

# Adverse and Protective Childhood Experiences

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# Learning Objectives

01

Define adverse childhood experiences (ACEs)

02

Describe the negative effects of exposure to ACEs in adolescence and adulthood

03

Explain underlying mechanisms relating ACEs to health problems

04

Identify relevant protective factors to the harmful effects of exposure to ACEs



WHAT DO YOU ALREADY  
KNOW ABOUT ACES?



WHAT DO YOU WANT  
TO KNOW ABOUT ACES?



WHAT QUESTION(S) DO  
YOU HAVE ABOUT ACES?

# Why study ACEs?

**Alcohol** isn't a gateway **drug**.  
**Nicotine** isn't a gateway **drug**.  
**Caffeine** isn't a gateway **drug**.

**Trauma** is the gateway. **Childhood abuse** is the gateway. **Molestation** is the gateway. **Neglect** is the gateway.

Drug abuse, violent behavior, hyper sexuality and self harm are often **symptoms** (not the cause) of much bigger **issues**. And it almost always stems from a **childhood** filled with **trauma**, absent parents, and an abusive family.

But most people are too busy laughing at the **homeless** and **drug addicts** to realize your own **children** could be in their shoes in **15 years**.





What are ACEs?

But first:

What do ACEs have to do with obesity interventions?

# Definition

- A set of interrelated stressful or traumatic experiences during childhood or adolescence (Felitti et al., 1998)
  - Interrelated – exposure to one increases risk for others
  - Stressful – threat response system activated
  - Childhood – critical window of development for brain and body



ACEs are a set of interrelated stressful or traumatic experiences (Felitti et al., 1998)

Abuse	Neglect	Household dysfunction
<ul style="list-style-type: none"><li>• emotional</li><li>• physical</li><li>• sexual</li></ul>	<ul style="list-style-type: none"><li>• emotional</li><li>• physical</li></ul>	<ul style="list-style-type: none"><li>• domestic violence</li><li>• mental illness,</li><li>• substance use,</li><li>• parental criminal activity/incarceration,</li><li>• parental separation/divorce</li></ul>

Other Types such as community ACEs - witnessing or experiencing violence (Finkelhor et al., 2013)



## Abuse<sup>1</sup>

- **Emotional abuse:** A parent or other adult in your home ever swore at you, insulted you, or put you down.
- **Physical abuse:** A parent or other adult in your home ever hit, beat, kicked or physically hurt you.
- **Sexual abuse:** An adult or person at least 5 years older ever touched you in a sexual way, or tried to make you touch their body in a sexual way, or attempted to have sex with you.

## Household Challenges

- **Intimate partner violence:**<sup>2</sup> Parents or adults in home ever slapped, hit, kicked, punched or beat each other up.
- **Substance abuse in the household:** A household member was a problem drinker or alcoholic or used street drugs or abused prescription medications.
- **Mental illness in the household:** A household member was depressed or mentally ill or a household member attempted suicide.
- **Parental separation or divorce:** Parents were ever separated or divorced.
- **Incarcerated household member:** A household member went to prison.

## Neglect<sup>3</sup>

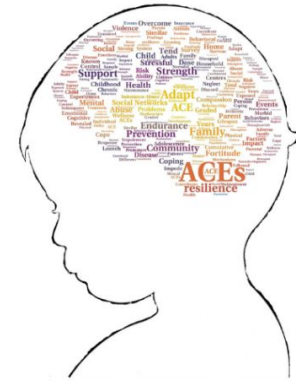
- **Emotional neglect:** An adult in the household never or very seldom made you feel safe and protected.
- **Physical neglect:** An adult in the household never or very seldom tried hard to make sure your basic needs were met.

What other experiences  
would you include in the  
ACEs list?

What experiences would you  
remove?

# Expanded ACEs (Cronhelm et al. 2015)

- Additional types:
  - Community violence
  - Racism/discrimination
  - Bullying
  - Peer victimization (physical or sexual)
  - Foster care/adoption



Even more  
Aces?  
(Finkelhor et  
al., 2013)

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Poverty

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Severe medical illness in family

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Parental illness/death

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Below average grades?

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No friends?

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Frequent parental arguing?



SO....

What makes something  
an “ACE” or not?

# ACEs: A concept in search of a definition

- “experiences that are likely to require significant adaptation by an average child and that represent a deviation from the expectable environment” – McLaughlin 2016
- Expectable environment: environmental inputs required for the human brain to develop normally
- Deviation:
  - Absence of expected inputs (neglect)
  - Unexpected inputs that represent threats to physical integrity (violence)

# Beyond the ACE Score: Dimensions of Adversity: Threat and Neglect (McLaughlin 2017)

- Ace Score does not capture dimensions of adversity:
  - Threat (abuse, witnessing violence)
  - Neglect (physical, emotional, cognitive, parental mental illness/alcoholism)
- Each Dimension may affect different developmental systems
  - Threat – reduce amygdala activity/stress response
  - Neglect – increase PFC and executive function
- Identifying these pathways can help researchers identify targets for intervention

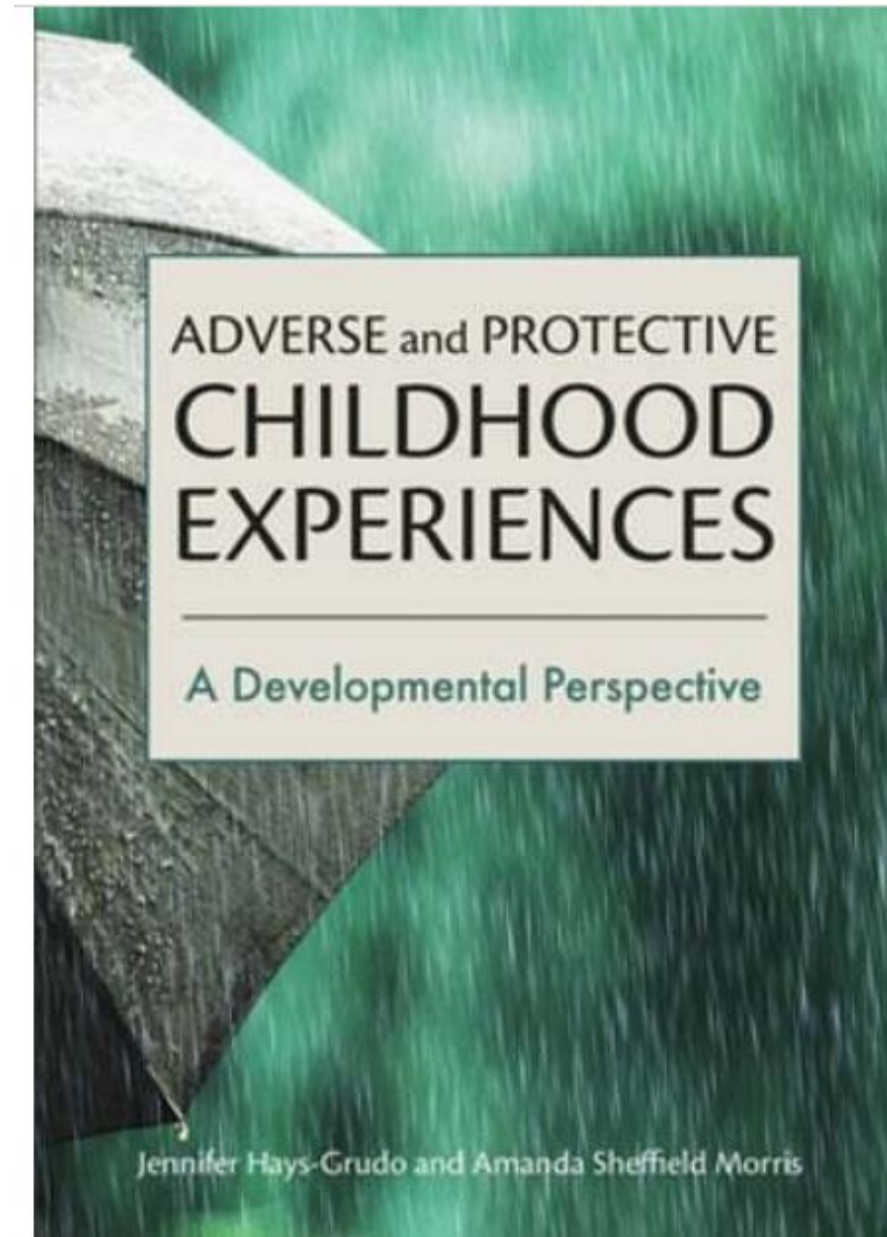




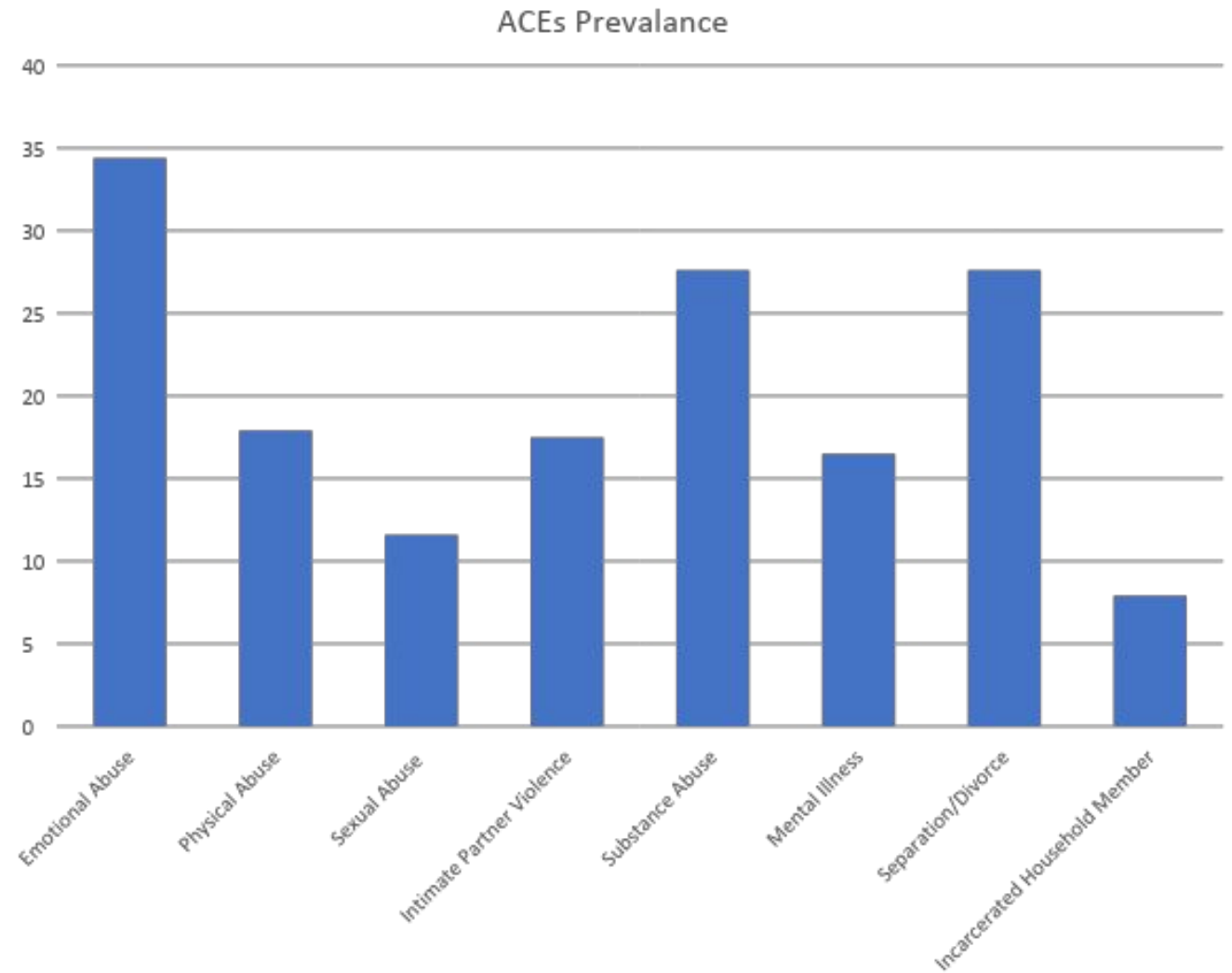
How common are ACEs?

# The day a CDC researcher wept

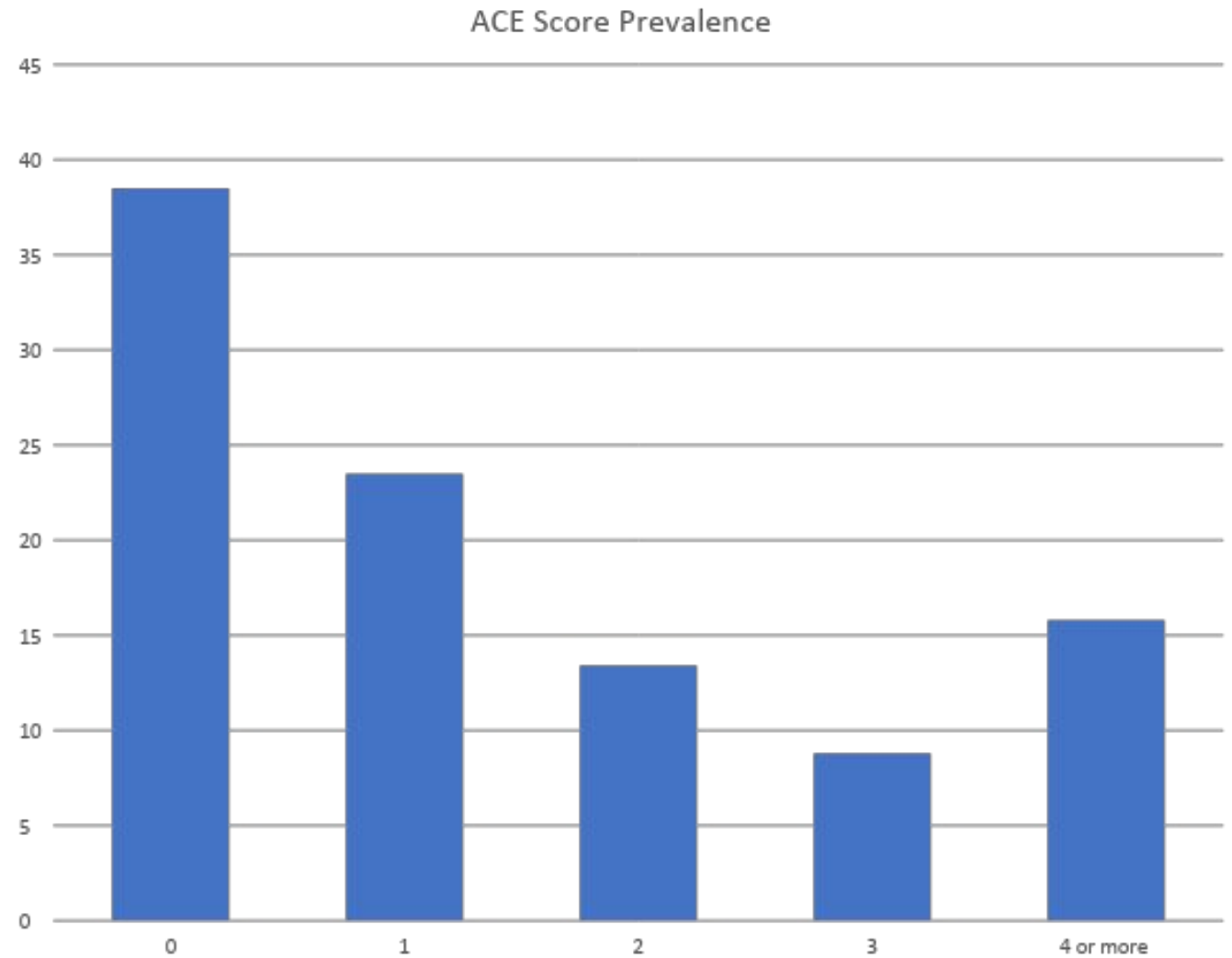
Aces are common. Aces  
are interrelated. Aces  
have numerous negative  
effects.



# How common are ACEs?



# ACE Score Prevalence



## ACE Score Prevalence for Participants Completing the ACE Module on the 2010 BRFSS

Number of Adverse Childhood Experiences (ACE Score)	Women Percent	Men Percent	Total Percent
0	37.6%	39.3%	38.5%
1	22.7%	24.5%	23.5%
2	12.9%	13.9%	13.4%
3	9.0%	8.6%	8.8%
4 or more	17.8%	13.7%	15.8%

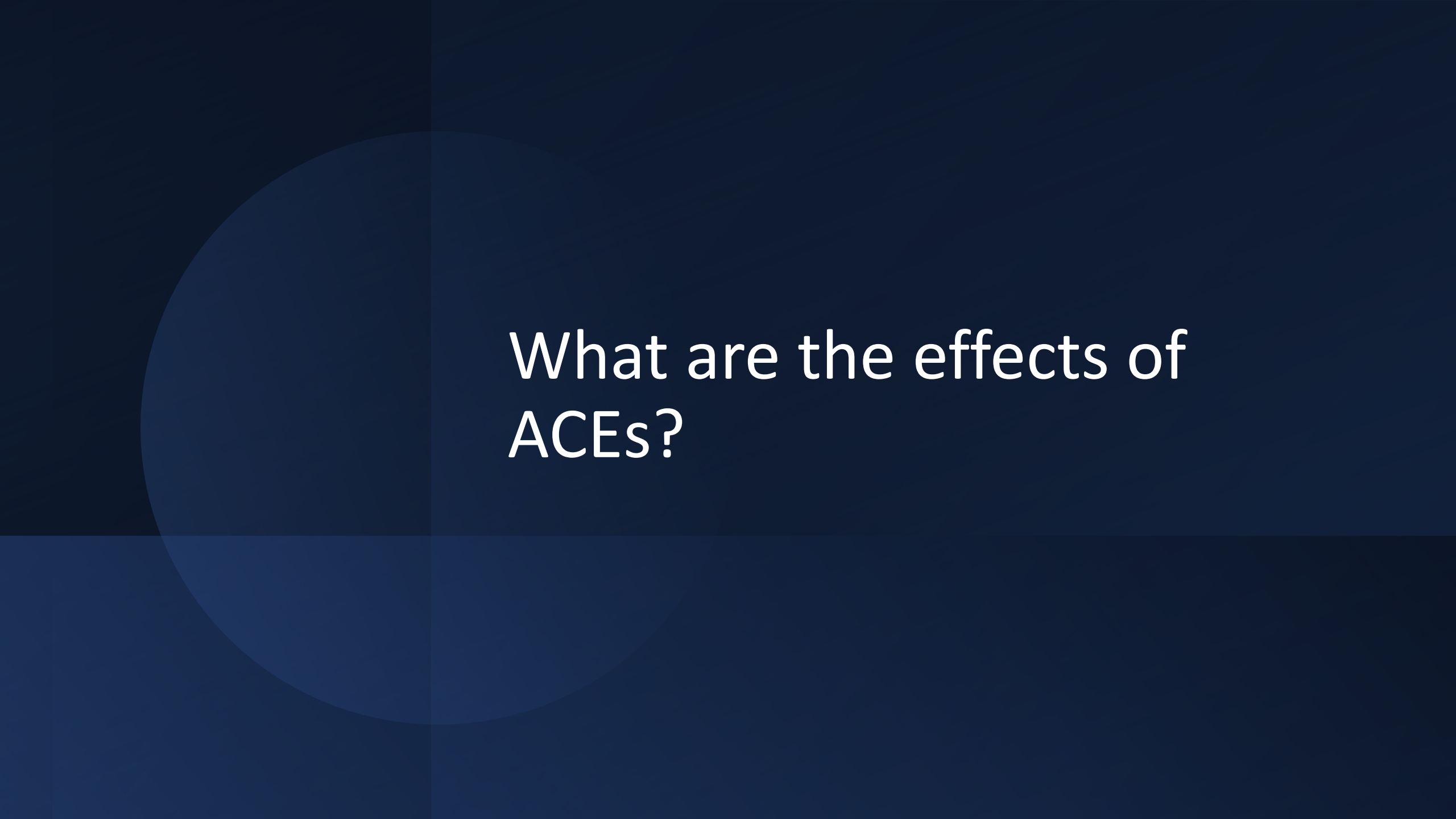
Note: Reports and articles that use data from other years and/or other states may contain different estimates.

Source: Merrick, M.T., Ford, D.C., Ports, K. A., Guinn, A. S. (2018). [Prevalence of Adverse Childhood Experiences From the 2011-2014 Behavioral Risk Factor Surveillance System in 23 States](#). [JAMA Pediatrics](#), 172(11), 1038-1044.

## Prevalence of ACEs by Category for Participants Completing the ACE Module on the 2011-2014 BRFSS

ACE Category	Women	Men	Total
	Percent	Percent	Percent
ABUSE			
Emotional Abuse	33.9%	34.9%	34.4%
Physical Abuse	17.5%	18.4%	17.9%
Sexual Abuse	16.3%	6.7%	11.6%
HOUSEHOLD CHALLENGES			
Intimate Partner Violence	18.2%	16.8%	17.5%
Substance Abuse	28.7%	26.3%	27.6%
Mental Illness	19.2%	13.7%	16.5%
Parental Separation or Divorce	27.8%	27.5%	27.6%
Incarcerated Household Member	7.3%	8.6%	7.9%





What are the effects of  
ACEs?



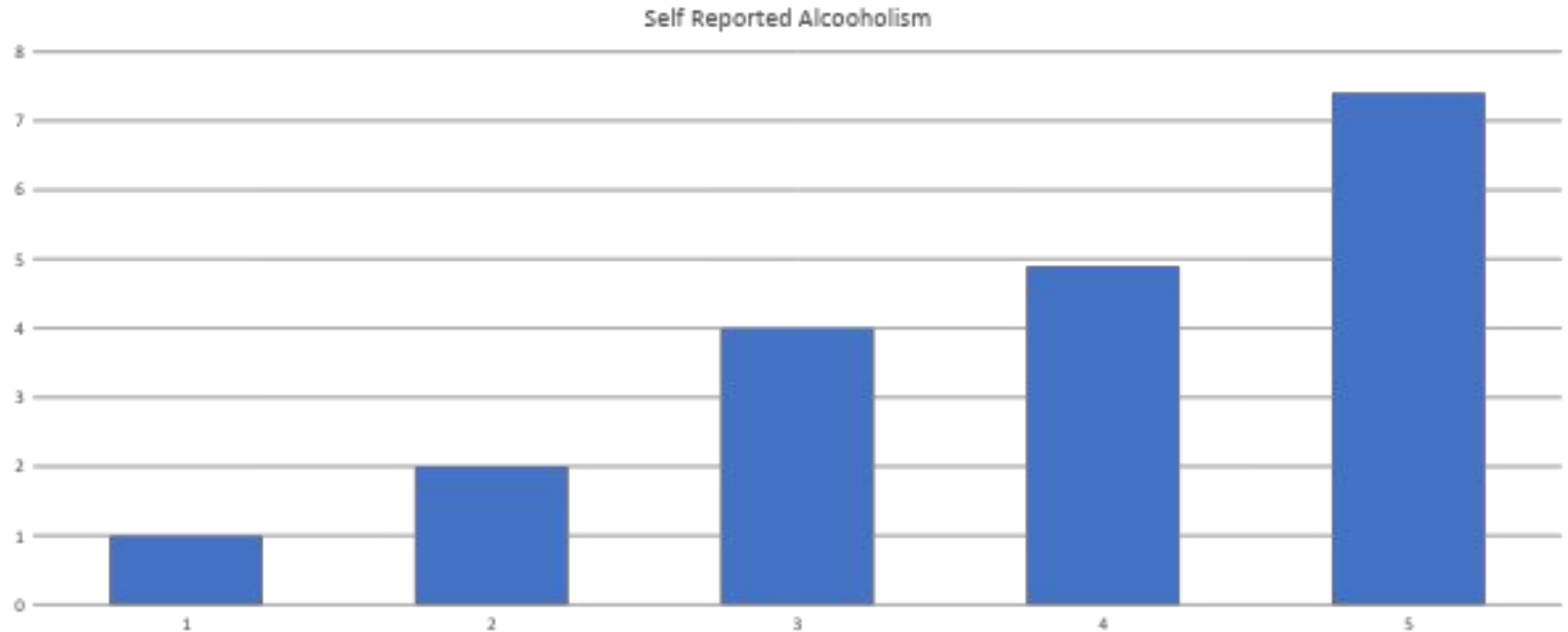
ACEs are  
associated  
with  
numerous  
health and  
mental health  
outcomes:

Exposure to ACEs is  
associated with an increased  
risk for (Hughes et al., 2017)

- Cardiovascular disease - 2.05
- Respiratory disease - 3.05
- Anxiety - 3.7
- Depression - 4.4
- Cancer 2.31

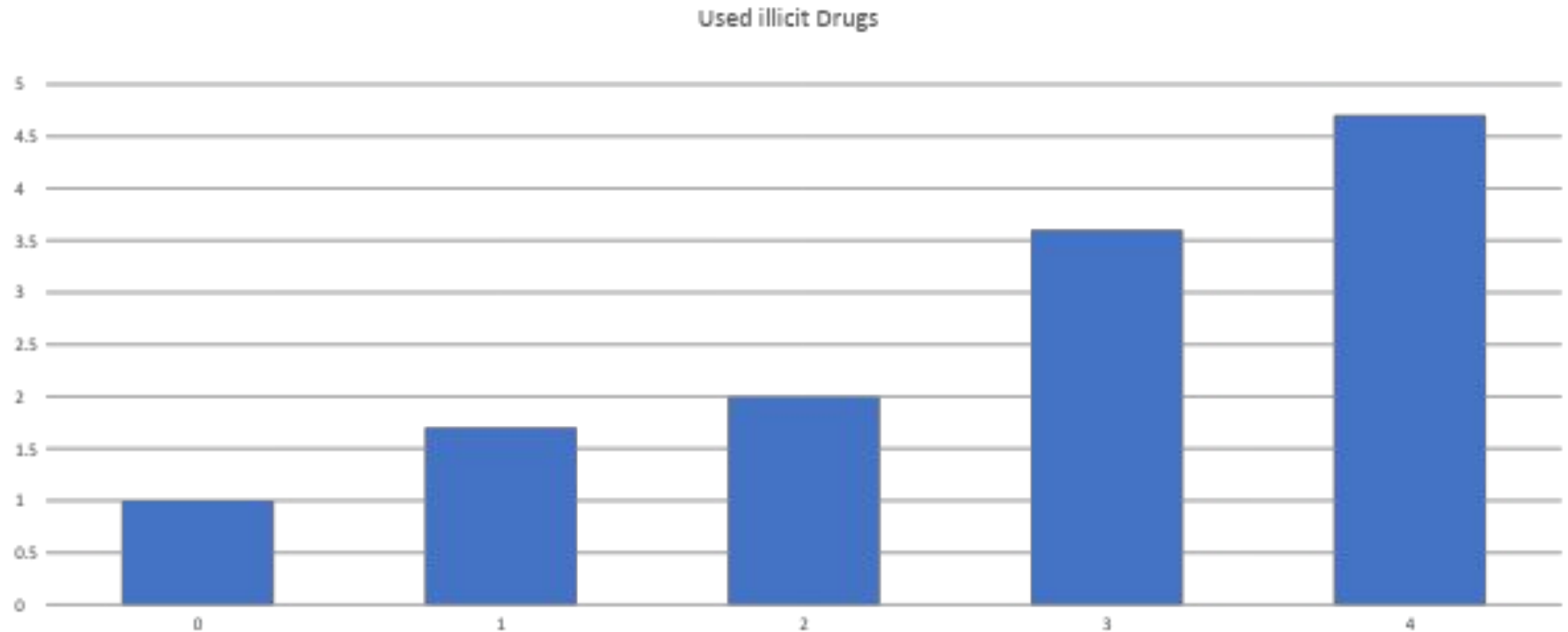
# Self-reported Alcoholism

Felitti et al., 1998



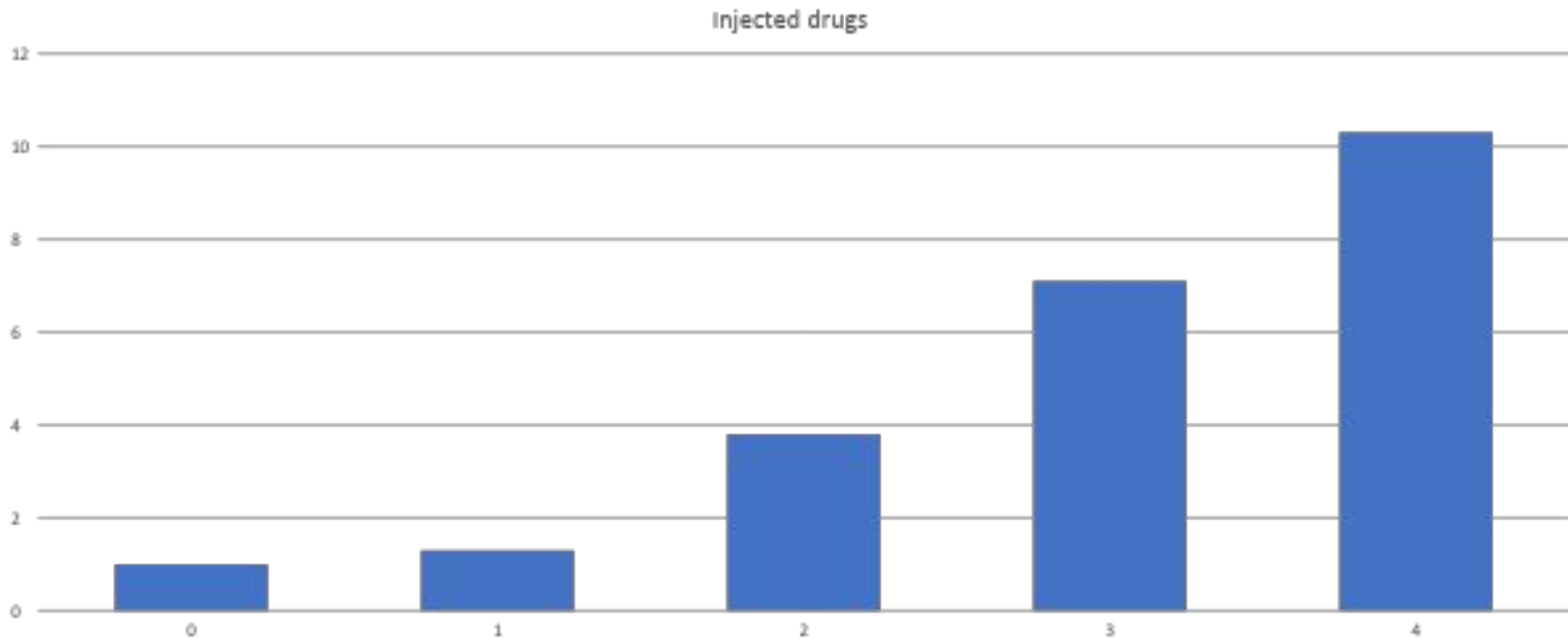
# Used Illicit Drugs

Felitti et al., 1998



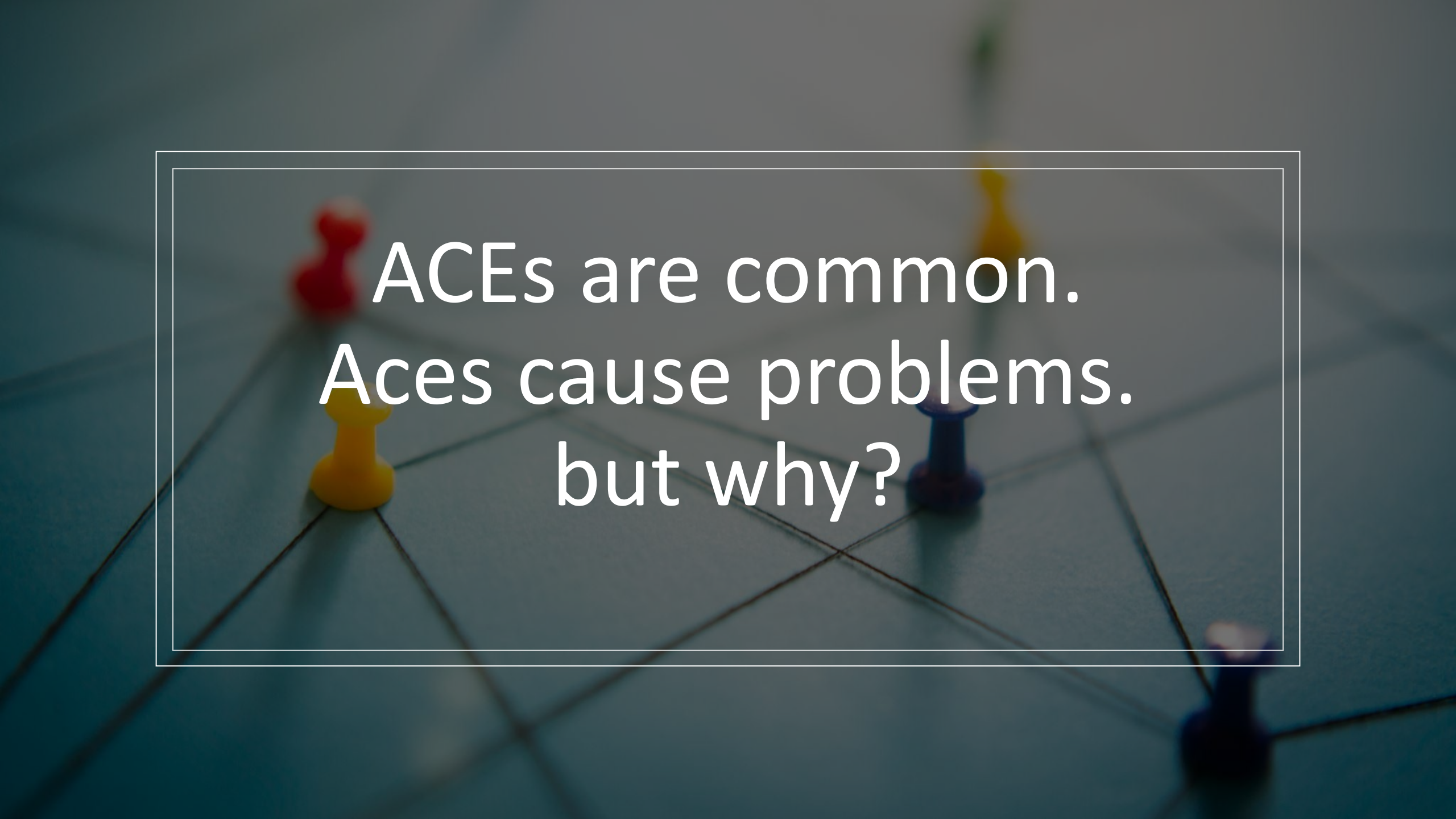
# Injected Drug Use

Felitti et al., 1998



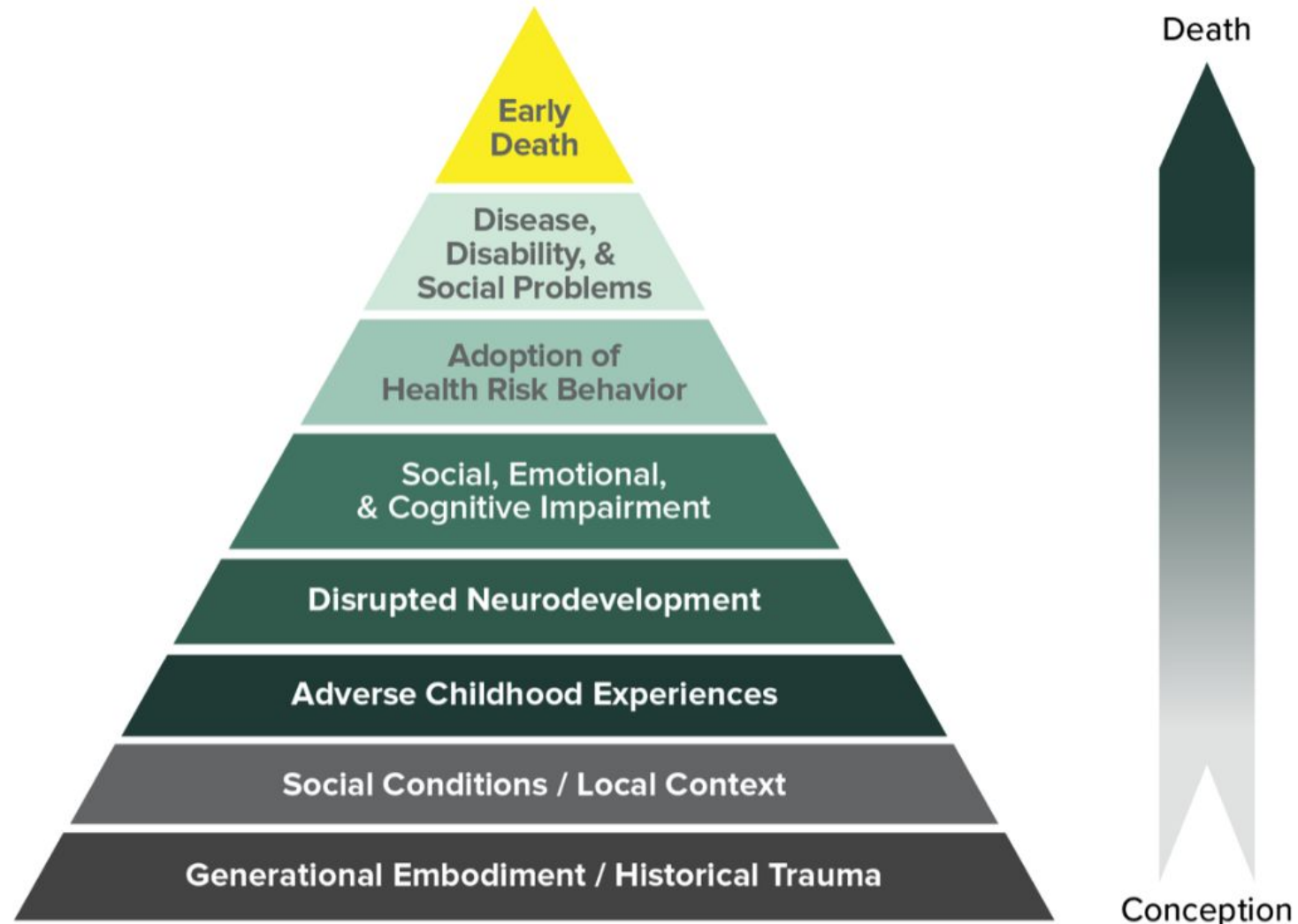
But can you  
sum it up in  
one chart?

Illicit drug use	5.62 (4.46–7.07)
Excluding outliers	5.17 (4.48–5.96)
Problematic alcohol use	5.84 (3.99–8.56)
Excluding outliers	6.86 (5.36–8.78)
Sexually transmitted infections	5.92 (3.21–10.92)
Violence victimisation	7.51 (5.60–10.08)
Violence perpetration	8.10 (5.87–11.18)
Problematic drug use	10.22 (7.62–13.71)
Suicide attempt	30.14 (14.73–61.67)
Excluding outliers	37.48 (22.19–63.31)

The background of the slide is a close-up, slightly blurred photograph of a blue surface with a white grid pattern. Several colorful pushpins (red, yellow, blue) are pinned to the grid. A white rectangular border is centered on the slide, enclosing the text.

ACEs are common.  
Aces cause problems.  
but why?





Mechanism by which Adverse Childhood Experiences  
Influence Health and Well-being Throughout the Lifespan



# Why are ACEs associated with negative outcomes?

- ACEs lead to physical and neurological changes (Hays-Grudo et al., 2021)
  - Changes in neuroendocrinological functioning
  - Repeated activation of stress response systems
  - Allostatic Functioning

# Allostatic Load

## Stress response system

- Threat is detected, sympathetic nervous system activated (fight or flight)
  - Triggers inflammation
- Hypothalamic-pituitary-adrenal axis activated (HPA)
  - Mobilize stored energy

Threat subsides – parasympathetic nervous system activates

This is adaptive and necessary for survival!

# Allostatic Load: Biological Embedding of Stress

The cumulative wear and tear of the body from repeated activation of the stress-response system

## Neurological system :

- Changes in prefrontal cortex (impaired attention, difficulties with emotion regulation)
- Enhanced fear response (hypervigilance)

## Endocrine System

- Changes in cortisol functioning

## Immune System

- Increased inflammation levels

## Other biological changes

### Alterations in brain development – structural and connectivity

- Prefrontal cortex (focus, decision-making, impulse control)
- Amygdala (heightened threat, lowered reward response)
- Hippocampus (learning)

### Epigenetic Changes

- DNA methylation (harder to transcribe RNA)
  - Can led to dysregulated stress response
- Accelerated aging of cells

# Developmental Systems Disrupted

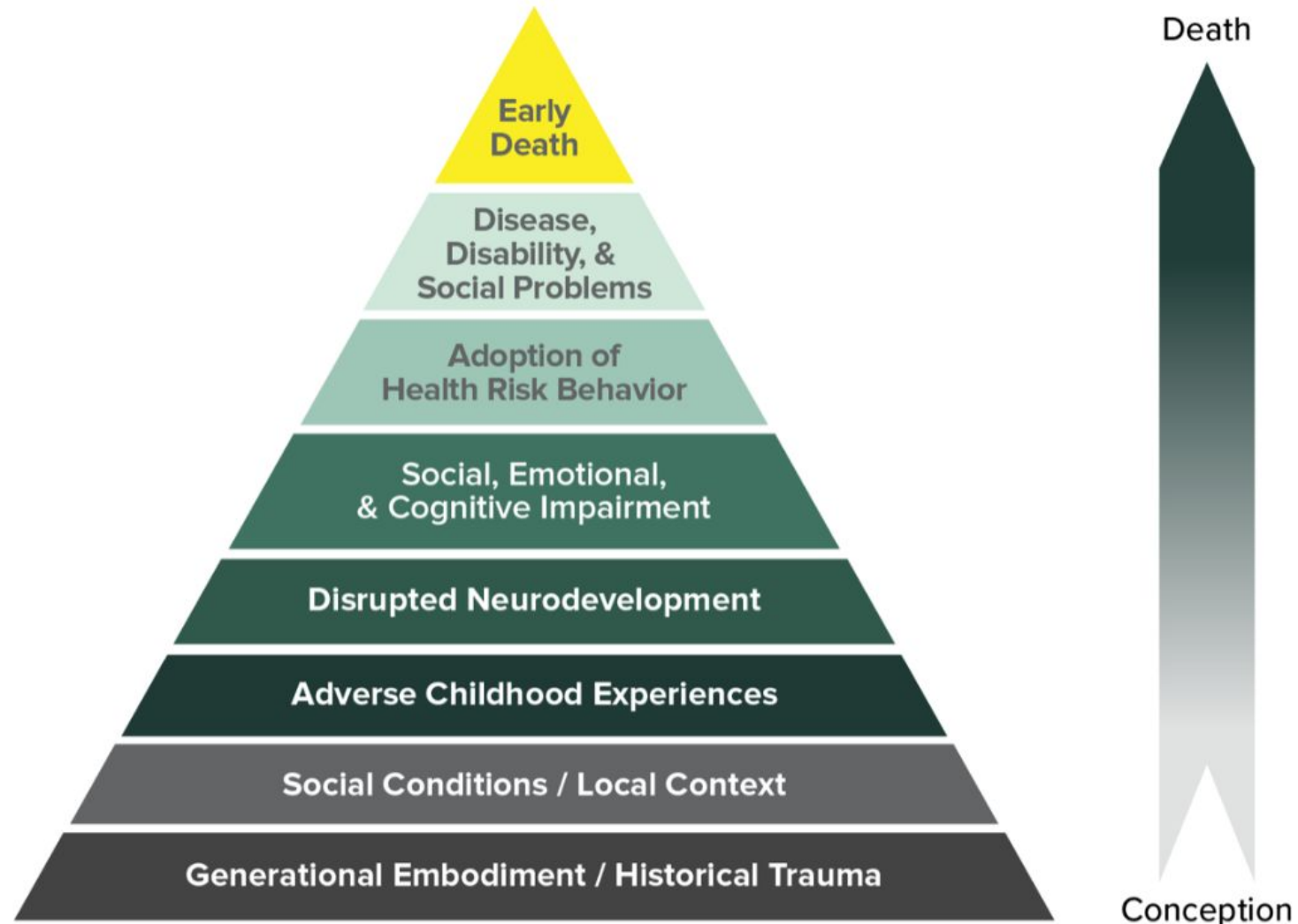
Attachment

cognitive development

Executive system

Emotion regulation systems

Impulse control



Mechanism by which Adverse Childhood Experiences  
Influence Health and Well-being Throughout the Lifespan

Practice!

Describe to a friend (or someone sitting next to you)

- What are ACEs?
- How common are they?
- What effect do they have?
- Why do they have that effect?

Be sure to take turns



# Why are ACEs associated with negative outcomes?

Exposure to traumas creates feelings of anger, anxiety or depression

Smoking, alcohol and drug use are used to cope with these feelings

Alcohol and drug use is therefore a “problem” but a solution that provides immediate relief but causes long-term problems (Felitti et al., 1998)

## ACEs and Substance Use

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Substance use is not  
a “problem”, it is an  
attempted solution

## Summary so far

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Aces are *interrelated* stressful/traumatic events that occur during childhood (< 18)

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Aces can alter stress response and brain development

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Aces are associated with an increased risk of many problems, esp. substance use

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So....

Should we routinely screen for ACEs?


What are some benefits? Drawbacks?

Are ACEs the whole story?

# But is this the whole story?

Health problem	Number of categories	Sample size (N) <sup>a</sup>	Prevalence (%) <sup>b</sup>	Adjusted odds ratio <sup>c</sup>
Considers self an alcoholic	0	3,841	2.9	1.0
	1	1,993	5.7	2.0
	2	1,042	10.3	4.0
	3	586	11.3	4.9
	4 or more	540	16.1	7.4
	Total	8,002	5.9	—
Ever used illicit drugs	0	3,856	6.4	1.0
	1	1,998	11.4	1.7
	2	1,045	19.2	2.9
	3	589	21.5	3.6
	4 or more	541	28.4	4.7
	Total	8,029	11.6	—
Ever injected drugs	0	3,855	0.3	1.0
	1	1,996	0.5	1.3
	2	1,044	1.4	3.8
	3	587	2.3	7.1
	4 or more	540	3.4	10.3
	Total	8,022	0.8	—

Source: Felitti et al. (1998))



So why do some  
develop problems, but  
others don't?

# What is resilience?

In small-ish groups come up with a definition of what “resilience” is

Then, work to identify and list some potential protective factors that might reduce risk from ACEs

# Resilience

“The ability to draw on strengths and assets to cope with adversity” (Ashton et al., 2021)

“The process of adapting well in the face of adversity, trauma, tragedy, threats, or even significant sources of stress” (American Psychological Association, 2014)





Is resilience a trait?

An outcome?

In the individual?

Their environment?

# Resilience

- Resilience is successful adaptation following adversity (Masten 2007)
- Resilience is systemic, dynamic, and exists in in the developmental system (Lerner 2006)
- Chronic exposure to ACEs may impair multiple developmental systems (Hays-Grudo et al. 2021) compromising fundamental adaptive sytems (Masten 2001) leading to long term problems
- However, these systems are prime candidates for identifying factors that promote resilience to ACEs

# Protective and Compensatory Experiences

## Positive Relationships

- Parental love
- Positive peer relations
- Non-parental adult mentor
- Belonging to a social group
- Volunteering in community

## Access to Resources

- Living in a safe home
- Quality education
- Having a hobby
- Involvement in team sports
- Consistent and fair family routines and rules

# Masten's “short list”

- Capable caregiving/parenting
- Other close relationships
- Problem-solving skills
- Self-control
- Motivation to succeed
- Self-efficacy
- Faith, hope, belief life has meaning
- Effective schools
- Well-functioning communities

# Benevolent Childhood Experiences

## Benevolent Childhood Experiences [BCE's] (Narayan et al., 2018)

To get a BCE score, the survey-taker is asked how many of these ten items he or she experienced before the age of 18. Would you respond "yes" or "no" to the prompt, *"Growing up, I had..."*

Item	YES	NO
1. At least one caregiver with whom you felt safe?		
2. At least one good friend		
3. Beliefs that gave you comfort		
4. Enjoyment at school		
5. At least one teacher that cared		
6. Good neighbours		
7. An adult (not a parent/ caregiver or the person from *1) who could provide you with support or advice		
8. Opportunities to have a good time		
9. Like yourself or feel comfortable with yourself		
10. Predictable home routine, like regular meals and a regular bedtime		
<b>Total YES's = BCE Score</b>		

Narayan, A. J., Rivera, L. M., Bernstein, R. E., Harris, W. W., & Lieberman, A. F. (2018). Positive childhood experiences predict less psychopathology and stress in pregnant women with childhood adversity: A pilot study of the benevolent childhood experiences (BCEs) scale. *Child abuse & neglect*, 78, 19-30.

Even more  
lists?

- [Microsoft Word - ACE & Resilience Questionnaires Derek Farrell 2.docx \(loulebentz.com\)](#)

What are benefits of considering both ACEs and protective factors?



# Take-aways so far:

- What are your take-aways right now?
- Implications for this?
- Applications for this?

# Tips for Screening for ACEs AND PACEs in Therapy Context

## ACEs

- Provide context for understanding ACEs score
  - Define ACEs, how common they are and describe potential effects
- Invite them to reflect on their score
  - If ready – how have these experiences shaped their problems in life? (attempted solution)

## PACEs

- What, if anything, were the protective experiences?
- How did that balance each other out?
  - If not – how did they survive? How are they still alive? What strengths do they possess w/o any protective factors? How did they manage to stay strong at all?

# Continuing the Conversation

- As you look at the list of protective factors, how many are currently in your life?
  - What ways are they helping your?
- What are ways to increase these factors?
- Solution focused:
  - how would your life be different if you could add to them?
  - Which one would be the easiest to add? Which one the most beneficial?

# Intervening in ACEs

Multiple Approaches needed for a Complex Problem

Prevention  
and  
Intervention  
are both  
Needed

## Strategies can focus on:

- Preventing ACEs from occurring
- Intervening after exposure to ACEs in childhood
- Intervening in Adults who have ACEs
- Preventing Intergenerational transmission of ACEs

Why are  
some many  
children  
drowning?



# The Antidote to ACEs are Safe Stable Nurturing Relationships

Efforts to  
address ACEs  
require a  
paradigm  
shift  
emphasizing

...

- “The centrality of relationships and regulation of emotion and stress to brain development as well as overall health. They will elevate relationship-centered methods to engage individuals, families and communities in self-care related to ACEs, stress, trauma and building the resilience and nurturing relationships science has revealed to be at the root of well-being “ – Bethell et al., 2017



# Prevent ACEs by Supporting Parents

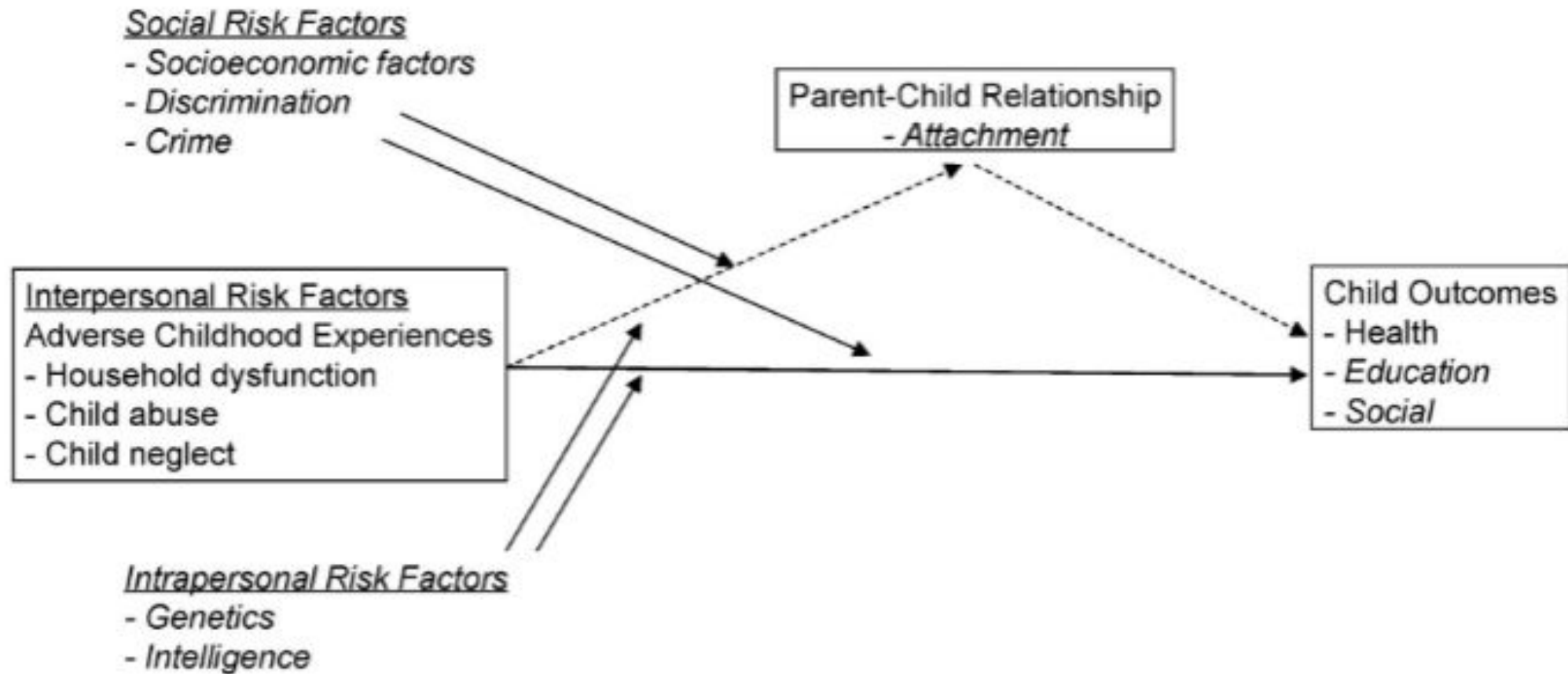
Strong, secure relationship with parent/caregiver is...

- the single most important factor for healthy children's development (National Academies of Science Engineering and Medicine 2019)

To promote effective parenting, we must support caregivers' well-being and mental health needs

In a review of Interventions for ACEs (Marie-Mitchell & Kostolanksy 2019)

- Most combined parent education, social service referrals, and social support components
- 12/14 noted improvements in parent-child relationship



**Figure 1.** Theoretical framework for child outcomes.

Note: Italics indicate factors that are not a focus of this literature review.

Marie-Mitchell, Kostolanksy 2019

# Prevent ACEs by Supporting Parents

Efforts to prevent ACEs need to address neurobiological adaptations from parents own ACEs

- Reduce dysregulated stress-response - parasympathetic response

Mindfulness-based mind-body interventions

- Meditation, yoga, tai-chi, guided imagery, biofeedback (Bethell et al., 2016)

Children's self-regulation develops through co-regulation with warm responsive adult

- Parents as Teachers, Triple P, IY, Circle of Security
- Nurse Family Partnership and Safe Care

# Prevent ACEs by Supporting Parents

## Home-visit programs to provide social and parenting support

- Reduce social isolation
- Increase maternal self-regulation
- Increase parental efficacy

## Parenting Programs:

- Attachment and biobehavioral catchup (ABC)
- Parent-child Interaction therapy
- Child-parent Psychotherapy

## Access to Resources:

- High-quality early childhood care

# Disrupted Development and Protective Factors

Intervening with Adults: Lessons from ACEs

# Disrupted Systems point to what to repair:

- **Attachment** – safe, stable, nurturing relationships (join and rapport)
  - Be a safe, trustworthy person in their life
- **Stress Dysregulation** – affect tolerance, identify triggers, mindfulness, mind-body integration (trauma informed yoga, tai-chi)
- **Executive Function:** mindfulness, problem solving skills

# Summing it Up:

ACES are stressful life experiences

ACES disrupt developmental systems such as attachment, executive function, stress response

ACEs are associated with multiple negative health outcomes

ACEs don't tell the whole story

Protective Childhood Experiences can buffer the effects of ACEs

Supporting parents and families is key to preventing ACEs



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