



LOCKED
Will Anda of Starr's
goes up for a shot
against Whitew
(PHOTO BY CD PHOTOGRA

Adverse Childhood Experiences

A Development Lens for Prevention and Advocacy

Robert Anda, MD, MS



Children's Advocacy Days 2014

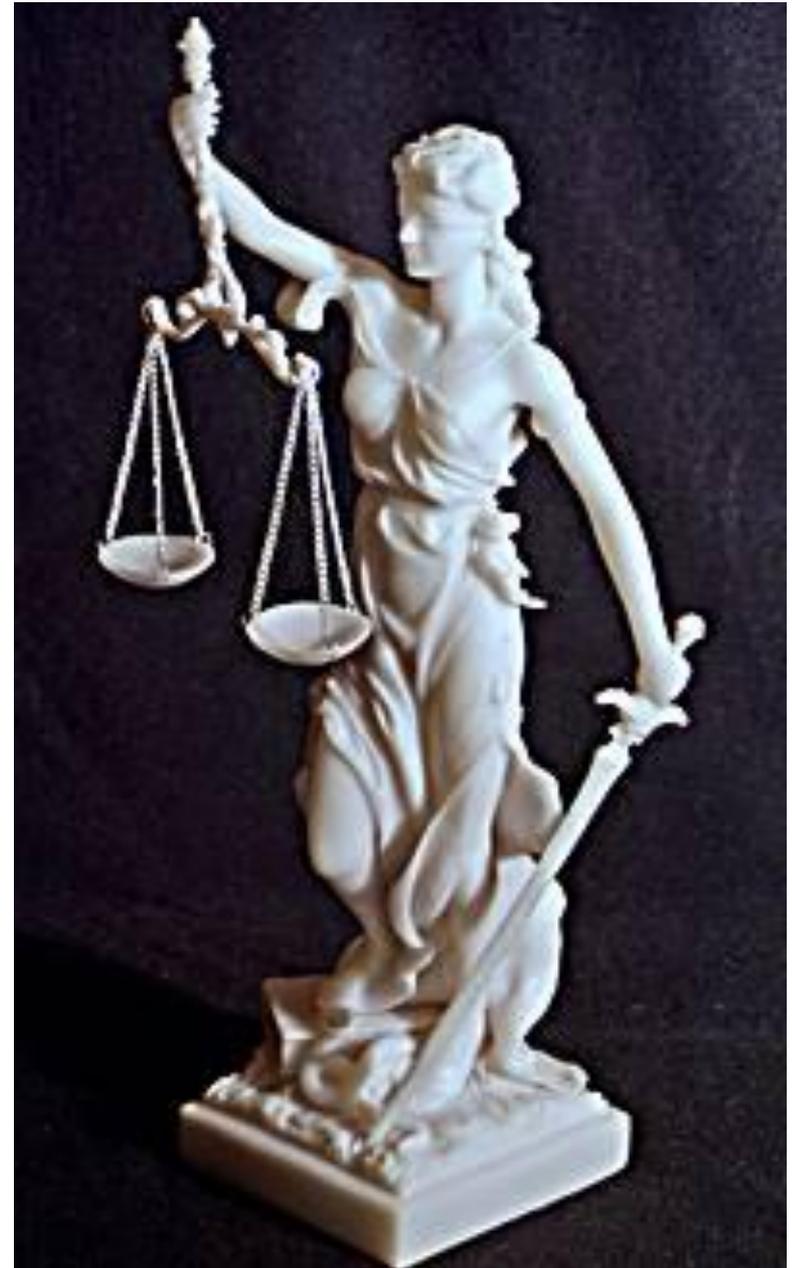
Nashville, Tennessee

March 11, 2014

Themis

**The embodiment of divine order,
law and custom..**

Organizer of communal affairs..



The Biology of Adversity

Stress

(adrenaline, cortisol)

Unpredictable

Severe

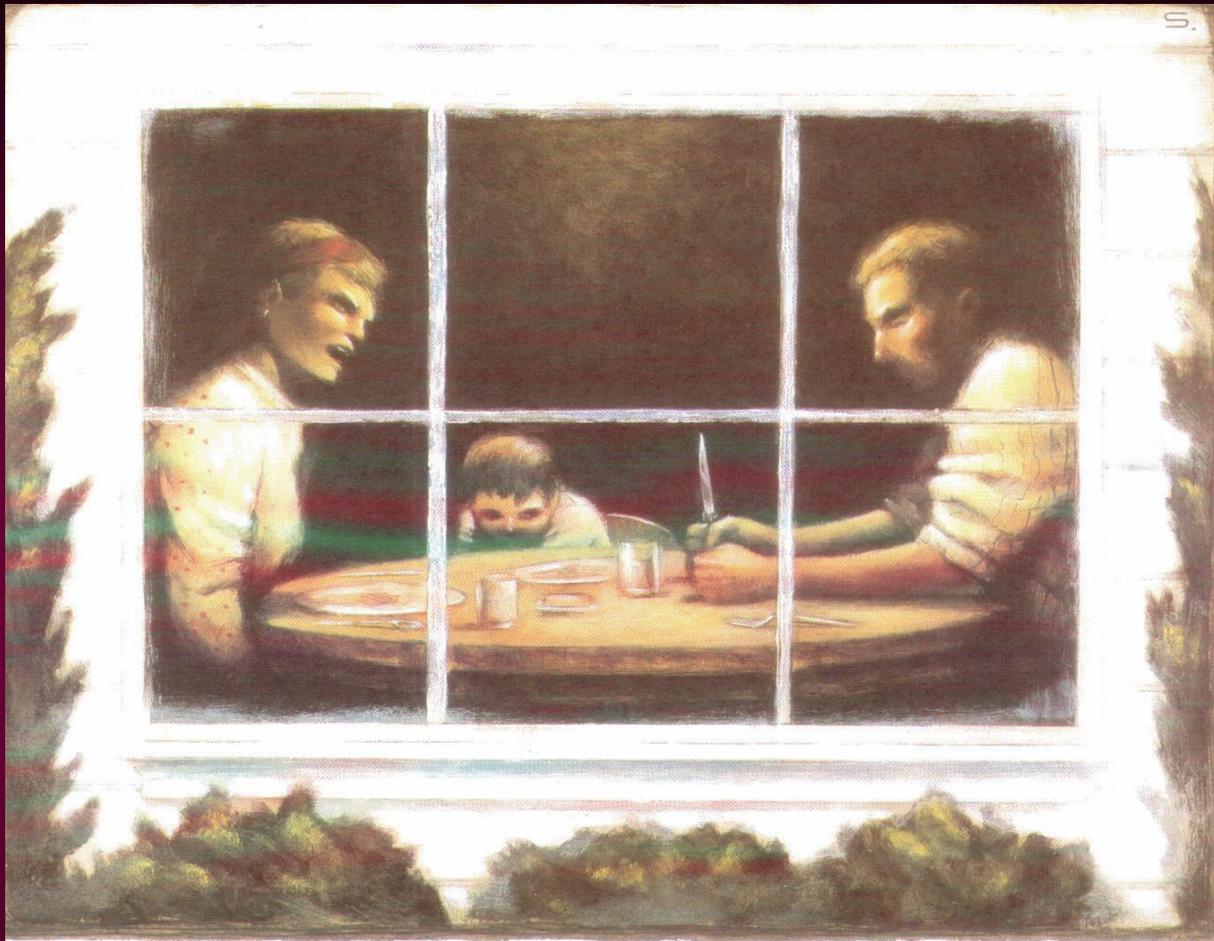
Predictable

Moderate

Number of Episodes
Chronicity

Vulnerability

Resilience



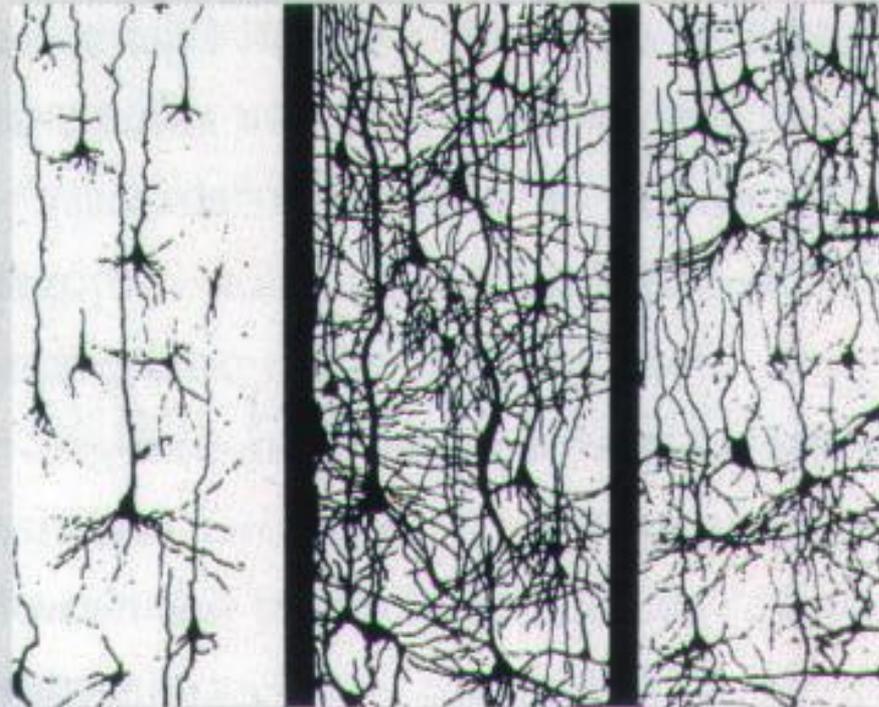
Seeing the Pain

America's physicians confront family violence

At Birth

6 Years Old

14 Years Old



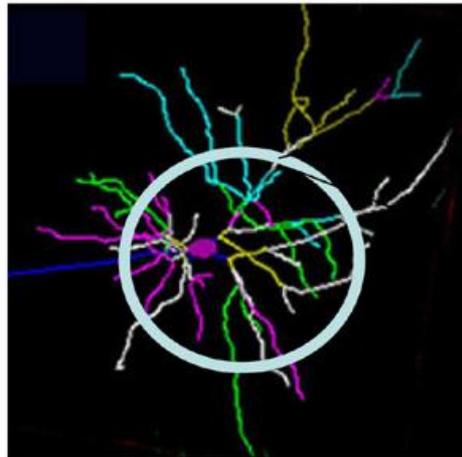
SYNAPTIC DENSITY: Synapses are created with astonishing speed in the first three years of life. For the rest of the first decade, children's brains have twice as many synapses as adults' brains.

Drawings supplied by H.T. Chugani.

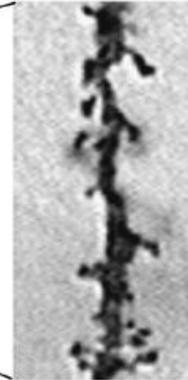


Persistent Stress Changes Brain Architecture

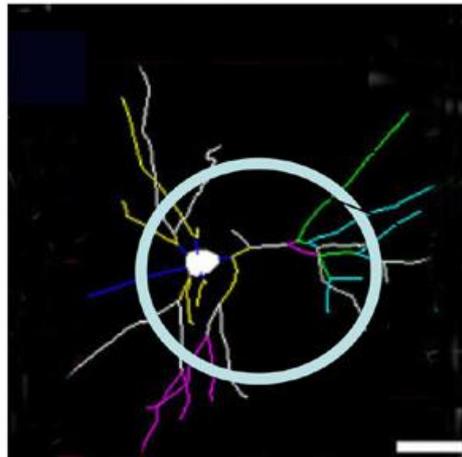
Normal



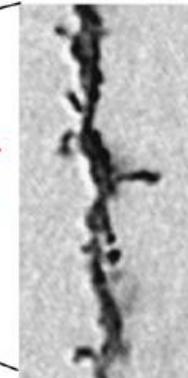
Typical neuron—
many connections



Toxic
stress



Damaged neuron—
fewer connections



Prefrontal Cortex and
Hippocampus



Adolescent Brain Development

A Time of Risk and Opportunity

- Different parts of the cerebral cortex mature at different rates**
- Basic functions such as processing sensory information and controlling movement mature first**

**Source: National Institutes of Mental Health
The Teen Brain: Still Under Construction**

Adolescent Brain Development ***A Time of Risk and Opportunity***

- Gray matter forms the thin outer layer of the cerebral cortex**
- The volume of gray matter may be greatest during early adolescence**

**Source: National Institutes of Mental Health
The Teen Brain: Still Under Construction**

Adolescent Brain Development *A Time of Risk and Opportunity*

The parts of the brain responsible for more “top down” control such as impulse control and planning ahead—the hallmarks of adult behavior--are among the last to mature

**Source: National Institutes of Mental Health
The Teen Brain: Still Under Construction**

Adolescent Brain Development *A Time of Risk and Opportunity*

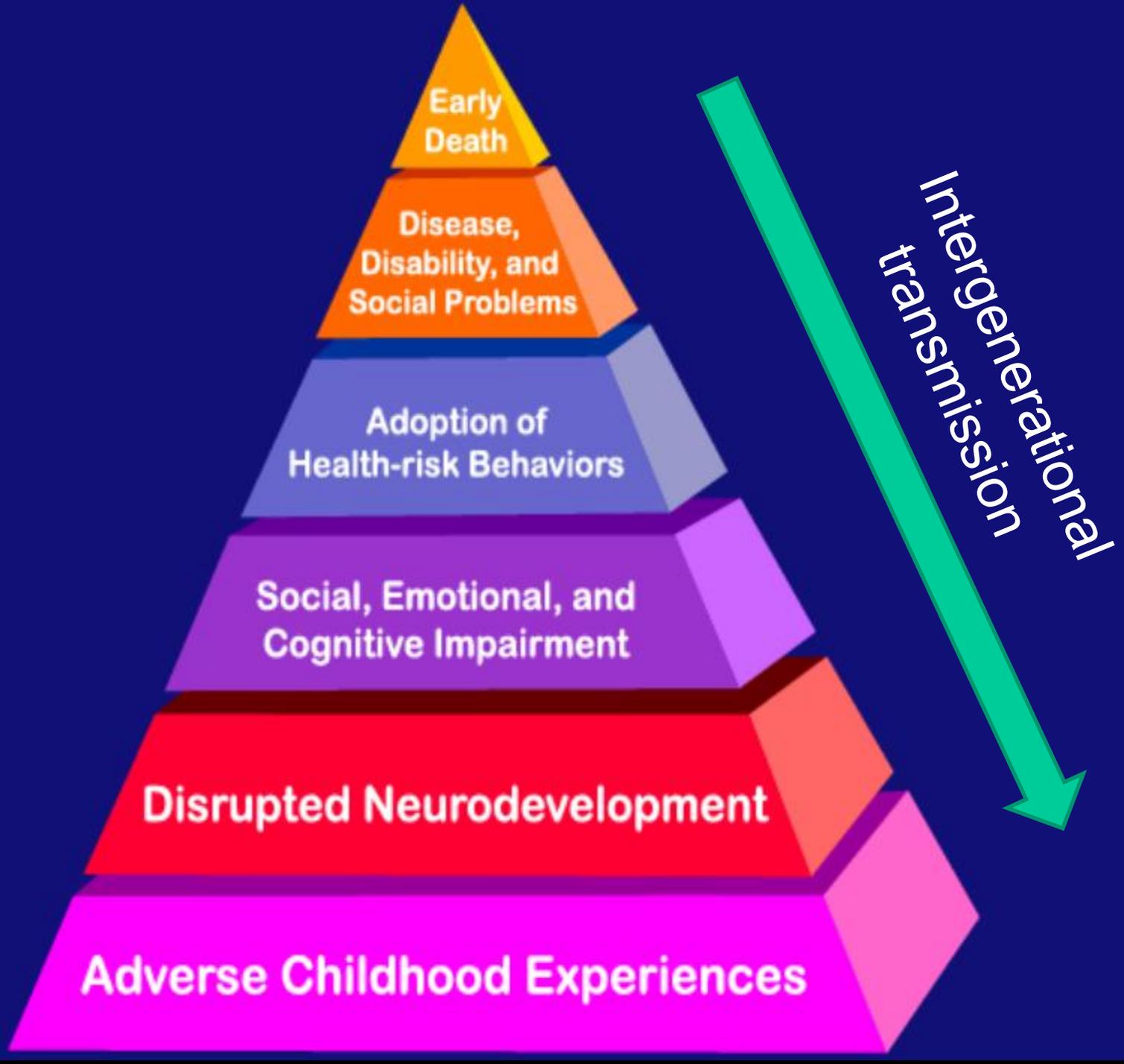
**-Recent findings push the timeline of
brain maturation into adolescence and
early adulthood**

**Source: National Institutes of Mental Health
The Teen Brain: Still Under Construction**

Death



Conception



What's Predictable is Preventable

The Adverse Childhood Experiences (ACE) Study

Examines the health and social effects of ACEs throughout the lifespan among 17,421 members of the Kaiser Health Plan in San Diego County

A Primary Care Setting...

Educated...

Middle Class..

Predominantly White...

ACEs Are Common

Household dysfunction:

Substance abuse	27%
Parental sep/divorce	23%
Mental illness	17%
Battered mother	13%
Criminal behavior	6%

Abuse:

Emotional	11%
Physical	28%
Sexual	21%

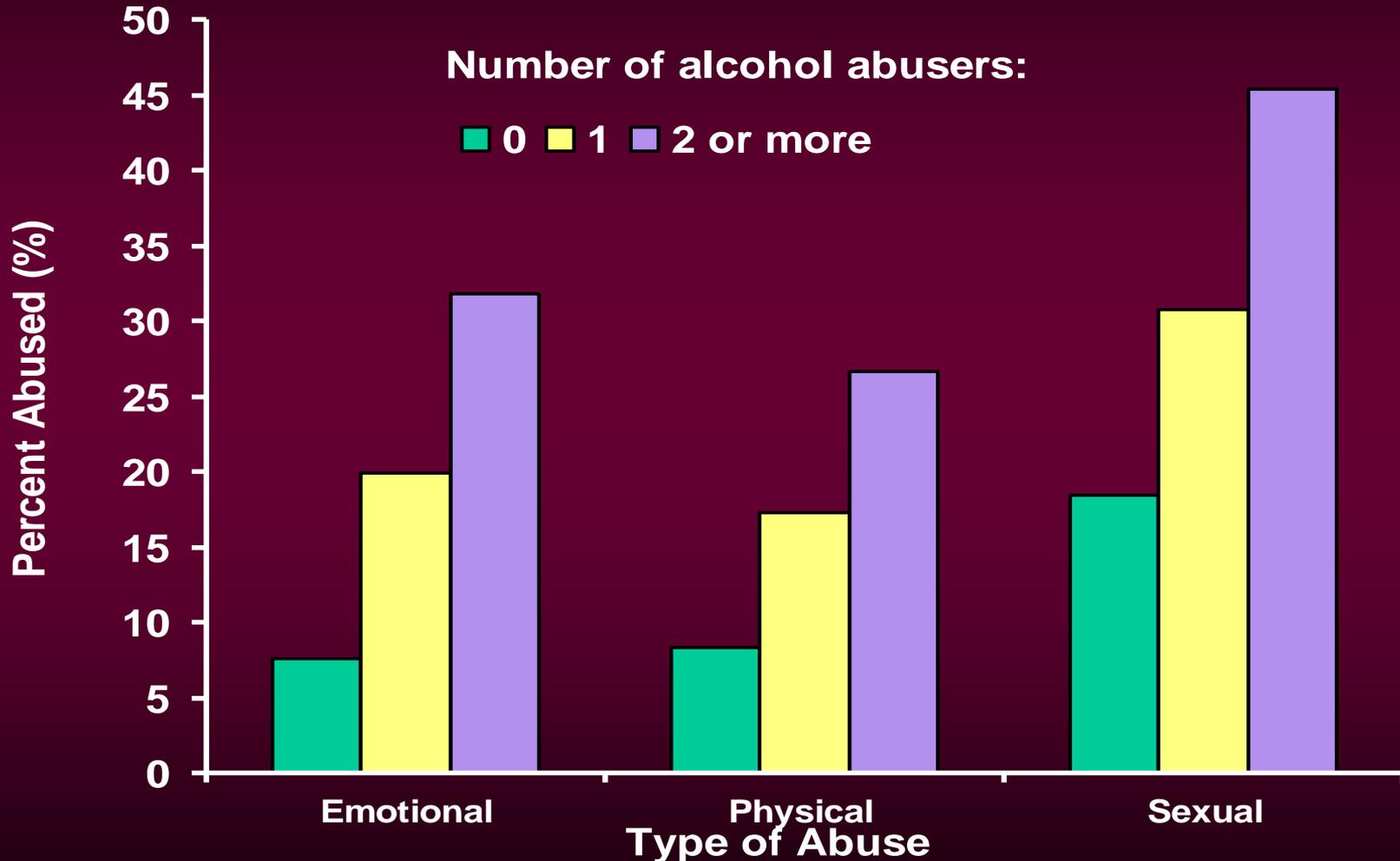
Neglect:

Emotional	15%
Physical	10%

Adverse Childhood Experiences Rarely Occur in Isolation...

They come in groups...

Alcohol Abuse in the Home and the Risk of Childhood Abuse

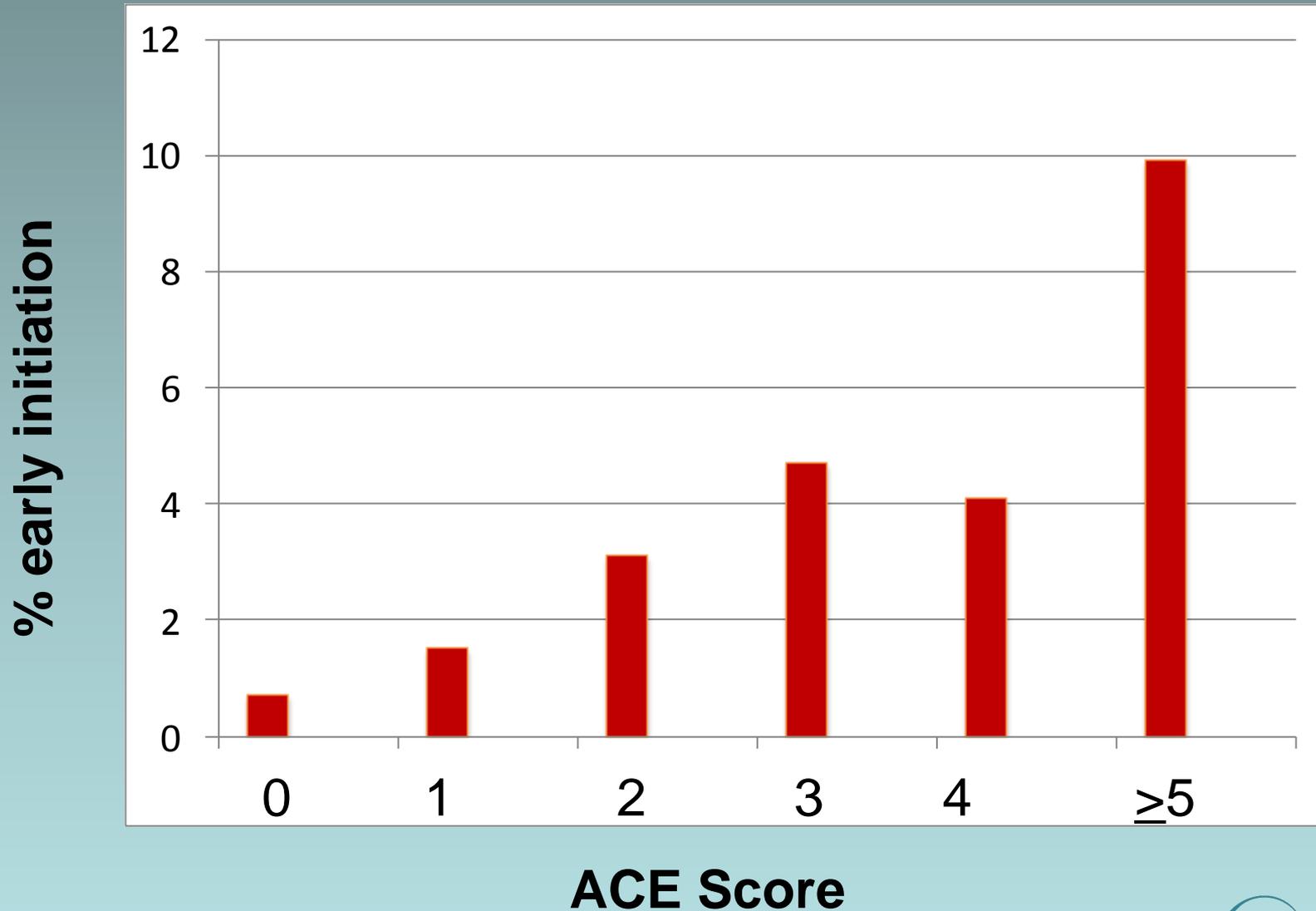


Adverse Childhood Experiences Score Biologic Stress “Dose”

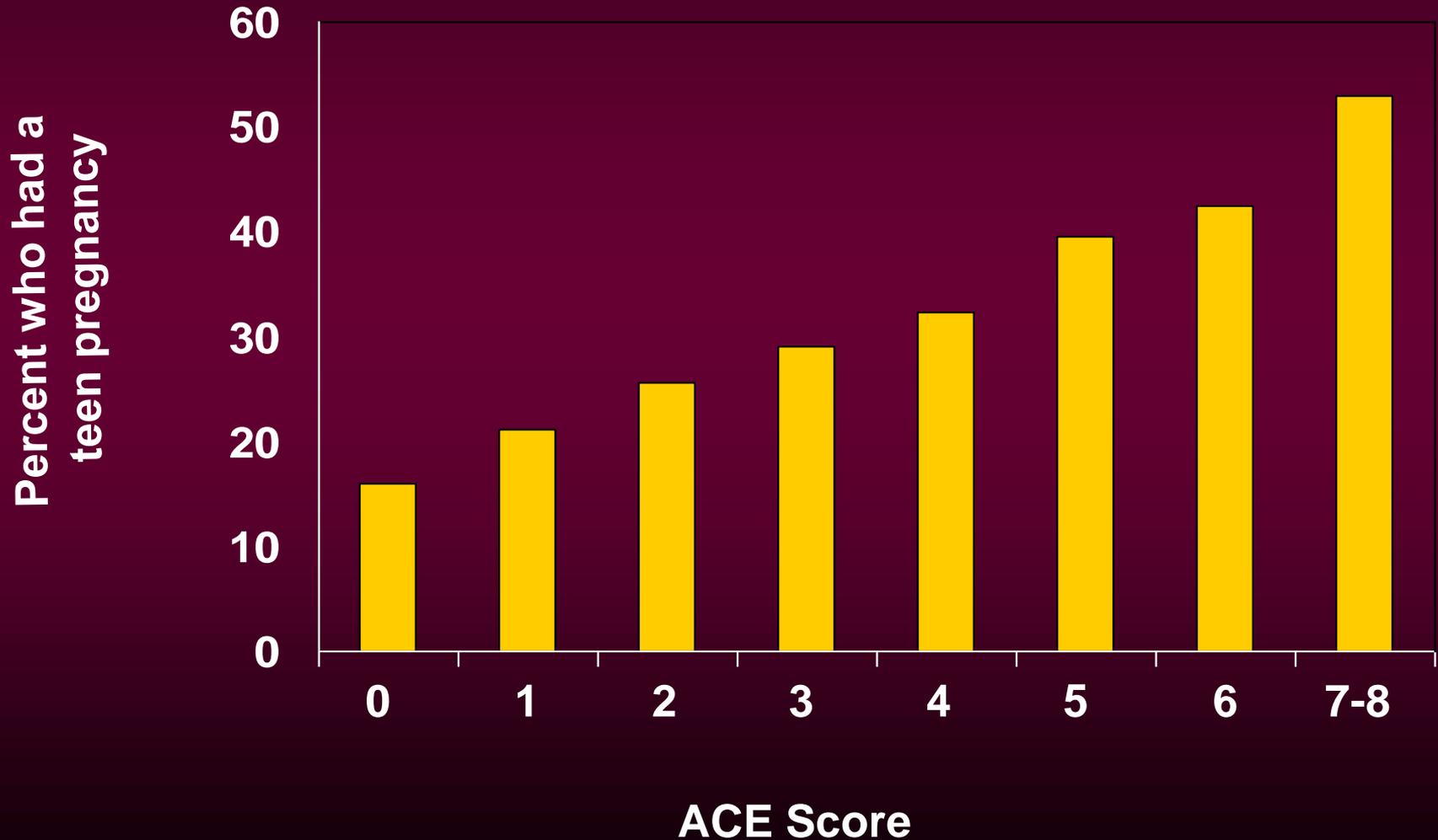
<u>ACE Score</u>	<u>Prevalence</u>
0	33%
1	26%
2	16%
3	10%
4 or more	16%

ACEs and Adolescent Health

ACE Score and Early Initiation of Drug Use (by age 14)

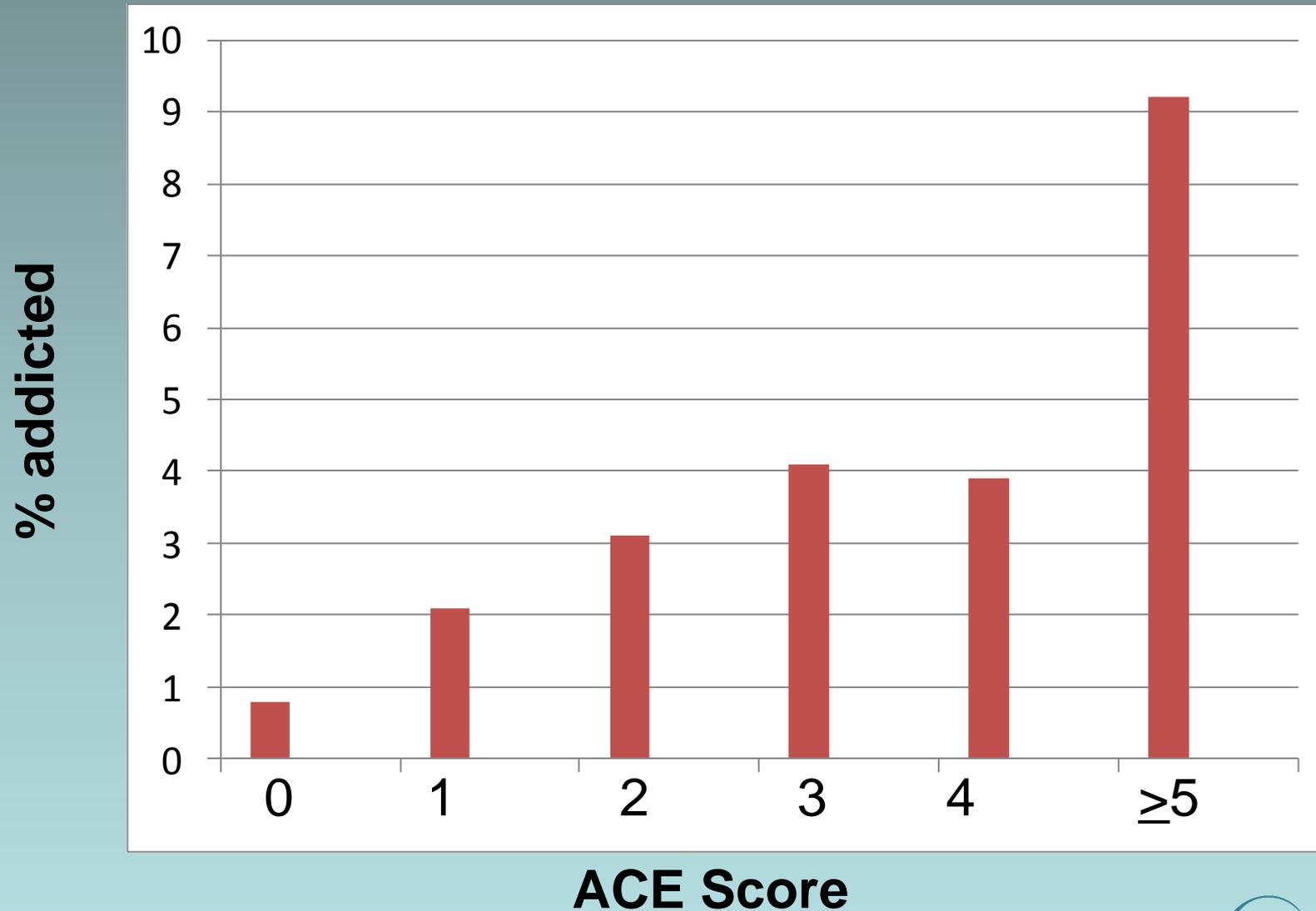


Adverse Childhood Experiences and Teen Pregnancy

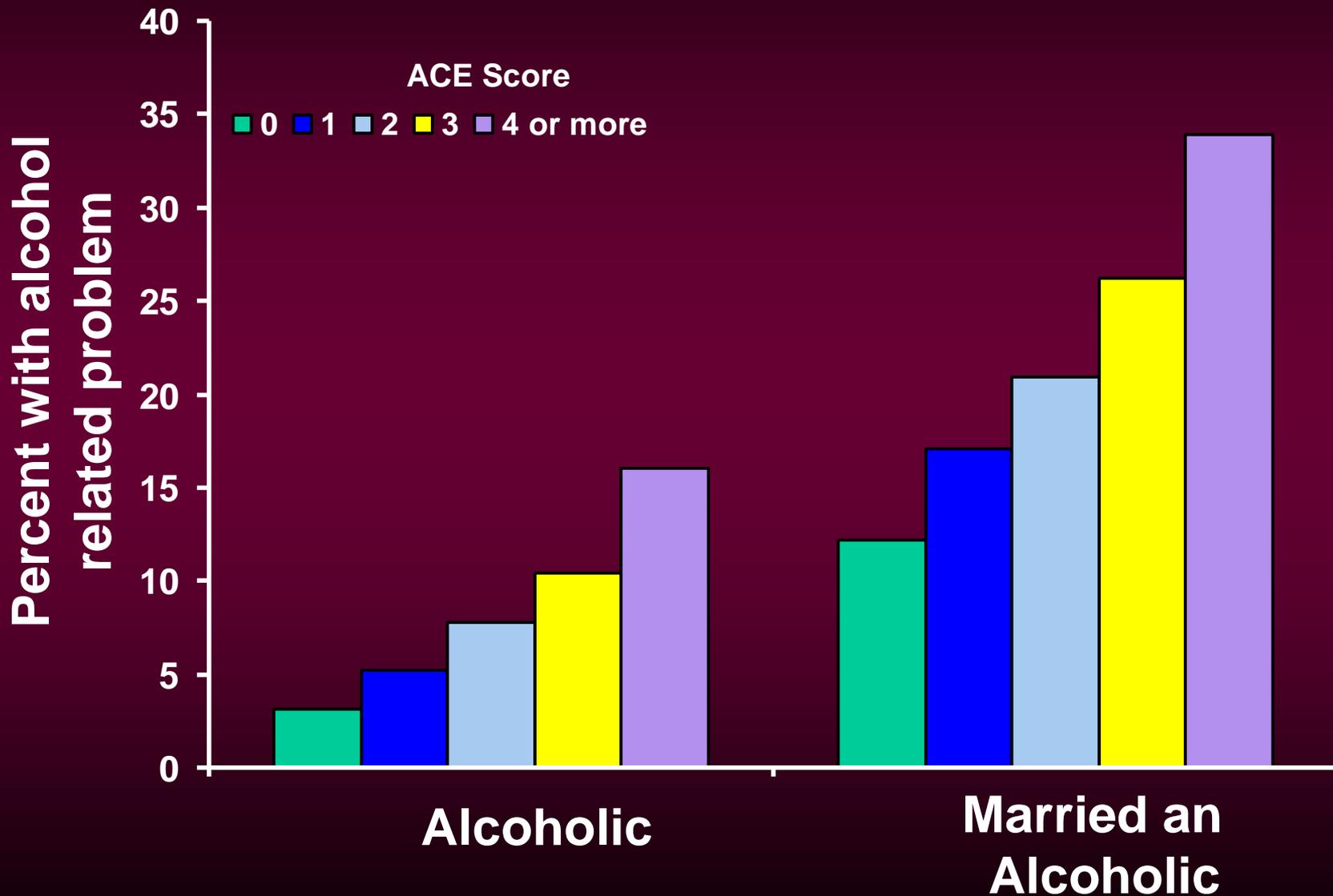


ACEs and Addiction

ACE Score and Ever Addicted to Drugs

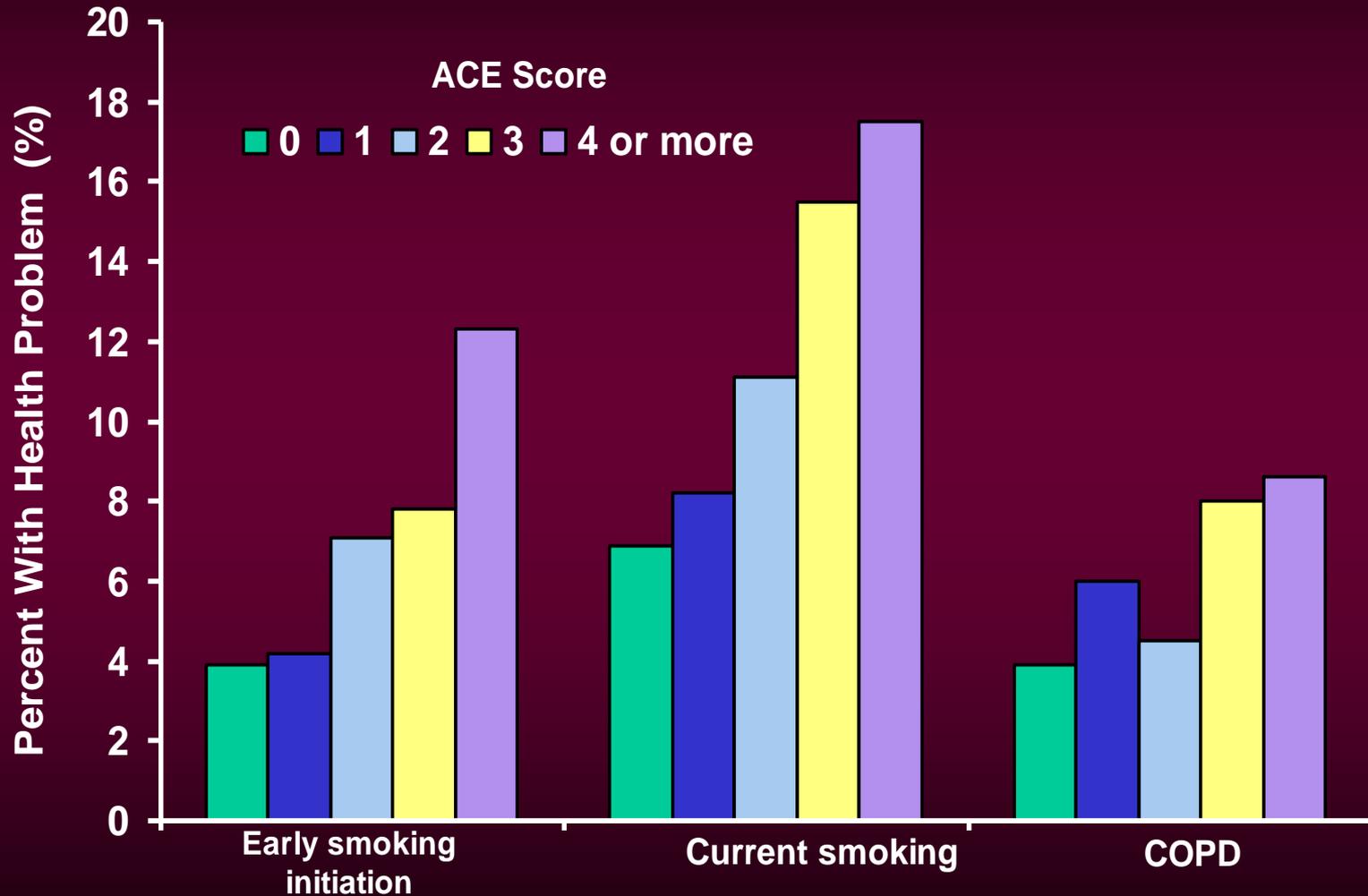


The ACE Score and Alcoholism

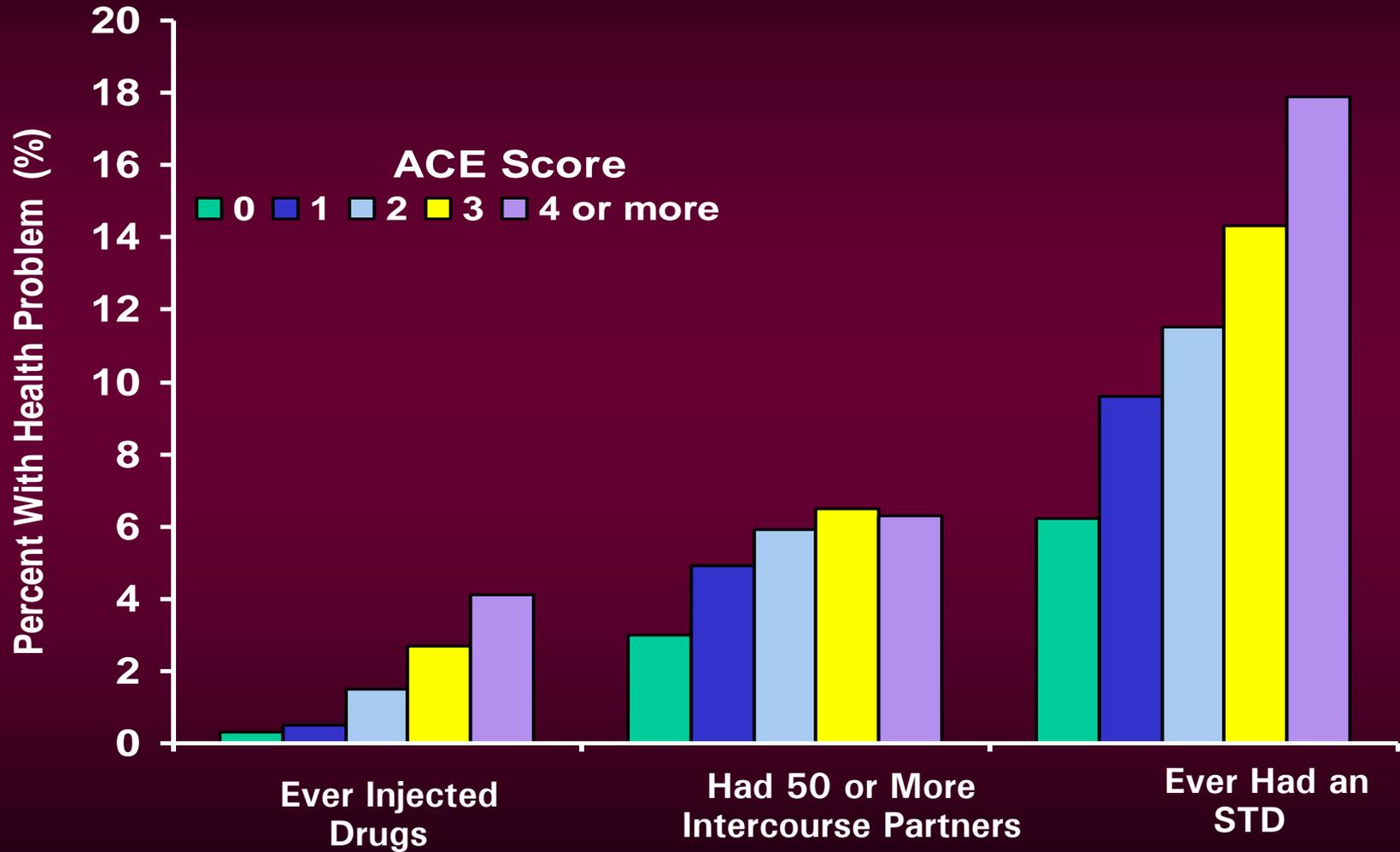


ACEs are a Pathway to Disease

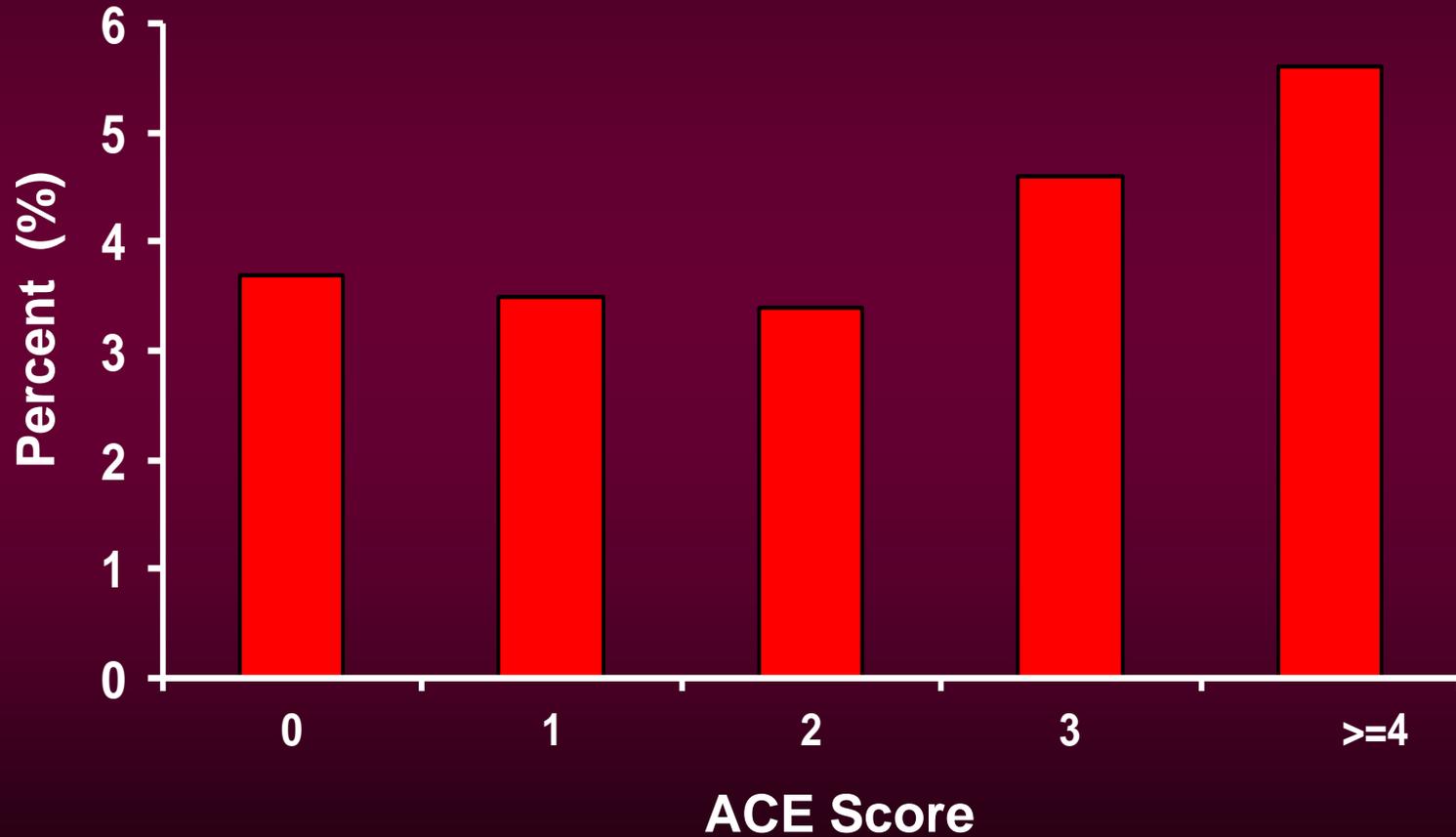
ACEs, Smoking, and Lung Disease



ACE Score and HIV Risks

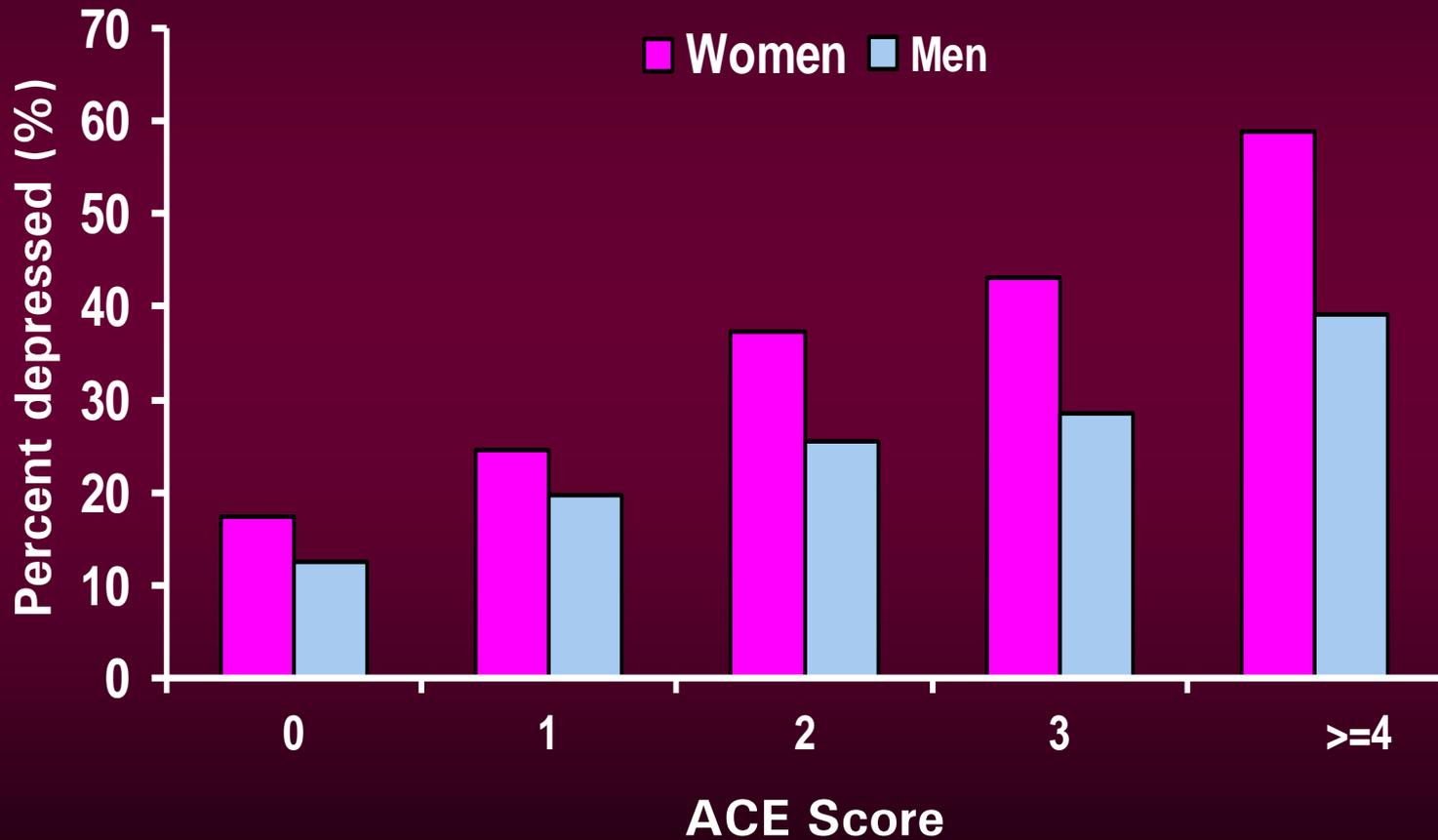


The ACE Score and the Prevalence of Coronary Heart Disease

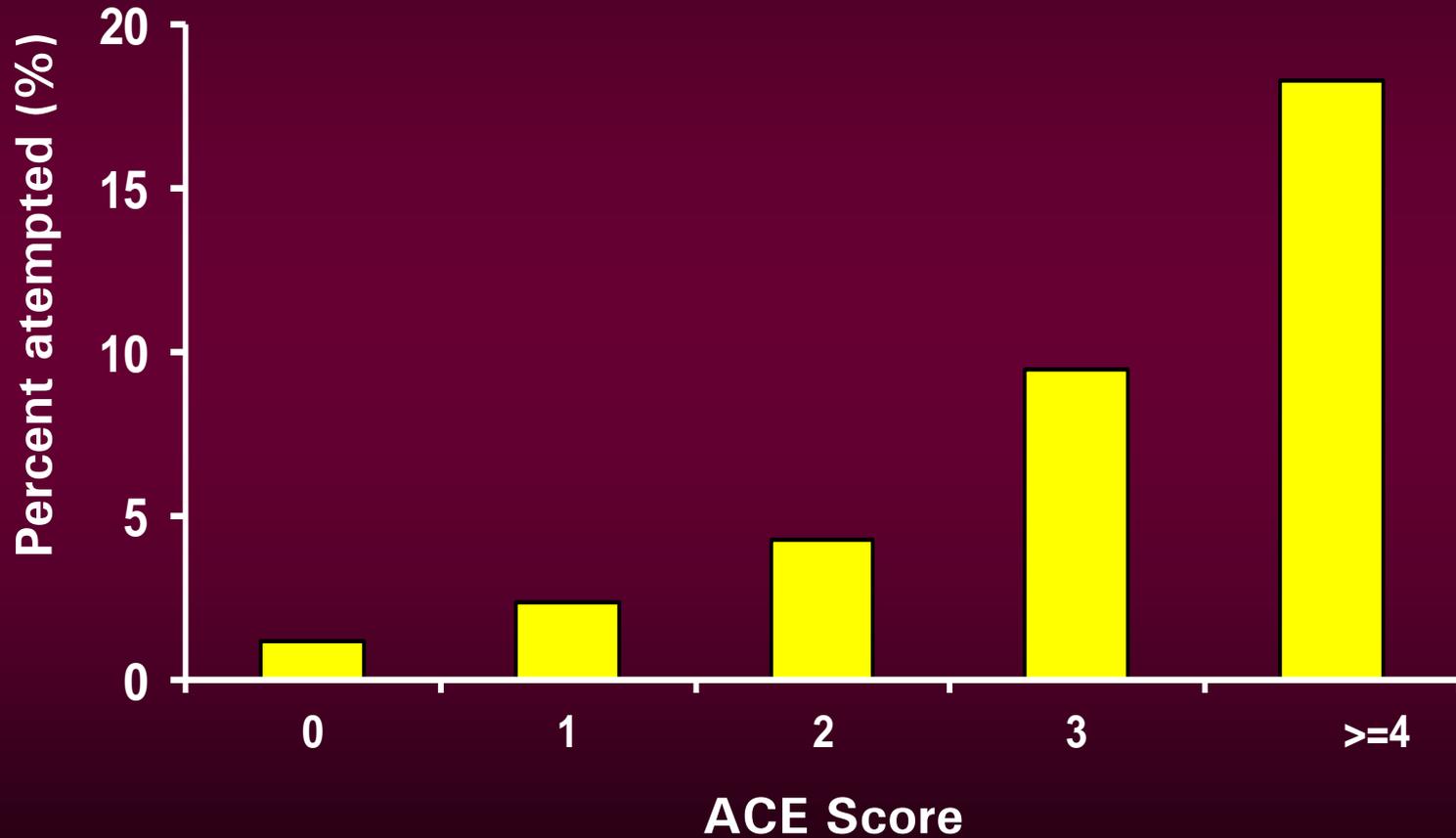


A Focus on Mental Health

The ACE Score and a Lifetime History of Depression



The ACE Score and the Prevalence of Attempted Suicide



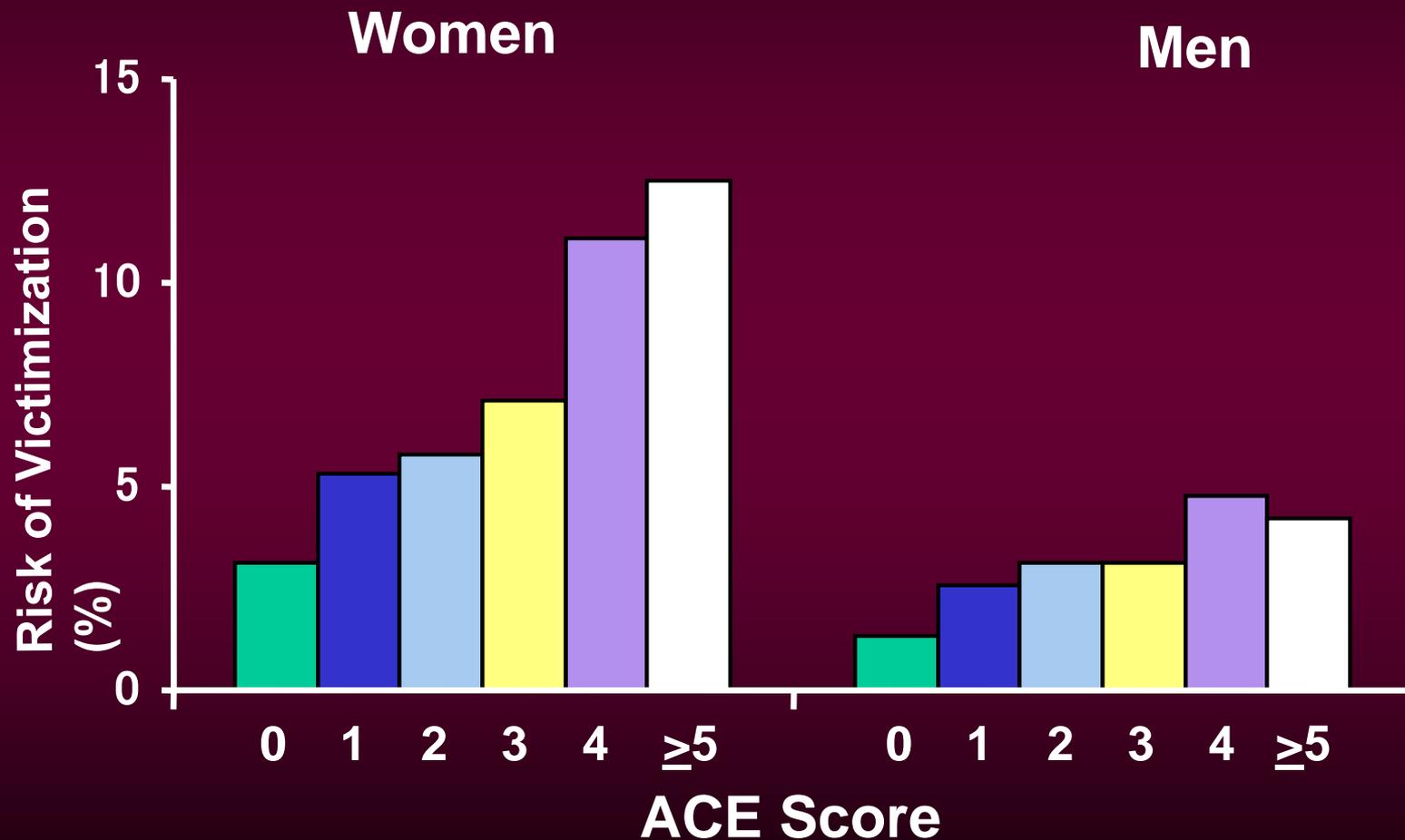
“The Kiss”

**Constantin Brancusi
1909**



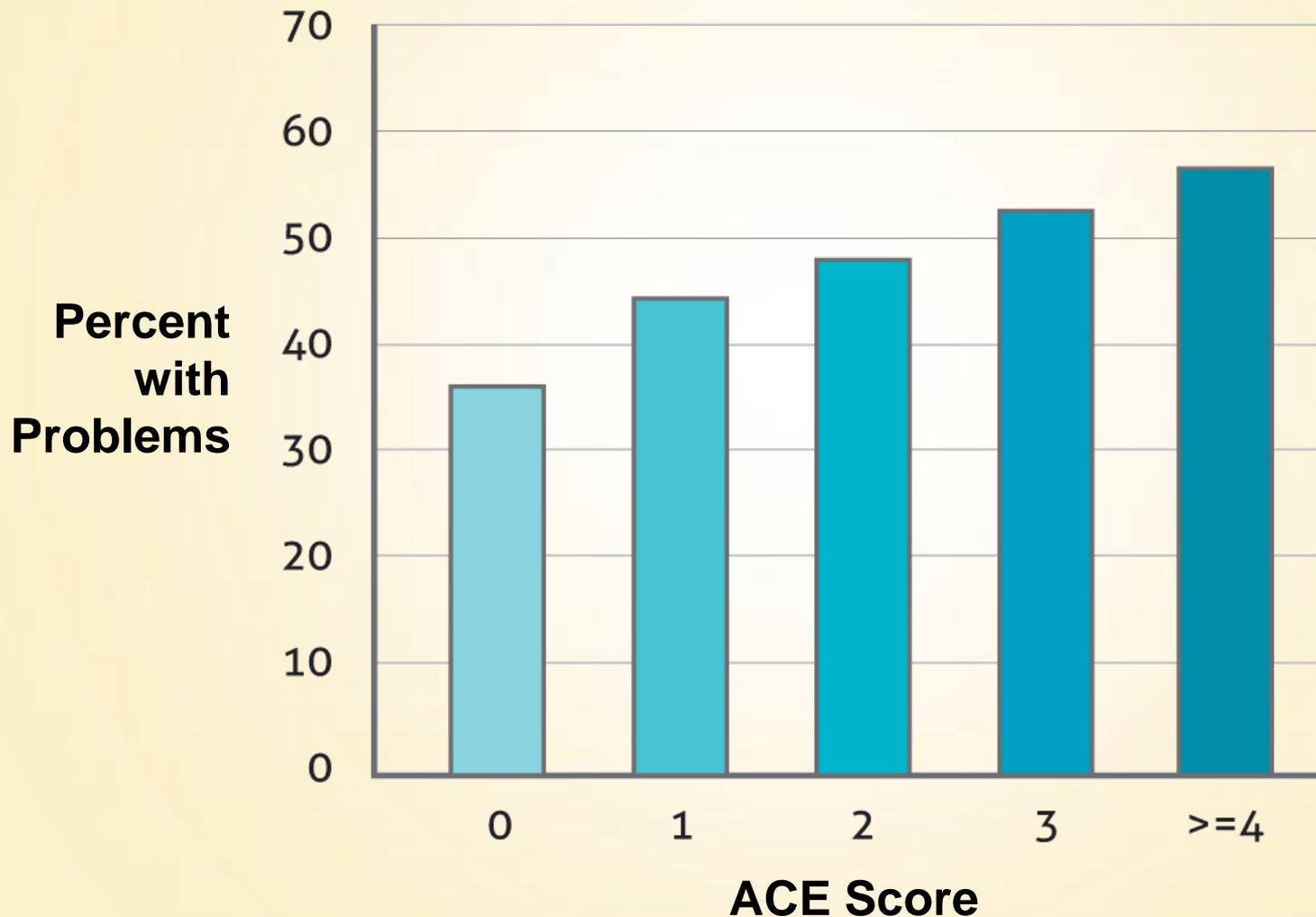
ACEs and the Intergenerational Cycle of Violence

ACE Score and the Risk of Being a Victim of Domestic Violence

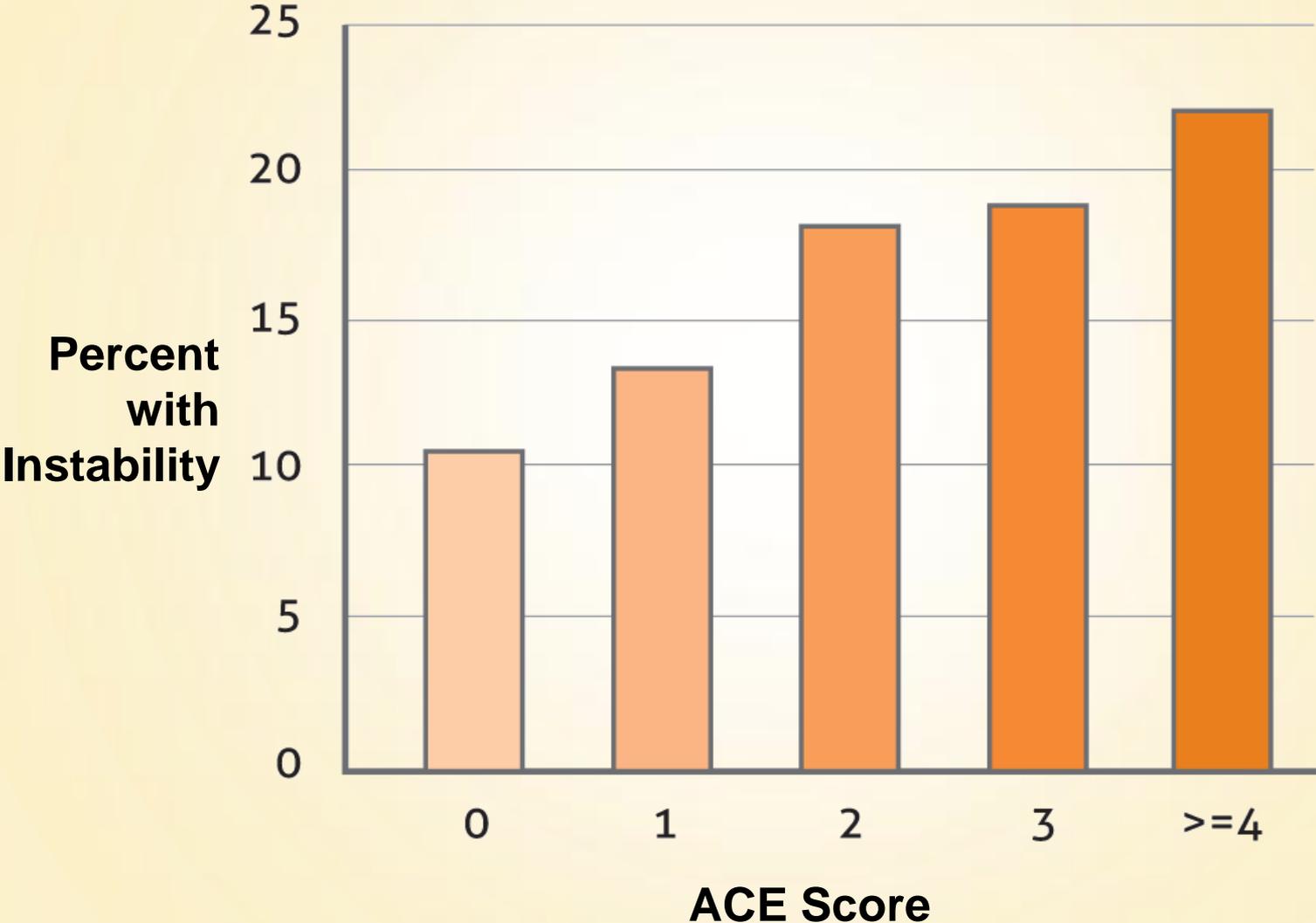


The Destabilizing Effects of ACEs on Relationships, Family, Households and Community

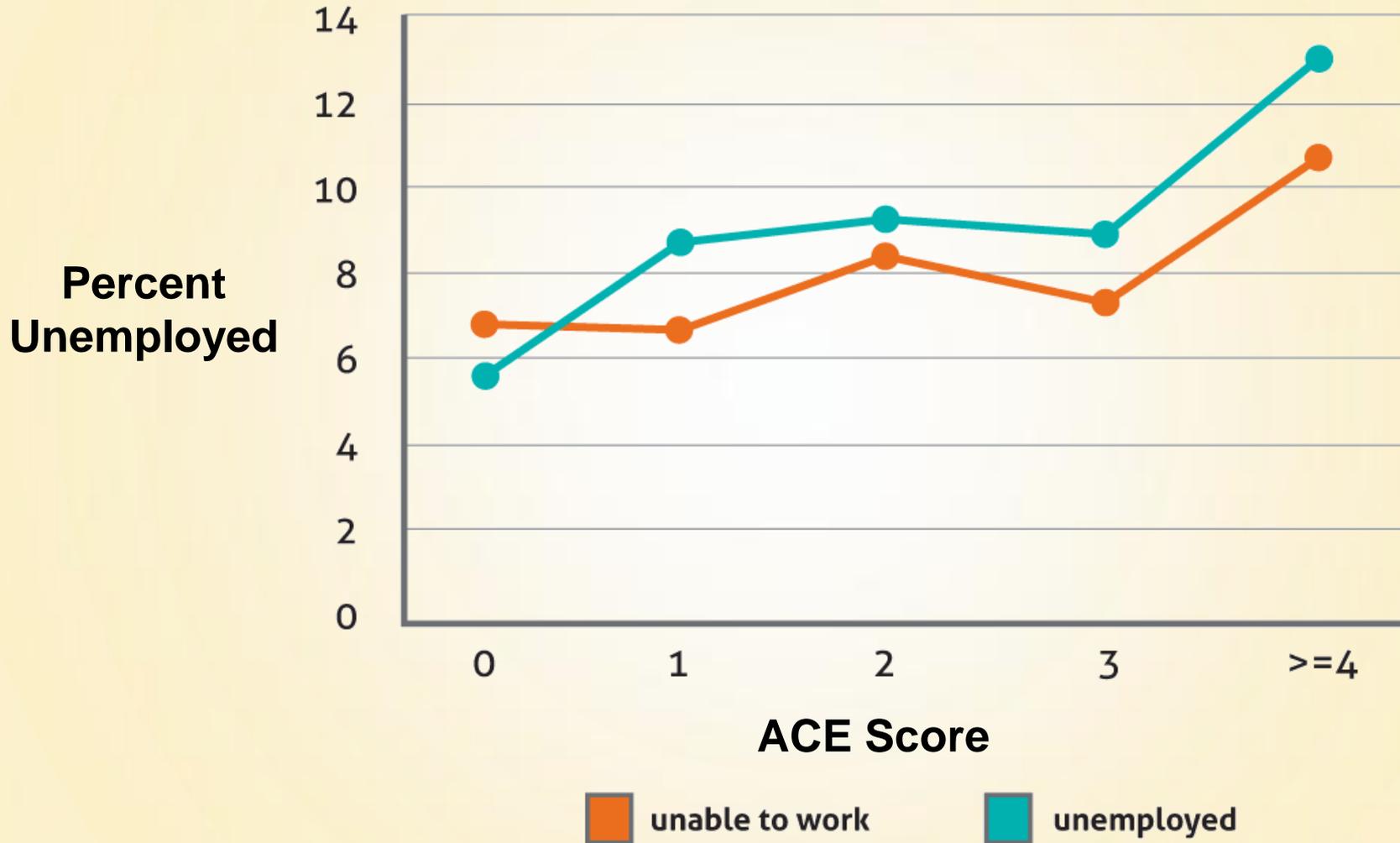
ACEs and Relationship Problems (Divorce, Family Problems, Sexual Dissatisfaction)



ACEs and Financial Instability

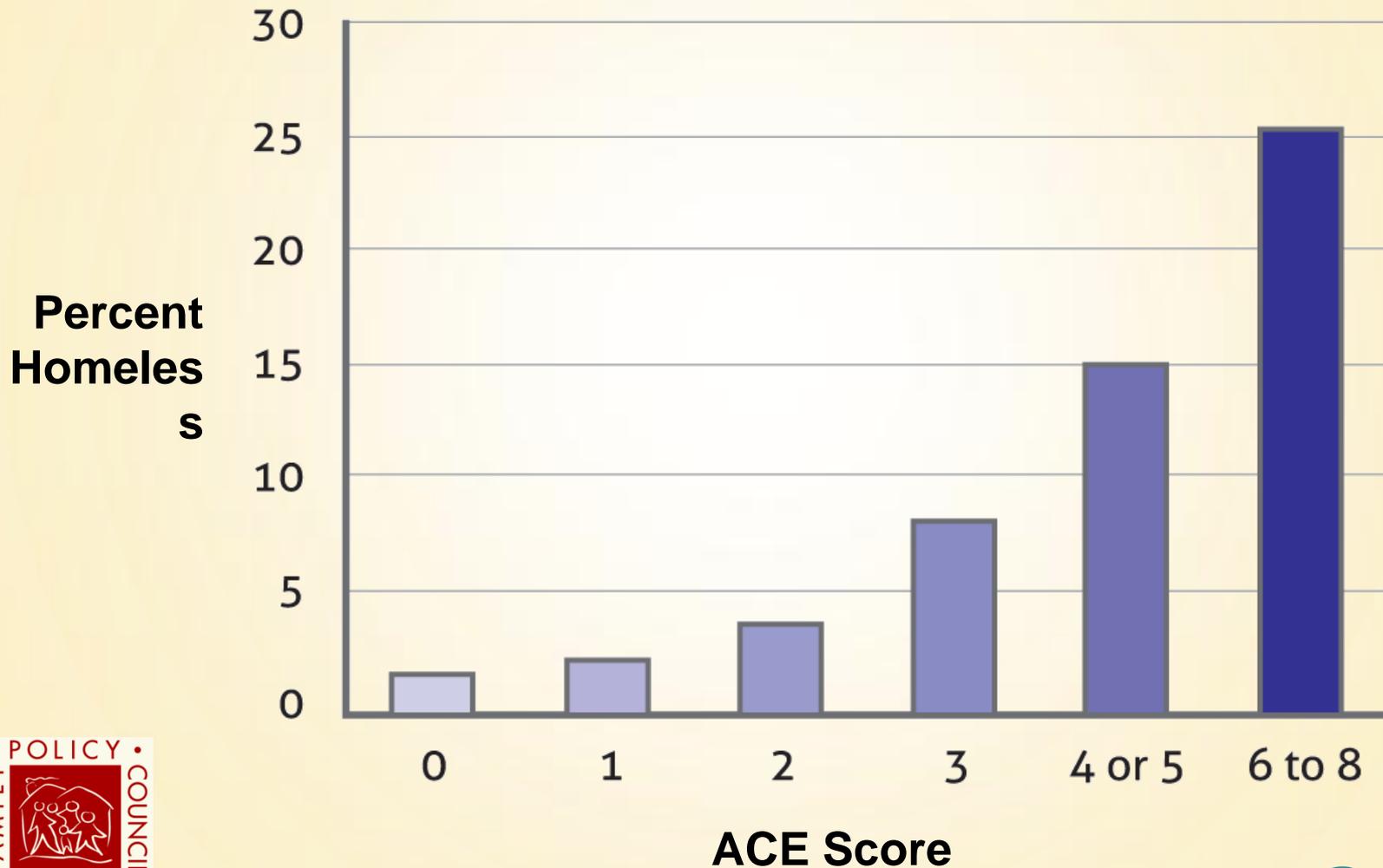


ACEs and Unemployment



Source: Soc Psychiatry & Epidemiology; Liu, et al., (2013)

ACEs and Adult History of Homelessness Washington State, BRFSS



The Destabilizing Effects of ACES...

In the Education System

Students with 3 or more ACEs:

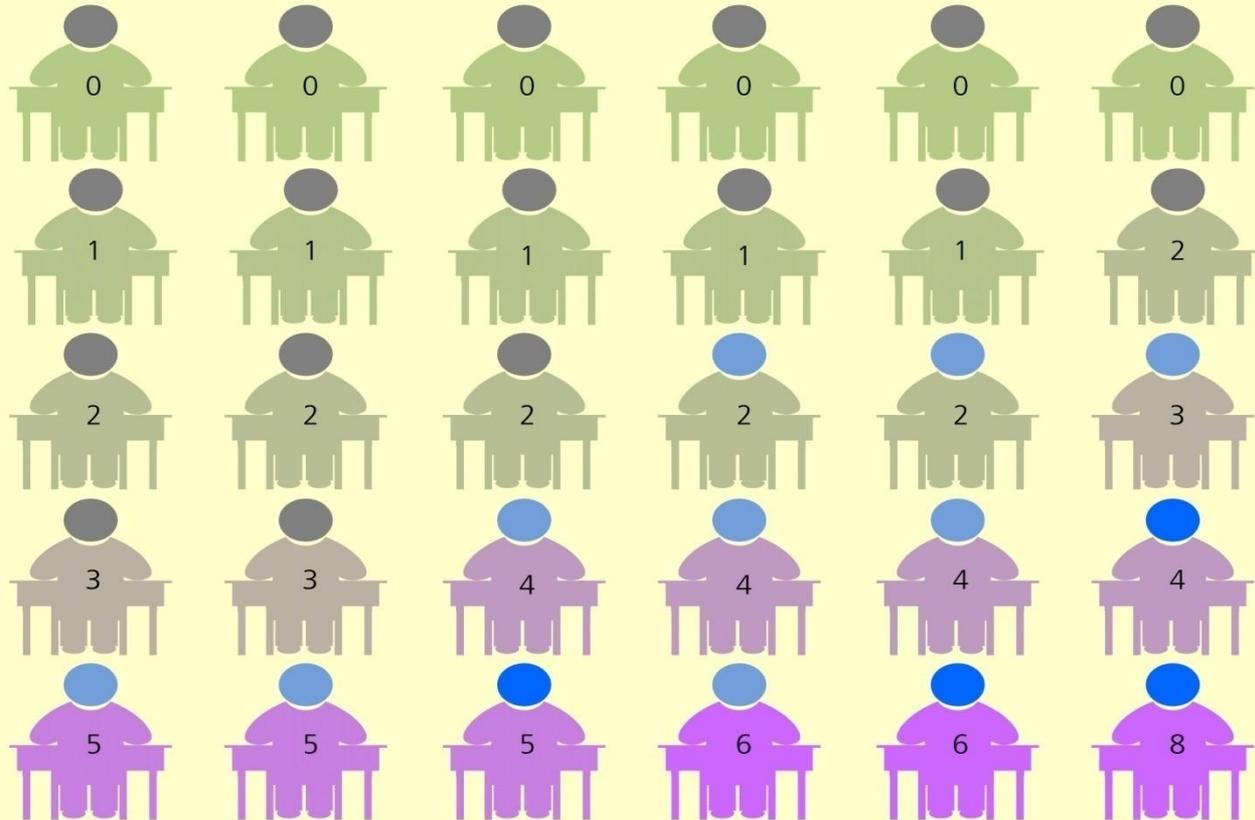
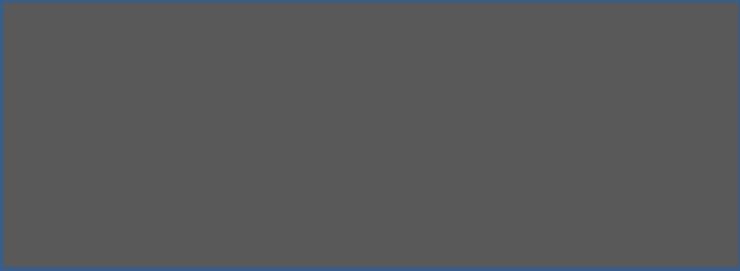
- Are 2 ½ times more likely to fail a grade**
- Score lower on standardized tests**
 - Have language difficulties**
- Are suspended or expelled more**
- Are designated to special education more frequently**
 - Have poorer health**

**Courtesy of Chris Blodgett, PhD
Washington State University**

ACEs and High School Sophomores and Seniors

Washington School Classroom (30 Students) Adverse Childhood Experiences (ACEs)

- 6 students with no ACE
- 5 students with 1 ACE
- 6 students with 2 ACEs
- 3 students with 3 ACEs
- 7 students with 4 or 5 ACEs
- 3 students with 6 or more ACEs



Population
 Average

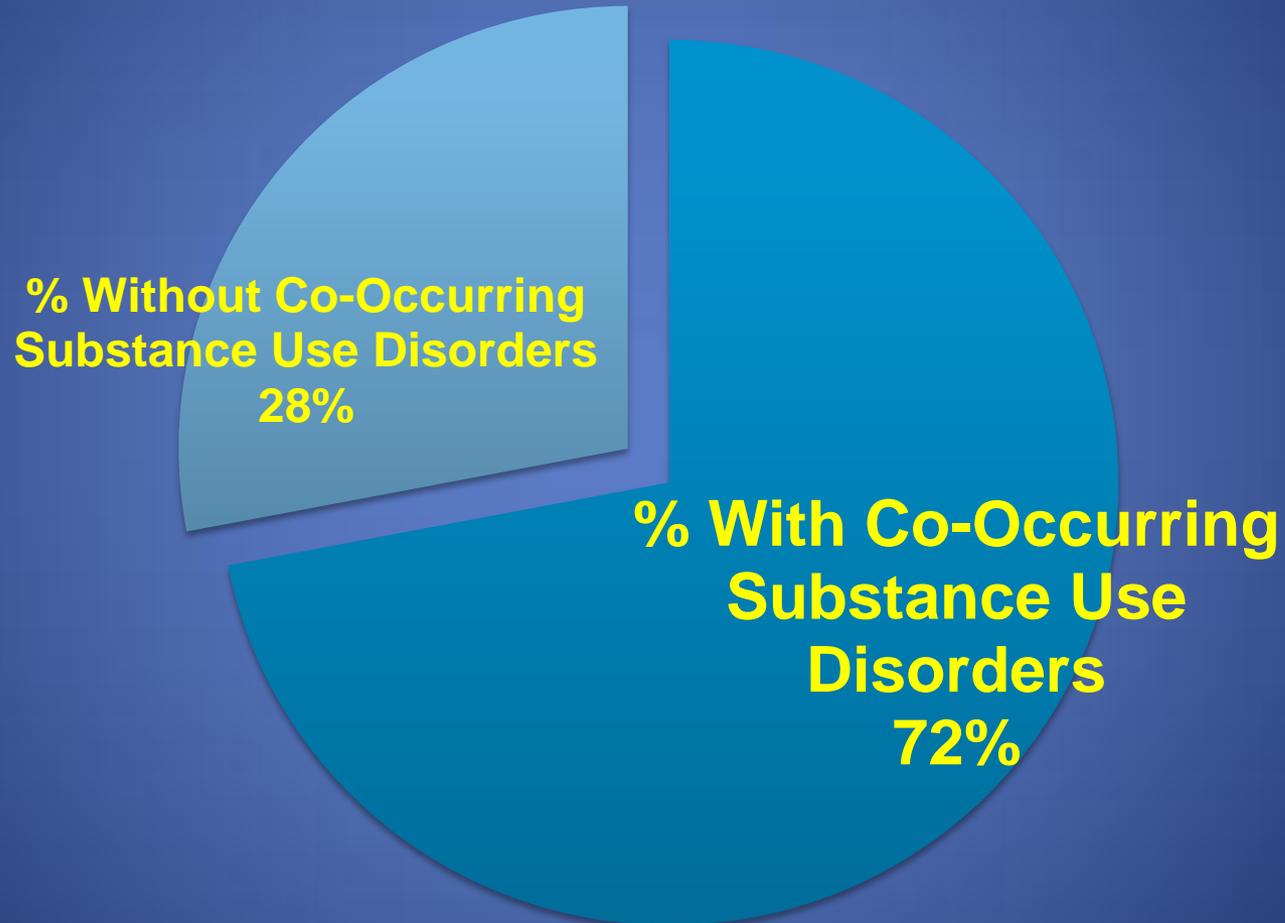
The Destabilizing Effects of ACES...

The Prison Pipeline

Large numbers of youth in the juvenile justice system are experiencing mental health disorders

Prevalence of Mental Disorders- Findings From Recent Studies	Positive Diagnosis
NCMHJJ (2006)	70.4%
Teplin et al. (2002)	69.0%
Wasserman et al. (2002)	68.5%
Wasserman, Ko, McReynolds (2004)	67.2%

Most have co-occurring substance abuse disorders



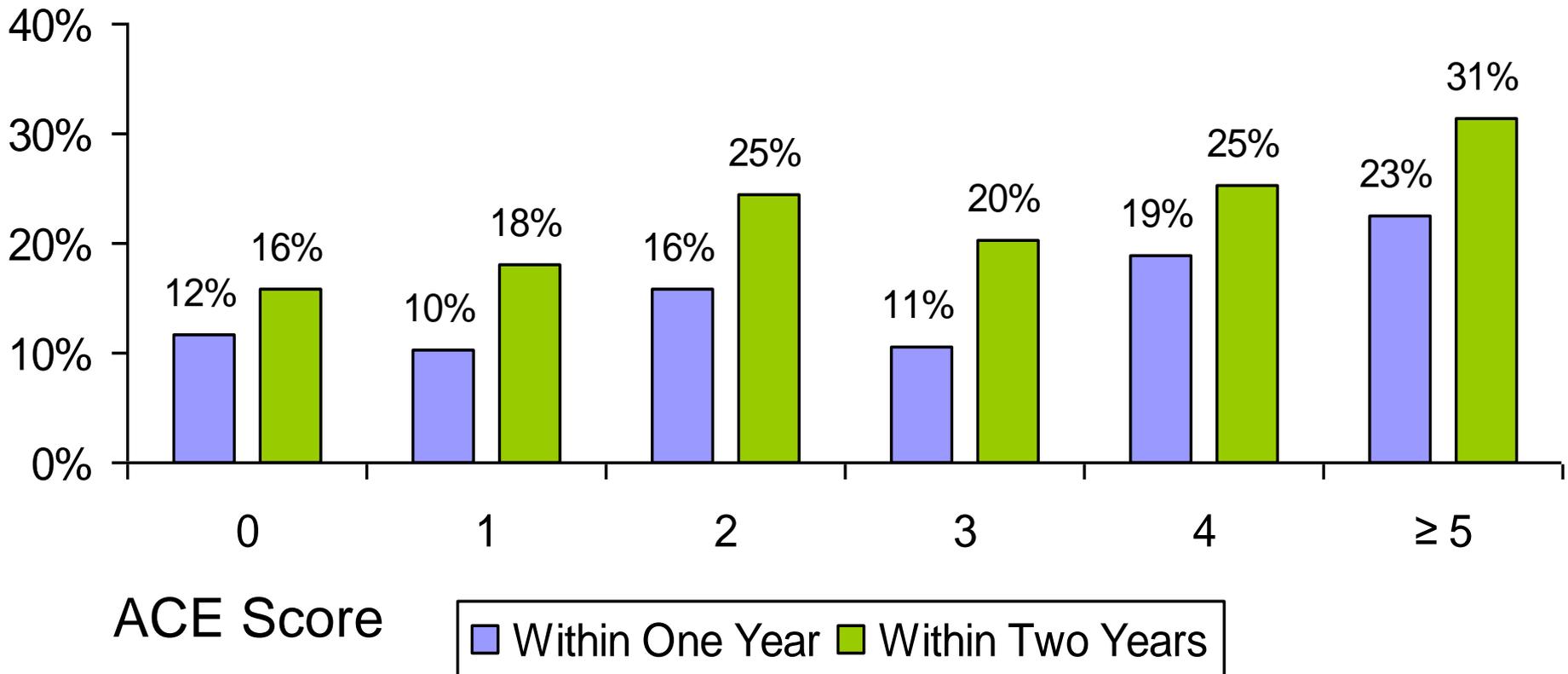
Source: The National GAINS Center, 2004



ACE Score and Felony Re-offense

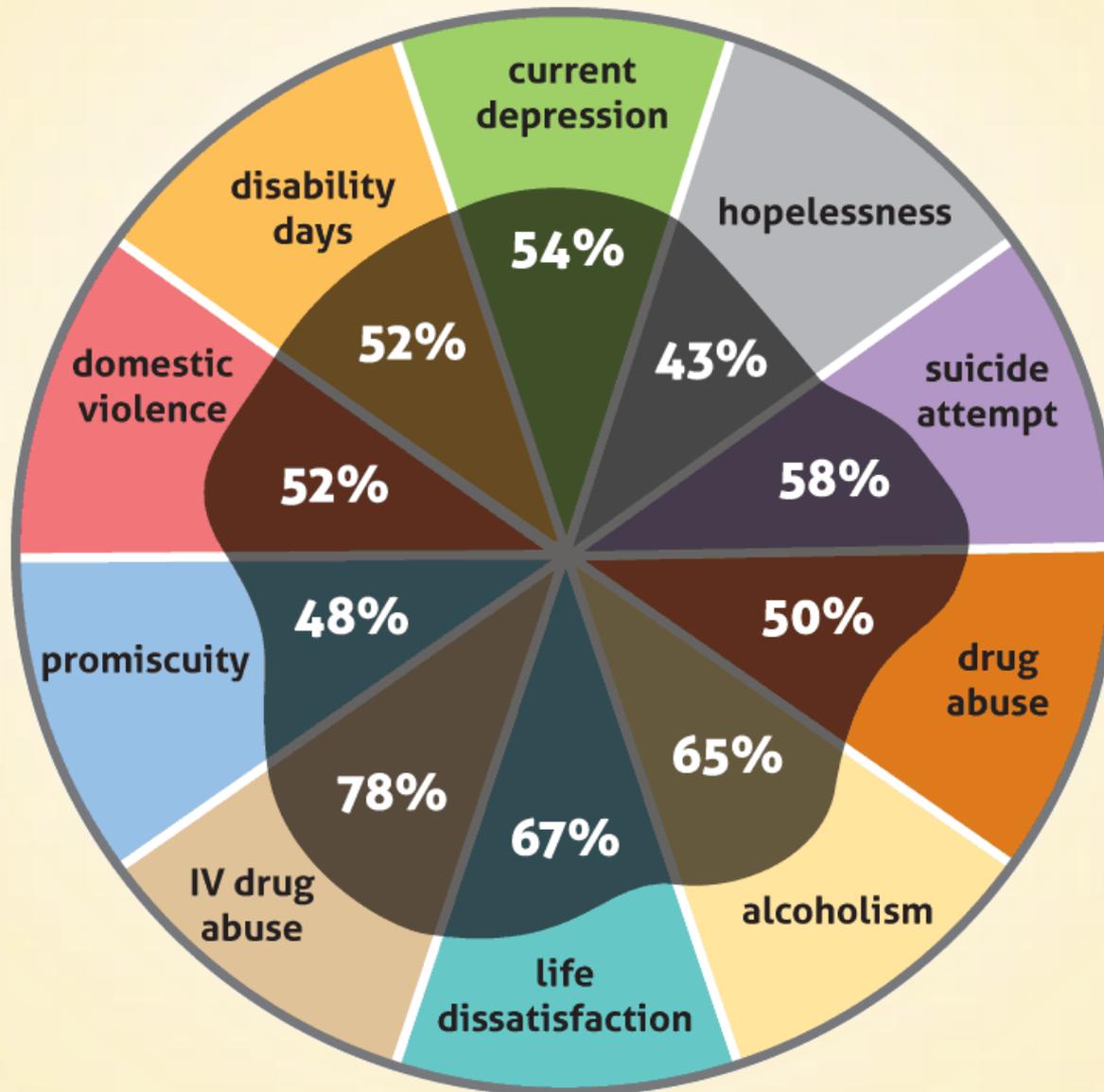


Felony Re-offense Post Probation and ACE Score



What's Predictable is Preventable

ACEs and Population Attributable Risks



Adverse Childhood Experiences A National Health Issue

ACEs have a strong influence on:

- adolescent health**
- reproductive health**
 - smoking**
 - obesity**
 - alcohol abuse**
 - illicit drug abuse**
 - sexual behavior**
 - mental health**
- risk of violence and revictimization**
 - stability of relationships**
 - performance in the workforce**

ACEs and Leading Causes of Death

ACEs increase the risk of:

- Heart disease
- Chronic lung disease
- Stroke
- Diabetes
- Cancer
- Lung cancer
- Liver disease
- Suicide
- Injuries
- HIV and STDs



Beham, (Hans) Sebald (1500-1550): Hercules slaying the Hydra, 1545 from The Labours of Hercules (1542-1548).

Building Self-Healing Communities

