

**THE NEUROPSYCHOLOGY OF STRESS & TRAUMA:  
"HOW TO DEVELOP A TRAUMA-INFORMED SCHOOL"**

Steven G. Feifer, D.Ed., NCSP  
feifer@comcast.net  
www.schoolneuropsychpress.com

**NILD** National Institute for Learning Development

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**Further Reading**

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**PREVALENCE OF TRAUMA**

- **26%** of children will have experienced or witnessed a traumatic event by their 4<sup>th</sup> birthday (Briggs-Cowan et al, 2010).
- A traumatic event is defined by APA as a direct or **perceived** threat rendering a child feeling overwhelmed and fearful of their safety.
- Traumatic stress reactions in children often lead to difficulty self-regulating emotions, heightened aggression, lack of trust, and poor school performance. (Diamanduros et al, 2018).

Washington DC: "March for our lives"  
March 24<sup>th</sup>, 2018

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## DEFINING TRAUMA

- ❖ **Trauma:**
  - ❖ Childhood maltreatment
  - ❖ Violence exposure
  - ❖ Depriving care environments
  - ❖ Adverse community trauma (i.e. crime, gangs, poverty etc..)
  - ❖ Natural disasters

- ❖ 44% of children in developed countries exposed to trauma.
- ❖ 59% of children in developing countries have been victims of physical, emotional, or sexual violence or had witnessed domestic or community violence in the past year (Hillis et al., 2016)
- ❖ Just 5-10% of individuals will develop PTSD (Aupperle, et al, 2012).

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## COVID-19 STATISTICS: DISPROPORTIONALITY OF TRAUMA



### African Americans by percentage of population and share of coronavirus deaths

Only a few jurisdictions publicly report coronavirus cases and deaths by race.

| Jurisdiction           | Percentage of population | Percentage of deaths |
|------------------------|--------------------------|----------------------|
| Milwaukee County, Wis. | 20%                      | 73%                  |
| Chicago                | 32%                      | 67%                  |
| North Carolina         | 21%                      | 38%                  |
| Louisiana              | 32%                      | 70%                  |
| Illinois               | 14%                      | 42%                  |
| Florida                | 10%                      | 16%                  |
| Michigan               | 14%                      | 41%                  |
| D.C.                   | 46%                      | 58%                  |
| Connecticut            | 10%                      | 16%                  |

Source: Johns Hopkins University, state health departments and American Community Survey

- Higher rate of lung disease, heart disease, hypertension, and diabetes.
- Social distancing difficult in more densely populated areas.

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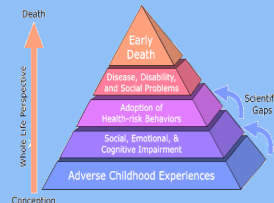
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## ADVERSE CHILDHOOD EXPERIENCES



- The *Adverse Childhood Experiences Study (ACE Study)* conducted by both the Kaiser Permanente and the Centers for Disease Control and Prevention, examined the long term impact of childhood trauma from participants recruited more than 20 years ago from 1995-1997.



Death ↑  
Whole Life Perspective ↑  
Conception

Scientific Gaps

- **Conclusion 1:** Adverse childhood experiences are common. For example, 28% participants reported physical abuse and 21% reported sexual abuse.
- **Conclusion 2:** Adverse childhood experiences often occur together. Almost 40% of the original sample of 17,000 participants reported two or more ACEs and 12.5% experienced four or more.
- **Conclusion 3:** The cumulative impact of adverse childhood experiences leads health, social, and behavioral problems throughout the lifespan.

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### SYMPTOMS OF TRAUMA

| Physiological Symptoms<br>(anxiety disorder?) | Behavioral Symptoms<br>(depression?) | Psychological Symptoms<br>(ADHD?) |
|---|--------------------------------------|-----------------------------------|
| Shallow Breathing                             | Work Refusal                         | Inconsistent attention            |
| Facial Flushing                               | School Refusal                       | Irritability                      |
| Excessive Sweating                            | Avoiding unstructured areas          | Mind goes blank during tests      |
| Hand Tremors                                  | Sensitivity to loud sounds           | Losses train of thought           |
| Dizziness                                     | Rarely volunteers in class           | Poor organization                 |
| Dilated Pupils                                | Speaks in a hushed voice             | Easily angered                    |
| Fatigue                                       | Does not initiate peers              | Poor emotional self-regulation    |
| Muscle Tension                                | Avoids cafeteria                     | Distrusts authority figures       |
| Chest pains                                   | Often visits school nurse            | Irrational fears                  |

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### SCHOOL MENTAL HEALTH SERVICES



- **NASP** recommends 1 psychologist for every 500-700 students. Reality is 1 for every **1,381**.
- **American School Counselor Association** recommends 1 counselor for every 250 students. Reality is 1 for every **482** students.
- **The Every Student Succeeds Act (ESSA)** authorizes various funding streams for schools to improve access to coordinated and comprehensive school mental health services including:
  - \* Positive behavior interventions and supports (PBIS).
  - \* Social emotional learning
  - \* Conflict resolution
  - \* **Trauma informed practices**

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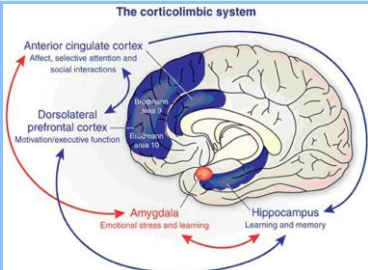
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### CORTICOLIMBIC SYSTEM AND TRAUMA



**1. Amygdala** – responds to **unfamiliar** and **unexpected** events (Kagan, 2007). The amygdala tends to be over-active in children with an inhibited temperament and under **stress** (Schwartz et al., 2003).

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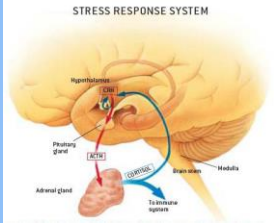
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### STRESS RESPONSE SYSTEM



**Cortisol** – a glucocorticoid (glucose-cortex-steroid) that regulates the metabolism of glucose in the brain. A homeostasis of cortisol is needed for optimal brain functioning and efficient mobilization. Too much (*Cushing's Syndrome*)...too little (*Addison's Disease*).

- Stress impacts body by lowering **immune system**, making kids more vulnerable to disease and also reduces sleep.
- Stress alters amygdala to PFC connections leading to impairments in **executive functioning** and decision making (Berens et al., 2017).
- Anxiety impacts cognition and learning by way of **working memory** (Dawyer et al., 2015).

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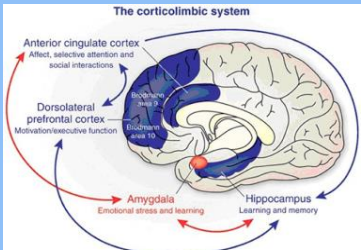
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### CORTICOLIMBIC SYSTEM AND TRAUMA



**2. Hippocampus** - A key **memory center** and more sensitive to cognitive than emotional memories. Helps to inhibit amygdala.

- Chronic stress** from abuse or neglect releases cortisol which can reduce hippocampal volume (Johnston & Olson, 2015).

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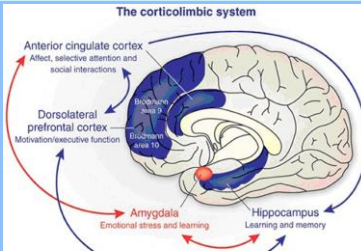
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### CORTICOLIMBIC SYSTEM AND TRAUMA



**3. Anterior Cingulate Cortex** - Directs our **attention inward** toward becoming overly aware of nervous system fluctuations and visceral responses (*i.e. heart rate increases, breathing rate, perspiration, etc.*)

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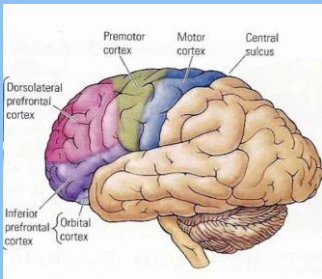
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### CORTICOLIMBIC SYSTEM AND TRAUMA



**4. Orbital-Frontal Cortex** - Forms an adaptive response to an emotional condition and when **stressed**, interprets visceral responses and unfamiliar environmental stimuli as possibly posing a threat (**emotional executive functions**).

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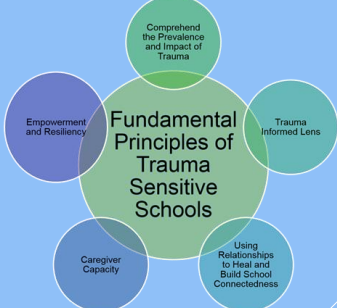
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### 5 PILLARS OF A "TRAUMA INFORMED" SCHOOL



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### 1. UNDERSTANDING CHILDREN'S TRAUMATIC STRESS RESPONSES

(NCTSN, 2012)

1. **Traumatic experiences are inherently complex:** *There is no signature emotional reaction that all children exhibit.*
2. **Danger and safety are core concerns in the lives of traumatized children:** *Children who continue to live in dangerous family and/or community circumstances may have greater difficulty recovering from a traumatic experience.*
3. **Traumatic experiences affect the family and broader caregiving systems:** *Caregivers' own distress and concerns may impair their ability to support traumatized children.*
4. **Developmental neurobiology underlies children's reactions to traumatic experiences.**



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## 2. TRAUMA SCREENERS

| (1) Measure Name   | (2) Measure Type                              | (3) Audience | (4) ACEs  | (5) Strengths  | (6) Limitations   | (7) Other Considerations   |
|--|---|--------------|---|--|---|--|
| Childhood Trauma Questionnaire <sup>®</sup>                        | Self-reported survey                          | 12 years +   | emotional abuse<br>physical abuse<br>sexual abuse<br>emotional neglect<br>physical neglect  | Satisfactory validity and reliability when compared with other methods such as staff observations.   | Multiple primary studies report differing results by the appropriate structuring/questioning of the questions.  | Time: 5 minutes<br>Fee: None<br>Qualifications: Master's degree or equivalent  |
| Juvenile Victimization Questionnaire-revised (JVQ-R2) <sup>®</sup> | Structured interview and self-reported survey | 8-17 years   | emotional abuse<br>physical abuse<br>sexual abuse<br>emotional neglect<br>physical neglect<br>witnessed violence<br>household substance abuse | Demonstrated reliability with community and child welfare samples in the U.S. and other populations.   | None reported.  | Time: 20-30 minutes<br>Fee: None<br>Qualifications: Experienced test examiner, qualified professional for interpretation   |
| Trauma Symptom Checklist for Children (TSCC; TSCC-A) <sup>®</sup>  | Self-reported survey                          | 8-18 years   | emotional abuse<br>physical abuse<br>sexual abuse<br>emotional neglect<br>physical neglect<br>witnessed violence                              | Several studies report that TSCC is a statistically reliable and valid tool that has been studied for large samples of racially and socioeconomically diverse populations. | TSCC-C requires additional studies on reliability and validity in children under age 7.<br>It may not be representative of the nationwide population due to their small and geographically limited sample population. | Time: 10 minutes<br>Fee: \$79 for introductory kit<br>Qualifications: Undergraduate degree with clinical training or licensure/certification in use of psychological tests |
| Adolescent Dissociation Experiences Scale (A-DES) <sup>®</sup>     | Self-reported survey                          | 11-18 years  | emotional abuse<br>physical abuse<br>sexual abuse<br>emotional neglect<br>physical neglect  | Strong reliability and validity as reported by several studies.  | Mean scores of the results have varied greatly and no validated cut-off score has been established.   | Time: Unknown<br>Fee: Minimal<br>Qualifications: Undergraduate degree, clinical training   |

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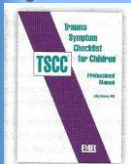
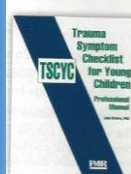
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## 2. TRAUMA SCREENERS

- **Trauma Symptom Checklist for Children**
  - 54 item self report checklist (15-20min)
  - Ages 8-16
  - Scoring software on PAR iconnect
  - Anxiety, Depression, Anger, PTSD, Dissociation, and Sexual Concerns
  - Gender appropriate norms
- **Trauma Symptom Checklist for Young Children**
  - 3- 12 years old
  - Caretakers rate 90 symptoms on a 4 point scale (20 min)
  - Eight clinical scales
  - Focus on child abuse, peer assault, community violence.

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## 3. CAREGIVER CAPACITY AND RESILIENCY

(TRAUB AND BOYNTON-JARRETT, 2017)

1. Positive appraisal style impacts executive functioning skills and facilitates cognitive restructuring.
2. Following trauma exposure, caregivers play a critical role influencing a child's overall social-emotional response and adaptation (McLeod et al., 2007).
  - a) Neglectful
  - b) Democratic
  - c) Authoritative
  - d) Authoritarian
3. Maternal mental health most influences coping  
(\*16 million children live with a depressed parent)
4. Family routines foster resilience.



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### 4. CLASSROOM ACCOMMODATIONS FOR TRAUMA

- Extended time on tests and quizzes.
- Structure and routine (schedules and emotive responses)
- Preferential seating in class (by door if needed).
- Access to lecture notes when needed.
- Agenda/organization notebooks.
- Frequent breaks when needed.
- Use of a crisis pass.
- Alternative ways to demonstrate mastery (i.e. projects instead of tests)
- Allow for test re-takes to demonstrate subject mastery.
- Use of technology for note-taking and written assignments.
- Scheduling more challenging subjects in morning.
- Allow for **partial school days**.
- **Awareness of trauma triggers**.
- Access to "In-school" coach.
- Do not penalize for school absences.



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### 5. TEACHING RESILIENCY: MINDFULNESS



- **Mindfulness** – focus on breathing from the diaphragm, not the chest, and exhaling on longer slower breaths.
- Strive for 6 -8 breaths per minute.
- Practice breathing techniques when visualizing an anxiety provoking situation.
- Enhances parasympathetic nervous system.

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### 5. TEACHING RESILIENCY: YOGA



- **Yoga** – assumes the footprint of trauma is in the body and tissues.
- We cannot talk it out, and fear our own bodily sensations (Van Der Kolk, 2012).
- Pain, headaches, muscle tension, tics, panic attacks
- Yoga can reduce anxiety and heart rate variability following a stressor (Albracht-Schulte & Robert-McComb, 2018), though the induced calmness wears off after 30-40 minutes.<sup>21</sup>
- More research needed!

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### 5. TAKE TARGETED APP BREAKS



**Stop, Breathe & Think**  
© 2014 Mind Garden, Inc. All rights reserved.  
 Stop, Breathe & Think  
 iPhone, iPad, Android



**Take a Chill**



**THE ZONES OF REGULATION**  
© 2014 Zones of Regulation, LLC. All rights reserved.



**Breethe**



**Calm**



**HEADSPACE**  
HeadSpace



**Breathing Buddies**



**Square Breathing :**  
<https://www.youtube.com/watch?v=FFdFXwE#RE>

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### SOCIAL EMOTIONAL ACADEMIC LEARNING & EDUCATIONAL THERAPY



**Social & Emotional Learning**

- Self-Management**: Managing emotions and behaviors to achieve one's goals
- Self-Awareness**: Recognizing one's emotions and values as well as one's strengths and challenges
- Responsible Decision-Making**: Making ethical, constructive choices about personal and social behavior
- Relationship Skills**: Forming positive relationships, working in teams, dealing effectively with conflict
- Social Awareness**: Showing understanding and empathy for others

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### LET'S STAY CONNECTED



**Steven G. Feifer, D.Ed., ABSNP**  
 Licensed Psychologist

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