

# The Upstream Effect: Using CTE to Bolster Student Mental Health

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## A Little Bit About Me and How I Got Here



October 2018



May 2019



2019 Advocacy  
2020 Youth Mental Health First Aid Trainer  
ACEs Master Trainer trained by Dr. Robert Anda  
2021 Adult Mental Health First Aid Trainer

Oct 2023 First CTE and Mental Health presentation  
Nov 2023 First trip to Utah  
Oct 2024 Second trip to Utah

## National Youth Risk Behavior Survey (YRBS) Data 2023



**10 Year Trend**

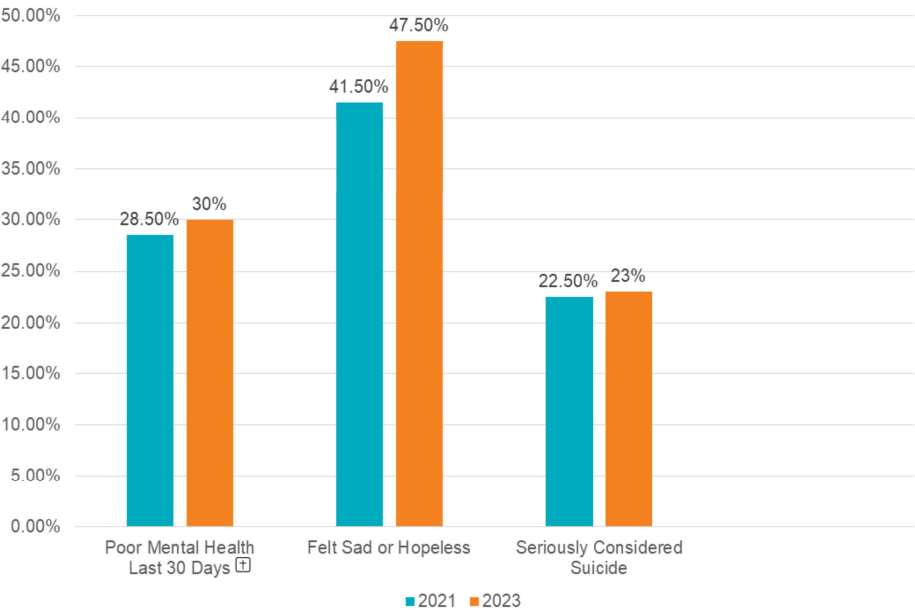
| The Percentage of High School Students Who:*                                  | 2013 Total | 2015 Total | 2017 Total | 2019 Total | 2021 Total | 2023 Total | Trend (All Years Available) | 2-Year Change (2021-2023) |
|---|------------|------------|------------|------------|------------|------------|-----------------------------|---------------------------|
| Experienced persistent feelings of sadness or hopelessness                    | 30         | 30         | 31         | 37         | 42         | 40         |                             |                           |
| Experienced poor mental health <sup>†</sup>                                   | –          | –          | –          | –          | 29         | 29         | –                           |                           |
| Seriously considered attempting suicide                                       | 17         | 18         | 17         | 19         | 22         | 20         |                             |                           |
| Made a suicide plan   | 14         | 15         | 14         | 16         | 18         | 16         |                             |                           |
| Attempted suicide   | 8          | 9          | 7          | 9          | 10         | 9          |                             |                           |
| Were injured in a suicide attempt that had to be treated by a doctor or nurse | 3          | 3          | 2          | 3          | 3          | 2          |                             |                           |

In wrong direction  
 No change  
 In right direction

<sup>†</sup> Variable introduced in 2021

We often hear these facts and have conversations about how students are struggling with mental health, however we do not do a good job of recognizing and acknowledging the aspects of what we are already doing that can have a positive impact on mental health. Programs and people can have a profound impact on student mental health. Today we will learn why and how to be more intentional about bringing it into CTE classrooms and programs.

# National Youth Risk Behavior Survey (YRBS) Utah Data



⊕ First introduced in 2021

## Agenda



Quick overview of the science and findings of Adverse Childhood Experiences (ACEs) and Positive Childhood Experiences (PCEs) research

Learning Objective: **Explain what protective factors are and why they are important for buffering adversity and boosting mental health and student outcomes.**



Building the case for CTE as a protective factor

Learning Objective: **Identify the inherent aspects of CTE that serve as protective factors to buffer adversity and boost student mental health.**



Applying the concepts to everyday application

Learning Objective: **Identify how you currently are and how you can increase aligning students with pathways that match their interests, talents, and passions.**

We know that trauma is a huge risk factor for lifelong mental health challenges. We will briefly go over the science behind childhood trauma and how we can buffer that adversity with positive childhood experiences and protective factors for lifelong positive impacts on mental health.

A key component of protective factors is relationships and we will connect inherent aspects of CTE to how they serve as protective factors for student mental health.

Lastly, you will reflect on ways to be intentional about opportunities that increase CTE's value as a protective factor for positive life outcomes.

# Adverse Childhood Experiences (ACEs) & Positive Childhood Experiences (PCEs)

Learning Objective: Participants will be able to explain what protective factors are and why they are important for buffering adversity and boosting mental health and student outcomes.

Who is familiar with Adverse Childhood Experiences (ACEs)?

Who has received training on ACEs previously?

Who is familiar with Positive Childhood Experiences (PCEs) (pause), Protective Factors (pause), Trauma Informed Care?

Who has received training on Positive Childhood Experiences previously? On Trauma Informed Care?

## Adverse Childhood Experiences (ACEs) Study

- Largest study of its kind
- Over 17k participants, age 19-94, middle class, well educated
- Looked at 10 categories of trauma
  - Abuse
  - Neglect
  - Household Dysfunction
- Surveyed on health behaviors, disease, mental health, substance use, and other health and social problems

### Abuse

Physical   Emotional   Sexual

### Neglect

Physical   Emotional

### Household Dysfunction

Incarcerated parent or caregiver  
 Violence in the home (battered mothers)  
 Parental or caregiver separation or divorce  
 Substance Abuse by a parent or caregiver  
 Mental Illness (parent or caregiver)

- Largest study of its kind, early to mid 90s, Department of Preventive Medicine in San Diego, Kaiser Permanente, CDC Georgia, co principal investigators Dr. Robert Anda and Dr. Vincent Felitti
- Over 17k participants, age 19-94
- Middle class, well educated, access to some of the best healthcare in the country
- Looked at 10 categories of trauma broken into three groups, one point for each category if experienced in childhood for a total possible score ACE of 10
  - Abuse (physical, emotional, sexual)
  - Neglect (physical, emotional)
  - Household Dysfunction (alcohol/substance use, divorce, domestic violence, mental health, incarceration)
- Surveyed on health behaviors, disease risk and disease, mental health and substance use, and other health and social problems

## ACE Study Findings

- ACEs are common and interrelated
- ACEs negatively impact neurodevelopment
- There is a causal relationship between ACEs and an increase in disease, depression, incarceration, homelessness, and other health, social and behavioral problems

**67% of respondents reported an ACE score of 1 or more**  
**87% of ACEs happen together**

**Toxic stress changes developing brains**  
**Brains are wired to survive, not thrive**  
**Dose-response relationship**

**Trauma is a risk factor for mental health challenges and poor life outcomes**

Here's what the study and subsequent later research found

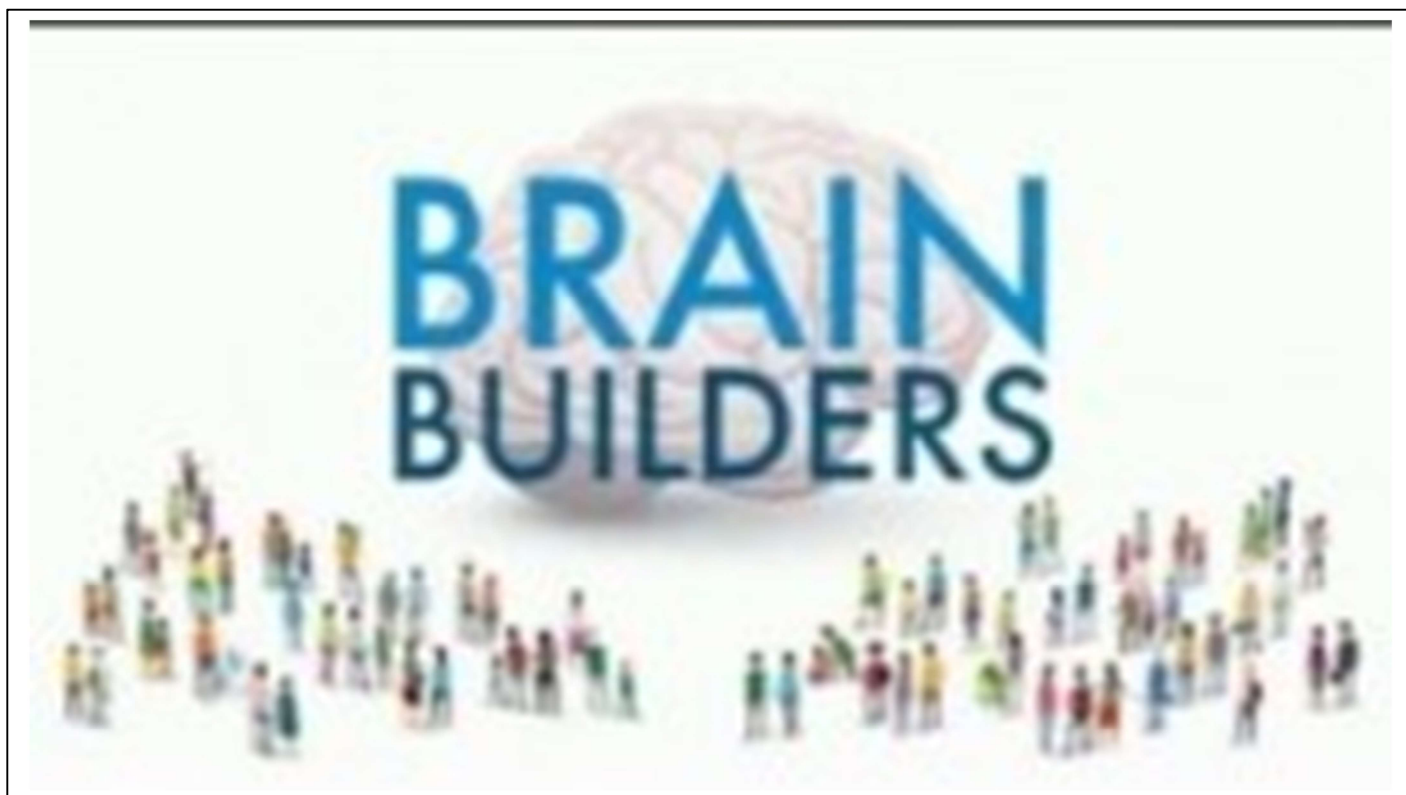
**ACEs are common and interrelated**

- 67% of respondents reported an ACE score of 1 or more
- 87% of ACEs happen together (example a parent with substance abuse and physical abuse)

**ACEs negatively impact neurodevelopment which creates the need for adaptive behaviors**

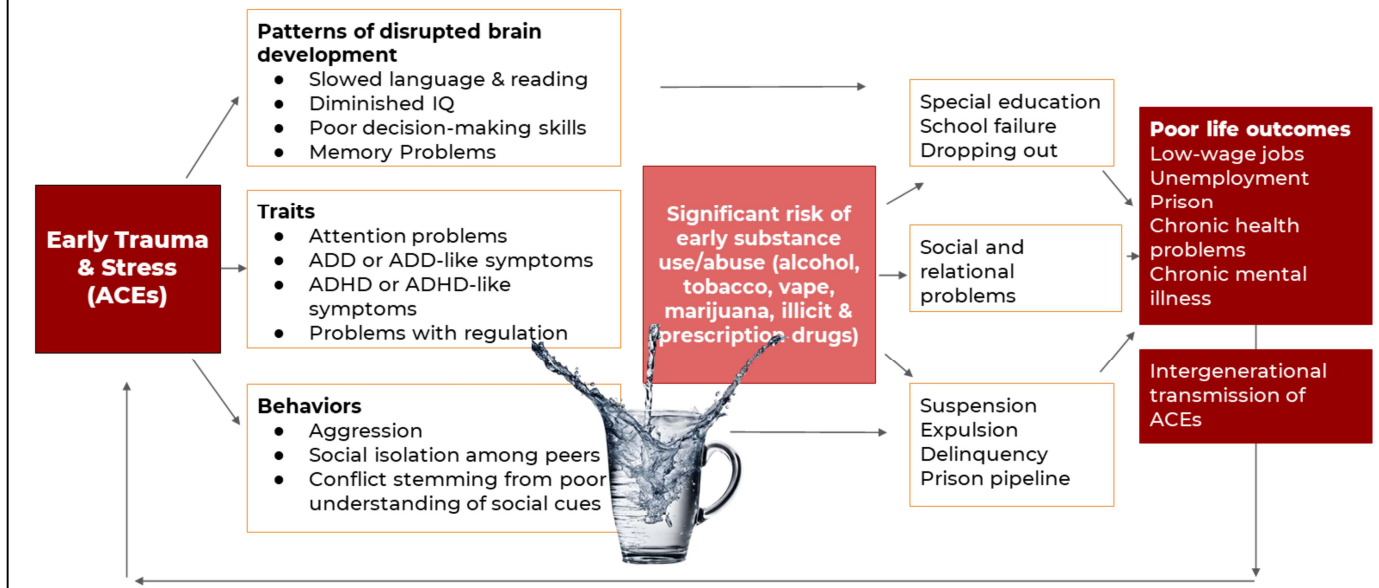
- High levels of stress experienced in adverse situations create toxic loads of cortisol or toxic stress hormones
- This toxic level of stress changes how neurons develop in the young brain hindering the development of executive functioning skills, language, emotional regulation, and more
- When the brain develops in a stressful environment, it is wired to survive, not thrive which doesn't fit societal expectations and can lead the need for adaptive behaviors
- There is a dose-response relationship between toxic levels of stress experienced and potential for health, social and behavioral problems
  - The higher the amounts of toxic stress, the greater the chance for disease, depression, health, social, behavioral problems.

**Trauma is a risk factor for mental health challenges and poor life outcomes - this is a causal relationship**



- <https://youtu.be/LmVWOe1ky8s?feature=shared>
- The video mentions more than 1 adult in a child's life and the role of community – we're going to come back to these in a bit.

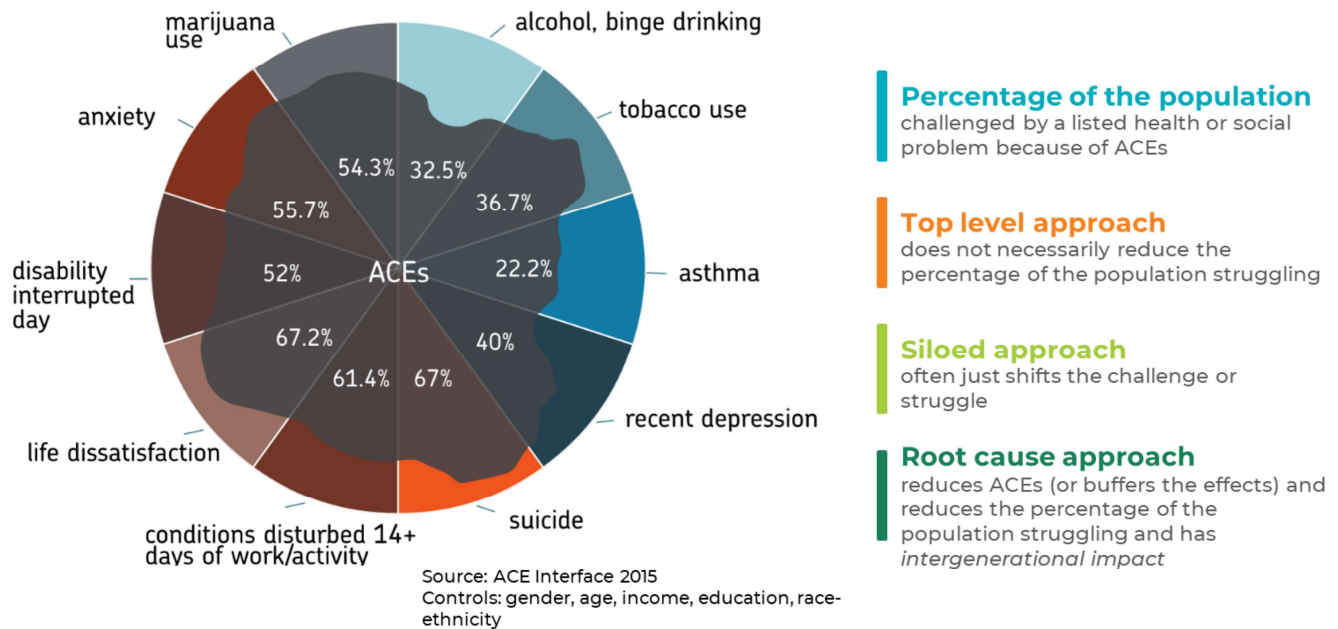
## Progression of Trauma and Adaptive Behaviors



Early Trauma and Stress or ACEs change how the brain develops which results in poor development of executive functioning, language and reading skills as well as poor regulation and poor decision making skills. These may lead to adaptive behaviors that serve as coping skills, however even if the coping skills are not used, the disrupted brain development and corresponding traits and behaviors can still lead to problems in school, relationships and life. Once adults, the long lasting effects of childhood trauma can cause the cycle to repeat, passing trauma on to the next generation.

Stress cup: Explanation of the stress cup: "The cup analogy provides a visual to demonstrate the impact of stress, and the continuing impact of past trauma (including secondary and vicarious trauma) on robustness. The cup analogy starts with the size of the cup, or robustness state. The bigger the size of the cup, the more stress you can hold without it negatively impacting your ability to regulate emotions and utilize your cognitive brain." From <https://connectingparadigms.org/blog/2017/01/20/the-cup-analogy-and-self-care/>

## Population Attributable Risk



Around the pie you see some of the most common health and social problems. Based on the findings of the ACE study we know that 80% of the most common health and social problems are caused by adverse childhood experiences or ACEs. The gray blob or “oil slick” that you see lists the percentage of the population as estimated by epidemiologists that are challenged by the health and social problems around the circle as a direct result of experiencing 1 or more ACE.

Top level approach: legislation to raise the legal drinking age or providing game rooms at work

Siloed approach: treating the problem, not the whole person (medication, detox programs, superficial mental health support)

We are not necessarily reducing the percentage of the population who is suffering, in reality, we are mostly moving the oil around the slide or shifting where someone might be struggling.

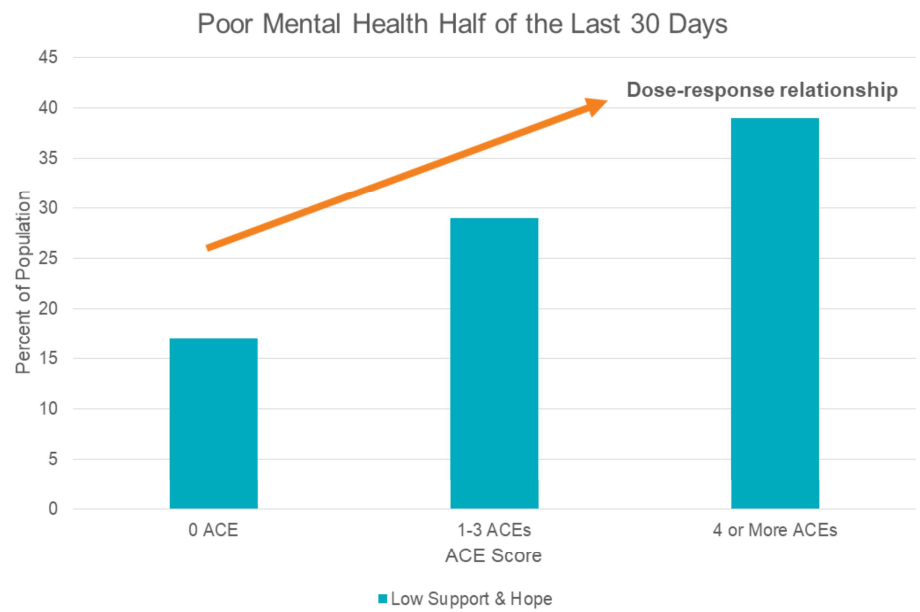
If we want to truly reduce the percentage of the population facing these common health and social problems, we must start draining the oil from the slide - we must reduce or at least buffer ACEs - the Root cause approach. Now in partnership with the top level and siloed approaches, we are actually reducing the percentage of the population who is suffering AND we are reducing the intergenerational transmission of ACEs.

## Dose Response Relationship



### ACE Dose Response

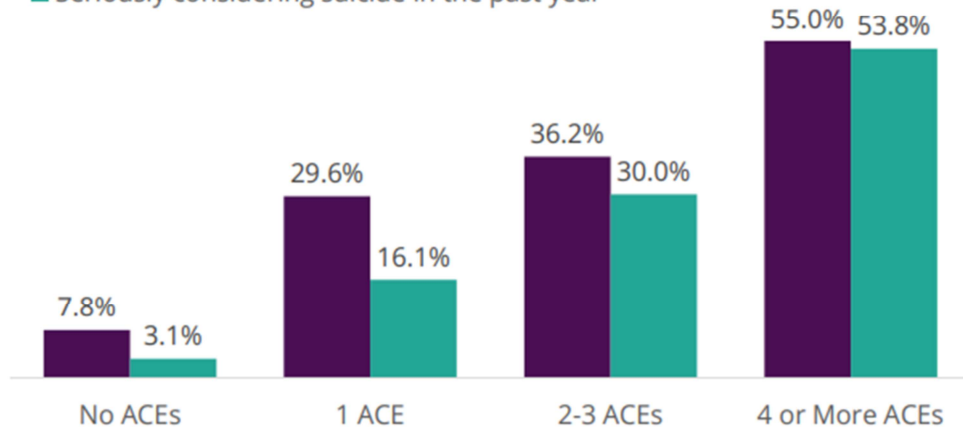
The higher the ACE score, the greater the risk of significant challenges



**Figure 1. The impact of adverse childhood experience (ACE) exposures on poor mental health and suicidal thoughts, Utah youth in grades 9-12, 2023**

The percentage of youth who reported poor mental health or suicidal thoughts increased as the number of ACEs increased.

- Mental health not good in the past 30 days
- Seriously considering suicide in the past year



Source: Youth Risk Behavior System

December 2024 Utah Health Status Update [https://ibis.utah.gov/ibisph-view/pdf/opha/publication/hsu/2024/2412\\_ACEs\\_Ment.pdf](https://ibis.utah.gov/ibisph-view/pdf/opha/publication/hsu/2024/2412_ACEs_Ment.pdf)

- 74% of Utah youth reported at least 1 ACE in 2023
- The most commonly reported ACEs were emotional abuse (60%), household mental illness (32%), and physical abuse (29%).
- The rates of poor mental health and suicidal thoughts were higher among youth who report more ACEs.
- Evidence-based public health programs including after-school activities and home visits are needed to address the harmful effects of ACEs and offer support to at-risk families.

## The Role of Hope and Support



### ACE Dose Response

The higher the ACE score, the greater the risk of significant challenges



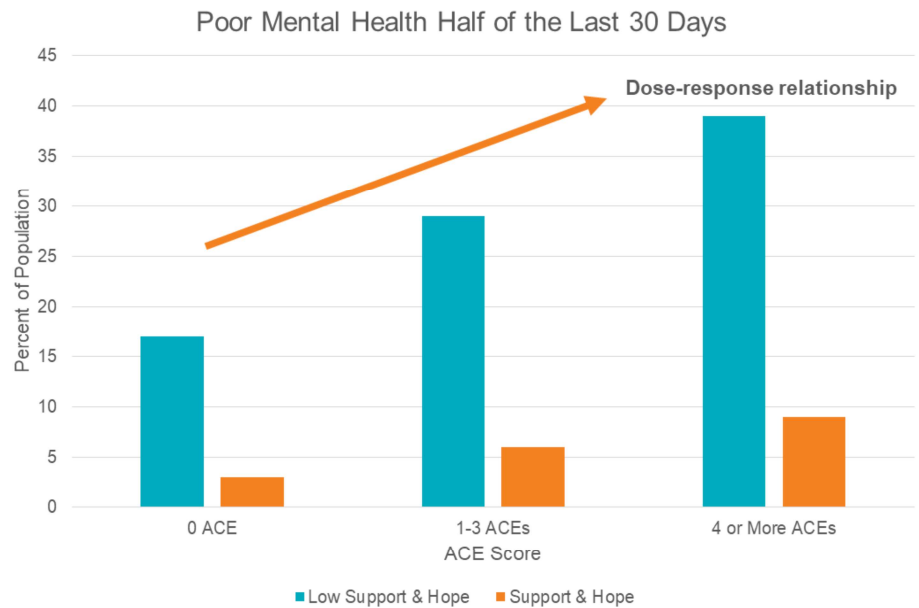
### Hope and Support

Significantly improved mental health despite ACE score



### What we do matters

Providing hope and support can counter the effects of ACEs



The part often left out of ACEs conversations is the power of hope and support. In orange you see the prevalence of poor mental health among those with increasing ACE scores. In blue, you see the positive impact of hope and support on mental health despite a person's ACE score. Hope and support play a significant role in positive mental health. Does this hope and support have lifelong benefits?

## Positive Childhood Experiences (PCEs)



### Dr. Christina Bethell

Johns Hopkins University

Leading researcher on Positive Childhood Experiences (PCEs)

PUBLIC HEALTH

### Positive Childhood Experiences May Buffer Against Health Effects Of Adverse Ones

September 9, 2019 - 1:25 PM ET  
Heard on All Things Considered



JAMA Pediatrics | Original Investigation

### Positive Childhood Experiences and Adult Mental and Relational Health in a Statewide Sample Associations Across Adverse Childhood Experiences Levels

Christina Bethell, PhD, MBA, MPH; Jennifer Jones, MSW; Narangerel Gombojav, MD, PhD; Jeff Linkenbach, EdD; Robert Sege, MD, PhD

**IMPORTANCE** Associations between adverse childhood experiences (ACEs) and risks for adult depression, poor mental health, and insufficient social and emotional support have been documented. Less is known about how positive childhood experiences (PCEs) co-occur with and may modulate the effect of ACEs on adult mental and relational health.

[+ Supplemental content](#)

New research released in 2019 on resilience and positive childhood experiences based on a study with over 7k participants, age 18+

Participants were asked a variety of questions about childhood trauma - not limited to the 10 ACE categories - mental health and relationship health

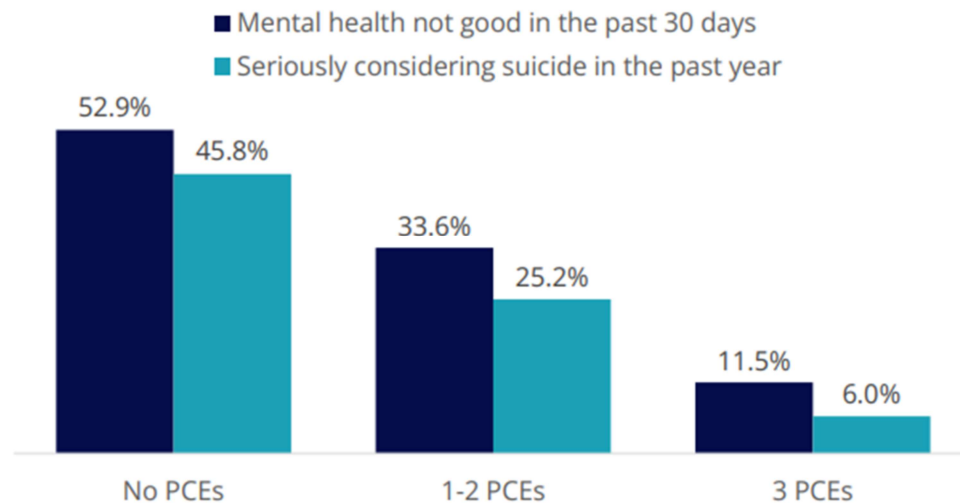
Findings identified 7 positive childhood experiences that have a lifelong beneficial, ripple effect on mental health

Similar dose response relationship to toxic stress - the more positive experiences, the better the chance for positive mental health and relationship health despite adversity

Positive childhood experiences can buffer adverse childhood experiences reducing the neurological, emotional and behavioral impact of those adversities.

**Figure 2. The influence of positive childhood experience (PCE) exposures on poor mental health and suicidal thoughts, Utah youth in grades 9–12, 2023**

The percentage of youth who reported poor mental health or suicidal thoughts decreased as the number of PCEs increased.



Source: Youth Risk Behavior System

December 2024 Utah Health Status Update [https://ibis.utah.gov/ibisph-view/pdf/opha/publication/hsu/2024/2412\\_ACES\\_Ment.pdf](https://ibis.utah.gov/ibisph-view/pdf/opha/publication/hsu/2024/2412_ACES_Ment.pdf)

- 16% reported no PCEs in 2023.
- Evidence-based public health programs including after-school activities and home visits are needed to address the harmful effects of ACEs and offer support to at-risk families.

## PCEs and Protective Factors

### Within the Home

- Able to talk to family about feelings
- Felt family stood up for them in difficult times
- Felt safe and protected by an adult in your home



### Community Based

- Had at least two non-parent adults who took genuine interest
- Felt supported by friends
- Felt a sense of belonging at high school
- Enjoyed participating in community traditions

### Community Factors of Support

Emotional Support  
Multiple Sources of Help  
Reciprocity  
Social Bridging



Seven protective factors identified through Dr. Bethell's research:

Three inside of the home

Four within the community

There are also four community factors of support that echo aspects of the protective factors

Emotional Support: Feeling social/emotional support and hope

Multiple Sources of Help: Two or more people who give concrete help when needed

Reciprocity: Watching out for each other and doing favors for one another

Social Bridging: Reaching outside the social circle to get help for family or friends

## Connecting CTE to Protective Factors



### Emotional Support

- Multi-year connections
- Peer & Teacher
- Real time feedback on skills
- Tangible progress

### Multiple Sources of Help

- Peer groups (CTSOs)
- Teachers
- Mentors
- Industry professionals

### Reciprocity

- CTSOs
- Learners actively leading their journey
- Peer mentoring

### Social Bridging

- Career exploration
- Apprenticeship/ Internship
- Work-based learning
- Building social capital



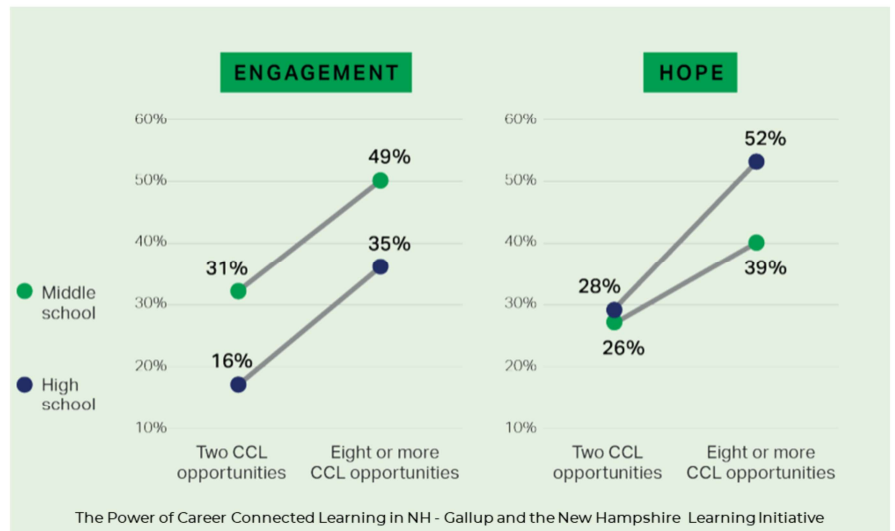
Where do we see the four community factors of support in the world of CTE?

**CCL  
increases  
hope!**

## Hope and Career Connected Learning

The more career-connected learning (CCL) opportunities a student has, ***the higher their engagement and hope.***

Hope nearly doubled when students agree they have a mentor who supports their development.

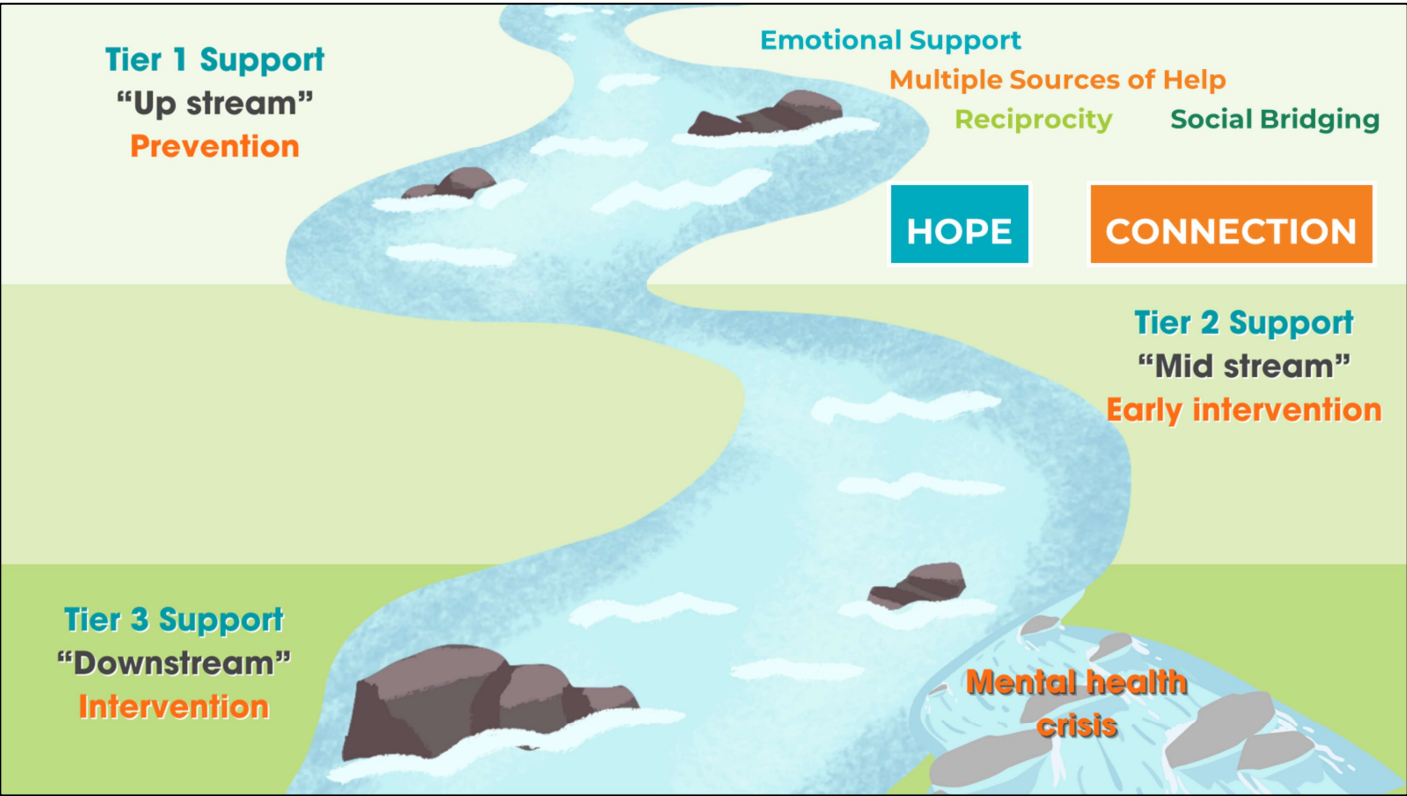


In a report released in late September 2023, Gallup reported that there is a direct connection in the number of career-connected learning opportunities and a student's engagement and hope. Gallup partnered with the New Hampshire Learning Initiative to survey more than 9,600 students in fifth through 12th grades from 28 schools and 13 districts throughout the state of New Hampshire. CCL opportunities were defined as everything from guest speakers in core academic classrooms to direct career exploration to being in a career pathway.

Mentors matter for hope. Survey respondents who agreed they have a mentor who supports their development are more likely to be hopeful about the future than their peers who do not have such a mentor (40% vs. 25%).

Engagement matters as even students with lower academic performance that were more engaged through CCL reported having a higher sense of hope that they will graduate high school.

From the 2024 report - Forty percent of students who indicate that CCL opportunities include the activities they are interested in are hopeful, compared to 25% of those who disagree. This finding highlights the importance of listening to students and better understanding what they are looking for in CCL opportunities.



## Bringing it Into the Classroom & Advising

**Hope** has a significant positive impact on anxiety, depression, & academic performance.

- Goals – must align with **their why**, SMART (specific, measurable, achievable, relevant, and time-bound)
- Agency – discover **their ability** to shape their life, build belief they can make things happen
- Pathways – defining **their way** – the routes and plans that allow for achievement of goals

### Emotional Support

Real time feedback on skills  
Tangible progress  
Goal setting

### Reciprocity

Learners actively leading  
their journey  
Peer mentoring

### Social Bridging

Career exploration  
Apprenticeship / Internship  
Work-based learning

### Multiple Sources of Help

Mentors  
Career Advisors / Counselors



**How are we aligning their skills, talents, interests, and passions to a pathway for their future.**

Charles R. Snyder, PhD, a psychologist at the University of Kansas and a pioneer of hope research created a model of hope with three components: goals, agency and pathways. Agency is our ability to shape our lives — the belief that we can make things happen, and the motivation to reach a desired outcome. The pathways are how we get there — the routes and plans that allow us to achieve the goal.

What does this look like through the lens of protective factors and CTE?

## Bringing it Into the Classroom & Advising

**Connection** is vital to our ability to achieve, succeed and thrive.

### **Social Bridging**

Career exploration  
Apprenticeship / Internship  
Work-based learning  
Mentors  
CTSOs

#### **How are we connecting students**

- To people
- To meaningful opportunities that provide insight into what is possible
- To options for their future that connect with their talents and interests

Addiction specialists state that the opposite of addiction is connection and that our inability to connect is a primary risk factor for substance use disorders. Connection to others also helps us develop our sense of purpose. CDC on connectedness only 50% feel connected (YRBS)

What does this look like through the lens of protective factors and CTE?

## Questions for Consideration

What is standing out most for you right now as a key takeaway?

What challenges are coming up for you?

What questions do you still have?

**Debrief and Thought Partnership Breakout Session**

## FOR MORE RESOURCES:

Visit our Learning that Works  
Resource Center [here](#).

Search Institute: <https://searchinstitute.org/>

Youth Risk Behavior Survey Data Trends 2013-2023 report:  
<https://www.cdc.gov/yrbbs/dstr/index.html>

Promoting Mental Health and Well-Being in Schools: A Guide for District and Local Leaders: [https://www.cdc.gov/healthyyouth/mental-health-action-guide/index.html?s\\_cid=hy-2023](https://www.cdc.gov/healthyyouth/mental-health-action-guide/index.html?s_cid=hy-2023)

Engaging Learners and Families: Advance CTEs messaging research and work funded by the Siemens Foundation. <https://careertech.org/recruitmentstrategies>

Mission impossible: Being hopeful is good for you. Weir, Kirsten, American Psychological Association, October 2013, Vol 44, No. 9: <https://www.apa.org/monitor/2013/10/mission-impossible>

Report: Gen Z Teens Have Changed Their Priorities for Education and Work, ECMC Group <https://www.questionthegu.org/news/buzz/report-gen-z-teens-have-changed-their-priorities-for-education-and-work>

Adverse Childhood Experiences: Prevention for Action, Centers for Disease Control [https://www.cdc.gov/violenceprevention/pdf/ACEs-Prevention-Resource\\_508.pdf](https://www.cdc.gov/violenceprevention/pdf/ACEs-Prevention-Resource_508.pdf)

Pinetree Institute: <https://pinetreeinstitute.org/>

The Power of Career Connected Learning in NH: [https://nhlearninginitiative.org/wp-content/uploads/2023/09/Gallup-New-Hampshire-Learning-Initiative-Report\\_2023.pdf](https://nhlearninginitiative.org/wp-content/uploads/2023/09/Gallup-New-Hampshire-Learning-Initiative-Report_2023.pdf)

With Learners, Not For Learners: A Toolkit for Elevating Learner Voice in CTE: <https://careertech.org/resource/with-students-not-for-students-a-toolkit-for-elevating-student-voice-in-cte/>