

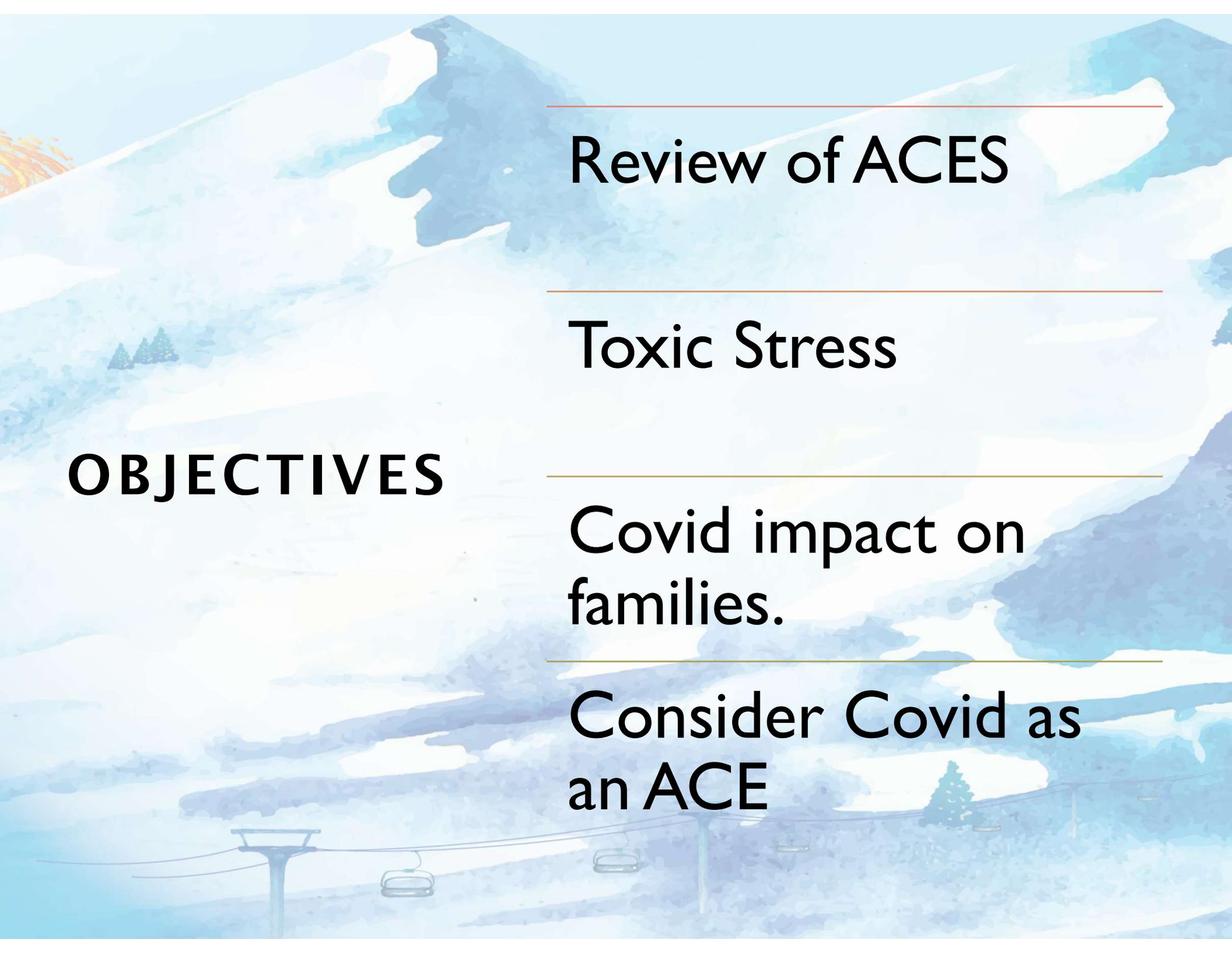
# CONSIDERING COVID 19 AS AN ACE

Thomas Patterson,  
MD, FAAP, FABP  
February 26, 2022



# **DISCLOSURES**

I have no relevant financial disclosures.



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**Review of ACES**

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**Toxic Stress**

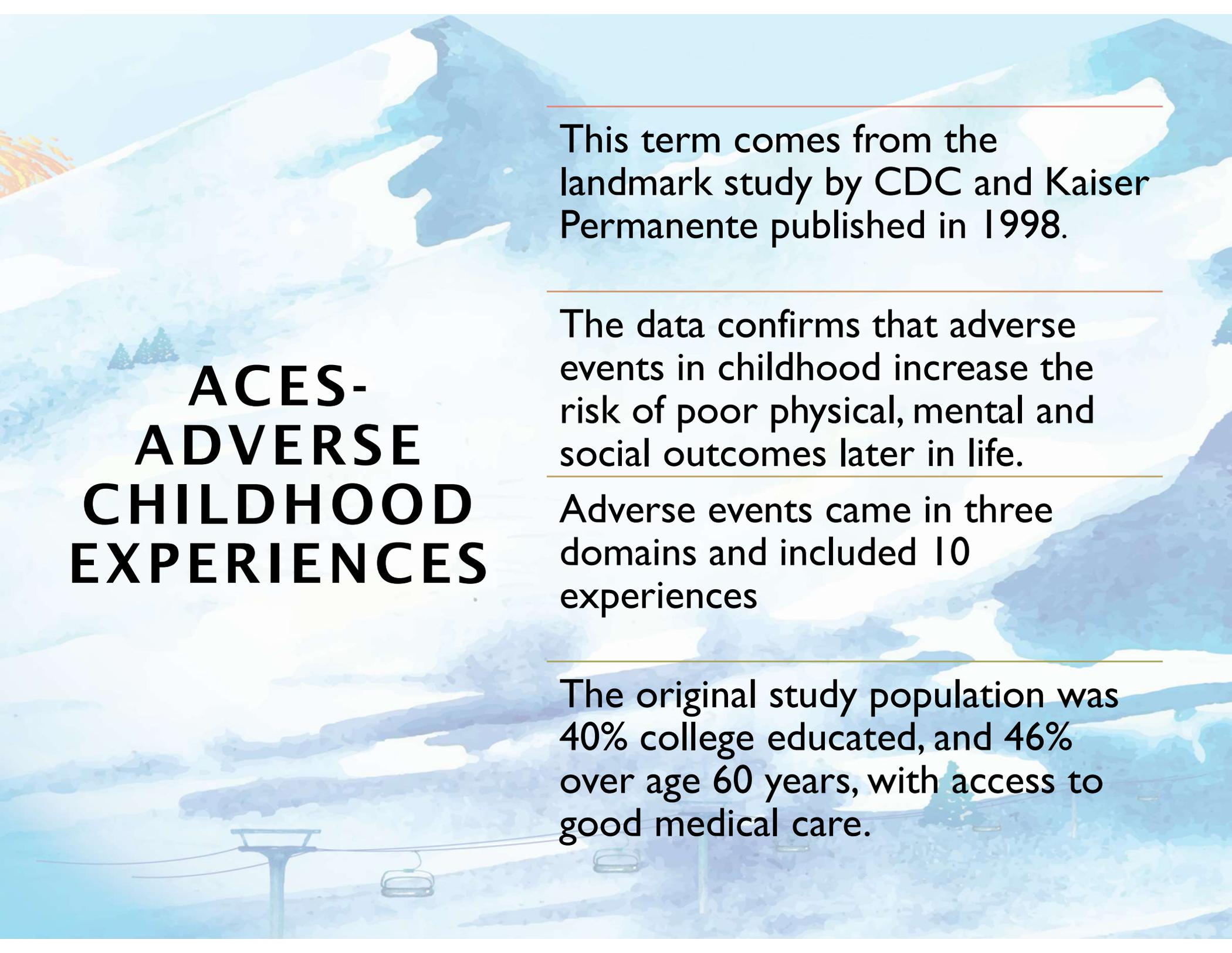
**OBJECTIVES**

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**Covid impact on families.**

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**Consider Covid as an ACE**



# ACES- ADVERSE CHILDHOOD EXPERIENCES

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This term comes from the landmark study by CDC and Kaiser Permanente published in 1998.

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The data confirms that adverse events in childhood increase the risk of poor physical, mental and social outcomes later in life.

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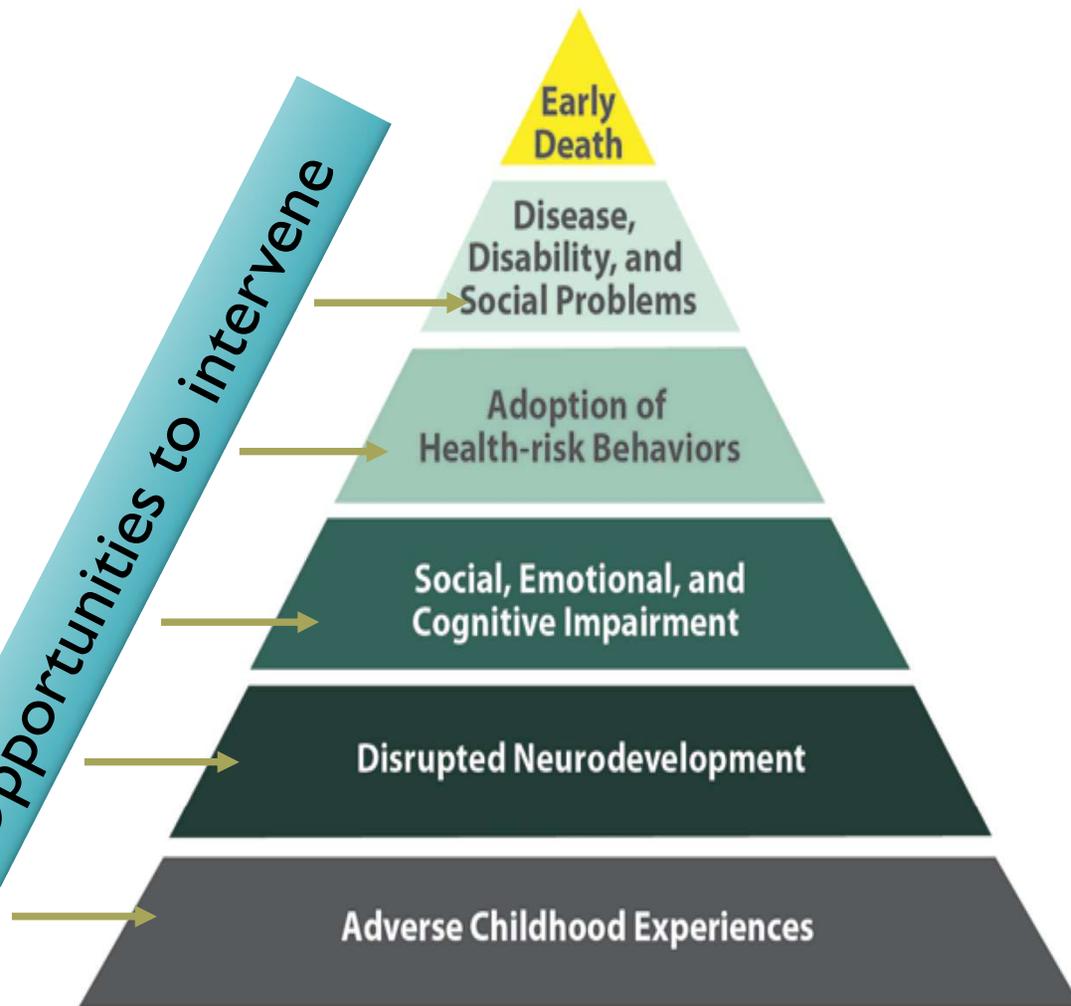
Adverse events came in three domains and included 10 experiences

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The original study population was 40% college educated, and 46% over age 60 years, with access to good medical care.

# ACES PYRAMID

*Opportunities to intervene*



Death

Conception

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

# ACES AND MORTALITY

- 5 of the top 10 causes of death have a dose response relationship with ACEs
  - Heart Disease
  - Respiratory Disease
  - Cancer
  - Diabetes
  - Suicide

# **STRESS AND TOXIC STRESS**



# SPECTRUM OF STRESS

- **Positive stress**- brief physiologic changes in hormone levels, heart rate, and blood pressure in response to a routine stressor (test for example)
- **Tolerable stress**-time limited activation of the stress response that is buffered by strong relationships with adults- recovery of the normal physiology (natural disaster for example)
- **Toxic stress**-high levels of stressors that go unbuffered during vulnerable times leading to persistent changes in physiology and become biologically imbedded

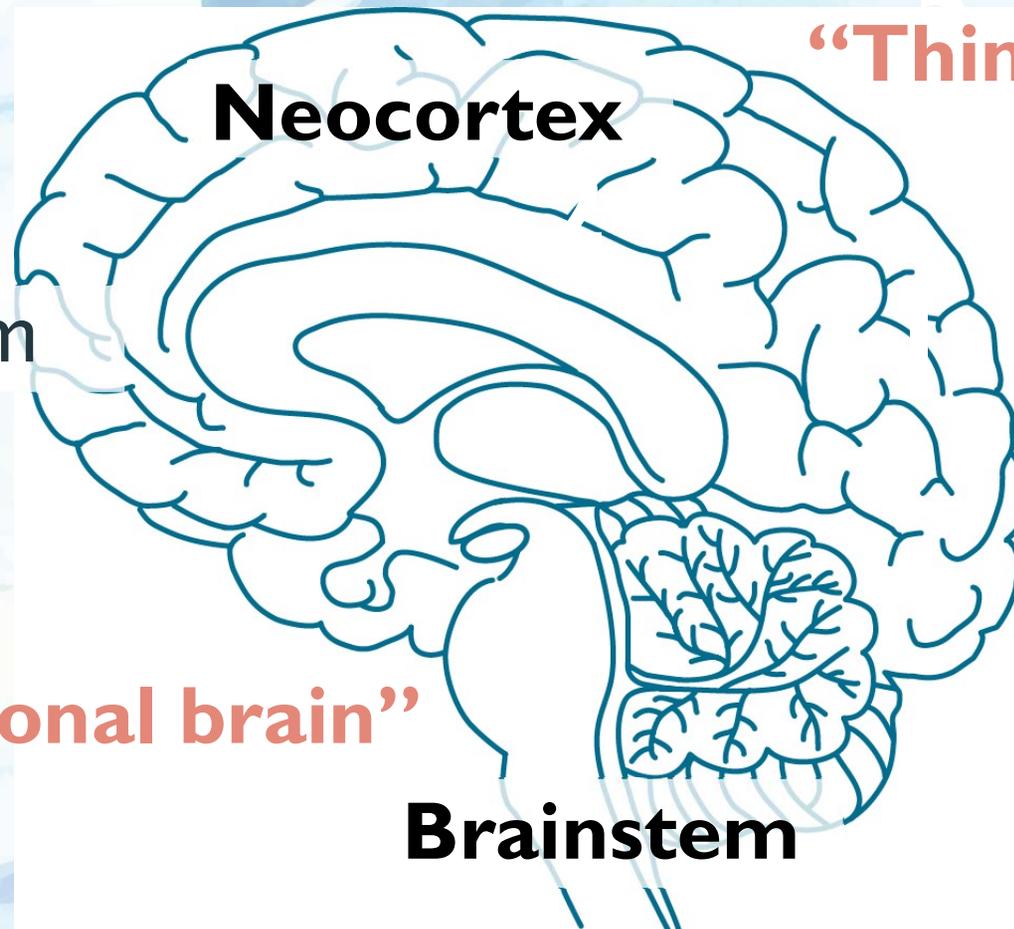
<https://www.acesaware.org/ace-fundamentals/the-science-of-aces-toxic-stress>

# TOXIC STRESS

“high doses of cumulative adversity experienced during critical and vulnerable periods of early life development – without the buffering protections of trusted, nurturing caregivers and safe, stable environments – can lead to long-term disruptions in brain development and immune, hormonal, and metabolic systems, acting through genetic regulatory mechanisms”.

<https://www.acesaware.org/ace-fundamentals/the-science-of-aces-toxic-stress/>

# The Stress Response System



“Thinking brain”

**Neocortex**

Limbic System

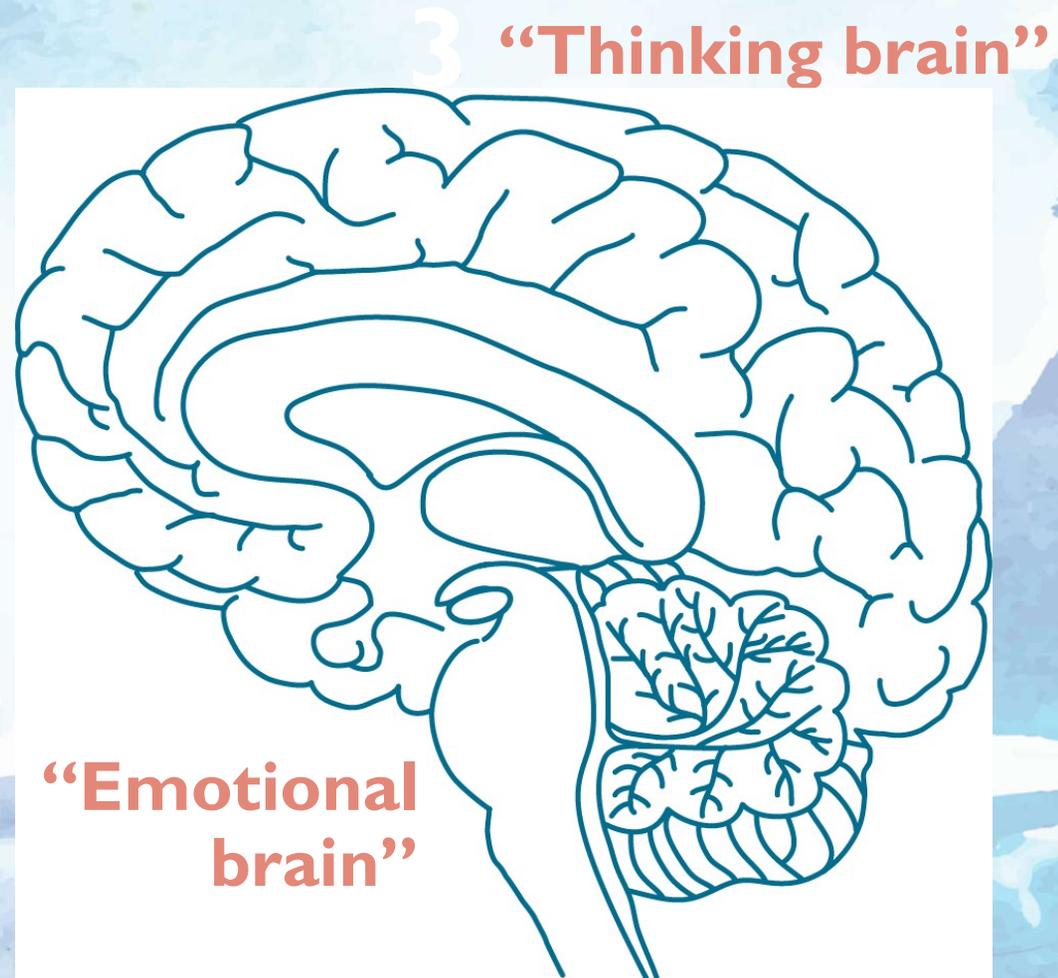
“Emotional brain”

**Brainstem**

national center for safe learning environments. (n.d.).  
*Understanding trauma and its impact. Le CERVEAU À tous  
LES NIVEAUX.* <http://thebrain.mcgill.ca/avance.php>.

# THE STRESS RESPONSE SYSTEM

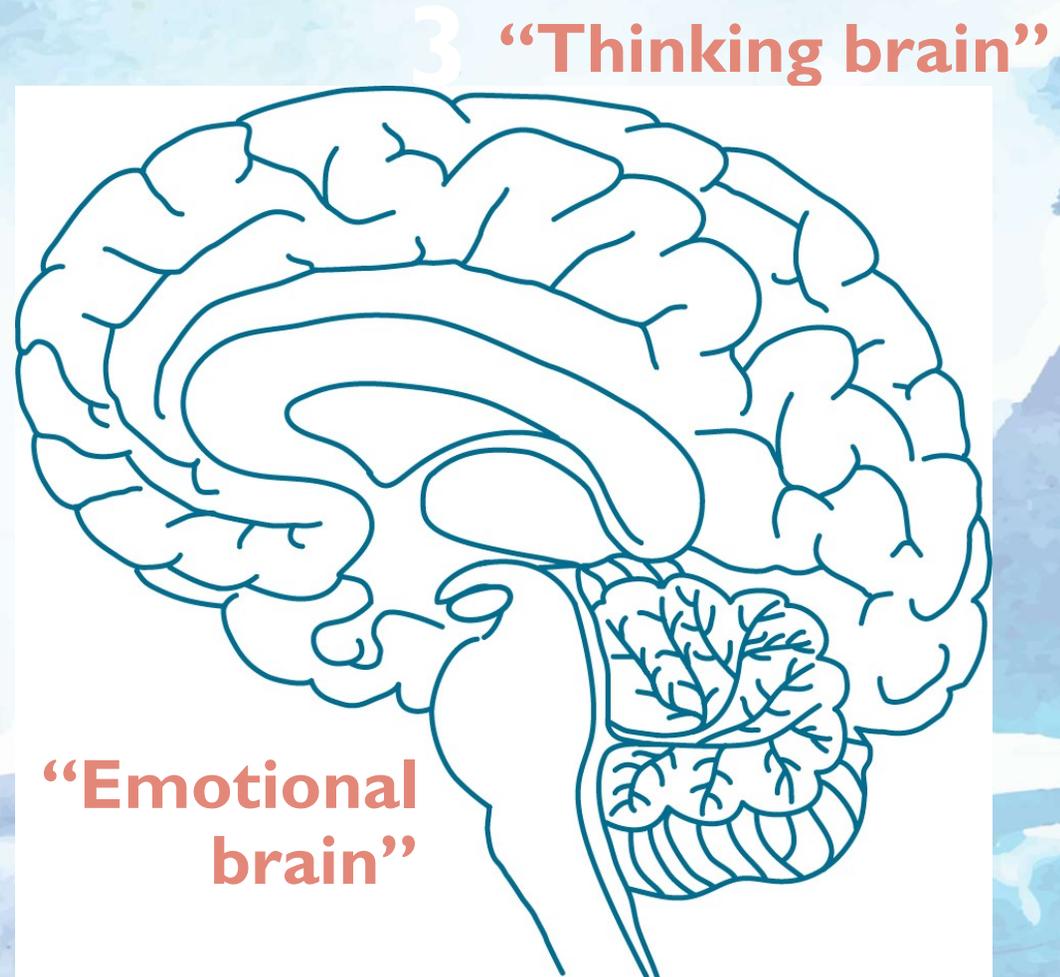
1. The amygdala senses threat and sets off the alarm.
2. Thinking brain assesses the situation.
3. Thinking brain goes off-line. Emotional brain activates fight or flight response.
4. Thinking brain helps shut off the alarm and helps us to calm down.



national center for safe learning environments. (n.d.).  
*Understanding trauma and its impact.* Le CERVEAU À tous  
LES NIVEAUX. <http://thebrain.mcgill.ca/avance.php>.

# THE STRESS RESPONSE AND TRAUMA

- An experience becomes **TRAUMATIC** when it overwhelms our system for responding to stress.
- The emotional brain continues to sound the alarm and send messages to fight or flee, even after the threat has passed.



national center for safe learning environments. (n.d.).  
*Understanding trauma and its impact. Le CERVEAU À tous  
LES NIVEAUX.* <http://thebrain.mcgill.ca/avance.php>.

# NATIONAL CHILD TRAUMATIC STRESS NETWORK



**Core Curriculum on  
Childhood Trauma**

## **The 12 Core Concepts**

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**Concepts for Understanding Traumatic  
Stress Responses in Children and Families**

**NCTSN**



The National Child  
Traumatic Stress Network

# 12 CORE CONCEPTS

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1 .Traumatic experiences are inherently complex

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2 .Trauma occurs within a broad context (personal characteristics, life experiences and current circumstances)

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3.Traumatic events often generate secondary adversities, life stressors and distressing reminders

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4. Children can exhibit a wide range of reactions to trauma and loss

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5. Danger and safety are core concerns of traumatized children

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6.Traumatic experiences affect the family and broader caregiving systems.

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# 12 CORE CONCEPTS

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7. Protective and promotive factors can reduce the adverse impact of trauma

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8. Trauma and post-trauma adversities can strongly influence development.

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9. Developmental neurobiology underlies children's reactions to traumatic experiences

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10. Culture is closely interwoven with traumatic experiences, response and recovery

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11. Challenges to the social contract including legal and ethical issues, affect trauma response and recovery

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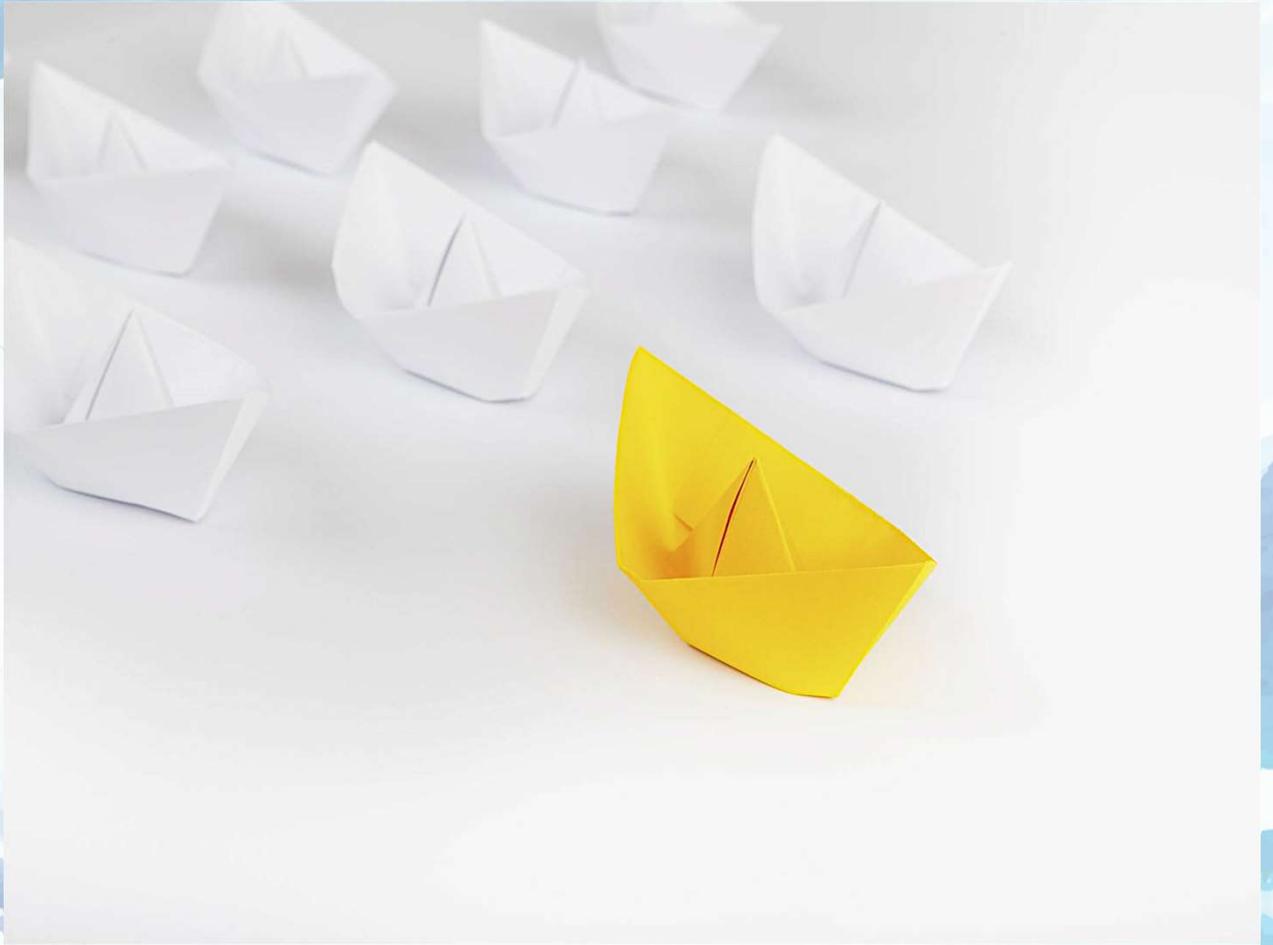
12. Working with trauma exposed children can evoke distress in providers- harder to provide good care.

# INTERMISSION

Questions



# COVID IMPACT ON FAMILIES

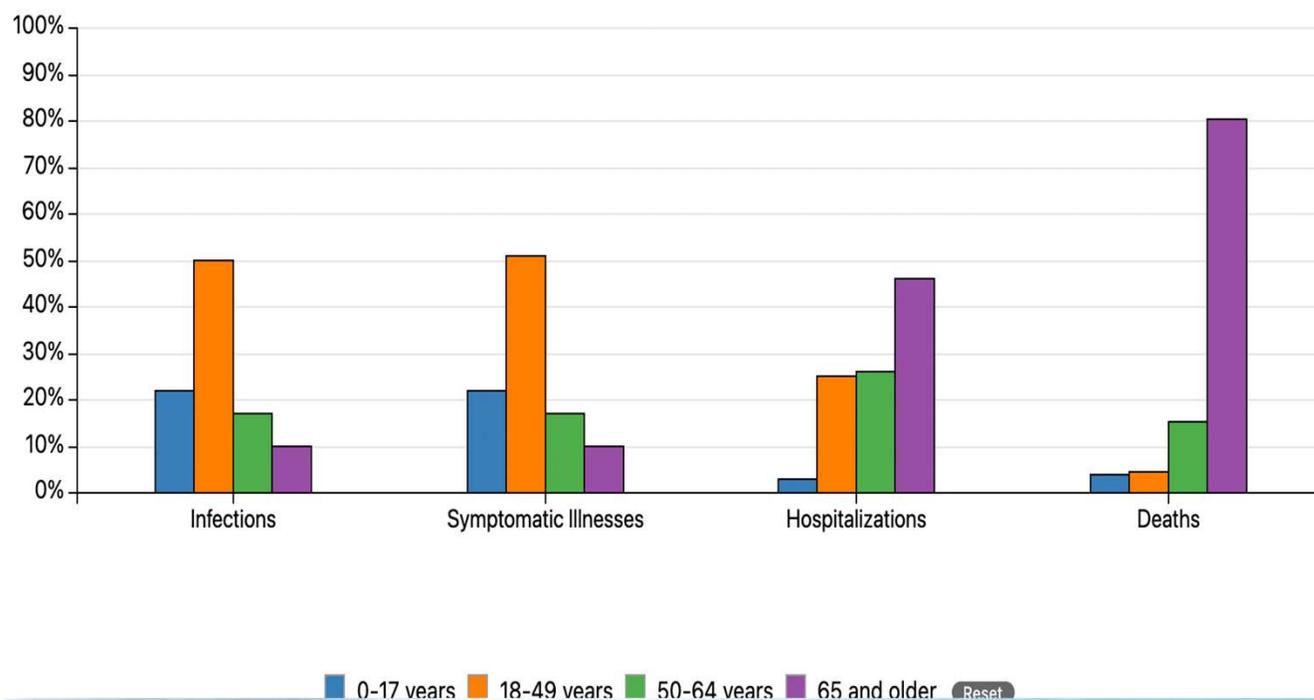




# COVID DISEASE

# COVID DISEASE

Percentage of COVID-19 infections, symptomatic illness, and hospitalizations, and deaths, by age group—United States, February 2020–May 2021



<https://www.cdc.gov/coronavirus/2019-nCoV/cases-updates/burden.html> last updated 7/27/2021

A watercolor-style illustration of a snowy mountain landscape. The scene features a ski lift with several chairs suspended from a cable that runs across the foreground. The mountains are covered in snow, with some areas appearing darker, possibly due to shadows or the watercolor texture. There are a few evergreen trees scattered across the slopes. The overall color palette is dominated by light blues, whites, and soft yellows, giving it a serene and wintry feel.

# **CHILD ABUSE DURING COVID**

# IMPACT

Reports of child abuse were down across the nation. Children not being in daycare and school suspected for reason

Ratio of child abuse cases to total pediatric trauma presenting to John Hopkins was 13% up from 4% and 3% in the prior two years.

Child death from non-accidental trauma increased.

Kovler ML, Ziegfeld S, Ryan LM, et al. Increased proportion of physical child abuse injuries at a level I pediatric trauma center during the Covid-19 pandemic. *Child Abuse Negl.* 2021;116(Pt 2):104756. doi:10.1016/j.chiabu.2020.104756

# IMPACT

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# ORPHANHOOD

# COVID AS A CAUSE OF ORPHANHOOD

## US is No. 4 in the world with most orphaned children by COVID deaths, study finds

BY KATIE CAMERO

UPDATED JULY 21, 2021 10:05 PM

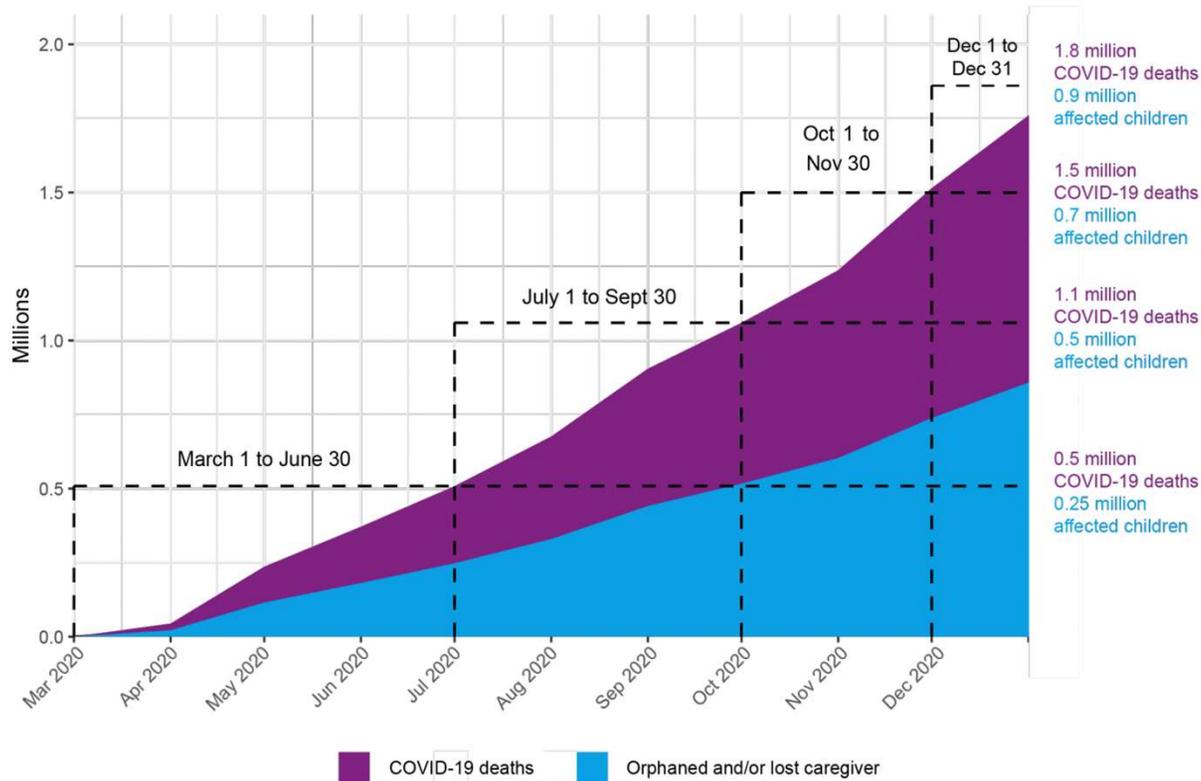


An estimated 1.5 million children worldwide have experienced the death of a parent, custodial grandparent or other relative who cared for them, as a result of COVID-19, according to a new study published in The Lancet.

HARAZ N. GHANBARI ASSOCIATED PRESS

# COVID ORPHANHOOD WORLDWIDE

FIGURE 1: Trends in COVID-19 deaths and children affected by orphanhood and death of caregivers, March 1 – Dec 31, 2020 <sup>10 20</sup>.



<https://www.cdc.gov/coronavirus/2019ncov/downloads/community/orphanhood-report.pdf>

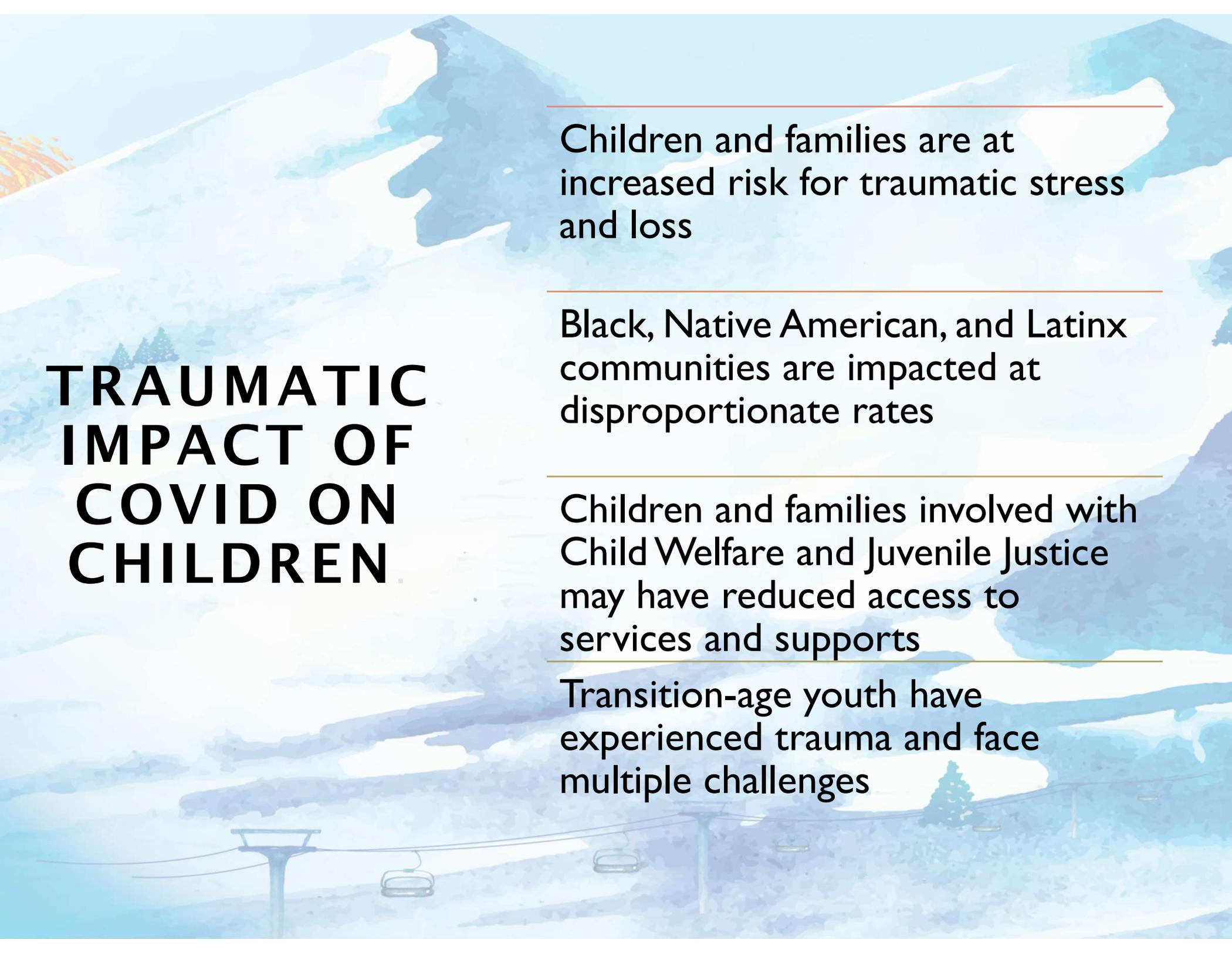


## The Traumatic Impact of COVID-19 on Children and Families: Current Perspectives from the NCTSN

*Report Date: November 2020 (Updated March 2021)*



Absher, L., Maze, J., and Brymer, M. (2021). The Traumatic Impact of COVID-19 on Children and Families: Current Perspectives from the NCTSN. Los Angeles, CA, and Durham, NC: National Center for Child Traumatic Stress.



# TRAUMATIC IMPACT OF COVID ON CHILDREN

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Children and families are at increased risk for traumatic stress and loss

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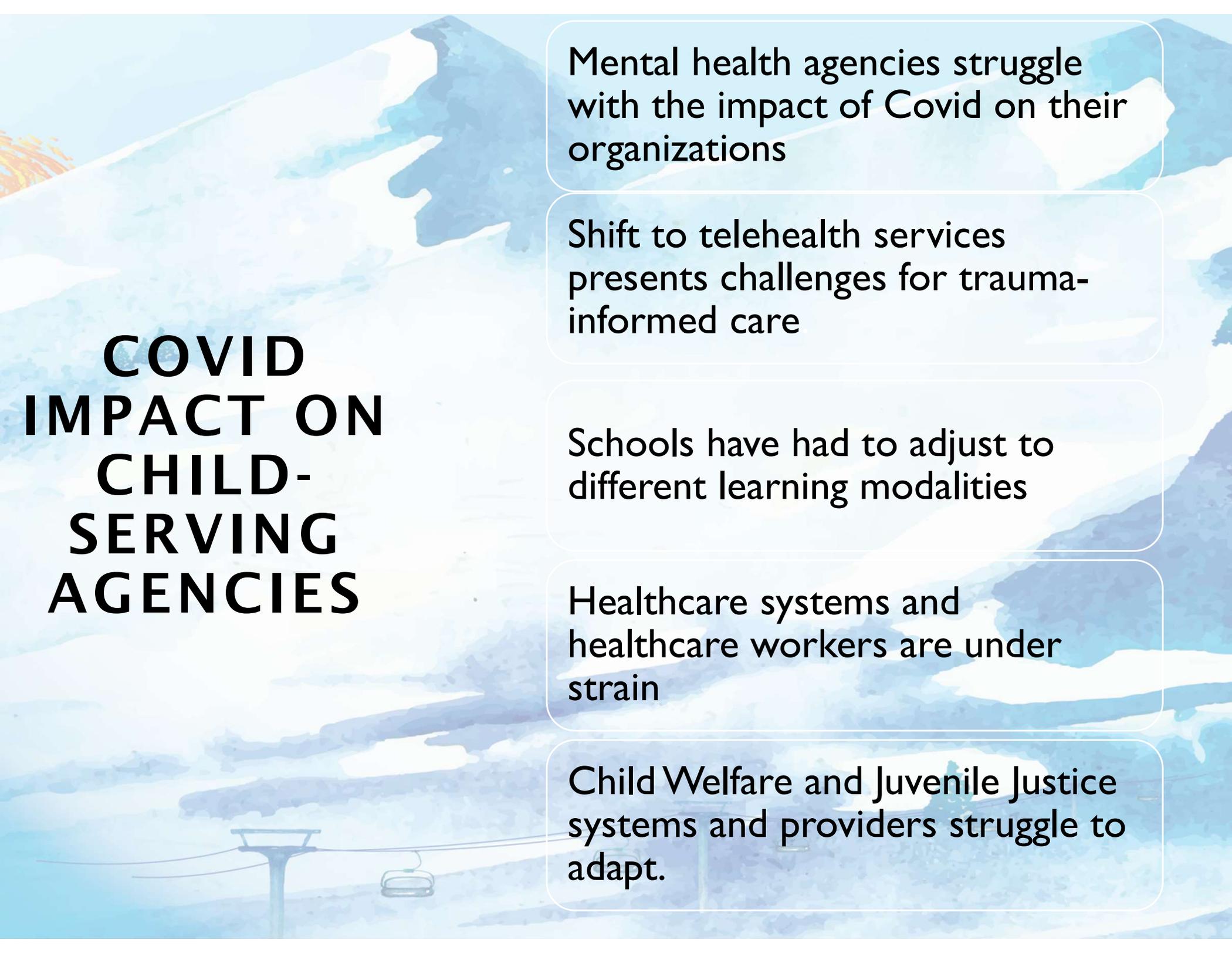
Black, Native American, and Latinx communities are impacted at disproportionate rates

---

Children and families involved with Child Welfare and Juvenile Justice may have reduced access to services and supports

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Transition-age youth have experienced trauma and face multiple challenges



# COVID IMPACT ON CHILD- SERVING AGENCIES

Mental health agencies struggle with the impact of Covid on their organizations

Shift to telehealth services presents challenges for trauma-informed care

Schools have had to adjust to different learning modalities

Healthcare systems and healthcare workers are under strain

Child Welfare and Juvenile Justice systems and providers struggle to adapt.

# FINANCIAL IMPACT OF COVID

DURING  
COVID-19

More than  
4 in 10 households  
report facing  
serious financial  
problems.



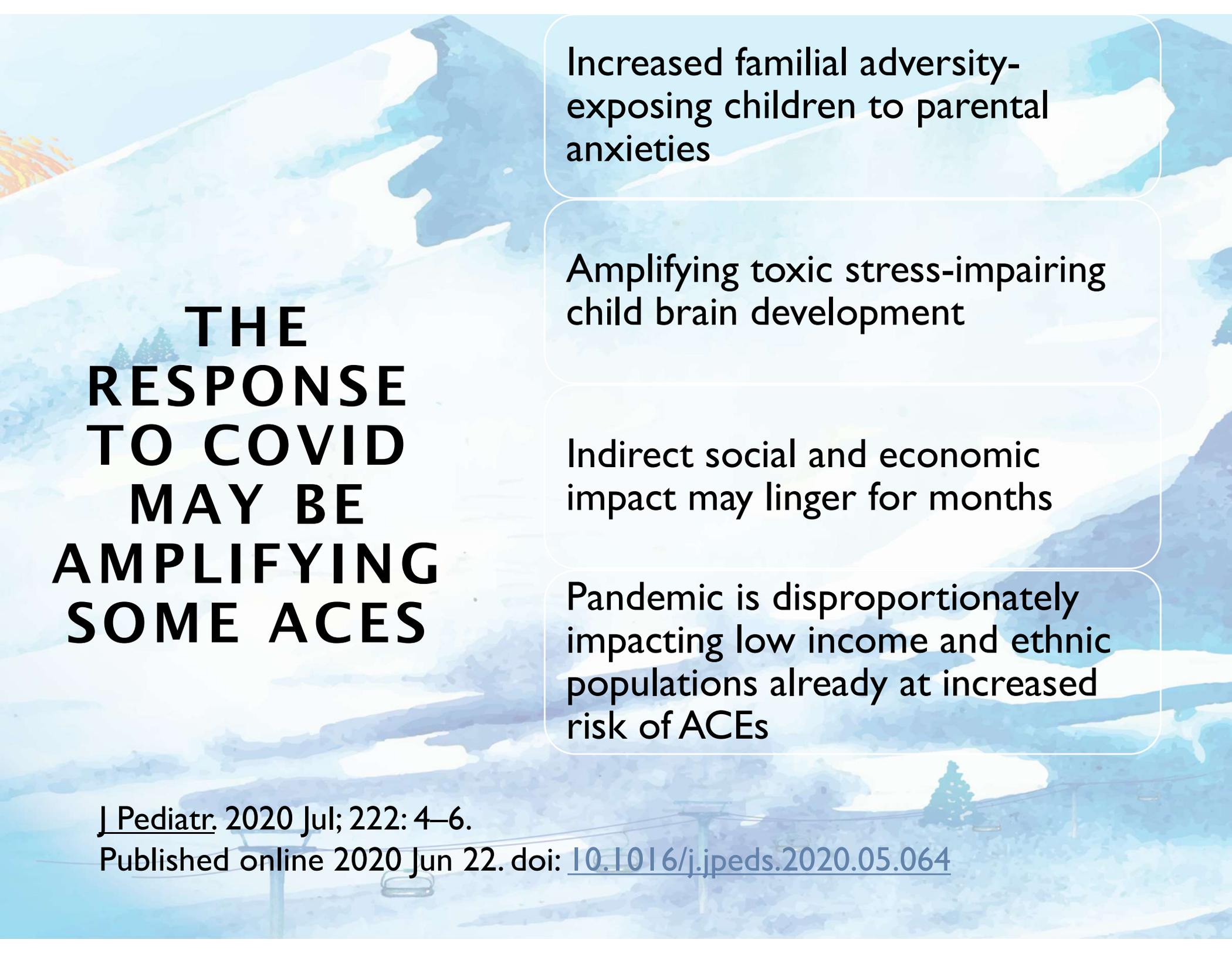
U.S. households are struggling to stay afloat during COVID-19, a crisis that's widening inequalities that already existed in America. More than 4 in 10 households across the nation report facing serious financial problems during the coronavirus pandemic. We must take a hard look at the data—and call out the systems and policies that leave entire communities behind.

<https://www.rwjf.org/en/library/research/2020/09/the-impact-of-coronavirus-on-households-across-america.html>

# FINANCIAL IMPACT OF COVID

- Depleted savings
- Trouble paying bills
- Trouble affording or accessing medical care.
- Lost jobs or wages
- More than 1 in 3 families with children have challenges keeping their kid's education going-childcare, internet

<https://www.rwjf.org/en/library/research/2020/09/the-impact-of-coronavirus-on-households-across-america.html>



# THE RESPONSE TO COVID MAY BE AMPLIFYING SOME ACES

Increased familial adversity-  
exposing children to parental  
anxieties

Amplifying toxic stress-impairing  
child brain development

Indirect social and economic  
impact may linger for months

Pandemic is disproportionately  
impacting low income and ethnic  
populations already at increased  
risk of ACEs

J Pediatr. 2020 Jul; 222: 4–6.

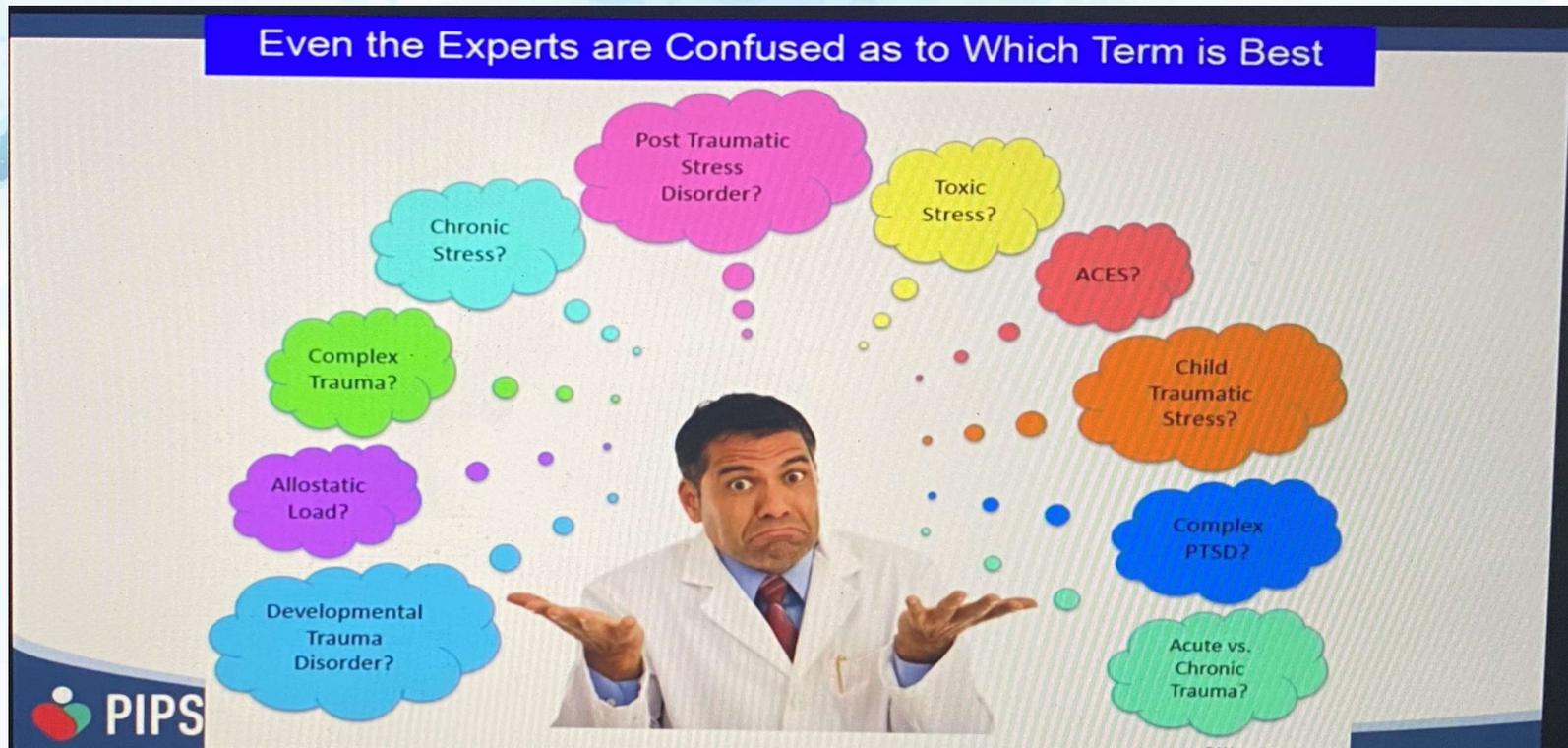
Published online 2020 Jun 22. doi: [10.1016/j.jpeds.2020.05.064](https://doi.org/10.1016/j.jpeds.2020.05.064)



**COVID  
RESPONSE  
THAT  
BUFFERS  
TOXIC  
STRESS**

- What can we do?

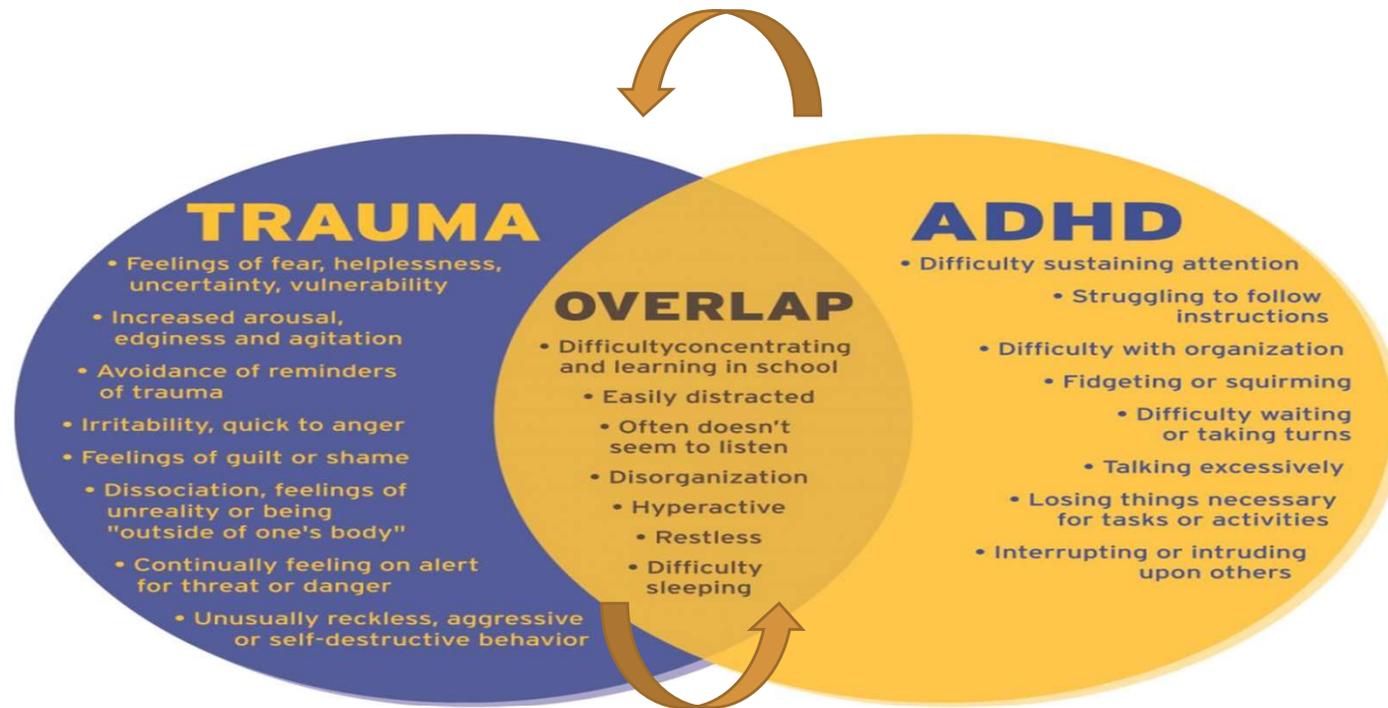
# CONSIDERING TRAUMA IN COMMON DIAGNOSES WHERE TOXIC STRESS MAY OVERLAP



Easy to misattribute symptoms to a diagnosis overlooking the role of toxic stress.

Adapted from Brooks Keeshin MD

# TRAUMA OVERLAPS WITH COMMON DIAGNOSES



## Are Children with ADHD at Greater Risk for Trauma?

Researchers disagree on whether or not ADHD is associated with risk of exposure to psychological trauma. Some pediatric studies have documented that youth with ADHD are more likely than those without ADHD to develop child traumatic stress and vice versa.<sup>ii</sup> Some researchers maintain that children with ADHD should be considered a high-risk population for the development of child traumatic stress. Still other studies show children and adults diagnosed with ADHD are at elevated risk for exposure to traumatic events but not always for the development of trauma-related symptoms.<sup>iii</sup>

[https://www.nctsn.org/sites/default/files/resources/is\\_it\\_adhd\\_or\\_child\\_traumatic\\_stress.pdf](https://www.nctsn.org/sites/default/files/resources/is_it_adhd_or_child_traumatic_stress.pdf). accessed 9/14/2020, adapted

# HOW CAN WE TREAT TRAUMA

- Promoting safety and building routines and rituals
- Teaching children stress management and relaxation skills to help them cope with distress and trauma reminders
- Talking about traumatic events in ways that enable children to master painful feelings and resolve the impact the events have on their lives
- Correcting untrue or distorted ideas about what happened and why
- Enhancing children's ability to regulate emotions, behaviors, and physiological reactions

[https://www.nctsn.org/sites/default/files/resources/is\\_it\\_adhd\\_or\\_child\\_traumatic\\_stress.pdf](https://www.nctsn.org/sites/default/files/resources/is_it_adhd_or_child_traumatic_stress.pdf), accessed 9/14/2020 |

# POSITIVE CHILDHOOD EXPERIENCES

## The Power of Positive

**IDENTIFYING  
POSITIVE**  
CHILDHOOD EXPERIENCES  
that shape mental  
health in adults

① Ability to talk  
with family  
about feelings



④ Feeling of belonging  
in high school.



⑤ Feeling of being  
supported by friends



② Felt Experience  
that family is  
supportive in  
difficult times



③ enjoyment in  
participation in  
community traditions



⑥ having at least  
two non-parent adults  
who genuinely care.



⑦ feeling safe and  
protected by an  
adult at home



LEAD RESEARCHER: CHRISTINA BETHELL @ JOHNS HOPKINS UNIVERSITY  
JOURNAL OF AMERICAN MEDICAL ASSOCIATION ARTICLE 2749336  
VISUALLY TRANSLATED BY @LINDSAYBRAMAN

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# PROMOTE SELF CARE

Parents Who Reported That Educating Their Children  
at Home Has Been Stressful Only, Positive Only, or Both



Neither positive nor stressful: 527 (21%)

American Academy of Pediatrics  
DEDICATED TO THE HEALTH OF ALL CHILDREN®

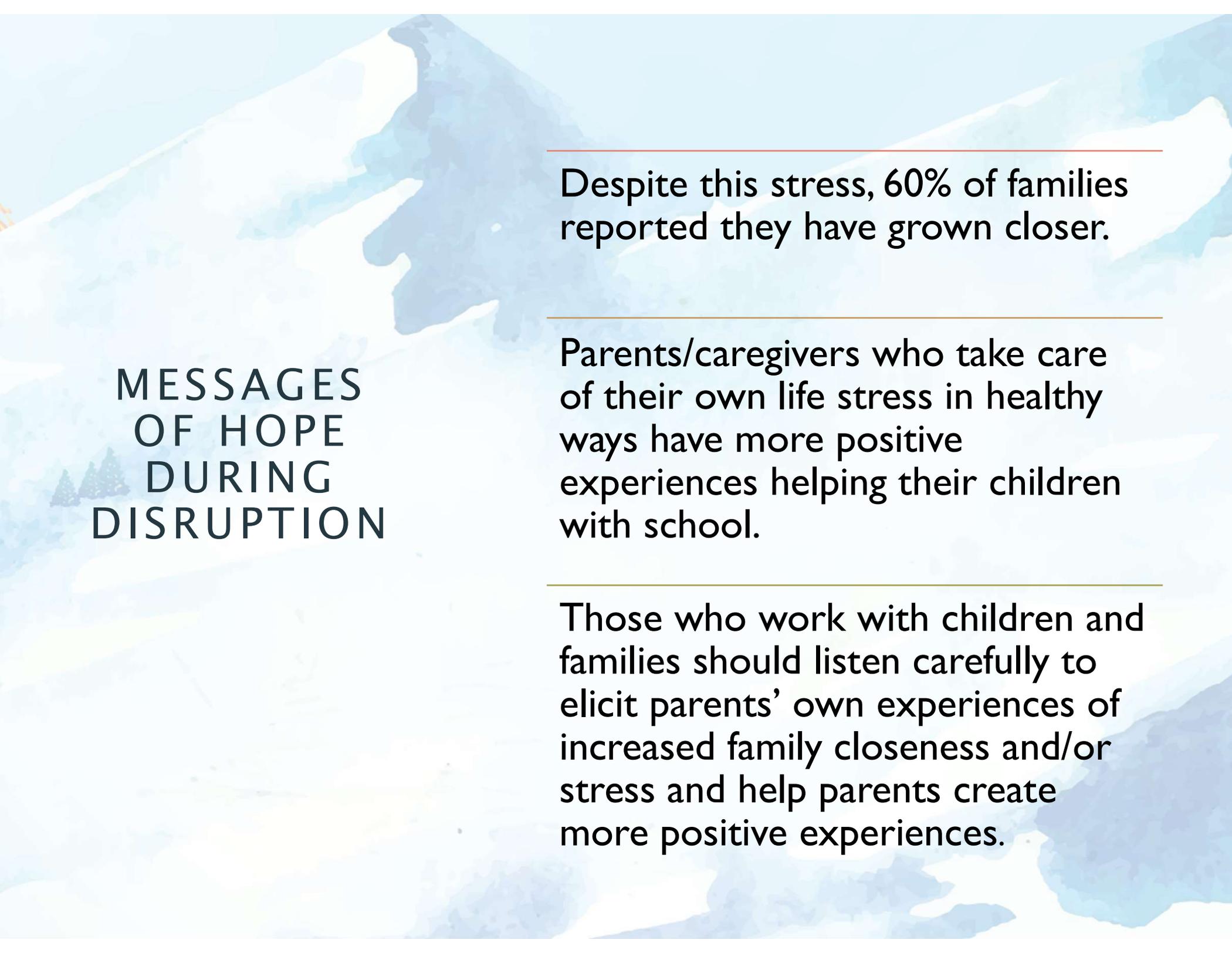
- Parents who practiced self care or engaged in having fun with their kids were more likely to have positive associations with educating their kids at home.

<https://www.aap.org/en/patient-care/family-snapshot-during-the-covid-19-pandemic/despite-the-pandemic-many-parents-report-family-closeness/>

# CHALLENGES DURING DISRUPTION

Most US children have experienced disruptions in their lives during the COVID-19 pandemic

Educational disruption has resulted in increased tension at home in many families.



## MESSAGES OF HOPE DURING DISRUPTION

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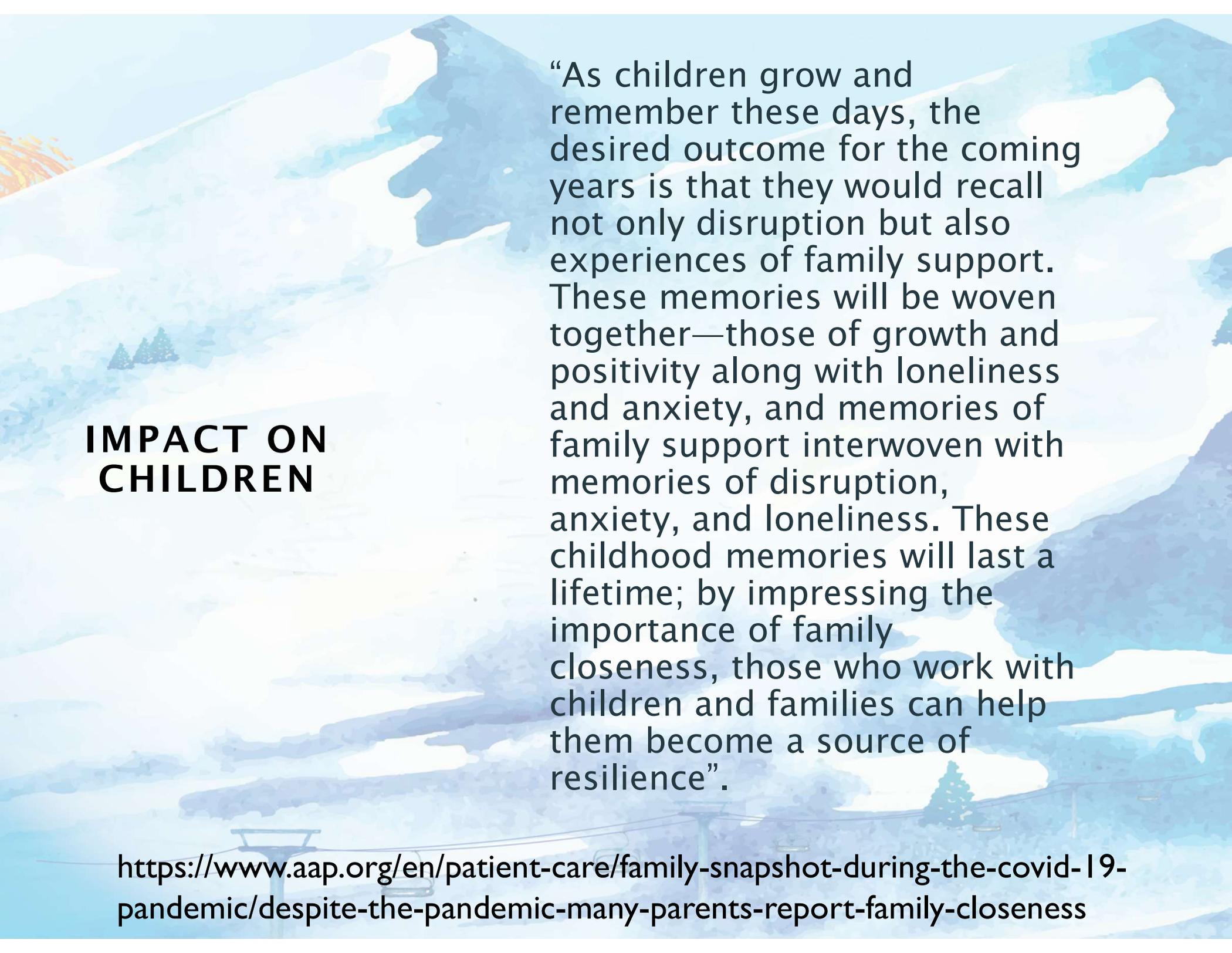
Despite this stress, 60% of families reported they have grown closer.

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Parents/caregivers who take care of their own life stress in healthy ways have more positive experiences helping their children with school.

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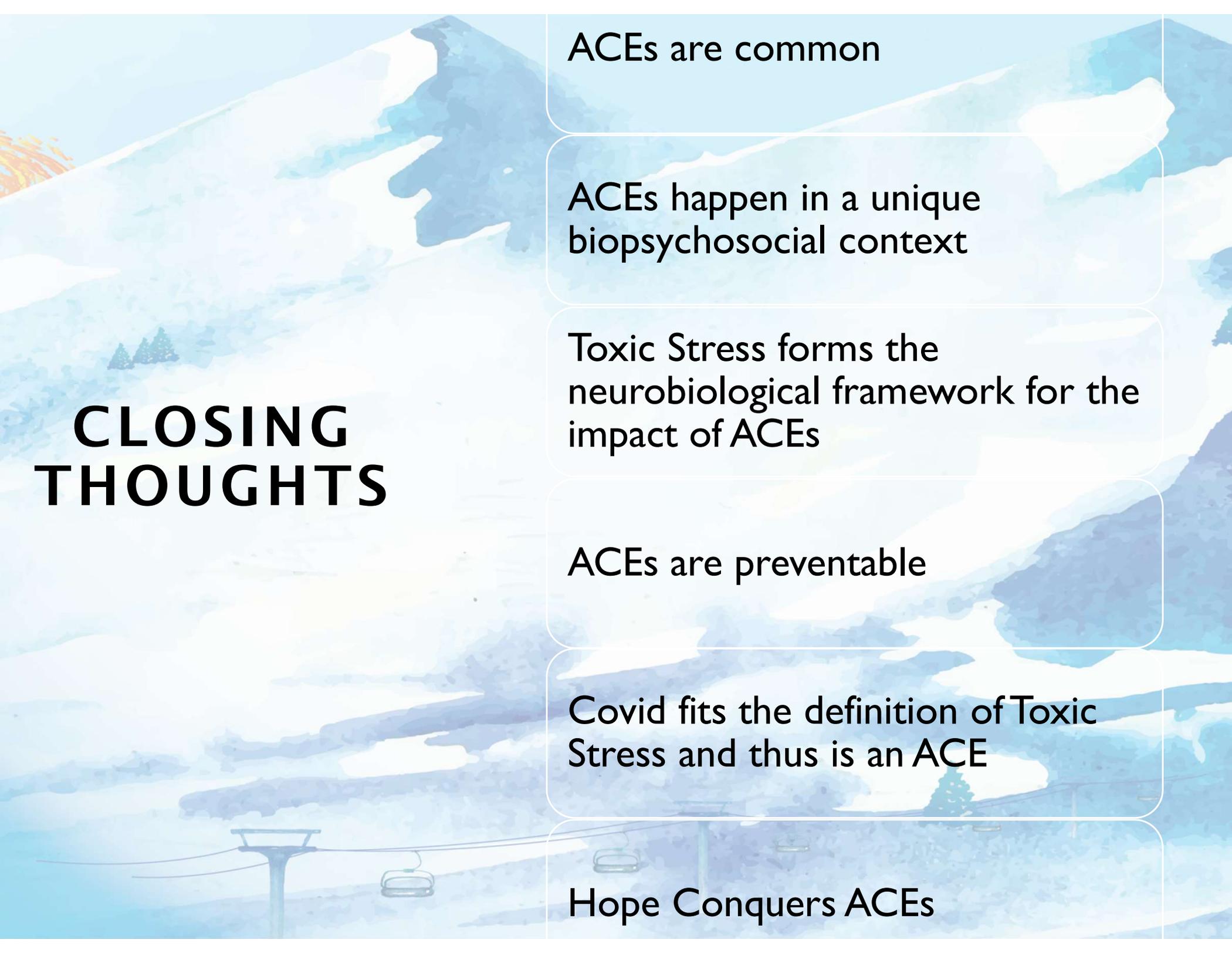
Those who work with children and families should listen carefully to elicit parents' own experiences of increased family closeness and/or stress and help parents create more positive experiences.



## IMPACT ON CHILDREN

“As children grow and remember these days, the desired outcome for the coming years is that they would recall not only disruption but also experiences of family support. These memories will be woven together—those of growth and positivity along with loneliness and anxiety, and memories of family support interwoven with memories of disruption, anxiety, and loneliness. These childhood memories will last a lifetime; by impressing the importance of family closeness, those who work with children and families can help them become a source of resilience”.

<https://www.aap.org/en/patient-care/family-snapshot-during-the-covid-19-pandemic/despite-the-pandemic-many-parents-report-family-closeness>



# CLOSING THOUGHTS

ACEs are common

ACEs happen in a unique  
biopsychosocial context

Toxic Stress forms the  
neurobiological framework for the  
impact of ACEs

ACEs are preventable

Covid fits the definition of Toxic  
Stress and thus is an ACE

Hope Conquers ACEs

# CHILDREN WITH ZERO ACES

- The percentage of children with zero ACEs just went down



QUESTIONS

Thank you!

