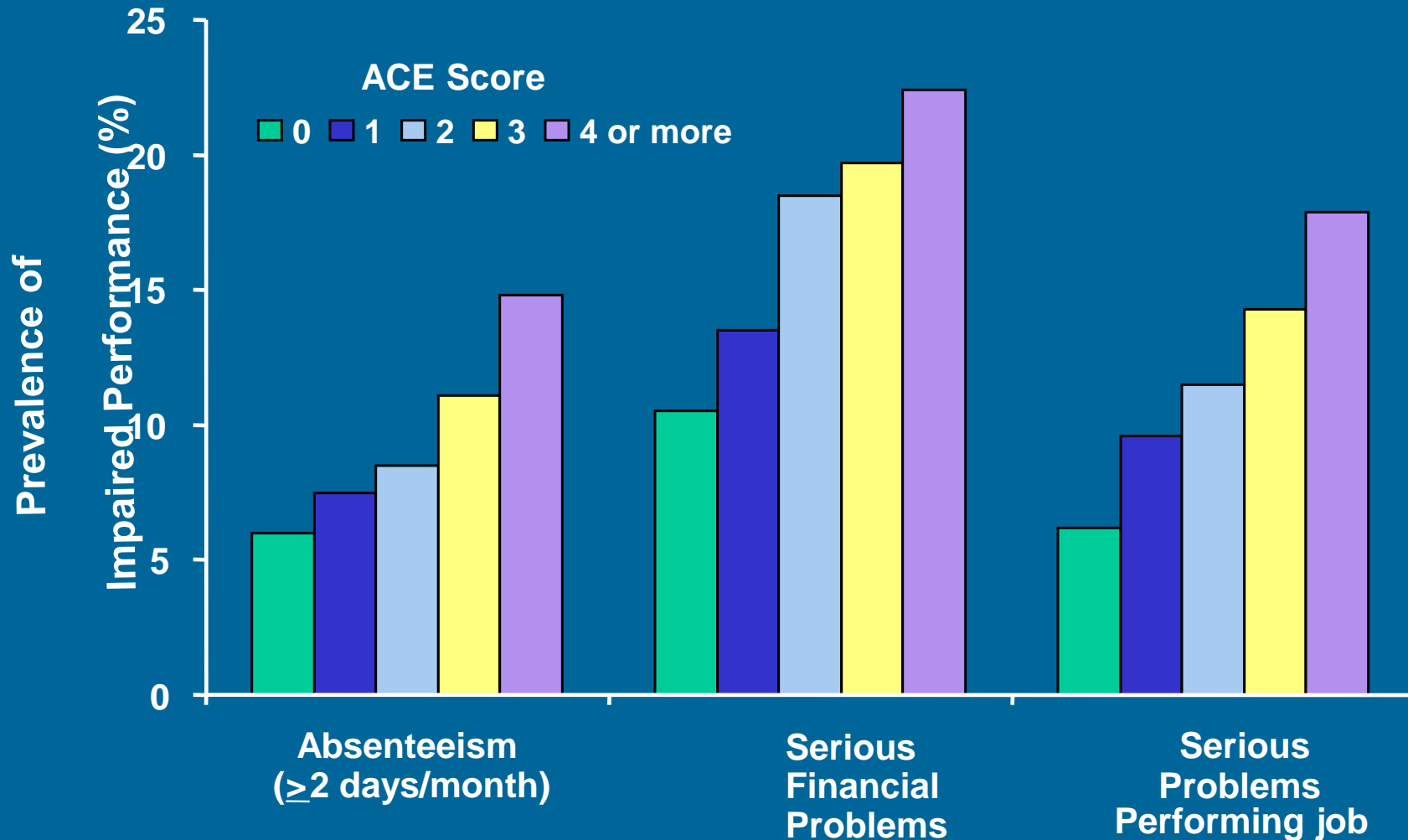
Social function:

ACE Score and the Risk of *Perpetrating* Domestic Violence



Social function:

ACE Score and Indicators of Impaired Worker Performance



Adverse Childhood Experiences and the Likelihood of:

ACE Score	Intimate Partner Violence victim *	Being Raped*
0	1.0	1.0
1	1.9	2.0
2	2.1	2.8
3	2.7	4.2
4	4.5	5.3
≥5	5.1	8.9

***Adjusted Odds Ratio**

Adverse Childhood Experiences
determine the likelihood of the
ten most common causes of
death in the United States.

Top 10 Risk Factors: smoking, severe obesity, physical inactivity, depression, suicide attempt, alcoholism, illicit drug use, injected drug use, 50+ sexual partners, h/o STD.

With an ACE Score of 0,
the majority of adults have few,
if any, risk factors for these diseases.

With an ACE Score of 4 or more, the majority of adults have multiple risk factors for these diseases or the diseases themselves.

Many chronic diseases
of adults are determined
decades earlier, in childhood.

Not by disease, but by life experiences.

The risk factors for these diseases
are also reliable *markers*
for antecedent problems.

“In my end is my beginning.”

T.S. Eliot - Quartets

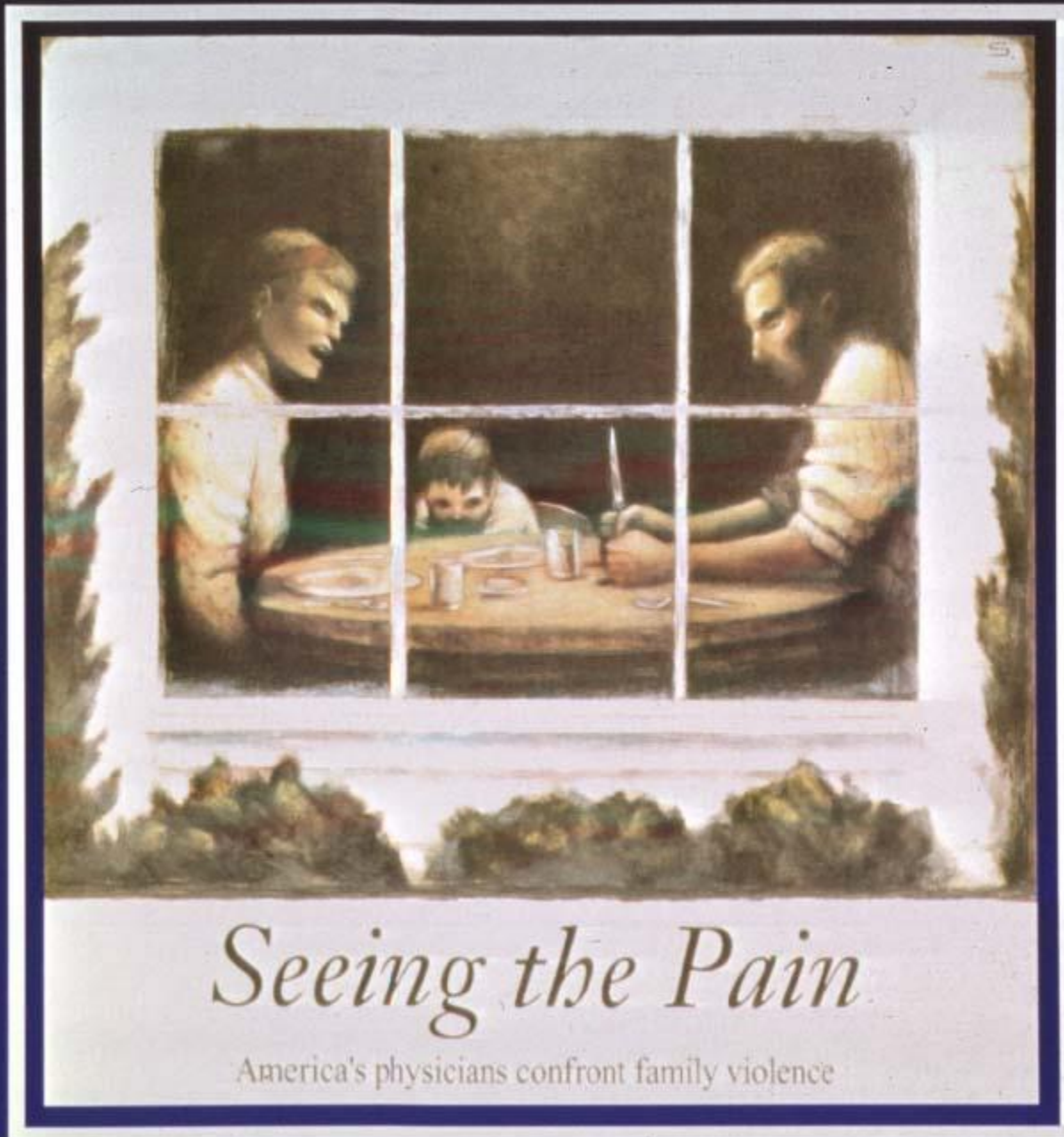
The risk factors
underlying these adult
diseases often are effective
short-term coping devices.

A Public Health Paradox

Many of our most common and intractable public health problems are unconsciously attempted solutions to personal problems dating back to childhood, buried in time, and concealed by shame, by secrecy, and by social taboo.

Evidence from the ACE Study Indicates:

Adverse childhood experiences are the *main* cause of health risk behaviors, disease, disability, premature death, and healthcare costs.



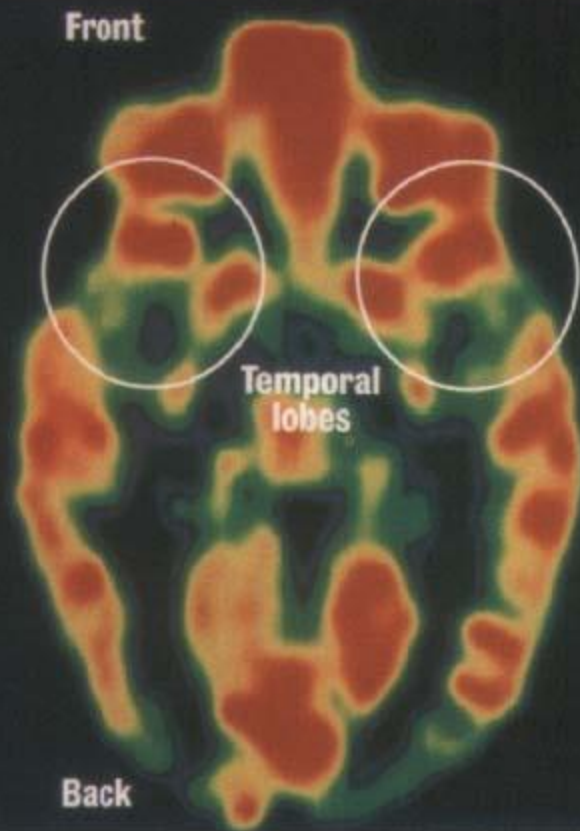
Seeing the Pain

America's physicians confront family violence

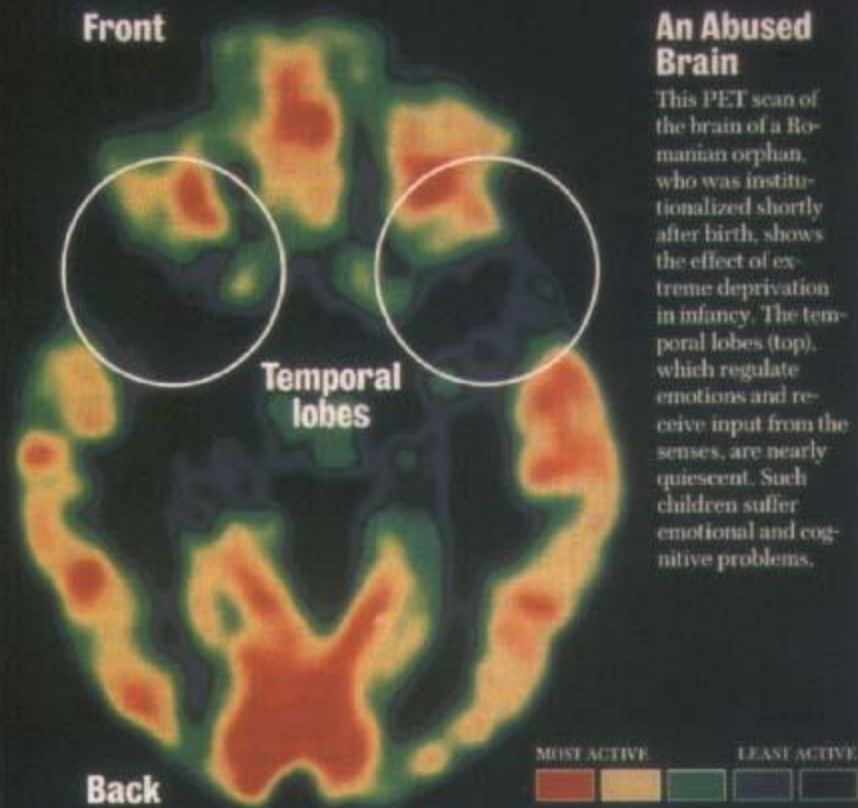
Why are their long-term consequences so difficult to treat?

Healthy Brain

This PET scan of the brain of a normal child shows regions of high (red) and low (blue and black) activity. At birth, only primitive structures such as the brain stem (center) are fully functional; in regions like the temporal lobes (top), early childhood experiences wire the circuits.



Front



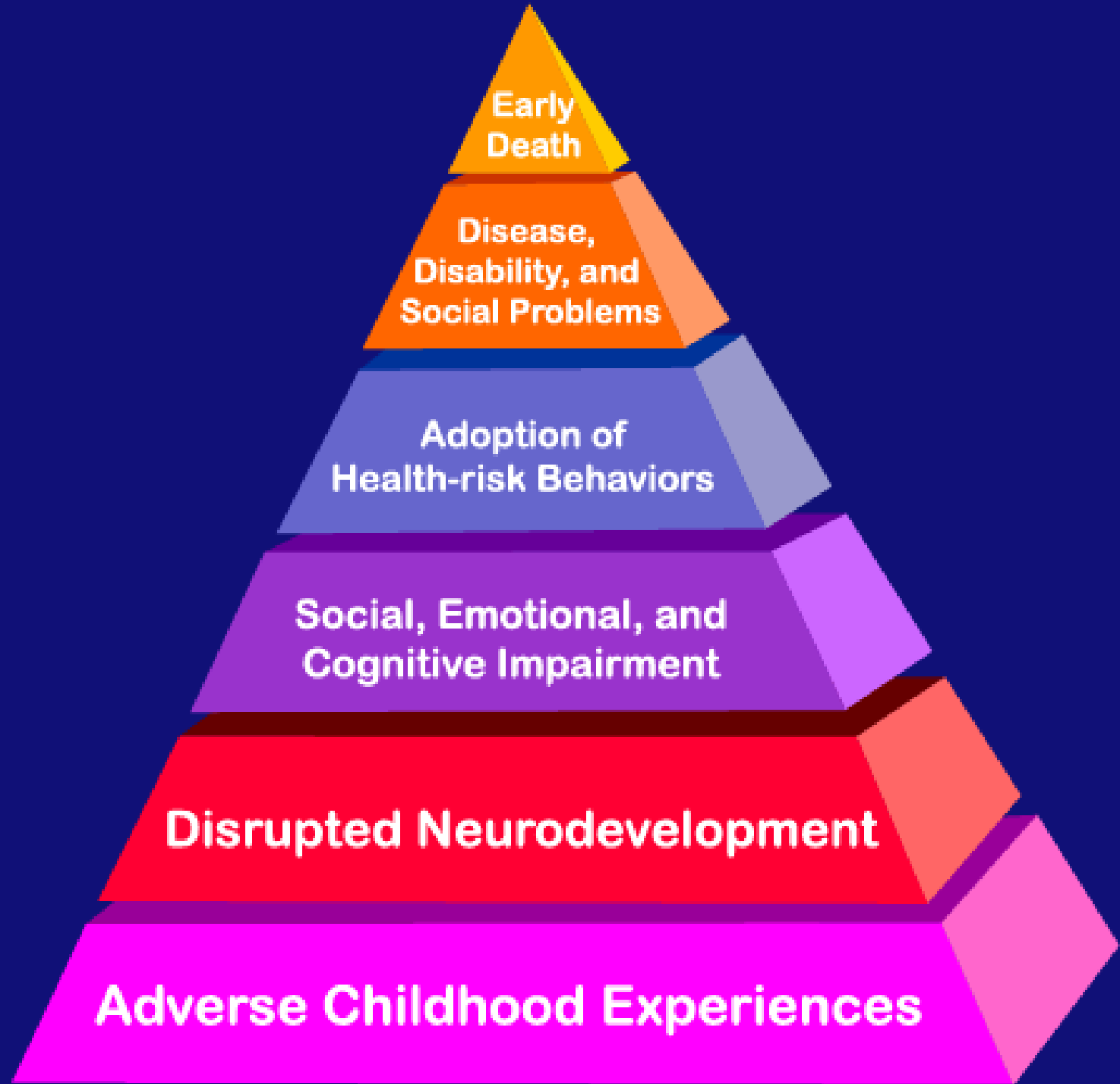
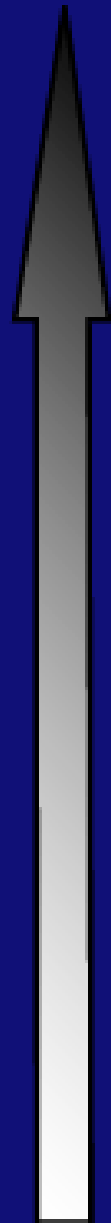
An Abused Brain

This PET scan of the brain of a Romanian orphan, who was institutionalized shortly after birth, shows the effect of extreme deprivation in infancy. The temporal lobes (top), which regulate emotions and receive input from the senses, are nearly quiescent. Such children suffer emotional and cognitive problems.

MOST ACTIVE LEAST ACTIVE

The legend consists of five colored boxes: red (most active), orange, green, blue, and black (least active).

Death



**Early
Death**

**Disease,
Disability, and
Social Problems**

**Adoption of
Health-risk Behaviors**

**Social, Emotional, and
Cognitive Impairment**

Disrupted Neurodevelopment

Adverse Childhood Experiences

Conception

Improving the Future



**Child
health
and
well-being
as it
stands
today.**

**Acknowledgment that
the problems exist.**

**Recognition of cases
in medical practice.**

**Adult
health
and
well-being
as it
could be.**

Interventions

Translating Research into Practice

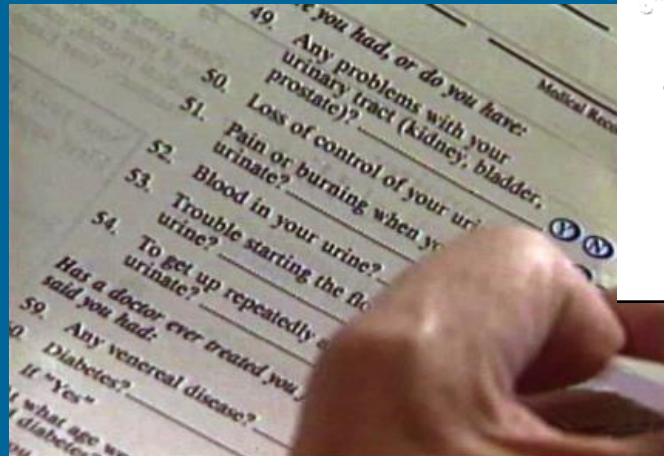
a beginning



1.2 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.



69. Depression or feel "down in the dumps"? Y N —

70. Much trouble with nervousness? Y N —

Do you:

71. Sometimes drink more than you think is good for you? Y N —

72. Use street drugs? Y N —

Have you ever:

73. Been raped, or sexually molested as a child? Y N —

73a. As a child, been physically abused? Y N —

73b. As a child, been verbally abused? Y N —

Includes ACE Questions

Unconventional Medical Questions of Demonstrated Value

- Have you lived in a war zone?
- Have you ever 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 ever been raped?

Extract from an actual case

GENERAL HEALTH

- Her health limits activity to some degree.
- Limitations are mostly due to shortness of breath or difficulty breathing.
- Limitations are mostly due to fatigue, tiredness, or lack of energy.
- Her stress level: large
- Doctor visits during the past 12 months: 1 - 4 times
- Hospitalizations over the past 12 months: 0 times
- Patient regularly uses seat belts.
- Patient believes she is more tired and has less energy compared to others.
- She often has trouble falling asleep or staying asleep.
- She often awakens tired after adequate sleep.
- She is more sensitive than other people.
- She is often worried about being ill.
- She often feels hopeless or down in the dumps.
- She has difficulty saying no, or sticking up for herself.
- She has problems controlling her anger.
- She has difficulty caring for herself.
- Patient is having serious problems with her family.
- Patient is having serious problems with her job.
- Patient is having serious problems with her finances.
- Patient has used street drugs.
- Patient would like an HIV (AIDS) test.

WOMEN'S HEALTH

- Patient does a breast exam: at least once a month
- Patient's last mammogram was: never.
- Patient is still having menstrual periods.
- Patient currently has irregular periods.
- Patient currently has a lot of pain with her periods.
- She has not been sexually active within the past year.
- She is no longer sexually active.
- Type of birth control used: tubal ligation
- Number of pregnancies: four or more
- Number of live births: three
- Patient has been physically abused as a child.
- Patient has been verbally abused as a child.
- Patient has been sexually molested as a child or adolescent.
- Patient has been threatened or abused as an adult by a sexual partner
- Her partner has threatened, pushed, or shoved her.
- Her partner has threatened or abused her children.

DIGESTIVE

- Patient has had a distinct weight gain during the last year.
- Patient has had indigestion or heartburn during the past year.
- Patient has had recurrent nausea or vomiting during the past year.
- She has recurrent abdominal pain.
- Patient has been diagnosed with esophagitis or esophageal reflux.
- Patient is likely to have some form of alcohol: never.

Economics of a Biopsychosocial Preventive Approach

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

Biopsychosocial evaluation: 35% reduction in DOVs
(125,000 patient sample)

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.
- Change will be resisted in spite of enormous benefits.

Practice Implications of the ACE Study

- A biopsychosocial and trauma-oriented approach to medical evaluation has been demonstrated to be feasible, affordable, and acceptable.
- It is possible to move from our current symptom-reactive mode of practice, to start dealing with basic causes, and also reduce the cost of care.
- Trauma-oriented inquiry is proposed as the routine entry mechanism into all ongoing care, be it medical, psychological, or institutional.

Further Information

www.ACEsConnection.com

Medline/PubMed, Google (Anda or Felitti as author)

VJFMDSOCA@mac.com

www.HumaneExposures.com (3 Important Books)

www.AVAHealth.org (Major current DVD on ACE Study)

info@CavalcadeProductions.com (Documentary ACE DVDs)