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ACEs & Trauma: The Effects on Student Learning

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TODAY'S AGENDA:

1. The Adverse Childhood Experience Study
2. The Science Behind ACEs
3. The Significance of the ACEs Study
4. Understanding ACEs as a Path to Health & Wellbeing
5. Our Piece of the Puzzle
6. Building Resilience
7. Closing

The Adverse Childhood Experience Study

March 24, 2026

ACEs STUDY

NEWS

Early Adversity Increases Physical, Mental, Behavioral Problems, Scientists Report





Dr. Robert Anda & Dr. Vincent Felitti
Investigators

Centers for Disease Control & Prevention, Kaiser Permanente Study

Over 17,000 study participants

The ACE Study confirms, with scientific evidence, that adversity early in life increases physical, mental and behavioral problems later in life.

1 The ACES Study: Origins and Purpose



Identified a Pattern (Mid-1980s): Dr. Vincent Felitti, at Kaiser Permanente San Diego, noticed a high dropout rate among obesity program participants—many had successfully lost weight.



Followed Up with Interviews: Felitti interviewed these dropouts and found that many had experienced childhood abuse or neglect, suggesting a link between these experiences and obesity.



Collaborated for Deeper Understanding: He partnered with epidemiologist Dr. Robert Anda (CDC) to investigate the broader impact of Adverse Childhood Experiences (ACEs) on health and well-being.

Purpose of the ACES Study

To understand how early, adverse experiences affect lifelong health, behavior, opportunity, and well-being.

2 Key Findings of the ACES Study



The study found a strong, dose–response relationship:

As the number and severity of ACEs increase, so does the risk for negative health and life outcomes.

Higher ACEs are linked to:

- Chronic diseases
- Substance abuse
- Mental health problems
- Premature death
- Increased risk for obesity
- Poor academic and social outcomes
- Intergenerational cycles of trauma

ACEs are common, powerful, and preventable.

Understanding ACEs helps us build healthier, more resilient communities.

Early Experiences Shape Development

Childhood experiences create adaptations that influence lifelong behavior.

- *Humans are designed to handle short periods of stress, not chronic stress.*
- *Experiences of **safety** and **danger** shape how the brain develops.*
- *Repeated experiences create predictable patterns in brain architecture, behavior, and traits.*
- *These adaptations help children survive their environment and influence adult functioning.*

Two Developmental Pathways

Children adapt to the world they experience.

Pathway of Safety	Pathway of Danger
Builds trust, flexibility, and healthy relationships	Builds vigilance, self-protection, and survival-focused responses
Supports learning, cooperation, and emotional regulation	Prioritizes detecting threats and responding quickly
Helps people thrive in stable environments	Helps people survive dangerous environments

- *Neither pathway is "wrong"; both are adaptations to experience.*
- *Problems arise when survival adaptations are used in safe environments where different skills are expected.*

When Adaptations Meet Expectations

Social expectations may conflict with survival-based adaptations.

- *A child raised in a chaotic or threatening environment learns skills that are useful for survival.*
- *In school or other structured settings, these same behaviors may be misunderstood.*
- *Expectations such as sitting still, sharing, cooperating, and patience may be difficult because they were not prioritized in the child's earlier environment.*
- *Success often requires learning new skills rather than simply expecting different behavior.*

Experience Shapes Perception and Behavior

Our brains use past experiences to predict and respond to the future.

- *Experiences form the foundation of our beliefs, perceptions, and emotional responses.*
- *The brain continuously uses memories to predict what might happen next.*
- *These predictions guide attention, emotions, decision-making, and behavior.*
- *Positive, safe relationships help build healthier predictions and responses, creating a foundation for future growth and development.*



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We've talked about sensitive developmental periods when toxic stress has profound effects on human development. But we also need to understand that because the **developing brain is so sensitive to all kinds of experiences**, these childhood times are a perfect window of opportunity for building

RESILIENCE!



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So, by **paying attention to these sensitive developmental periods**, we can do a better job protecting children and providing the kinds of support that can counteract earlier periods of toxic stress and promote life-long health and well-being.

If you remember only one thing from this information about brain development, I hope it will be that **toxic stress can be hardwired into our biology**.



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So…. if toxic stress can be hardwired into our biology,
then think about this:

Before we assume that a student's behaviors are a rebellious choice, let's think about the possibility that adversity could be at the heart of the challenging behavior we're seeing.

The Significance of the ACE Study



FINDING MORE CONNECTIONS

how multiple forms of **childhood adversity** can affect many important **PUBLIC HEALTH PROBLEMS**

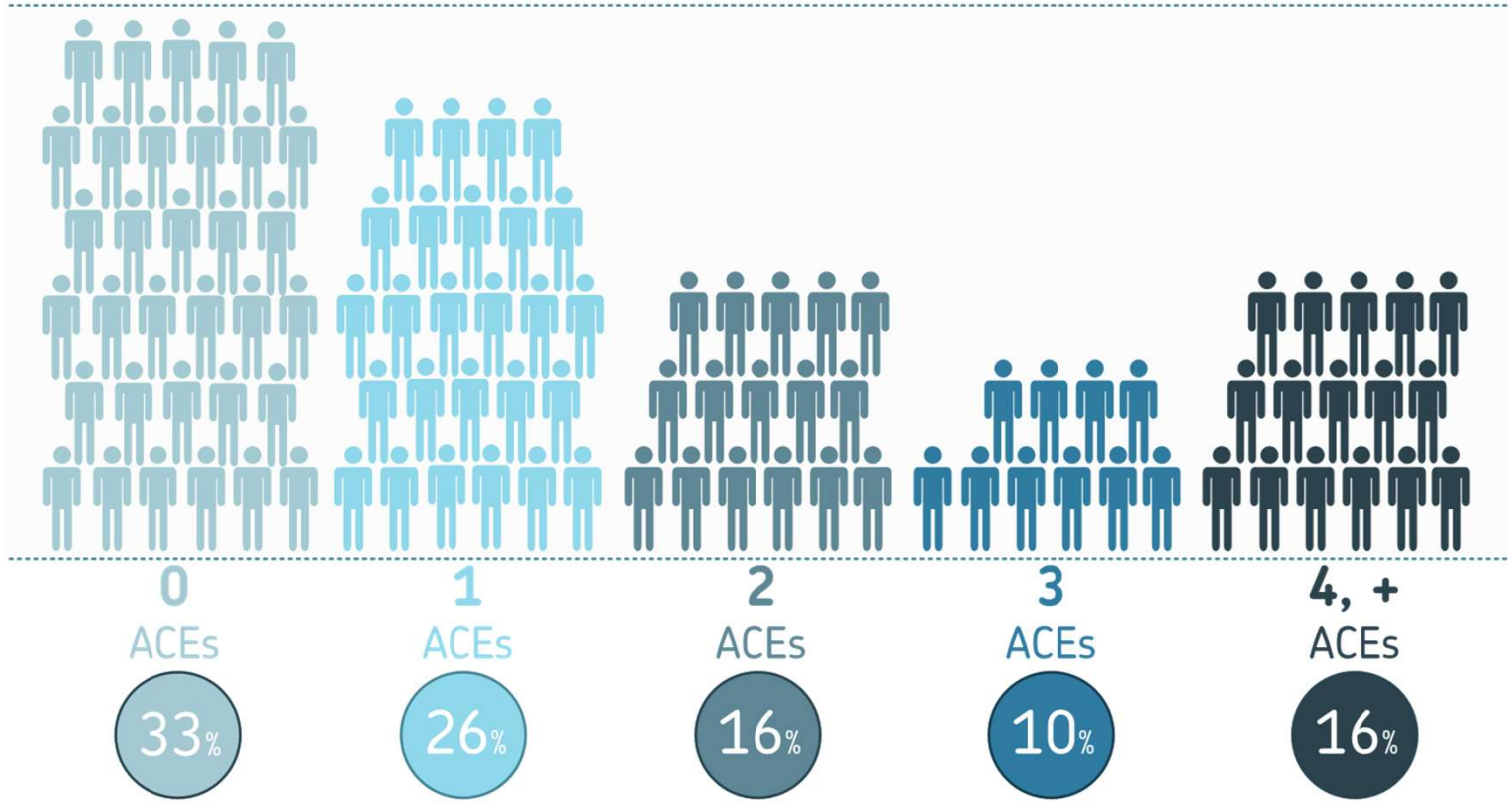


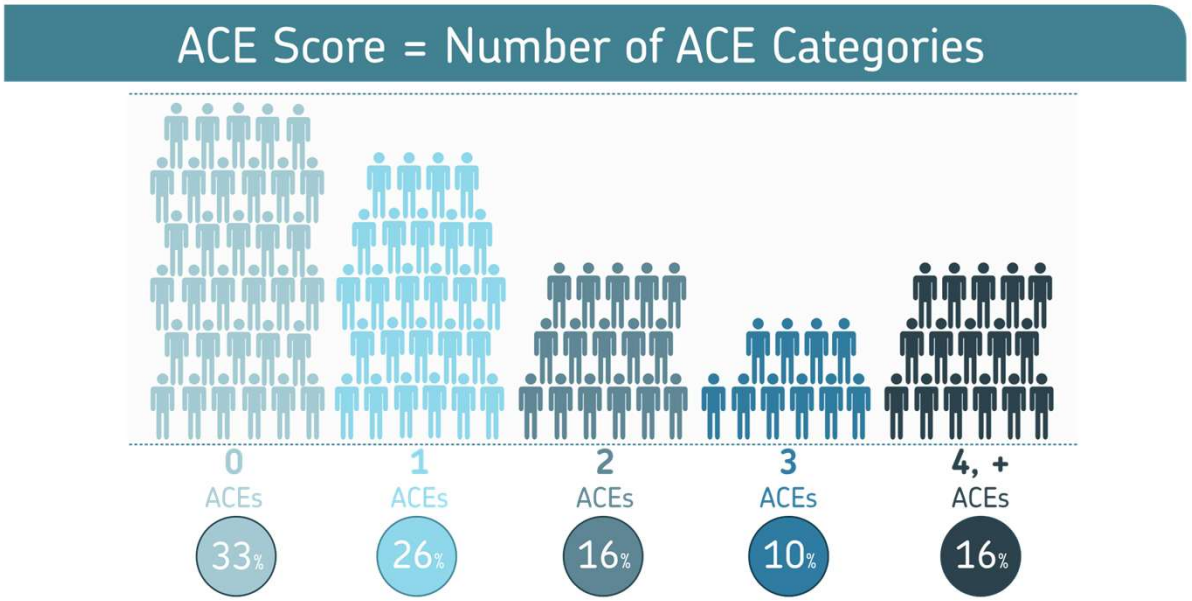
- Most prior studies of the health and social effects of childhood abuse focused on only a single type of adversity such as sexual abuse.
- **The ACE Study broadened the picture to include multiple types of childhood stressors.**
- In addition, the Study measured a wide array of **health *AND* social problems**. This is how the ACE study expanded the knowledge into a broader public health perspective.



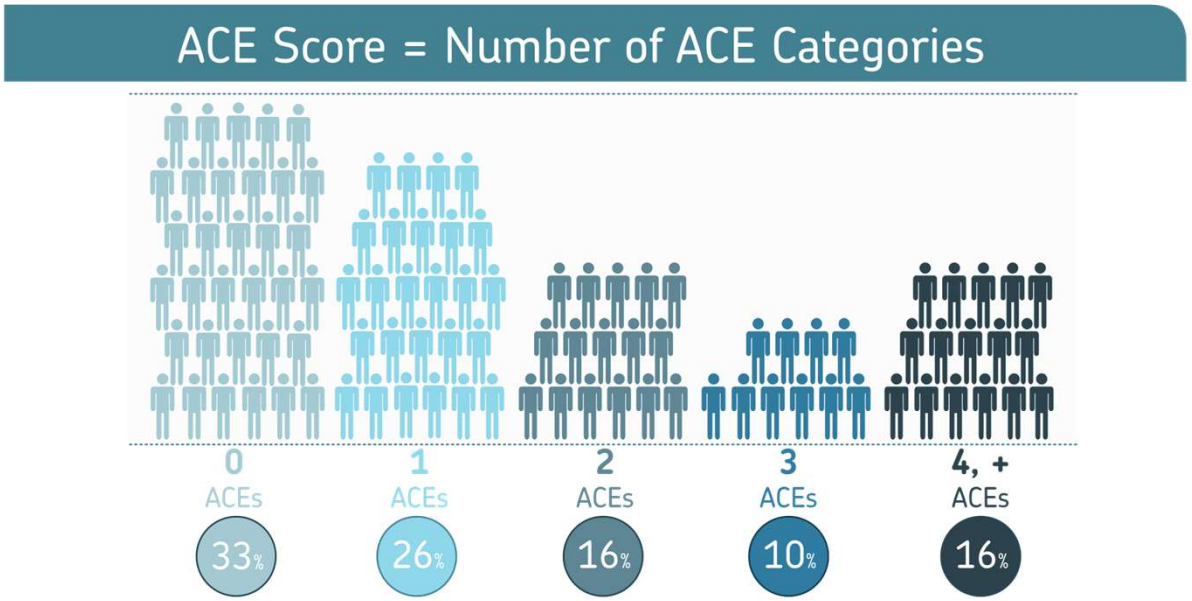
In the years since the original ACE study, the study has been **replicated hundreds of times in diverse populations** throughout the United States and around the world, confirming that the essential findings of the original study apply to society as a whole: ***adversity early in life increases the risk for physical, mental and behavioral problems later in life.***

ACE Score = Number of ACE Categories

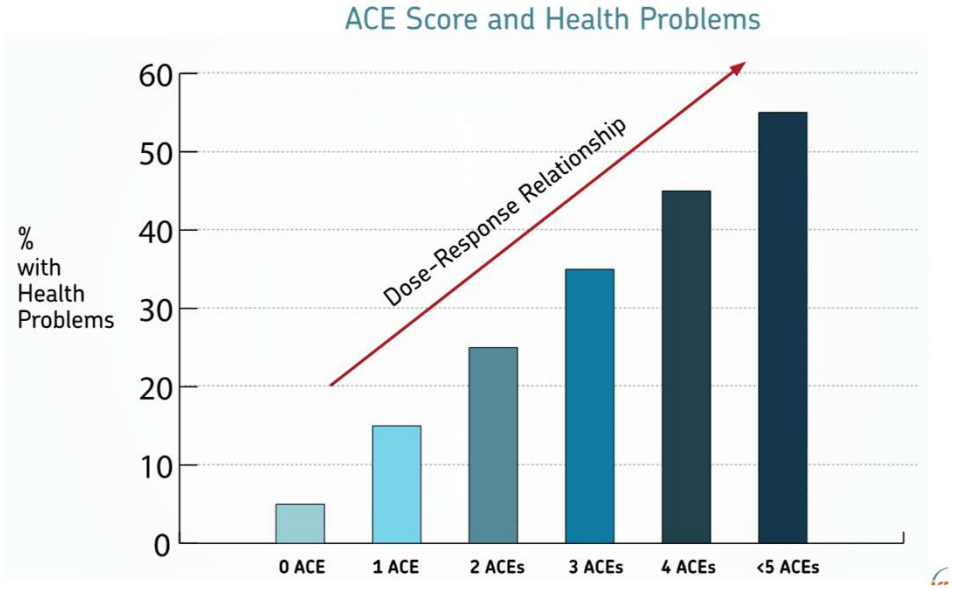




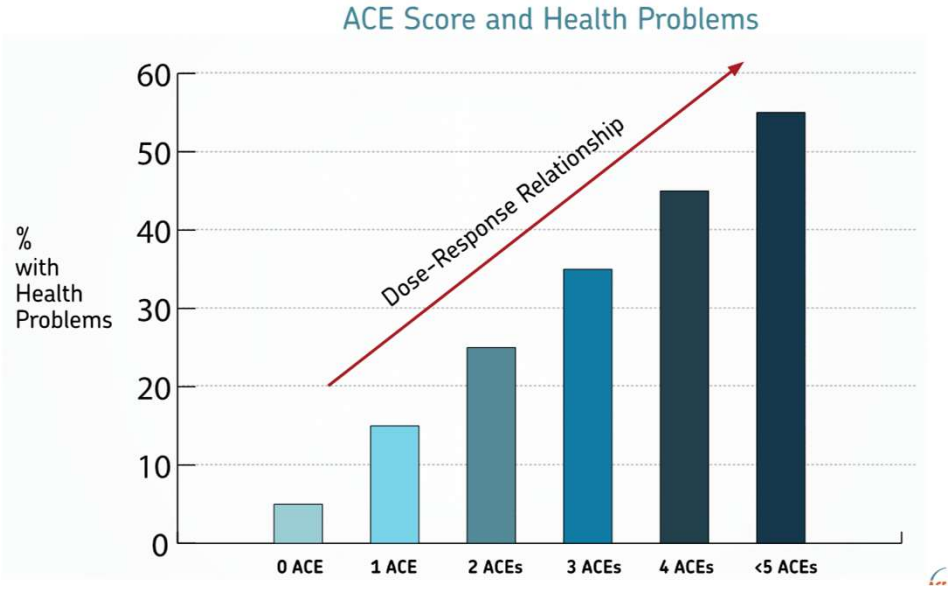
Because adverse childhood experiences are so highly interrelated, it didn't make sense to look at how single categories of ACEs influenced health and social problems. Instead, Drs. Anda and Felitti developed an **ACE SCORE**.



The score is simply a count of the number of categories of ACEs each person reported -- from 0 to 10. Each category counts as 1 point in the ACE Score. So, if a person experienced physical abuse, no matter how many times, or the severity of the abuse, the ACE Score is 1; if the person experienced physical abuse and had a substance-abusing parent, the ACE Score is 2, and so forth.



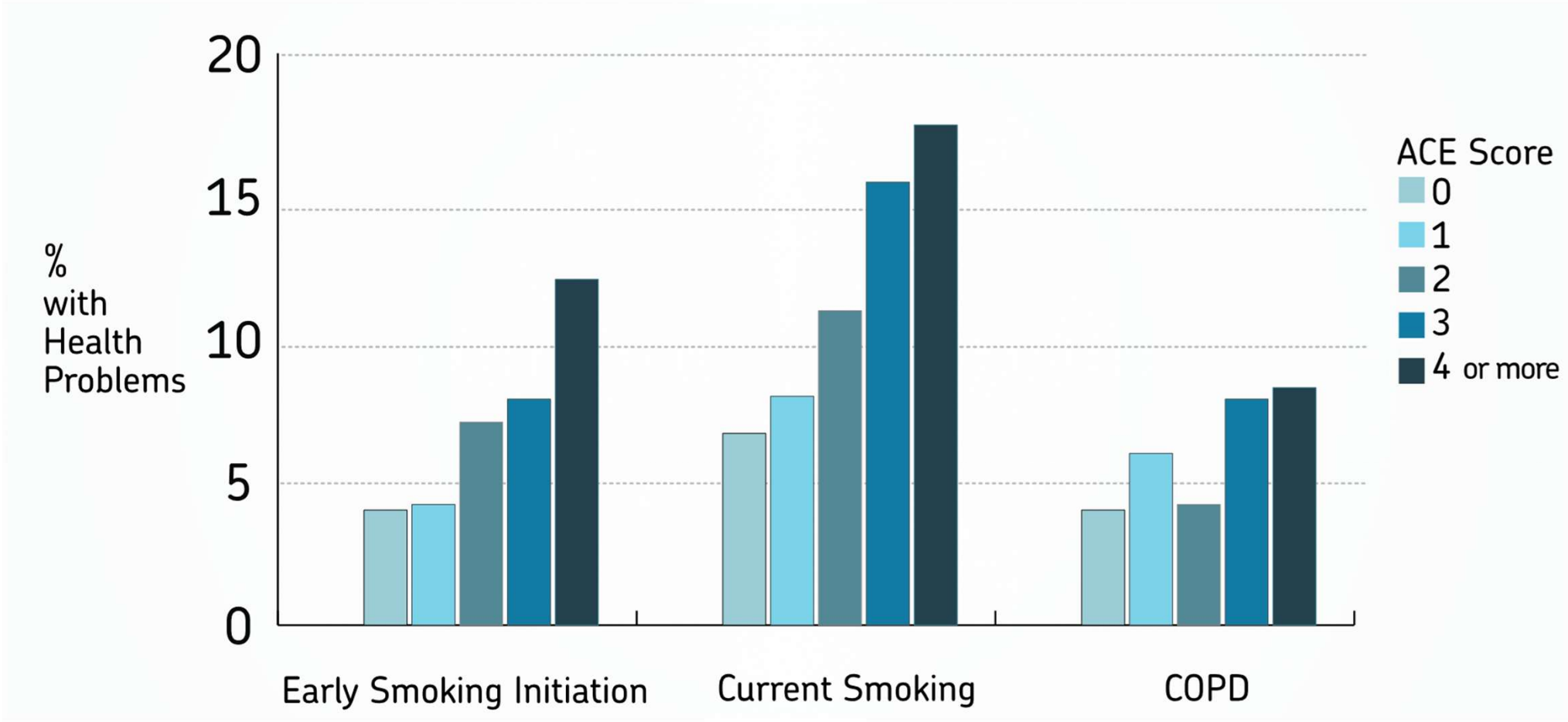
People who report higher ACE scores are more likely to have HEALTH and SOCIAL problems – in fact, as the ACE Score goes up, the percentage of people with health and social problems also goes up.

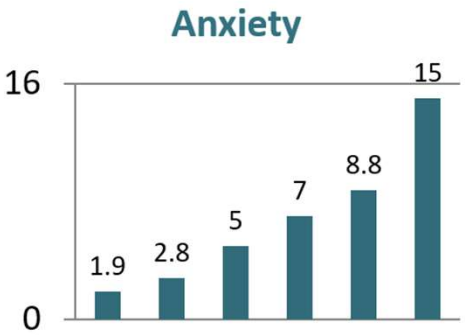


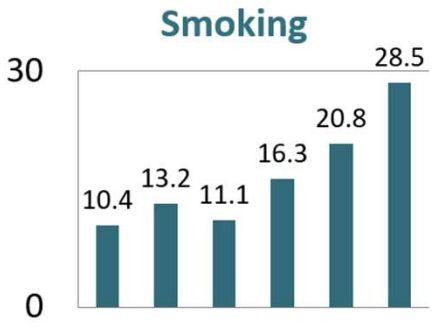
This is something we call a **dose-response relationship**. It's like a situation where the more gas you put into your car, the more miles you can drive.

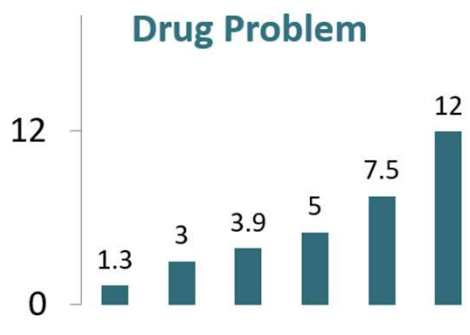
In this case, where there is a higher dose of ACEs, the higher the percentage of people with health problems.

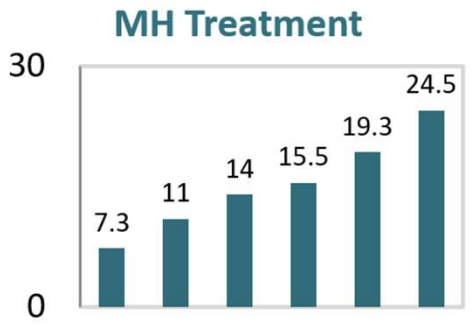
ACEs, Smoking and Lung Disease

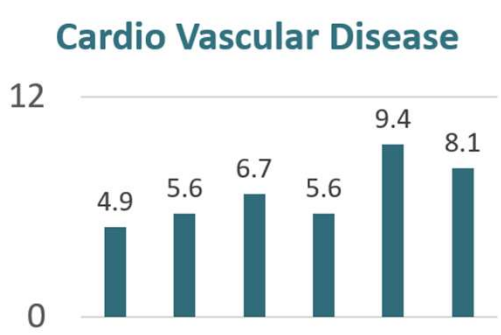


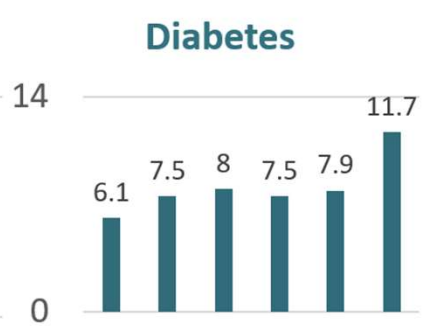

Anxiety
16
0
1.9
2.8
5
7
8.8
15

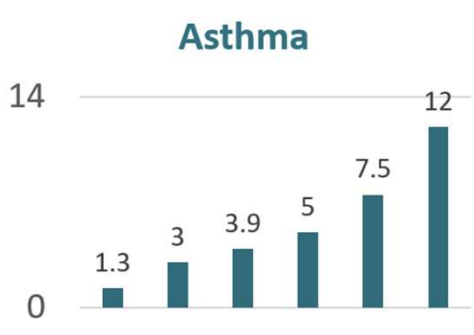

Smoking
30
0
10.4
13.2
11.1
16.3
20.8
28.5

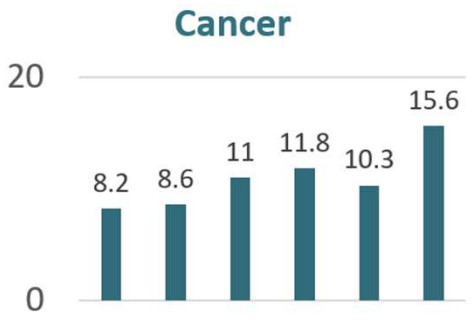

Drug Problem
12
0
1.3
3
3.9
5
7.5
12


MH Treatment
30
0
7.3
11
14
15.5
19.3
24.5


Cardio Vascular Disease
12
0
4.9
5.6
6.7
5.6
9.4
8.1

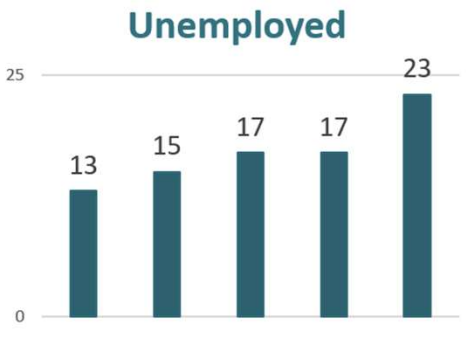

Diabetes
14
0
6.1
7.5
8
7.5
7.9
11.7

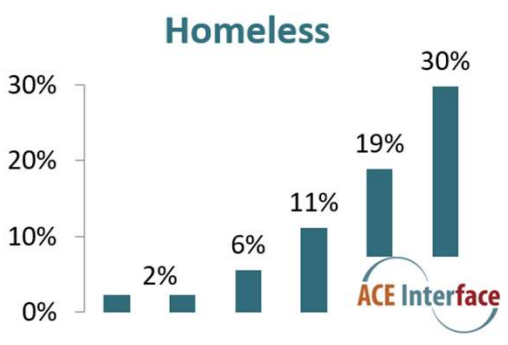

Asthma
14
0
1.3
3
3.9
5
7.5
12


Cancer
20
0
8.2
8.6
11
11.8
10.3
15.6


Work Injury/Illness
20
0
3.6
5
7
6.1
8.9
10.1


Missed 15 of 30
Work Days (MH)
10
5
0

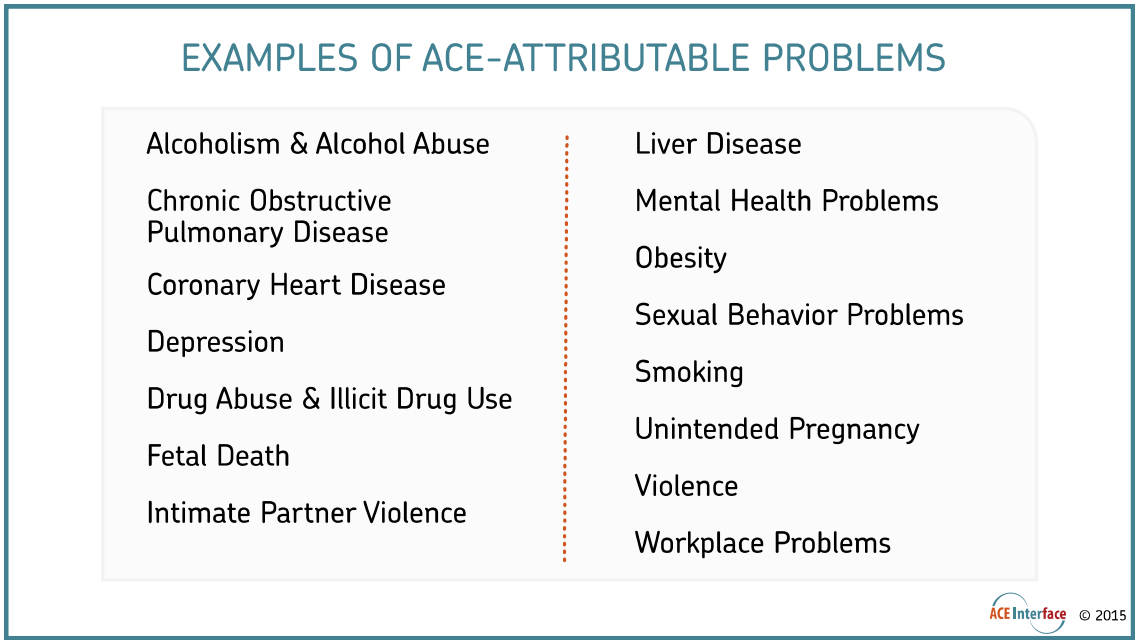

Unemployed
25
0
13
15
17
17
23


Homeless
30%
20%
10%
0%
2%
6%
11%
19%
30%
ACE Interface

EXAMPLES OF ACE-ATTRIBUTABLE PROBLEMS

- Alcoholism & Alcohol Abuse
- Chronic Obstructive Pulmonary Disease
- Coronary Heart Disease
- Depression
- Drug Abuse & Illicit Drug Use
- Fetal Death
- Intimate Partner Violence
- Liver Disease
- Mental Health Problems
- Obesity
- Sexual Behavior Problems
- Smoking
- Unintended Pregnancy
- Violence
- Workplace Problems

ACE Interface © 2015



Because ACEs have a powerful impact on so many health and social problems, the ACE researchers concluded that ACEs are the leading cause of health and social problems in our nation. So, this should lead us to start thinking about **PREVENTION**.

The Health Implications of ACEs

As we've seen,
a higher ACE score translates into significantly more health problems in adulthood
due to the profound and cumulative impact chronic stress and trauma have on the developing brain, nervous system, and body.

Here's why...

#1. Chronic Activation of Stress Response:

Early traumatic experiences frequently trigger the body's natural stress response system, leading to **chronic elevation of stress hormones**, particularly cortisol and adrenaline.

Prolonged stress disrupts the body's normal regulatory systems, weakening immune function, increasing inflammation, and elevating risks for chronic illnesses.

#2. Changes in Brain Development and Functioning:

ACEs **alter brain structures and neural pathways**, particularly in areas responsible for regulating emotions (amygdala), memory and learning (hippocampus), decision-making, and impulse control (prefrontal cortex).

These **neurological changes increase vulnerability to anxiety, depression, PTSD, substance abuse disorders, and other mental health conditions**, all of which significantly impact physical health.

#3. Health-Risk Behaviors as Coping Mechanisms:

Adults who experienced trauma often adopt maladaptive coping behaviors—such as substance abuse, overeating, smoking, alcohol abuse, and risky sexual behaviors—to manage emotional pain or numb distress.

These behaviors further amplify health risks by contributing directly to cardiovascular disease, obesity, diabetes, lung diseases, liver damage, cancers, and sexually transmitted diseases.

#4. Physiological Wear-and-Tear ("Allostatic Load"):

The repeated and prolonged activation of stress systems, described as allostatic load, leads to **physiological deterioration over time**.

This **cumulative wear-and-tear increases vulnerability to chronic health issues**, like hypertension, heart disease, metabolic disorders, autoimmune conditions, and early aging.

#5. Impaired Social and Emotional Development:

ACEs influence an individual's ability to develop and maintain healthy relationships and social supports, leading to **isolation and limited resources** to buffer stress.

Reduced social supports and networks further **compound health risks**, as strong relationships typically protect against many chronic diseases.

#6. Lower Socioeconomic Outcomes:

Individuals with higher ACE scores often experience **disrupted education, employment difficulties, financial instability, and chronic stress** related to poverty or insecure living conditions.

Economic instability and chronic stressors from **these conditions amplify health disparities** and increase vulnerability to illness.

SO...

A higher ACE score translates into significantly more adult health problems because **prolonged exposure to adversity fundamentally changes the way brains and bodies function, cope with stress, and maintain health**. These biological, psychological, and social consequences of childhood adversity cumulatively increase the risk of chronic disease, mental illness, and early mortality.

ACEs are Common, Interrelated, Powerful



High ACE Scores
in Population



Increased Risk of Multiple
Health and Social Problems



Intergenerational
Transmission of ACEs

It's important to remember that
the ACE score doesn't predict any health or social outcome for a single person.
In other words, we can't collect an ACE Score and come to any conclusions about any one person's wellbeing.

The ACE Study does confirm important facts about the health of the population:

- **ACEs are Common.**
- **ACEs are Highly Interrelated.**
- **ACEs are Intergenerational.**
- **ACEs have a Cumulative Impact** that is captured by the ACE Score in the population.

ACEs are Common, Interrelated, Powerful



High ACE Scores
in Population



Increased Risk of Multiple
Health and Social Problems



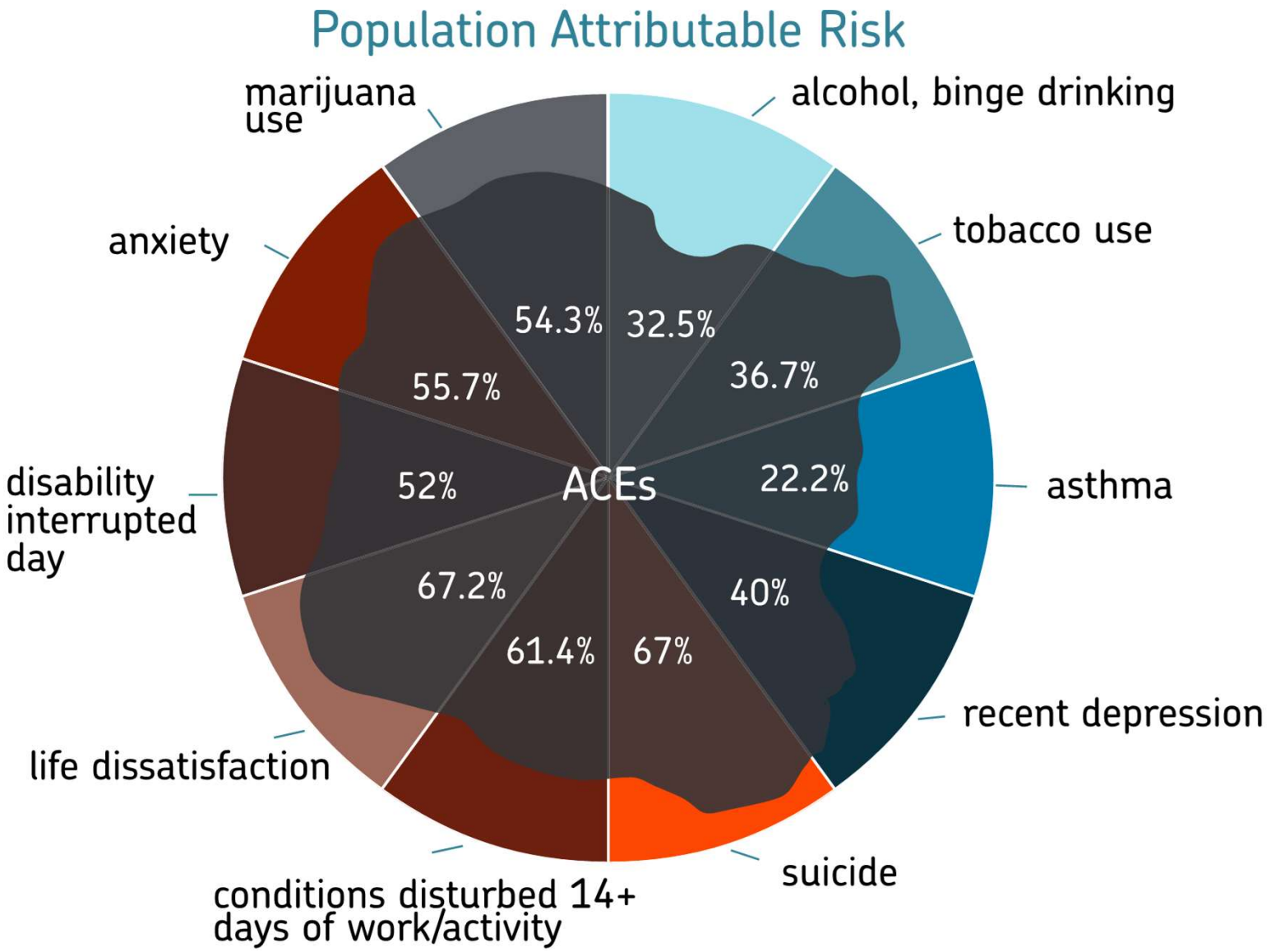
Intergenerational
Transmission of ACEs

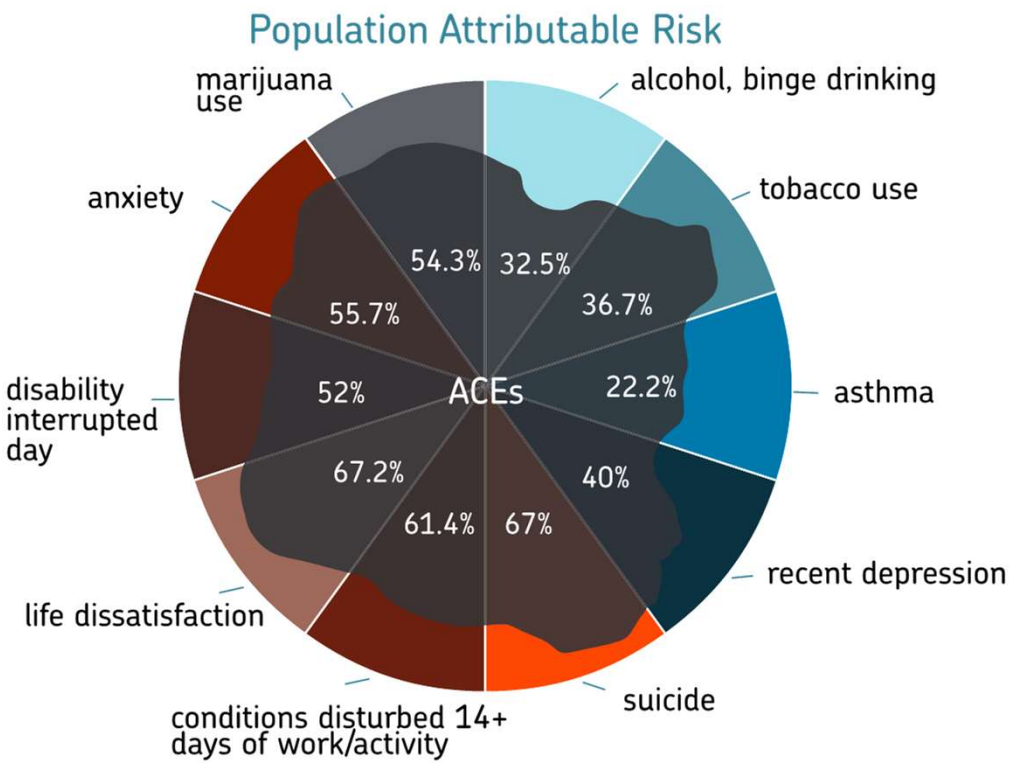
Groups of people with higher ACE Scores are more likely to have multiple health and social problems, some of which increase the odds of their children having high ACE Scores.

UNDERSTANDING ACEs AS A POWERFUL PATH TO HEALTH AND WELLBEING

Now we understand that ACEs are common and have a strong cumulative impact on the risk of common health and social problems.

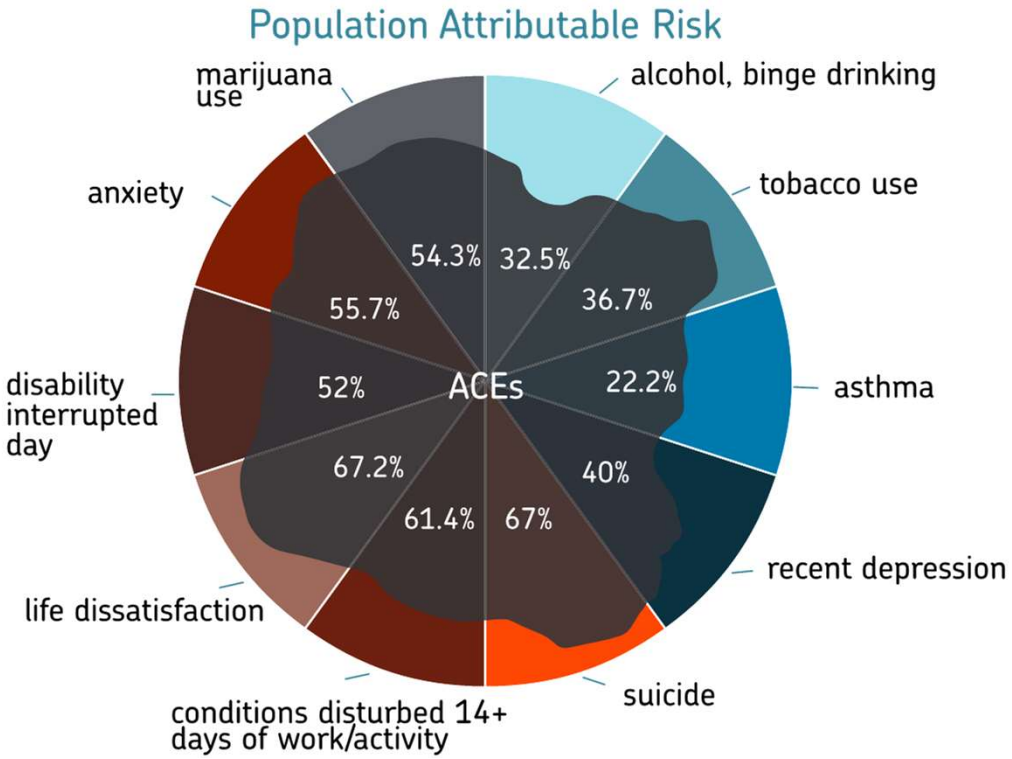
This is where **PREVENTING ACEs** and their intergenerational transmission is the greatest opportunity for improving the well-being of human populations.


Population Attributable Risk
marijuana use
alcohol, binge drinking
anxiety
tobacco use
54.3%
32.5%
55.7%
36.7%
disability interrupted day
52%
ACEs
22.2%
asthma
67.2%
40%
61.4%
67%
recent depression
life dissatisfaction
suicide
conditions disturbed 14+ days of work/activity



The percentage of a problem coated by the oil spill represents the percentage of each problem that is **potentially preventable by preventing ACEs!**

The percentages are quite large. In fact, the high percentages on this chart are rarely seen in public health studies.



This means the cumulative effects of ACES reflect a powerful opportunity for prevention – if we can **align our work around a common goal of preventing the accumulation of ACEs** and moderating their effects, we can potentially reduce all of these problems, and many others, all at once!

WHAT IS OUR PIECE OF THE PUZZLE?

SELF-REGULATION

Self-regulation skills are critical for students because they are **foundational to nearly every aspect of a child's development, influencing their academic achievement, social-emotional well-being, and future success in life.**

At its core, self-regulation is the ability to manage your thoughts, feelings, and actions to achieve your goals.

THIS WORKS WELL AS A FIRST STEP BECAUSE…

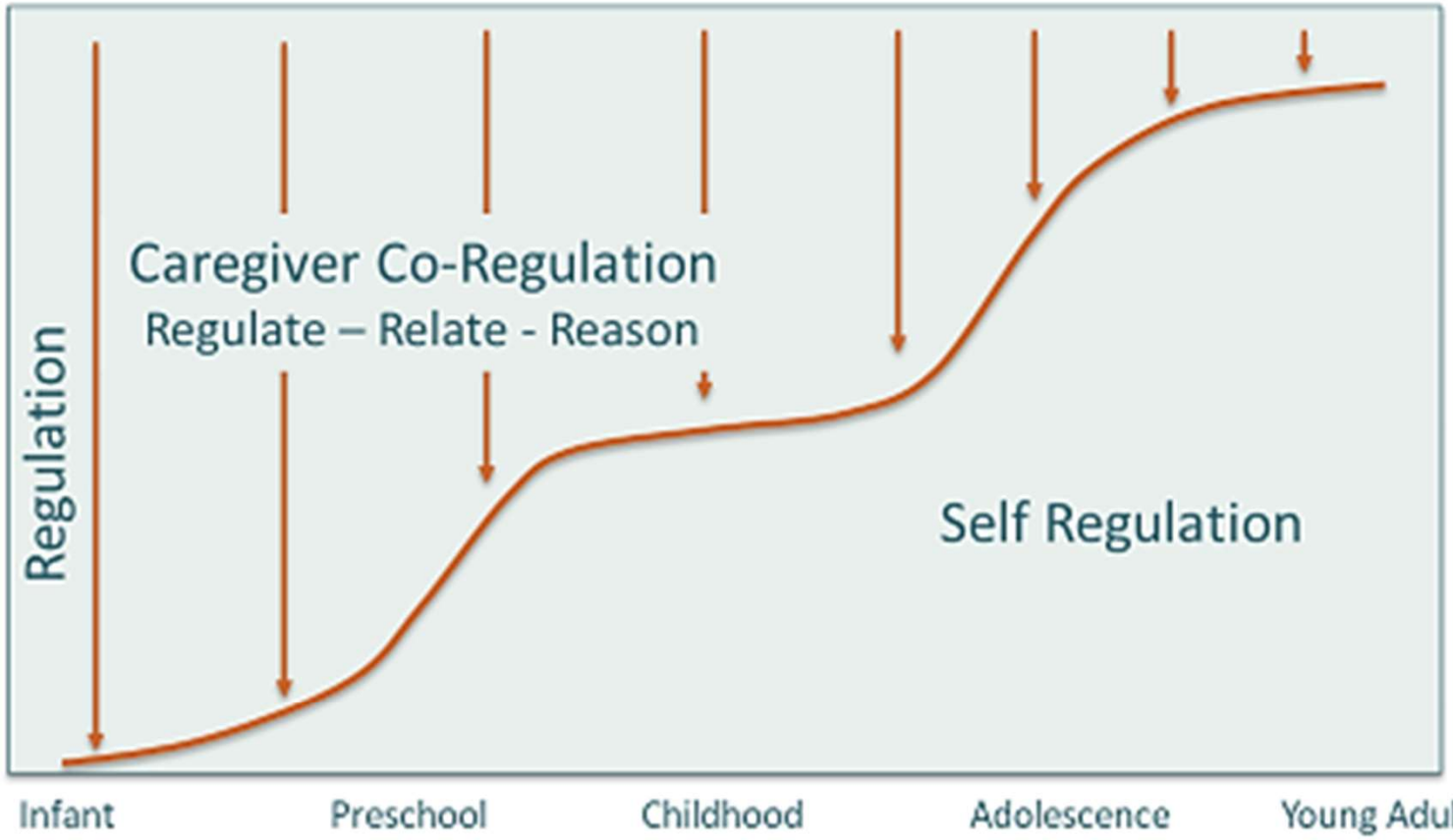
- It benefits ALL students, not only those with trauma
- It is relatively simple to implement
- It reduces behavioral incidents
- It improves classroom climate
- It supports academic readiness

OUR PIECE OF THE PUZZLE

Self-regulation develops through
interaction with people such as parents, teachers, coaches, and others who provide predictable, responsive, and supportive environments.

These parenting adults, teachers, and other care givers teach self-regulation through **CO-REGULATION**.

Co-Regulation, then Self-Regulation



ACE Interface

Adapted from: Rosenbalm, K.D., & Murray, D.W. (2017). Caregiver Co-regulation Across Development

OUR PIECE OF THE PUZZLE

These kinds of co-regulation strategies include self-calming by taking deep breaths or going for a walk, reflecting on your emotional state, and responding with compassion.

Co-regulation is also effective between adults. Practicing self-regulation through co-regulation helps everyone develop healthier relationships and safer environments.

OUR PIECE OF THE PUZZLE

If a child's behavior is aggressive or withdrawn in response to stress, we can intentionally focus first on regulating ourselves.

This has to start with an awareness of
our own thoughts and feelings.

OUR PIECE OF THE PUZZLE

From there, the next step is to make a connection with the person experiencing stress. So, in other words, **first, we REGULATE, then we RELATE**. We can then begin to reason – to explain, teach, ask questions and coach.

With this kind of support, children can mirror the self-regulated state of the adult and learn what to do when they are having those BIG feelings.

BUILDING RESILIENCE

Strategies to Create a Safe, Supportive Environment

Predictability and Structure in the Classroom:

- Establishing routines and clear expectations
- Visual schedules and consistent transitions

Establishing Trust and Fostering Positive Relationships:

- Building rapport with students
- Active listening and empathy

Recognizing and De-escalating Triggers:

- Identifying potential triggers in the classroom
- Techniques for calming students in distress

Defining Resilience and Protective Factors for Students

What is Resilience?

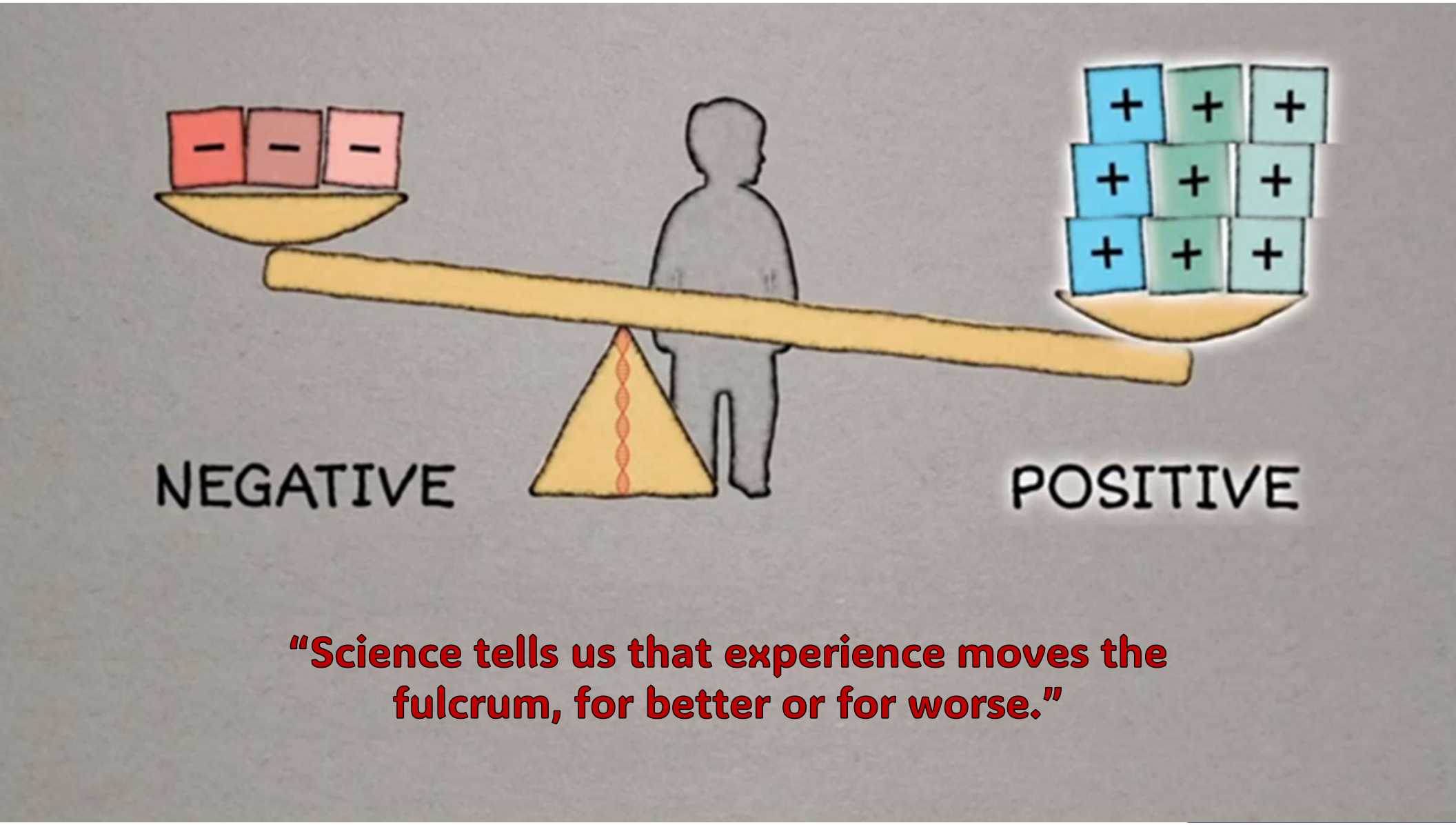
- Ability to adapt, recover, and thrive despite adversity, challenges, or trauma. It involves **emotional, cognitive, and social skills** that help students navigate difficulties while maintaining their well-being and **academic success**.

- **Resilience is** not a fixed trait but **a dynamic process** that can be strengthened through supportive relationships, positive experiences, and coping strategies.

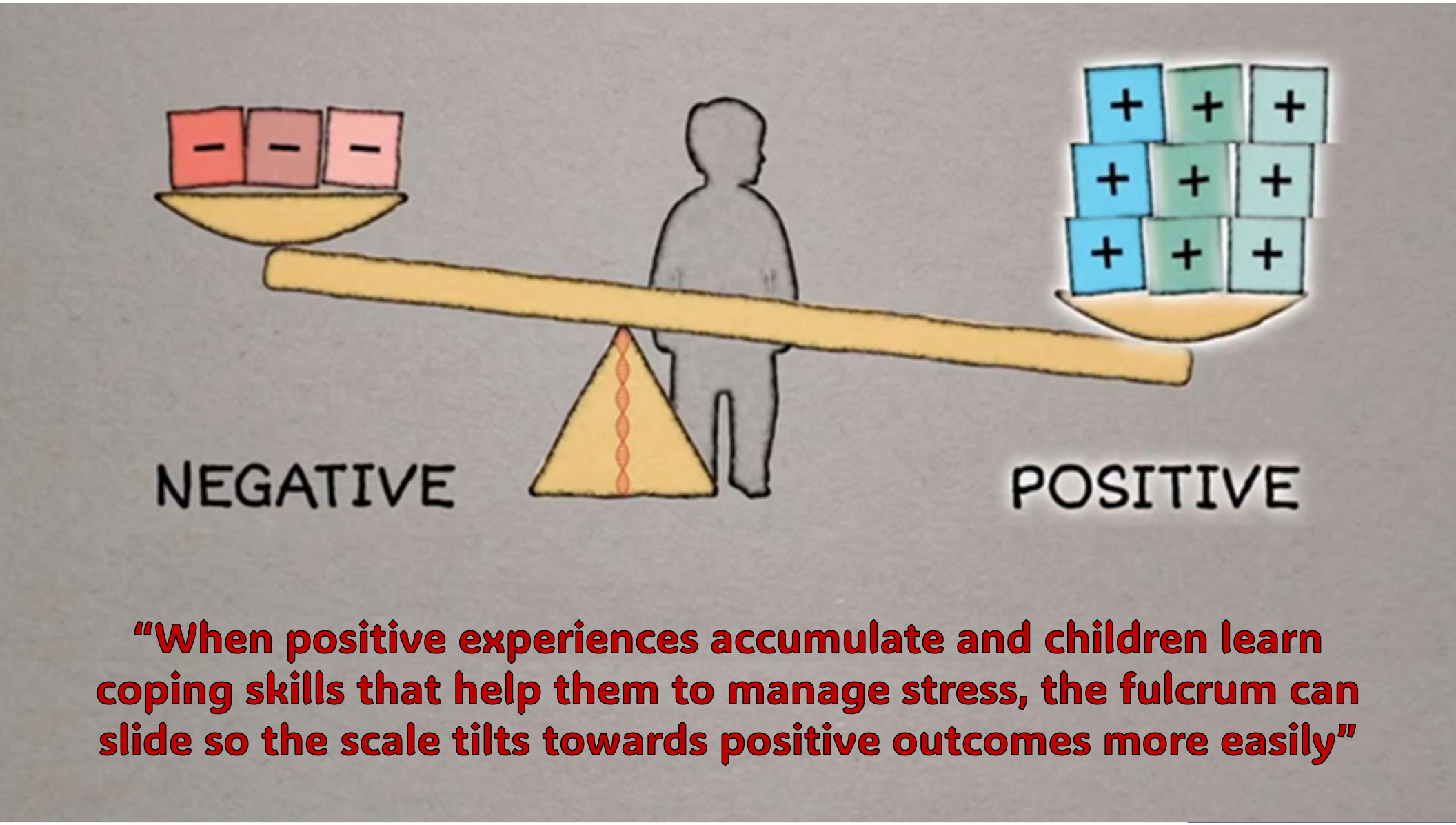
Defining Resilience and Protective Factors for Students

What are Protective Factors?

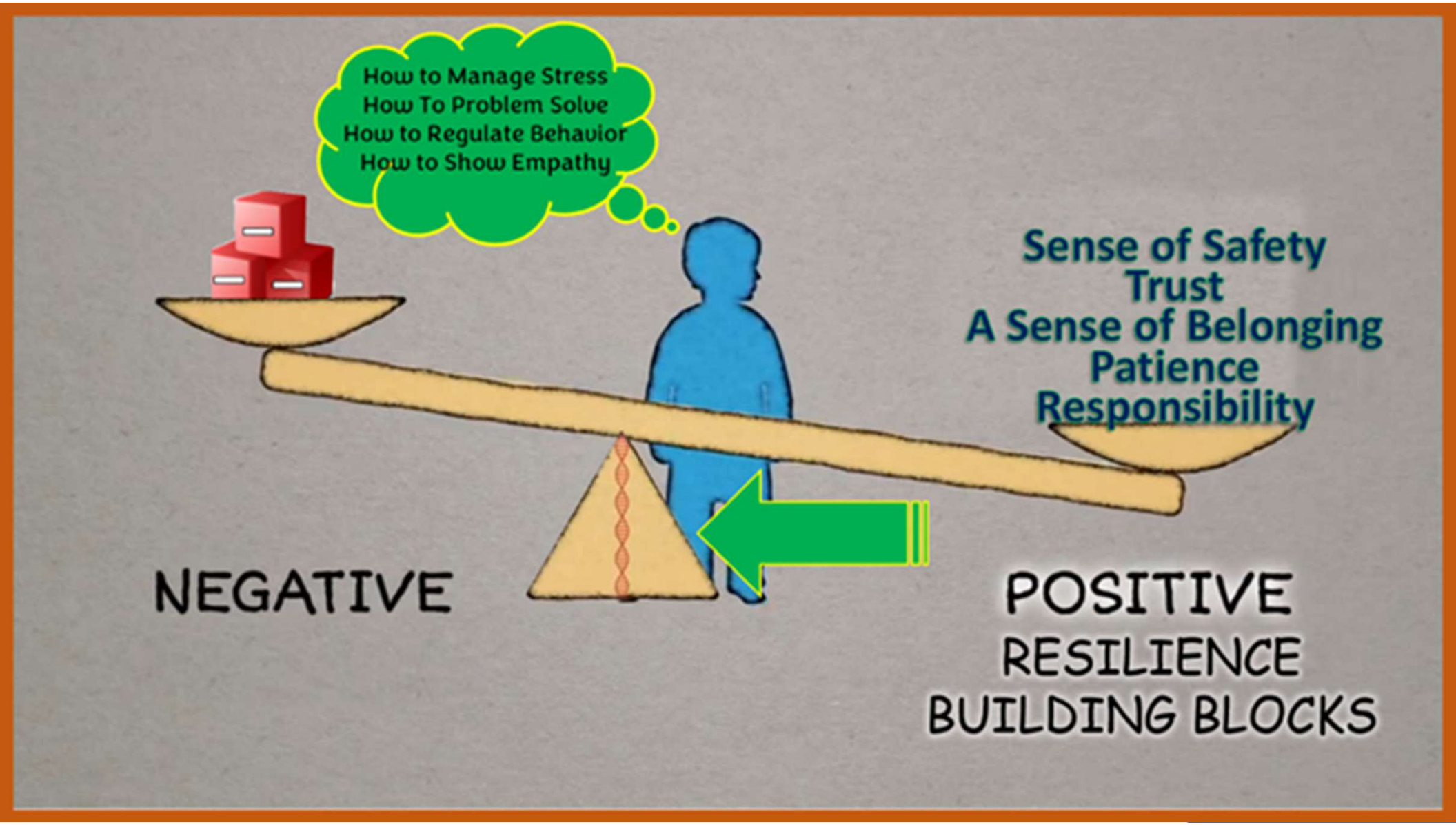
- Conditions or attributes in individuals, families, schools, and communities that enhance resilience and reduce the negative impact of stress, adversity, or trauma. These factors help students develop a strong foundation for emotional and academic success.



“Science tells us that experience moves the fulcrum, for better or for worse.”



"When positive experiences accumulate and children learn coping skills that help them to manage stress, the fulcrum can slide so the scale tilts towards positive outcomes more easily"


How to Manage Stress
How To Problem Solve
How to Regulate Behavior
How to Show Empathy
Sense of Safety
Trust
A Sense of Belonging
Patience
Responsibility
NEGATIVE
POSITIVE
RESILIENCE
BUILDING BLOCKS

Defining Resilience and Protective Factors for Students

Protective Factors:

- **Individual Factors:** Self-esteem, coping skills, emotional regulation
- **Family Factors:** Supportive family relationships, stable home environment
- **Community Factors:** Positive peer relationships, access to resources
- **School Factors:** ***Positive teacher-student relationships, extracurricular involvement, SEL curriculums, etc.***

Fostering Resilience Through Relationships, Routines, and Reflection

Building Strong Relationships

- Encourage open communication and trust between students and teachers
- Promote peer support and mentorship opportunities

Establishing Routines

- Create consistent daily schedules to provide security
- Use routines to reinforce positive behaviors and expectations

Reflection Practices

- Implement regular reflection activities (journals, discussions)
- Encourage students to recognize their growth and challenges

Involving Families and Communities in Supporting Traumatized Students

Engagement Strategies

- Regular communication with families about student progress and needs
- Workshops and resources for families on trauma and resilience

Community Partnerships

- Collaborate with local organizations for additional support services
- Create a network of resources to assist families in crisis

School-Wide Strategies to Support Trauma-Impacted Students

Collaboration Across Staff

- Foster teamwork among educators, counselors, and support staff
- Establish a trauma-informed school culture through shared training

Mental Health Resources

- Provide access to counseling and mental health services for students
- Develop referral systems for students in need of additional support

Staff Training and Development

- Regular professional development on trauma-informed practices and resilience
- Encourage staff self-care and awareness of their own experiences

Classroom Resilience Self-Assessment Checklist

A PARTING THOUGHT....

Benefits for your Classrooms:

- **Higher academic achievement**
- **Improved attendance**
- **Improved peer relationships**
- **Safer classroom climate**

A PARTING THOUGHT….

As we work to prevent the accumulation of ACEs, – Let's keep in mind that we don't have to get to ACE Scores of zero – **bringing scores down any amount will have HUGE EFFECTS**.

We might not be able to prevent a first ACE from occurring in a family. **But we certainly can notice when students have five ACEs and make sure that number doesn't go to ten!**

And not only that, but by doing so we can prevent ACEs for the next generation.

A PARTING THOUGHT....

ANY action we take to prevent ACEs
– whether large or small –
can profoundly improve our future.

Thank You

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