

Understanding & Responding to Childhood Trauma & ACEs: A Clinician's Perspective

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Disclosure

- Neither I nor any member of my immediate family has a financial relationship or interest (currently or within the past 12 months) with any proprietary entity producing health care goods or services consumed by, or used on, patients related to the content of this CME activity.
- I do not intend to discuss an unapproved/investigative use of a commercial product/device.

Objectives

- Increase knowledge about childhood ACEs, management and resiliency promotion
- Review original ACE study and the 3 levels of stress response
- Increase knowledge about how to incorporate trauma-sensitive care into pediatric office setting to improve identification, care and outcomes of children exposed to trauma.

Alexander and the Terrible, Horrible, No Good, Very Bad Day

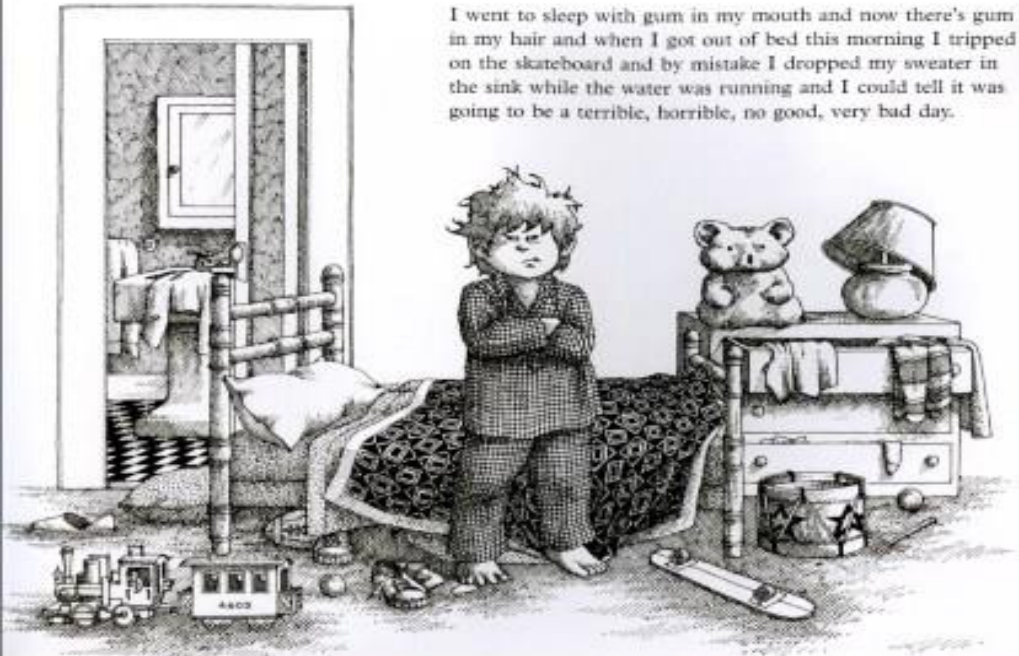
JUDITH VIORST

Illustrated by RAY CRUZ

The
classic
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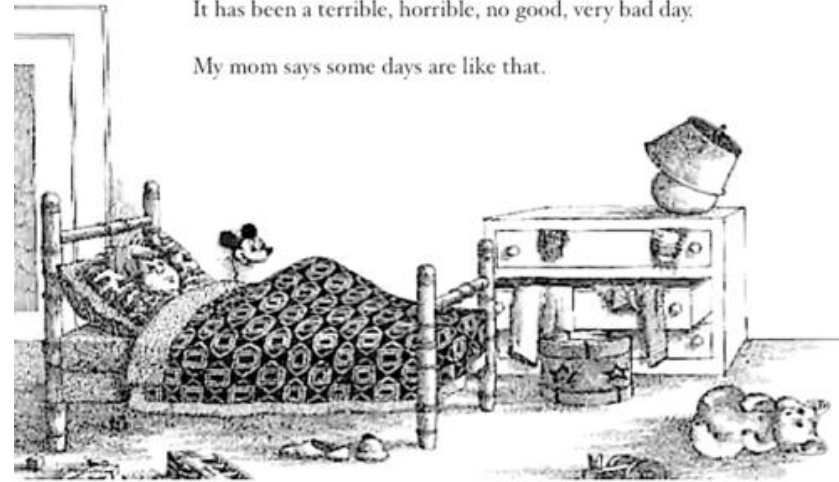


I went to sleep with gum in my mouth and now there's gum in my hair and when I got out of bed this morning I tripped on the skateboard and by mistake I dropped my sweater in the sink while the water was running and I could tell it was going to be a terrible, horrible, no good, very bad day.



It has been a terrible, horrible, no good, very bad day.

My mom says some days are like that.



Even in Australia.

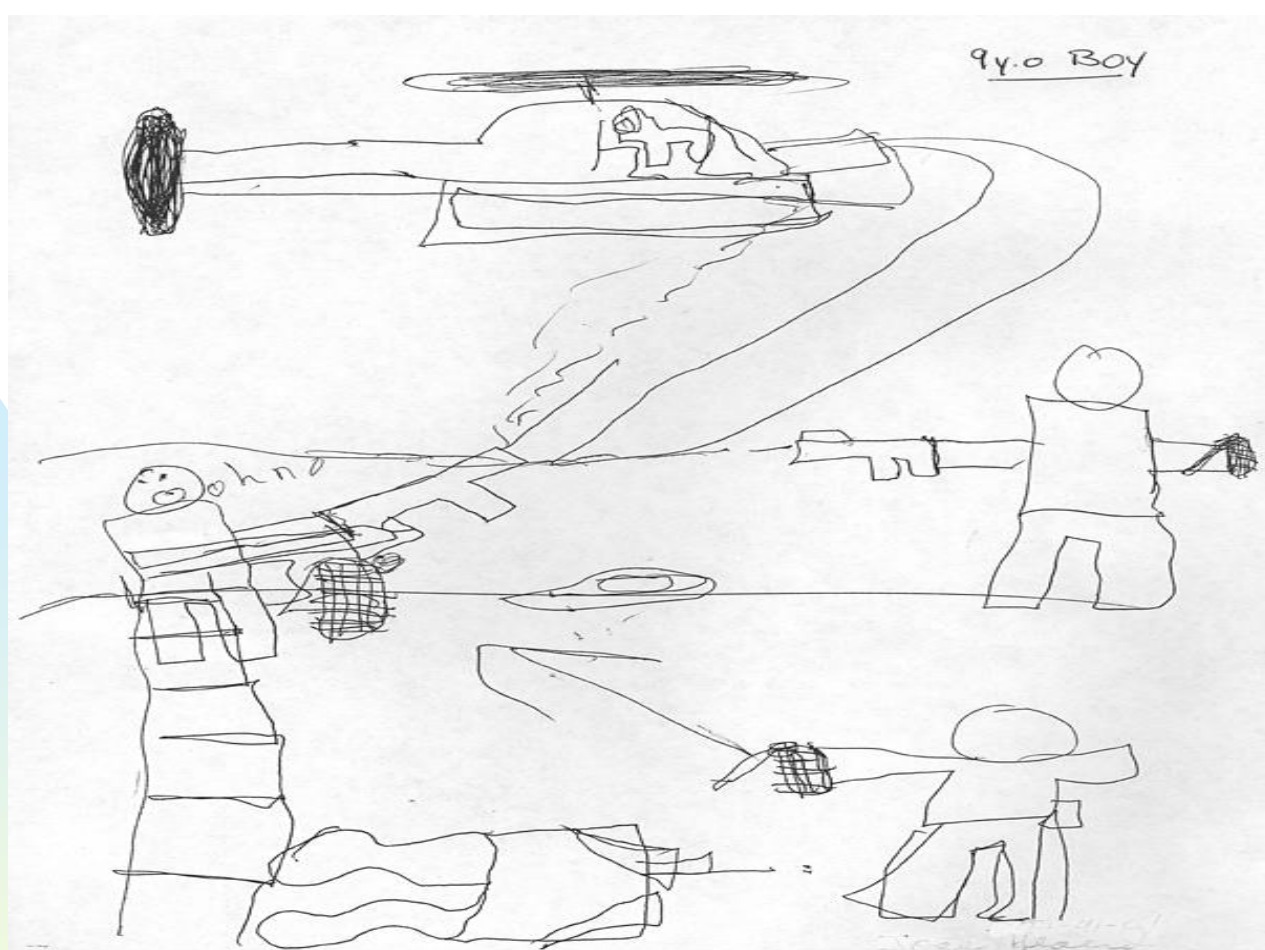
That's what it was, because after school my mom took us all to the dentist and Dr. Fields found a cavity just in me. Come back next week and I'll fix it, said Dr. Fields.



Next week, I said,
I'm going to Australia.



Alexander and the Terrible, Horrible, No Good, Very Bad Day.
Judith Viorst



What if a child's every day was a "Terrible, Horrible, No Good Very Bad Day?"

. . . And that child had no one to tell him that "Some days are like that"

What We Know

“Healthy brain development can be disrupted or impaired by prolonged, pathologic stress response with significant lifelong implications for learning, behavior, health & adult functioning.”

Shonkoff JP, Garner AS; American Academy of Pediatrics Committee on Psychosocial Aspects of Child and Family Health; Committee on Early Childhood, Adoption, and Dependent Care; Section on Developmental and Behavioral Pediatrics. The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*. 2012;129(1):e232–e246.

What We Know

- Healthy development requires stable & responsive relationship with at least one primary caregiver (serve & return interaction—child learns, “I matter.”)
- Early childhood experiences
 - Shape the neural wiring for learning, memory & behavior
 - Influence the evolution of the body’s neuroendocrine, autonomic, metabolic & inflammatory systems
- In the first few years, new neural connections formed every second & brain reaches 80% of adult size by age 3
- Another critical period of brain growth occurs in adolescence
- Learning occurs when certain neural connections are strengthened due to use & others pruned back due to lack of stimulation (“blooming & pruning”)

Forkey H. AAP Trauma & Resilience ECHO, 2019.

Shonkoff, JP. Center on the Developing Child at Harvard

There is no Single “Best” Term

- Child trauma and adversity come in many forms & no term covers all of them
- Adverse Childhood Experiences (ACEs) is one of the better known terms
- . . .at present there is no recognized term in the DSM-V that recognizes the collection of symptoms attributed to the body’s response to trauma beyond PTSD
- Additional terms, not currently recognized by DSM-V:
 - Complex PTSD
 - Developmental Trauma Disorder

Trauma & Trauma-Informed Care

□ Trauma

- “An event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening & that has lasting adverse effects on the individual’s functioning & mental, physical, social, emotional, or spiritual well-being.” (SAMHSA)

□ Trauma-Informed Care

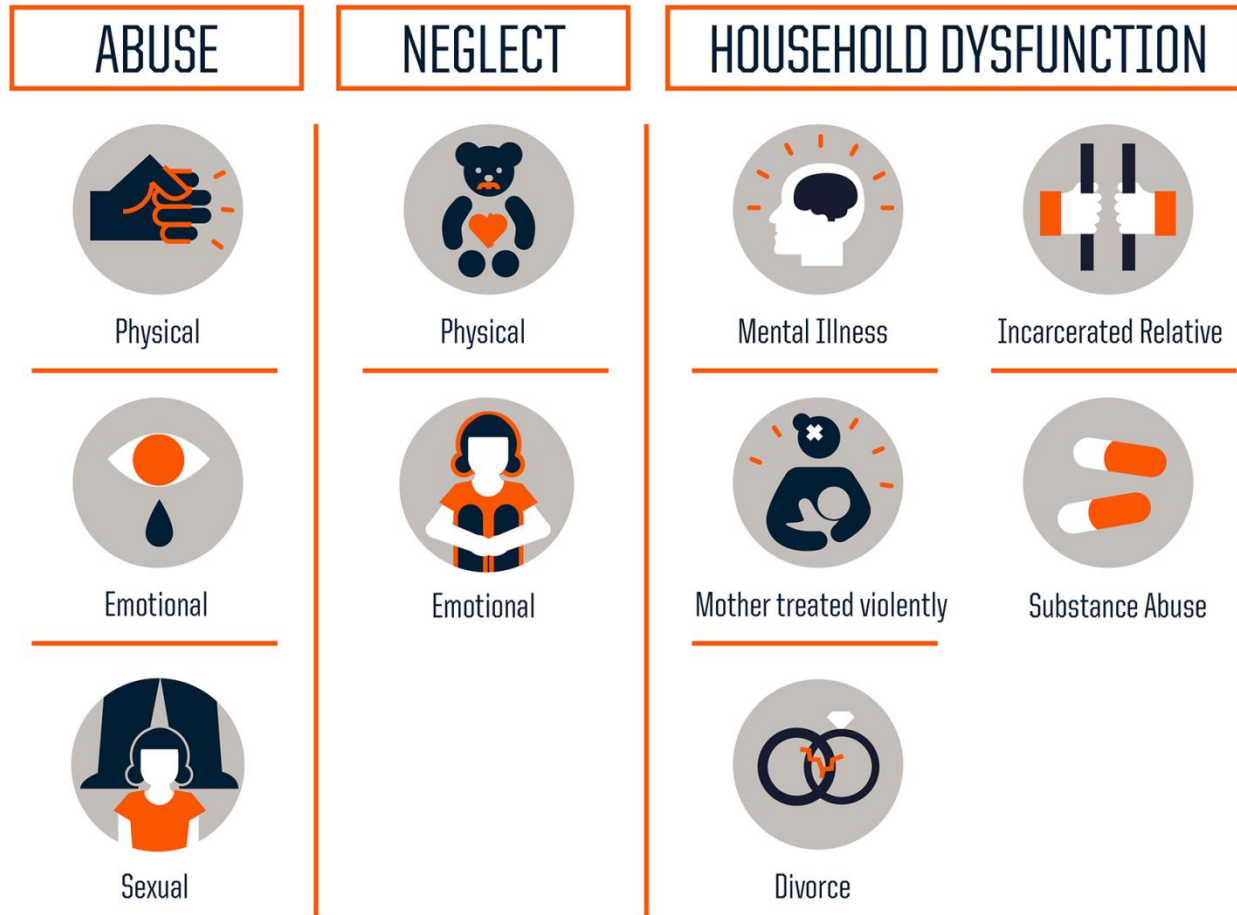
- Understand “the widespread impact of trauma & potential paths for recovery; & respond by fully integrating knowledge about trauma into practice” (SAMHSA)
- “Trauma Lens:” Understanding that ACEs or other traumatic experiences may be contributing to somatic symptoms &/or problematic behaviors



Adverse Childhood Experiences

- Stressful or traumatic events, including abuse, neglect and household dysfunction that are experienced before the age of 18
- ACEs are strongly related to the development of a wide range of health problems throughout a person's lifespan
- ACE score (0-10), gives us a way to measure adversity and talk about it
- The toxic stress caused by ACEs can have a profound impact on children's development, by potentially altering both their developing brains and bodies

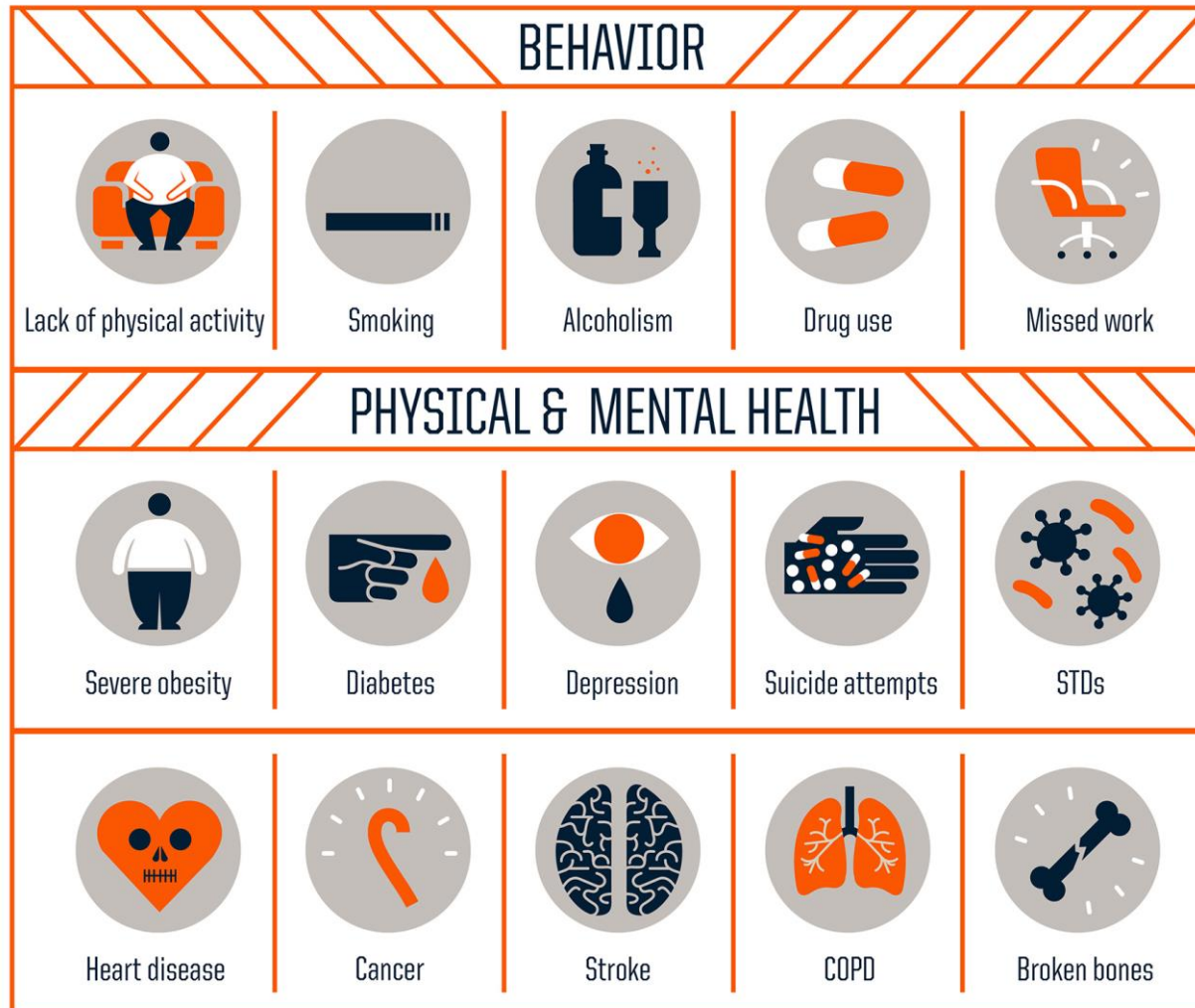
Three Categories, 10 ACES:



RWJ.org/aces infographic

ACEs: Possible Risk Outcomes

Strong dose-response association with:



The Original ACE Study (1998)

- Collaboration between CDC & Kaiser Permanente's Health Appraisal Clinic in San Diego
- 17,000 adults (75% Caucasian, 75% college-educated), completed a questionnaire asking about medical history & exposure to ACEs
- 64% reported having at least one ACE & 12% (1 in 8) reported 4 or more; more recent studies continue to confirm these numbers in the U.S. & many countries
- Dose-response relationship between number of ACEs experienced & a broad range of adversity throughout the lifespan impacting, behavioral, social/emotional & physical health outcomes

Felliti VJ, Anda RF, et al. Relationship of childhood abuse & household dysfunction to many of the leading causes of death in adults. *Am J Prev Med* 1998; 14(4): 245-258

The ACE Questionnaire

Prior to your 18th birthday:

•Did a parent or other adult in the household often or very often... Swear at you, insult you, put you down, or humiliate you? or Act in a way that made you afraid that you might be physically hurt?

No_____If Yes, enter |

•Did a parent or other adult in the household often or very often... Push, grab, slap, or throw something at you? or Ever hit you so hard that you had marks or were injured?

No_____If Yes, enter |

•Did an adult or person at least 5 years older than you ever... Touch or fondle you or have you touch their body in a sexual way? or Attempt or actually have oral, anal, or vaginal intercourse with you? No_____If Yes, enter |

•Did you often or very often feel that ... No one in your family loved you or thought you were important or special? or Your family didn't look out for each other, feel close to each other, or support each other?

No_____If Yes, enter |

•Did you often or very often feel that ... You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? or Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?

No_____If Yes, enter |

•Was a biological parent ever lost to you through divorce, abandonment, or other reason? No_____If Yes, enter |

•Was your mother or stepmother:

Often or very often pushed, grabbed, slapped, or had something thrown at her? or Sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard? or Ever repeatedly hit over at least a few minutes or threatened with a gun or knife?

No_____If Yes, enter |

•Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs? No_____If Yes, enter |

•Was a household member depressed or mentally ill, or did a household member attempt suicide? No_____If Yes, enter |

•Did a household member go to prison? No_____If Yes, enter |

•Now add up your "Yes" answers: _ This is your ACE Score

Ongoing Research Confirms:

- ACEs are common & occur across all races, economic classes & geographic regions; higher prevalence for those living in poverty
- Dose-response relationship between ACEs & health outcomes (behaviors, physical & mental health):
 - Experiencing ≥ 4 ACEs significantly increases risk for 7 out of 10 adult leading causes of death: heart disease, stroke, cancer, COPD, diabetes, Alzheimer's & suicide
 - Life expectancy of a person with ACE score of 6+ may be 20 years lower than person with 0 ACEs

<https://centerforyouthwellness.org/ace-toxic-stress/>

<https://www.cdc.gov/violenceprevention/childabuseandneglect/cestudy/index.html>

Brown DW et al. ACEs & the risk of premature mortality . Am J Prev Med 2009;

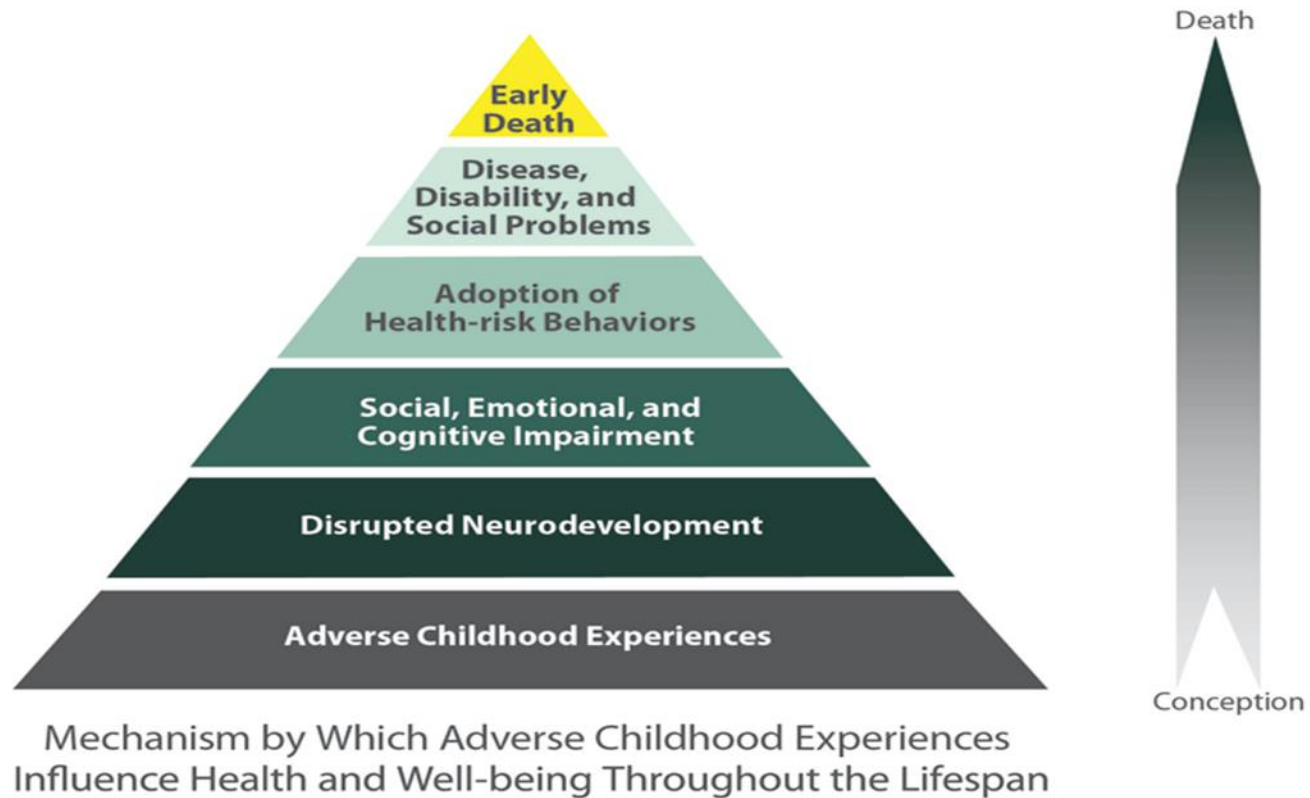
ACEs & Associated Negative Health Outcomes in Children & Adolescents

- In U.S., 34 million children, 46%, have experienced at least one ACE & 22% have 2 or more (2016 NSCH data)
- Associated Health Outcomes:
 - Lifetime asthma
 - Fair or poor general health &/or dental health
 - Obesity or overweight
 - ADHD
 - Autism spectrum disorder
 - Learning disabilities
 - Aggressive behaviors (bullying, physical fighting)

Bethell CD et al. Assessing the impact on health & school engagement & the mitigating role of resilience. *Health Affairs* 2014; 33(12): 2106-2115.

Kalmakis KA et al, Health consequences of adverse childhood experiences: a systematic review. *J Am Assoc Nurse Pract* 2015; 27(8); 457-465.

The ACE Pyramid



Felitti VJ, Anda RJ: AmJPrev Med 1998;14 (4).

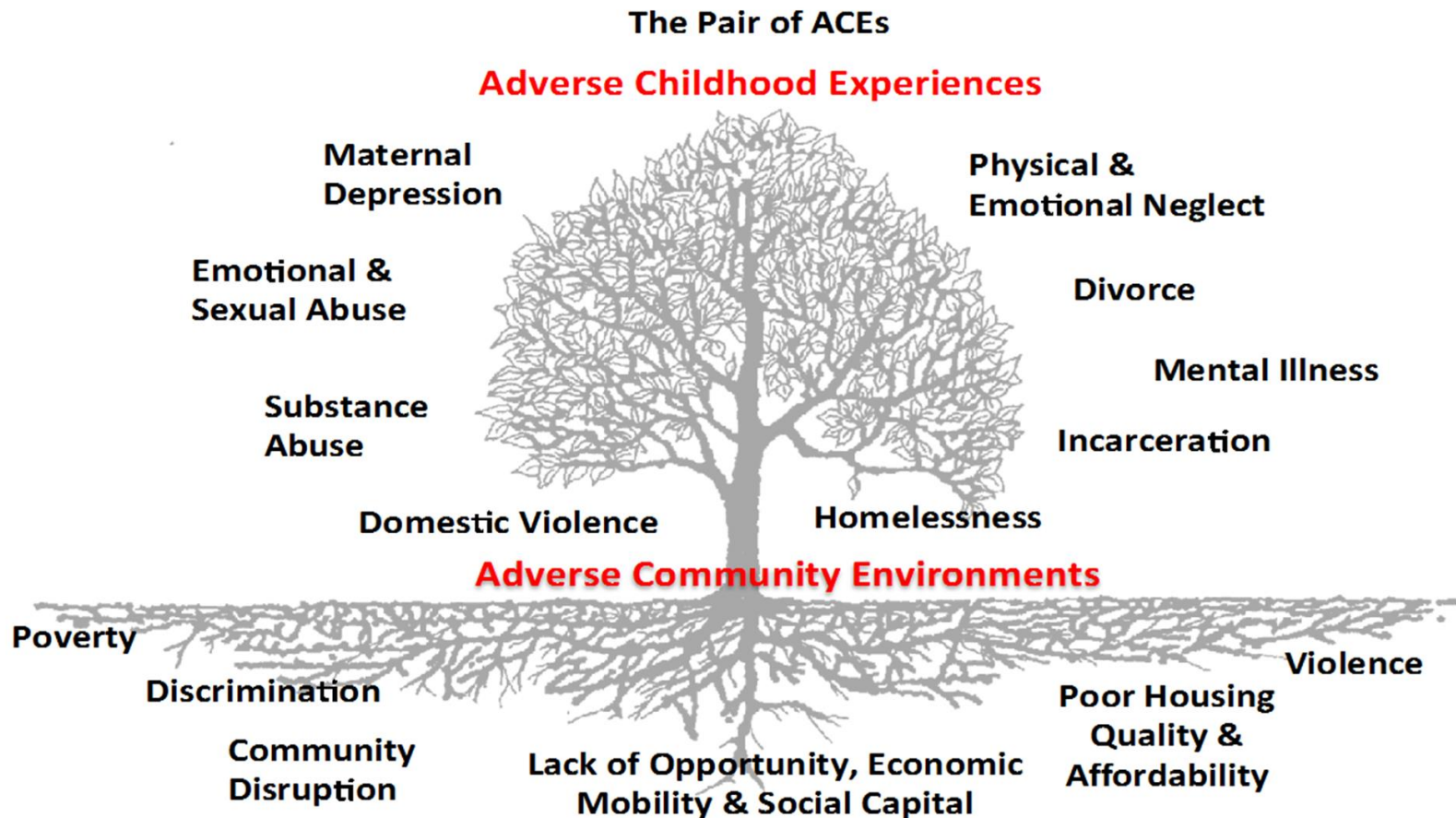
Pair of ACEs: ACEs & Social Determinants of Health (SDoH)

- Relationship between community adversity & adversity within the family can be conceptualized as “pair of ACEs”
- ACEs: adversity within the family
 - Impact child’s relationship with primary caregiver
- SDoH: adversity within the community
 - Environmental conditions (eg, poverty, food insecurity, community violence) in which children are born, grow, live, work & age
 - Can potentially impact ACEs

Ellis W, Dietz W. A new framework for addressing adverse childhood and community experiences: the building community resilience model; Acad Pediatr 2017; 17:S86-S93.

The Pair of ACEs Tree

Adversity within the family & adversity in the community together negatively impact children



Ellis W. & Dietz W. BCR Framework. *Academic Peds* (2017).

Milliken Institute School of Public Health.

Ellis W, Dietz W. A new framework for addressing adverse childhood and community experiences: the building community resilience model; *Acad Pediatr* 2017; 17:S86-S93.

Mechanism by Which ACEs Influence Health and Well-Being Throughout Life

- ACEs research shows the correlation between early adversity & poor outcomes later in life
- Toxic stress explains how ACEs “get under the skin” & trigger biological reactions that lead to those outcomes

Center on the Developing Child at Harvard.

The Body's Stress Response

- Perceived stress activates the autonomic nervous system & the hypothalamic-pituitary-adrenal (HPA) axis which then stimulate multiple areas of the body to deal with the stress
 - Heart rate & blood pressure go up
 - Stress hormone levels are elevated (cortisol)
 - Blood sugar rises & fat stores released for energy
 - Inflammatory responses are mobilized
- This is the “fight, flight or freeze” response
- Designed to go back to normal when threat is over
- Persistent sense of danger results in ongoing activation of this response

Levels of the Stress Response

- Some emotional stress in childhood is normal & even necessary to develop healthy coping mechanisms & problem-solving skills
 - Positive: short-lived stress response; helps to guide growth
 - Tolerable: stronger threat with more prolonged response; not damaging due to presence of buffers (supportive adult)
 - Toxic: sufficient to overwhelm child's undeveloped coping mechanisms with significant & lifelong implications for learning, behavior, health & adult functioning
- Stress response system returns to baseline with positive & tolerable stress but toxic stress leads to traumatic alterations (physiologic & anatomic) to the baseline
- These traumatic alterations may be adaptive in threatening or hostile environments but are often maladaptive in other, less threatening contexts.

Three Levels of Stress Response

Positive

Brief increases in heart rate, mild elevations in stress hormone levels.

Tolerable

Serious, temporary stress responses, buffered by supportive relationships.

Toxic

Prolonged activation of stress response systems in the absence of protective relationships.

Toxic Stress

- Type of stress that results when a child experiences ACEs may become toxic when there is “strong, frequent or prolonged activation of the body’s stress response systems in the *absence of the buffering protection of a supportive adult relationship*”
- Occurs when stress response system goes from being adaptive or life-saving, to maladaptive or life-damaging
- Children are especially sensitive because their brain’s & body’s are still developing
- Biologic response to this toxic stress can be very destructive & last a lifetime, impacting changes in both brain & body physiology as well as potentially anatomic changes to the brain itself

Impact of Toxic Stress on the body

- Toxic Stress triggers potentially permanent changes through 3 mechanism:
 - Brain Connectivity Impact
 - Epigenetic Impact: heritable alterations that are not due to changes in DNA sequence but rather the way genes are read and transcribed—gene expression
 - Neuroendocrine & Immune Impact: excessive inflammation & metabolic responses increase the risk of heart disease, asthma diabetes, inflammatory-mediated forms of depression & other chronic illnesses

Biology of trauma: ecobiodevelopmental framework

Ongoing & cumulative interactions between experience, biology & behavior

- Brain is not structurally complete at birth
 - Structural development guided by environmental cues
 - Adapts to what it sees, hears and feels—“adapts to live in the environment it is in”
- Under conditions of extreme stress, body’s biologic responses can result in physiologic & structural changes:
 - Amygdala grows: involved in inhibiting fear & regulation of attention (brain’s alarm system)
 - Hippocampus & prefrontal cortex atrophy: creating & retrieving factual memories, self-regulation
 - Reticular activating system over active and leads to not sleeping

Intergenerational Impact of ACEs

- Children of parents who experienced ACEs themselves at increased risk of developmental & health problems
- Environmental and Physiologic impact:
 - Environmentally: reduced parenting capacity or maladaptive responses to their children
 - Physiologically: epigenetic changes—early experiences affect how genes are expressed
- Recent research on intergenerational ACEs:
 - Parents with greater exposure to ACEs more likely to have children with behavioral health problems
 - Parental past ACE exposure associated with higher odds of poor health status in their children

Lê-Scherban F et al. Intergenerational Associations of Parent Adverse Childhood Experiences and Child Health Outcomes. *Pediatrics* 2018;

Schickedanz A. Parents' adverse childhood experiences & their children's behavioral health problems. *Pediatrics* 2018;

Differential Susceptibility to ACEs



- ACEs & other traumas don't dictate the future of the child—childhood adversity isn't destiny
- Science explains how stress & adversity can become biologically embedded
- Resilience: differential susceptibility to ACEs:
 - Allelic variations (BDNF gene)
 - Autonomic nervous system & HPA axis reactivity: some children more affected by environment
 - Dandelion Kids: thrive better in non-nurturing environments
 - Orchid Kids: if not nurtured, first to wither

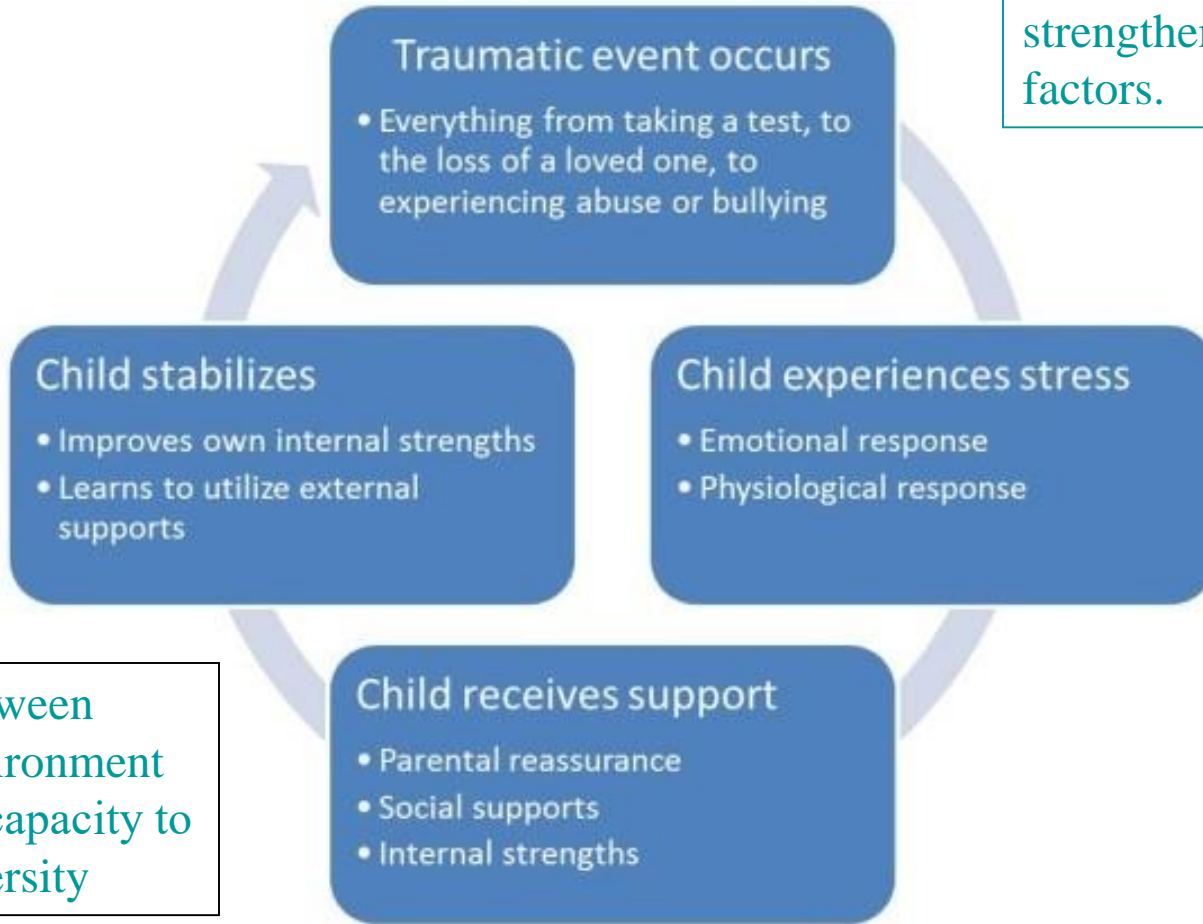


© Can Stock Photo

Boyce WT. Epigenomic Susceptibility to the Social World. *Acad Pediatr* 2017; 17: 600-606.
Boyce WT. *The Orchid & the Dandelion: why some children struggle & how all can thrive.*

Resilience

Life supplies the challenges to test and strengthen the protective factors.



Interaction between biology & environment builds child's capacity to cope with adversity

Resilience: the process of utilizing one's protective factors to navigate successfully through a stressful situation
AAP. The Resilience Project

Resilience

- Learning to cope with manageable stress is critical for the development of resilience
- ACEs & protective factors experienced together have the potential to foster resilience
- Children are not born with resilience; capabilities that underlie resilience can be strengthened at any age
- Develops in the give and take of safe, stable, nurturing relationships that are continuous over time (attachment)
- Relationships provide the buffer & give the child a sense of value, “I Matter.”

Bellis Ma. Does continuous trusted adult support in childhood impact life-course resilience against ACEs. BMC Psychiatry 2017; 17: 110

Masten A. Ordinary Magic: resilience in development, 2015.

AAP Trauma and Resilience ECHO, 2019.



CLINICAL APPLICATION

We are all Seeing Children with ACEs

“The Eyes Can’t See what the Mind Doesn’t Know”

- Diagnosis can’t be made if it is never considered
- 2013 AAP National Periodic Survey of pediatricians
 - “Most believe that childhood stressors can have a negative impact, pediatricians can influence positive parenting, which in turn influences children’s outcomes”
 - 11% very or somewhat familiar with ACE study
 - 1/3 do not usually ask about any ACEs; 4% ask about all
 - Those who screen ask most about maternal depression & parental separation
- Yet, just under half (46%) of all children in the US have experienced at least one ACE

Kerker BD et al. Do pediatricians ask about adverse childhood experiences in pediatric primary care. *Acad Pediatr* 2016;16(2): 154-160.

www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/resilience/related-initiatives/Pages/Pediatric-Approach-to-Trauma-Treatment-and-Resilience-Project.aspx

Developing our Comfort Level & Addressing Barriers

- Given that ACEs occur across all populations, routine screening would be ideal
- Addressing exposure to traumatic events in our offices & settings can be seen as challenging:
 - Will asking questions about trauma increase child's stress
 - Discomfort with topic
 - Time and costs of screening
 - No current universal screening tool for ACEs, Trauma or SDoH
 - What to do with the information/fear of “opening up a can of worms” (resources/referrals)

Reshaping Clinical Practice

Trauma-Informed Care

- First step: consider ACEs when seeing child with unexplained somatic complaints or changes in behavior, school performance or social-emotional functioning
- Are we asking the right questions?
 - “What happened to you?”
NOT:
 - “What’s wrong with you?”
- Modifying our approach to treatment:
 - “I must understand you.”
NOT:
 - “I must fix you.”

4-Step Process for Practices Preparing to Identify ACEs

AAP Recommends 4 Questions:

- Why are we looking at this issue?
 - Understanding the effects of trauma
- What are we looking for?
 - ACEs in children &/or parents
- How do we find it?
 - Surveillance questions or questionnaire
- What do we do once we have found it?
 - Is practice prepared to respond if ACEs identified

AAP. Addressing Childhood Experiences & Other Types of Trauma in the Primary Care Setting. 2014 & www.aap.org/medhomecev/diagnostictools



SURVEILLANCE & SCREENING

Surveillance Questions for ACEs

- “Since the last time I saw you/your child has anything really scary or upsetting happened to you or your child or anyone in your family?”
- “You have told me that your child is having difficulty with aggression, attention & sleep. Just as fever is an indication the body is dealing with an infection, when these behaviors are present, they can indicate the brain & body are responding to a stress or threat. Do you have any concerns that your child is being exposed to stress or something that would be scary to him?”
- “The behaviors you describe & the trouble she is having school & learning are often warning signs that the brain is trying to manage stress or threat. Sometimes children respond this way if they are being harmed, or if they are witnessing others they care about being harmed. Do you know of any violence exposure at school, with friends, or at home?”

AAP. Trauma and Resilience ECHO 2019.

AAP. Helping Foster & Adoptive Families Cope with Trauma.

Screening for SDoH, Trauma & ACEs

No current universal screening tool

- CYW ACE questionnaire:
<https://centerforyouthwellness.org/cyw-aceq/>
- Survey of Well-Being of Young Children (SWYC): <https://www.floatinghospital.org/The-Survey-of-Wellbeing-of-Young-Children/Overview>
- Safe Environment for Every Kid (SEEK): <https://www.seekwellbeing.org/the-seek-parent-questionnaire->
- Two-question Food Insecurity Screener

Perspectives from my Practice

- Initial consultation: 8 year old boy Dx of ADHD, ODD,LD: recommended stimulant medication, IEP (letter written for school), & behavioral therapy
- Lost to f/u for 6 months & returns after suspension from school for fighting, increasing oppositional behavior both at home & at school & at risk for retention due to academic concerns
 - Teacher comments: “lacks initiative; apathetic; distracted; effort poor; angers easily--aggressive”
- Interval history: stopped stimulant—became irritable & aggressive, no IEP, & never began behavioral therapy—received authorization but didn't follow through

Perspectives from my Practice

- Following treatment guidelines for ADHD
 - Medication
 - Behavioral therapies
 - Educational interventions
- Yet, can't get symptoms under control
 - Increasing irritability, reactivity, aggression
- Why did this child not respond to medication for ADHD?
- What are the barriers leading to poor compliance with treatment: medication, learning & therapeutic recommendations

Perspectives from my Practice



- Is this ADHD or trauma or both?
- Trauma Lens: “What happened to you?” *NOT*: “What’s wrong with you?”
 - Further surveillance questions about ACEs
 - Two-generation Social History:
 - Child: lives with mother; parents divorced when he was 3 with h/o domestic violence leading to parental separation, maternal h/o depression & anxiety (ACE Score 3)
 - Mother: mom removed from parents due to child abuse; witnessed domestic violence; MGM with h/o mental illness; MGF with h/o substance abuse & incarceration (Maternal ACE score 5)
 - Trauma lens: triggers & responses

Trauma Lens: triggers & responses



- Triggers—has internal alarm system gone off? (danger)
 - Perceived loss of control, feeling vulnerable, sensory overload, unpredictability limit-setting, authority, rejection,
- Response: is intensity out of proportion to the stressor? (quicker & stronger)
 - Hippocampus & PFC offline: self-regulation & WM impacted (poor school performance, risk for retention)
 - Fight (“angers easily, aggressive”)
 - Hyperactivity, oppositional behaviors, aggression
 - Flight (“distracted”)
 - Withdrawal, avoidance, running away
 - Freeze (“apathetic, poor effort”)
 - Watchfulness, dazed, emotionally shutting down

Perspectives from my Practice

- Trauma-Informed Treatment: “I must understand you.” *NOT*: “I must fix you.”
- Recognizing that ACEs may be a factor, opened the door to a more comprehensive treatment plan addressing ADHD, LD & trauma
 - Office environment of physical & emotional safety; help child to regain expectation that he is safe & “matters”
 - Social work & trauma-focused therapy referrals for family & child
 - Collaboration with school: IEP initiated; school-based counseling; conversations regarding how exposure to trauma may be leading to heightened reactivity at school
 - Accommodations for trauma (routine, relaxation, quiet spaces) & ADHD with future reconsideration of medication trial (consider nonstimulant—alpha agonist)

Associations Between ACEs & ADHD

- Children with ADHD have higher ACEs than those without ADHD
- Children who had experienced ≥ 4 ACEs, 3 times more likely to use ADHD medications than those with 0 ACEs
- May have legitimate ADHD but without first addressing trauma, may be difficult to see improvement in child's behavior & attention despite following treatment guidelines for ADHD
- Traditional ADHD behavioral therapies focus on time management & organizational skills; not designed to treat trauma
- Need multi-disciplinary treatment
 - Decrease and address adversity; attachment/resilience

Brown NM. Associations between adverse childhood experiences & ADHD diagnosis & severity. *Academ Pediatr* 2014; 17(4): 349-355.

Perspectives from my Practice

Impact of trauma-informed care

- Parents interested in learning about how ACEs and trauma may be impacting themselves and their children
- Improved compliance with treatment recommendations including scheduled follow-up appointments



TREATMENT

Treatment

Ideal Approach: Prevention

- Decrease the sources of stress in the lives of families (basic needs met)
 - Society: family leave policies; EITC
 - Neighborhood: early childhood programs; after-school programs; safety
 - Schools: trauma-informed schools
- Decrease the dose of adversity
 - Promotion of secure parent-child attachment (buffer)
 - Build parental and child core life skills capacity (self-regulation & self-efficacy)
 - Literacy promotion: Reach Out and Read
 - Parenting programs: Incredible Years, Triple P

AAP. ACEs & the lifelong consequences of trauma, 2014.

Treatment

- Evidenced based clinical treatments for ACEs:
 - Trauma focused CBT (TF-CBT)
 - Parent-child interactive therapy (PCIT)
- In our offices and settings:
 - Optimize every health visit: consider trauma!
 - Educate families about trauma and its potential impact
 - Perhaps most important message to give families: “You are not alone. It is not your fault. I will help.” (AAP, 2014)
 - Nutrition, exercise, sleep hygiene, mindfulness
 - Build community partnerships:
 - Family resource centers, Clinic in the Park
 - Food Pantries, AAP No Child Hungry,
 - Homeless services providers
 - Tutoring/mentoring
 - Schools: Mind-body breaks in class: www.gonoodle.com (using technology to unplug)

Closing Thoughts

- ACEs are an urgent public health concern: they are pervasive & growing scientific knowledge confirms the link between childhood adversity with disruptions of the developing brain & body that can have lifelong & even intergenerational impact on learning, behavior, physical & mental health.
- Although it is easier to build neural connections right the first time, the potential for neuroplasticity exists throughout life
- Positive, supportive experiences both in the home & in the community can buffer & mitigate long-term effects of adversity by cultivating resilience in children (connection, coping, control, confidence, competence, character, contribution)
- Relationships are the key to both trauma & to resilience

Resources:

- ACEs Connection: <https://www.acesconnection.com/>
- American Academy of Pediatrics :
 - The Resilience Project
 - PATTeR: Pediatric Approach to Trauma, Treatment and Resilience: Trauma and Resilience ECHO
 - Trauma guide for primary care: www.aap.org/traumaguide
- Center on the Developing Child at Harvard:
<https://developingchild.harvard.edu/>
- Center for Youth Wellness: <https://centerforyouthwellness.org/>
- CDC: www.cdc.gov/violenceprevention/childabuseandneglect/acestudy
- Childhood Adversity Narratives: <http://www.canarratives.org/>
- National Child Traumatic Stress Network:
<https://www.nctsn.org/>
- Substance Abuse & Mental Health Administration:
<https://www.samhsa.gov/capt/practicing-effective-prevention/prevention-behavioral-health/adverse-childhood-experiences>

Resources

- Books:
 - Burke Harris N. The Deepest Well: healing the long-term effects of childhood adversity. 2018
 - Masten AS. Ordinary Magic: resilience in development. 2015
- TED Talk—Nadine Burke Harris:
<https://www.tedmed.com/talks/show?id=293066>
- Film: Resilience: the biology of stress and the science of hope.
<https://kpjrfilms.co/films/>
- Orange County Department of Education:
<http://www.ocde.us/Search/results.aspx?k=aces%20and%20trauma>
- Patient education:
 - ACEs Too High: <https://acestoohigh.com/>
 - [Sesamestreetincommunities.org](https://sesamestreetincommunities.org)
 - <https://sesamestreetincommunities.org/topics/family-homelessness/>
 - <https://sesamestreetincommunities.org/topics/traumatic-experiences/>



The New York Times

March 16, 2019

This 8-Year-Old Chess Champion Will Make You Smile

Overcoming life's basic truth: Talent is universal, but opportunity is not

By: Nicholas Kristof



Tanitoluwa Adewumi: a refugee from northern Nigeria living with his family in a shelter in New York City; went from chess novice to chess champion in little over a year. “While Tani lacks a home, he has enormously supportive parents dedicated to seeing him succeed.”