Overview of the Effects of Trauma

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Prevalence of Trauma in the General Population

- **Any**: 60.7% for Men, 51.2% for Women
- **One**: 26.5% for Men, 26.3% for Women
- **Multiple**: 34.2% for Men, 24.9% for Women
The Brain Matters

• The human brain is the organ responsible for everything we do. It allows us to love, laugh, walk, talk, create or hate.

• The brain - one hundred billion nerve cells in a complex net of continuous activity - allows us our humanity.

• For each of us, our brain’s functioning is a reflection of our experiences.
Implications for Children

• EXPERIENCE CAN CHANGE THE MATURE BRAIN - BUT EXPERIENCE DURING THE CRITICAL PERIODS OF EARLY CHILDHOOD ORGANIZES BRAIN SYSTEMS!

• From Bruce Perry, Trauma and Brain Development
Brain Development

The Infant Brain is

CO-CONSTRUCTED!
The Effects of Trauma

“As the brain is organizing, it is waiting for the world to tell it how to structure itself.”
– Dr. Bruce Perry
Traumatic Stress and Critical Windows of Brain Development

- **Cortex**: 12 months - 48 months
- **Limbic Brain**: 6 months - 30 months
- **Mid Brain**: first year
- **Brain Stem**: pre-birth - 8 months

(Adapted from: Perry, 2002)
Trauma and the Brain

**Amygdala** - The brain's emotional computer and alarm system

**Hippocampus** - Brains storage for our most recent conscious memories

**Thalamus** - Translates sights, sounds, smells into the language of the brain

**Prefrontal cortex** - Where information is used to make decisions about cognitive and emotional responses
3 Year Old Children

Normal

Extreme Neglect

www.ChildTrauma.org

B.D. Perry, M.D., Ph.D.
These are the brains of two three-year-old children. The image on the left is from a healthy child while the image on the right is from a Romanian orphan who suffered severe sensory deprivation. The right brain is smaller and has enlarged ventricles - holes in the centre of the brain. It also shows a shrunken cortex - the brain's outer layer.
Lateral Ventricles Measures in an 11 Year Old Maltreated Male with Chronic PTSD, Compared with a Healthy, Non-Maltreated Matched Control

De Bellis et al., 1999
Neuroimagery

Neuroimaging in PTSD

- **Amygdala** – hyperactivity, responsivity is associated with PTSD symptom severity
- **Frontal cortex** – volume loss, responsivity is inversely associated with PTSD symptom severity
- **Hippocampus** – volume loss, decreased neuronal and functional integrity
Stimulus
Traumatic Reminder
Trigger

COGNITION!!!

Response

Intervention

Social-environmental Intervention

Neuro-regulatory Intervention
Stimulus

Sensory Thalamus

Cortex

Hippocampus

Amygdala

Very Fast

Response

Social Environmental Intervention

Psychotherapy

Neuroregulatory Intervention

Psychopharmacology

(LeDoux, 1996)
Rauch Brain Scans
Play

DORSAL CONTACTS

PINS

(Panksepp, 1998)
Play and Fear

(Panksepp, 1998)
Adverse Childhood Experiences (ACEs) Affect Adult Health

ACEs have serious health consequences for adults:

- Adoption of health risk behaviors as coping mechanisms (e.g., eating disorders, smoking, substance abuse, self-harm, sexual promiscuity)
- Severe medical conditions (e.g., heart disease, pulmonary disease, liver disease, STDs, gynecologic cancer)
- Early death

(Felitti et al, 1998)
ACE Questions:

While you were growing up, during your first 18 years of life:

1. 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?
2. 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?
3. 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?
4. 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?
ACE Questions: (Cont’d)

5. 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?

6. Were your parents ever separated or divorced?

7. 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 at least a few minutes or threatened with a gun or knife?

8. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?

9. Was a household member depressed or mentally ill, or did a household member attempt suicide?

10. Did a household member go to prison?

(Felitti et al, 1998)
“Male child with an ACE score of 6 has a 4600% increase in likelihood of later becoming an IV drug user when compared to a male child with an ACE score of 0. Might heroin be used for the relief of profound anguish dating back to childhood experiences? Might it be the best coping device that an individual can find?”

(Felitti et al, 1998)
Fire can warm or consume, water can quench or drown, wind can caress or cut. And so it is with human relationships; we can both create and destroy, nurture and terrorize, traumatize and heal each other. ~Bruce D. Perry
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