The Effects of Trauma on Health and Behavior

STEVEN KAIRYS MD, MPH
CHAIRMAN OF PEDIATRICS
JERSEY SHORE UNIVERSITY MEDICAL CENTER
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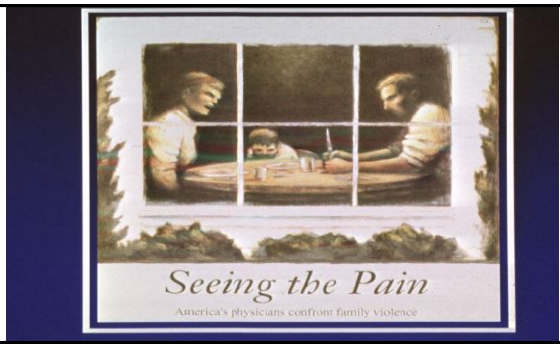

The Trauma-Violence Relationship

American children are exposed to high rates of violence at home, at school and on the streets. Children living in impoverished, crime-ridden neighborhoods are particularly susceptible to exposure to violence--in some studies over 80%.

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What happens?

Fear
Terror
Anxiety
Guilt
Shame
Modeling
Somatic symptoms

immediate

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Generalized Anxiety Disorder 300.02

- Restless
- Difficulty concentrating
- irritability
- muscle tension
- sleep disturbance

Symptoms result in impairment in social or occupational function (learning).

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COMPLEX POSTTRAUMATIC SEQUELAE

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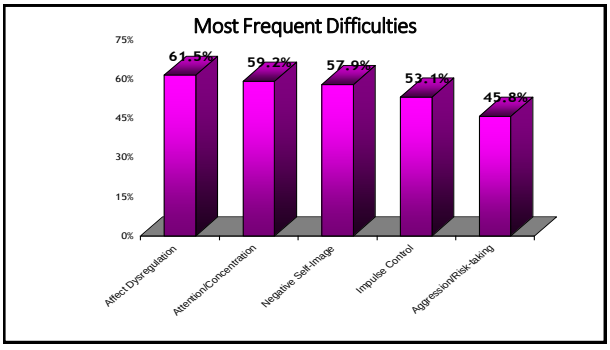

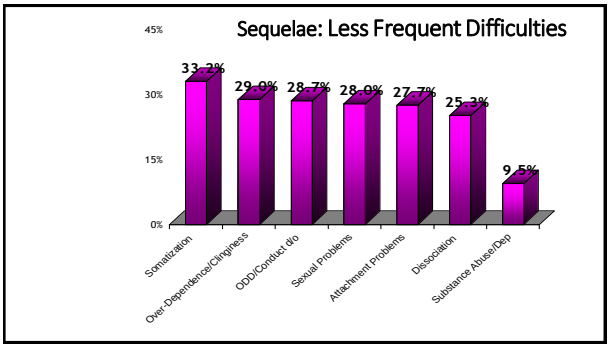

What are the most common physical, emotional, behavioral and social reactions to trauma?

- Intrusive re-experiencing of fragments of the events, such as flashbacks and nightmares.
- Avoidance and numbing of people, places, things and feelings that are reminders of the events.
- Physiological hyper-arousal with increased startle response, changes in blood pressure, heart rate and other physical changes.
- Typical trauma responses are frequently mistaken for other problems. These include poor academic performance, drug and alcohol use, poor social interactions, inability to trust or to bond with others.

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How does the diagnosis that we are most familiar with, "post traumatic stress disorder," relate to other levels of trauma responses?

- Post-traumatic stress disorder is the "classic stress response."
- It is useful to think of trauma as a spectrum of disorders as there are many associations between a past history of traumatic experience and the variety of behavioral and physical responses.

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Complex Post-Traumatic Stress Disorder (PTSD) Problems

- Irritability, aggression, tension
- Sleep problems, nightmares, flashbacks
- Hair-trigger tempers
- Mood instability--depression, anxiety
- Poor impulse control--destructive behavior
- Dichotomous, extremist thinking and behavior
- Attachment to dysfunctional groups, relationships

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Complex PTSD; Complex Problems

- Multiple addictions & compulsive behavior
- Psychosomatic and other physical illness
- Lack of empathy, conscience, meaning, purpose
- Failure of imagination, repetition, compulsion

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Traumatic events impact children and adults differently

- Adults have more fully developed internal and external resources to make sense of and to cope with a traumatic event.
- The central nervous systems (brains) of children are not yet fully developed. They are unable to put their experiences into context or to make sense of them.
- The two most fundamental responses to trauma are the "fight or flight response" where the instinct for survival takes control; or disassociation, which is a protective mechanism that creates a barrier to the actual experience. Repeated exposure to trauma prevents normal brain development in children.

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The Relationship of Adverse Childhood Experiences to Adult Health Status

A collaborative effort of Kaiser Permanente and The Centers for Disease Control

Vincent J. Felitti, M.D.
Robert F. Anda, M.D.

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The Adverse Childhood Experiences (ACE) Study

- **The largest study of its kind ever done to examine the health and social effects of adverse childhood experiences over the lifespan (18,000 participants)**

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What do we mean by Adverse Childhood Experiences?

- **Experiences that represent medical and social problems of national importance.**
  - **childhood abuse and neglect**
  - **growing up with domestic violence, substance abuse or mental illness in the home, parental loss, or crime**

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The Adverse Childhood Experiences (ACE) Study

Summary of Findings:

- **Adverse Childhood Experiences (ACEs) are very common**
- **ACEs are strong predictors of later health risks and disease**
- **This combination makes ACEs *the leading* determinant of the health and social well-being of our nation**

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Categories of Adverse Childhood Experiences

	Category Prevalence (%)
Abuse, by Category	
Psychological (by parents)	11%
Physical (by parents)	11%
Sexual (anyone)	22%
Household Dysfunction, by Category	
Substance Abuse	26%
Mental Illness	19%
Mother Treated Violently	13%
Imprisoned Household Member	3%

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Estimates of the Population Attributable Risk* (PAR) of ACEs for Selected Outcomes in Women

Mental Health:	PAR
Current depression	54%
Depressed affect	41%
Suicide attempt	58%
Drug Abuse:	
Alcoholism	65%
Drug abuse	50%
IV drug abuse	78%
Promiscuity	48%
Crime Victim:	
Sexual assault	62%
Domestic violence	52%

*Based upon the prevalence of one or more ACEs (62%) and the adjusted odds ratio >1 ACE.

CDC

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What is conventionally
viewed as a problem
is actually a solution to
an unrecognized prior adversity.

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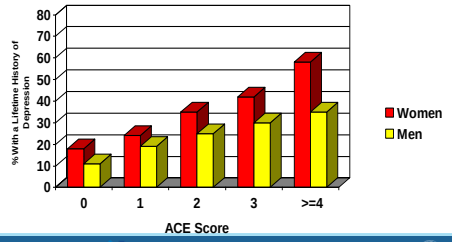
Childhood Experiences Underlie Chronic Depression



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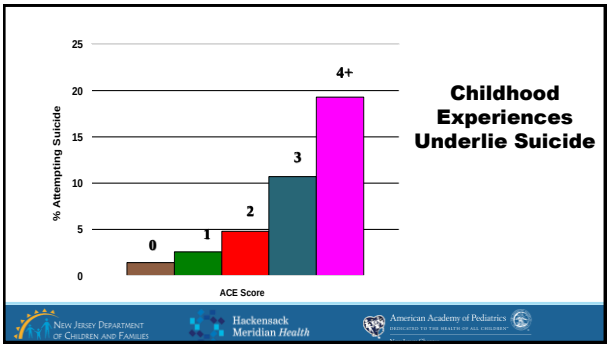

Adverse Childhood Experiences and the Risk of:

ACE Score	Intimate Partner Violence*	Being Raped*
0	1.0	1.0
1	1.9	2.0
2	2.1	2.8
3	2.7	4.2
4	4.5	5.3
≥5	5.1	8.9

*Adjusted Odds Ratio

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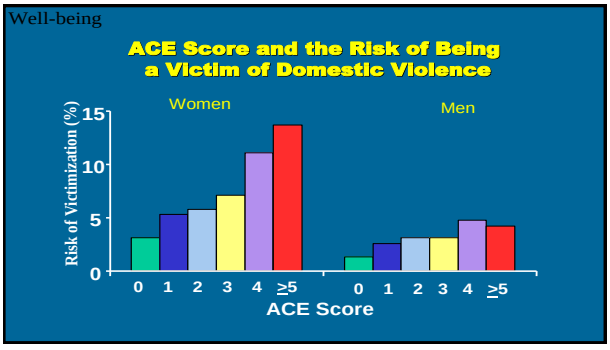
Well-being



Estimates of the Population Attributable Risk* of ACEs for Selected Outcomes in Women

	PAR
Depression and Suicide	48%
Crime Victim	
Sexual Assault	62%
Domestic Violence	52%

*That portion of a condition attributable to specific risk factors

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We find that....

"Addiction highly correlates with characteristics intrinsic to that individual's childhood experiences."

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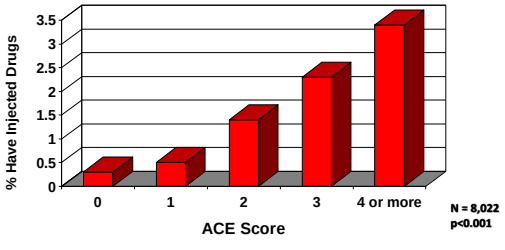
ACE Score vs. Intravenous Drug Use



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Adverse Childhood Experiences and the Risk of:

ACE Score	Alcoholism*	Parenteral Drug Abuse*	Attempted Suicide*
0	1.0	1.0	1.0
1	1.9	1.0	1.8
2	2.1	2.5	4.0
3	2.7	3.5	4.0
4	4.5	3.8	7.2
≥5	5.1	9.2	16.8

*Adjusted Odds Ratio

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Dismissing them as "bad habits" or "self-destructive behavior" totally misses their function.

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Adverse Childhood Experiences determine the likelihood of the ten most common causes of death in the United States.

Top 10 Risk Factors: smoking, severe obesity, physical inactivity, depression, suicide attempt, alcoholism, illicit drug use, injected drug use, 50+ sexual partners, h/o STD.

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With an ACE Score of 0, the majority of adults have few, if any, risk factors for these diseases.

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However, with an ACE Score of 4 or more, the majority of adults have multiple risk factors for these diseases or the diseases themselves.

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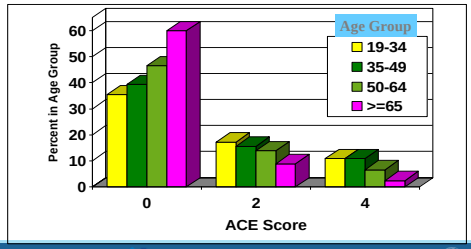
Effect of ACEs on Mortality



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Many chronic diseases in adults are determined decades earlier, in childhood.

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Trauma Symptom Checklist for Children (TSCC; Briere, 1996)

- 54-item self-report
- Boys and girls, ages 8-12 and 13-16, with normative adjustments for 17 year olds).
- Two validity scales
- Underresponse (UND) and Hyperresponse (HYP)
- Six clinical scales
- Anxiety (ANX), Depression (DEP), Posttraumatic Stress (PTS), Sexual Concerns (SC), Dissociation (DIS), and Anger (ANG).
- Rated on a 0 ("never") to 3 ("almost all of the time") scale.

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Universal Precautions as a Core Trauma informed Concept

Presume that every person in a treatment setting has been exposed to abuse, neglect and other traumatic experiences

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What promotes healthy development of the human brain

Good nutrition

A Stimulating environment

Healthy relationships with loving caretakers

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Experience Affects Brain Development

- Childhood is a time for learning
- Number of synapses increases dramatically after birth
- Environment-stimulated neuronal activity is critical for elaboration of synaptic territories and 'proper' connections

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Neurodevelopmental Windows of Opportunity

Emotional intelligence	0-48 months
Motor Development	0-24 months
Vision	0-24 months
Music	0-36 months
Second language	0-60 months

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Early Brain Development

- All behavioral development has to do with the brain
- Brain development is dependent upon both experience and genetics
- The brain has a great deal of plasticity and can recover over time.

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The Brain's Composition

The brain is comprised of four areas:

- stem
- diencephalon
- limbic system
- cortex

- Growth of the brain occurs from the inside out and the bottom up
- You are born with 100 billion brain cells
- There are 15,000 synaptic connections for each cell

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Early Experiences are Crucial

- By age 3, 80% of synaptic connections are already made
- By the second decade of life growth levels off and pruning begins
- Increased experiences define the wiring of an infant's brain

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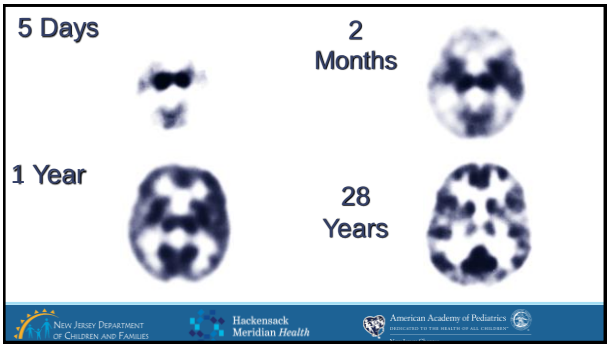

Nature vs. Nurture

- During the first 10 years of life the brain is twice as active as that of an adult's
- 60% of nutrition is used by the brain during the first year of life. This decreases to 30% by age 3
- Genetic and environmental factors have a more dynamic, qualitative interplay that can not be reduced to a simple equation

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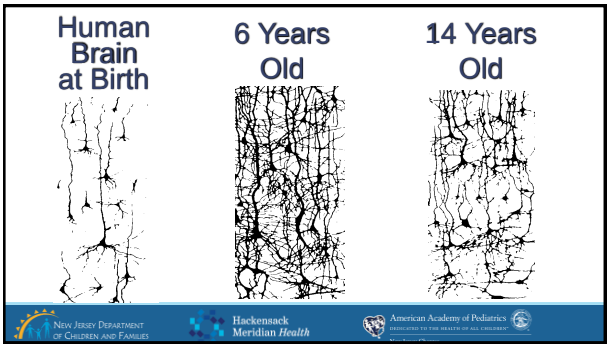
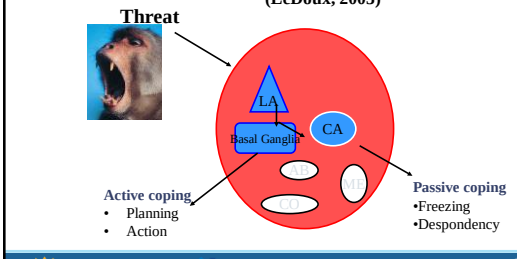


How the brain "gets on with life"
(LeDoux, 2003)



Attachment - Human Studies

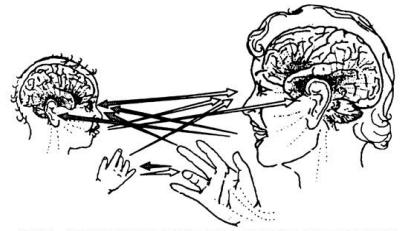
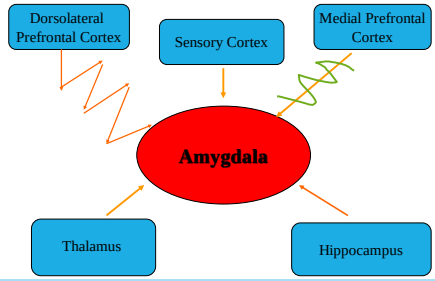


FIGURE 1. Brain–brain interactions during face-to-face communications of proto-conversation, mediated by eye-to-eye orientations, vocalizations, hand gestures, and movements of the arms and head, all acting in coordination to express interpersonal awareness and emotions. Adapted from Aitken & Trevarthen (1993) and used with permission of Cambridge University Press.



Early Care Experiences

- Babies thrive when they receive warm, responsive early care
- Early care has a decisive, long lasting impact on how people develop, their ability to learn, and their capacity to regulate their own emotions

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Developmental Processes Implicated in Trauma

- Attachment
- Experience-dependent maturation of neuronal systems
- Development of emotional regulation
- Development of impulse control
- Consolidation of Integrated sense of self
- Socialization

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Factors Related to Symptoms

- Relationship to abuser
- Intensity, length of trauma
- Age of first trauma
- Lack of community safety, poverty
- Losses associated with the trauma
- Poor pre-morbid functioning
- Cognitive/developmental delays
- Insecure attachment

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Treatment of Trauma Effects

Core Components

- Safety
- Self Regulation (Body, emotion, behavior)
- Relationship attachment
- Self Reflective Information Processing
- Positive Affect Enhancement
- Trauma Experience Integration

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Safety

- Trauma victims see the world as dangerous
- Unable to shift from defensive reactions until safe
- Perceptions of being unsafe are profoundly somatic experiences

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Self Regulation

- Overwhelming levels of arousal lead to reliance on maladaptive (but immediately effective) coping strategies
- Affective, behavioral, somatic
- Self soothing capacity
- Up/down modulation of emotional states
- Healthy self expression
- Impulse control

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Relational Engagement

Attachment is the dance of the limbic systems of the child and parent

Interpersonal connection: Build capacity to effectively build meaningful relationships with others

- Initiating communication
- Non verbal communication
- Self expression

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Self Reflective Information Processing

- Executive functions: attention, anticipation, problem solving, planning
- Identity
- Coherent narrative of self and other
- Future orientation

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Positive Affect Enhancement

- Creativity
- Imagination
- Pleasure/joy
- Achievement
- Competence
- Mastery-seeking

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Trauma Experience Integration

- Understanding how past experiences trigger current responses
- Shifting from reactive to active lifestyle
- Building ability to live 'in the moment'
- Addressing and mastering frightening experiences in a safe environment
- Mourning loss
- Incorporating history into larger sense of self and identity

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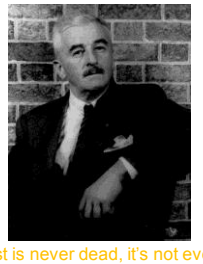

"The past is never dead, it's not even past"
(*Requiem for a Nun*, Act I, Scene III).

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