Recent research has shown a connection between brain development, childhood maltreatment, family violence and trauma. Our understanding of the effects of these types of adverse childhood experiences on the brain has expanded. This presentation will discuss brain development and the various types of multiple victimization experienced by children that often leads to later aggressive behavior and impulsivity due to the interaction of the brain and psychosocial factors. The influence of trauma on the brain and development makes it much more difficult to focus on just one issue when assessing or treating these children or victims of various forms of intimate partner violence.

It is Estimated...

In about 40-60% of the homes where a parent is being maltreated, the child is also a victim of abuse,

and vice versa.
INTIMATE PARTNER VIOLENCE (IPV) AND ITS POTENTIAL EFFECT ON CHILDREN

It is normal for a child growing up in a home with domestic violence to manifest a multitude of symptoms. These include emotional, cognitive, social, and physical effects of exposure to IPV, and possible externalizing or internalizing behaviors.

Children are Affected

*Emotional Effects*
- Feelings of helplessness, worthlessness
- Constant fear of: abandonment, expressing emotions, the unknown, and personal injury
- Shame – “I caused it”, or “I should have been able to stop it”
- Grief for family and personal losses
- Lack of good attachment bonds

Children are Affected

*Cognitive Effects*
- Lack of sense of consistency and predictability;
- Feeling of incompetence;
- Difficulty encoding new information;
- Cause and effect relationships ill-defined;
- Difficulty concentrating;
- Poor school functioning.

ISSUES FOR CHILDREN IN VIOLENT HOMES AND COMMUNITIES

*THE CHILDREN FEEL*
- Powerless because they can't stop the violence;
- Confused because it doesn't make sense;
- Angry because it shouldn't be happening;
- Guilty because they think they've done something wrong;
- Sad because it's a loss;
- Afraid because they may be hurt, they may lose someone they love, others may find out;
- Alone because they think it's only happening to them.
**Children are Affected**

**Social Effects**
- Isolation from friends and relatives
- Difficulty in trusting, especially adults
- Poor anger management and problem-solving skills
- Passivity with peers or bullying towards peers; play with peers gets exceedingly rough

**Children who have been traumatized may demonstrate impairments in the following developmental areas:**

Attachment: social isolation and difficulty relating to and empathizing with others

Biology: impairments in movement and sensation, hypersensitivity to physical contact, problems with coordination, balance, and body tone, unexplained physical symptoms, and increased medical problems

Mood Regulation: difficulty regulating emotions, trouble knowing and describing feelings and internal states, communication difficulties

Dissociation: experiencing feelings of detachment or depersonalization, withdrawal of attention to outside world, demonstrate amnesia-like state

**Children are Affected**

**Behavioral Effects**
- Stress disorders and psychosomatic complaints
- Increased social isolation and withdrawal
- Aggressiveness and/or poor impulse control
- School problems (refusal to go, truancy, poor performance) or perfectionism and overachievement

**Behavioral Control:** poor impulse control, self-destructive behavior, aggression against others, sleep disturbances, and eating disorders

Cognition: problems focusing on and completing tasks in school, difficulty planning and anticipating, difficulty understand own contribution to what happens to them, learning difficulties, and problems with language development

Self-Concept: lack a continuous, predictable sense of self, suffer from disturbances of body image, low self-esteem, shame, and guilt
ADVERSE, TRAUMATIC CHILDHOOD EXPERIENCES

BEHAVIORAL/PSYCHOSOCIAL/DEVELOPMENTAL EFFECTS

PHYSIOLOGICAL/BIOLOGICAL/STRESS SYSTEMS
NEUROBIOLOGICAL/NEUROPSYCHOLOGICAL EFFECTS

Shifting Developmental Activity Across Brain Regions

<table>
<thead>
<tr>
<th>Brain Region</th>
<th>Age of Greatest Developmental Activity</th>
<th>Age of Functional Maturity</th>
<th>Key Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neocortex</td>
<td>Childhood</td>
<td>Adult</td>
<td>Reasoning, problem solving, abstraction, secondary sensory integration</td>
</tr>
<tr>
<td>Limbic</td>
<td>Early Childhood</td>
<td>Puberty</td>
<td>Memory, emotional regulation, attachment, affect regulation, primary sensory integration</td>
</tr>
<tr>
<td>Diencephalon</td>
<td>Infancy</td>
<td>Childhood</td>
<td>Motor control, secondary sensory processing</td>
</tr>
<tr>
<td>Brainstem</td>
<td>In utero</td>
<td>Infancy</td>
<td>Core physiological state regulation, primary sensory processing</td>
</tr>
</tbody>
</table>

From Perry, 2001

Trauma and Biological Stress Systems

Cortex

Limbic System AMYGDALA

FIGHT, FLIGHT, FREEZE

HPA-AXIS

Hypothalamus

CRH

ACTH

Cortisol

SNS

Immune Response

Catecholamines Arousal

LC

SNS
Brain activity of children exposed to IPV on fMRI Scans same as soldiers exposed to violent combat – increase in Amygdala and Anterior Insula when viewing pictures.


Summary of Means for Heart Rate throughout Protocol

<table>
<thead>
<tr>
<th>Abuse Type</th>
<th>HR1</th>
<th>HR2</th>
<th>Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure to DV</td>
<td>87.4</td>
<td>94.4</td>
<td>84.3</td>
</tr>
<tr>
<td>Physical/Sexual Ab.</td>
<td>84.7</td>
<td>85.9</td>
<td>81.7</td>
</tr>
<tr>
<td>None</td>
<td>80.5</td>
<td>80.2</td>
<td>79.1</td>
</tr>
</tbody>
</table>

HR1 = heart rate 1, taken during baseline; no stressor.
HR2 = heart rate 2, taken during the stressor.
Recovery = heart rate, taken after relaxation again.

From Stride & Geffner, 2005

Categories of Adverse Childhood (ACE) Experiences

<table>
<thead>
<tr>
<th>Category</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abuse, by Category</td>
<td></td>
</tr>
<tr>
<td>Psychological (by parents)</td>
<td>11%</td>
</tr>
<tr>
<td>Physical (by parents)</td>
<td>28%</td>
</tr>
<tr>
<td>Sexual (anyone) - Contact</td>
<td>22%</td>
</tr>
<tr>
<td>Emotional Neglect</td>
<td>15%</td>
</tr>
<tr>
<td>Household Dysfunction, by Category</td>
<td></td>
</tr>
<tr>
<td>Substance Abuse</td>
<td>27%</td>
</tr>
<tr>
<td>Mental Illness</td>
<td>17%</td>
</tr>
<tr>
<td>Mother Treated Violently</td>
<td>13%</td>
</tr>
<tr>
<td>Imprisoned Household Member</td>
<td>5%</td>
</tr>
</tbody>
</table>
### Adverse Childhood Experiences Score

Number of categories of adverse childhood experiences

<table>
<thead>
<tr>
<th>ACE score</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>36%</td>
</tr>
<tr>
<td>1</td>
<td>26%</td>
</tr>
<tr>
<td>2</td>
<td>16%</td>
</tr>
<tr>
<td>3</td>
<td>10%</td>
</tr>
<tr>
<td>4 or more</td>
<td>12%</td>
</tr>
</tbody>
</table>

- More than 60% have at least one ACE, and almost ¼ have 3 or more ACEs

### Evidence from ACE Study Suggests:

Adverse childhood experiences are the most basic cause of health risk behaviors, morbidity, disability, mortality, and healthcare costs.

### Common Principles Linking Children Exposed to Family Violence or Other ACEs Traumas

- Affect and impulse dysregulation – Aggression
- High levels of anxiety
- Rapid shifts in psychological state
- Disturbances in sense of self: low self-esteem, body image distortion, identity diffusion/fragmentation, attachment issues
- Attention, concentration, memory issues
- Self-destructive behaviors
Executive Function Issues/Deficits for Offenders and Victims of Family Violence: A Biopsychosocial Approach

- General organization and planning
- Ability to solve problems
- Regulation of activity/Impulsivity
- Learned aggression, power and control
- Low threshold for frustration/stress
- Closed head injuries or other neuropsychological impairments

In Summary ......

- Abused children need to be carefully diagnosed to R/O disorders such as PTSD.
- Abuse and maltreatment, even without PTSD, may be associated with chemical and structural brain changes in children.
- While these changes are still under investigation, they appear to have real-life consequences for affect regulation, etc.
- Assessment can assist with diagnosis, prognosis, and educational recommendations.


3 Needed Approaches

Differential Diagnosis

Assessment-Based Intervention

One Size Intervention Does Not Fit All

Key #2 - Positive Power of Peers

Good peer relationships
Development of self-esteem and strong social skills
A sense of hope
High maternal empathy and support
Opportunities to help others
Respect for others, and empathy
Hobbies and other creative pursuits in which to find refuge
Development of some sense of control of one's life.
To Help Children Feel They are Making a Contribution:

Required Helpfulness
- Positive peer relationship, especially when they can help or mentor another child
- Increasing Behavioral Successes

Fostering a Sense of Mastery
- The child gets to answer questions or solve problems correctly in front of age mates.
- The parents/caregivers get a call at home letting them know the special thing that their child did that day, followed by a written note that can be saved.
- At least 1x per week, a picture is taken of a special accomplishment. It’s put in a photo album and either a story is written about it, or a tape recording is made. Memories of successful experiences.

Key #3 - Fostering a Sense of Mastery

- Helping to define one’s identity around strengths and talent; success experiences are to mastery as repeated failure is to learned helplessness
- Caregivers and teachers can determine # of success experiences children/students have and in what areas
- Highlighting, nurturing and expressing strengths and talents, and things you feel passionate about

From Katz, 2003

Protective Processes That Can Offset the Effects of Multiple Childhood Risks

1. Experiences That Reduce the Impact of Prevailing Risks:
   A. Learning to see adversities in a new light
   B. Reducing the amount of exposure to the risks of adverse conditions; buffers
2. Preventing a Chain Reaction of Negative Life Events; Creating Safety Nets
3. Experiences That Promote a Sense of Mastery
4. Opening the Door to Turning Point Experiences or Second Chance Opportunities

Key #4 - Connecting Emotionally

Institute on Violence, Abuse & Trauma (IVAT)
at Alliant International University, San Diego
www.ivatcenters.org

Family Violence & Sexual Assault Institute (FVSAI)
www.fvsai.org

National Partnership to End Interpersonal Violence Across the Lifespan (NPEIV)
www.npeiv.org

International Summit on Violence, Abuse & Trauma Across the Lifespan – August, San Diego, CA

Hawaii Summit on Assessing, Treating & Preventing Child, Adolescent & Adult Trauma - March, Honolulu, HI