

### Primed for Terror: The Neurodevelopmental Effects of Child Abuse and Domestic Violence

Daniel J. Sonkin, Ph.D.  
contact@danielsonkin.com  
www.danielsonkin.com  
(415) 332-6703

### 40+ Years of Research in Child Abuse

- Four types of child abuse: Physical, Sexual, Psychological and Neglect.
- Approximately two-thirds of American children are victims of verbal/symbolic aggression by parents.
- More boys are victims of verbal aggression than girls.
- More children over age 6 are likely to experience verbal aggression. However, if children under age 6 are the victims of verbal aggression, it occurs more frequently than the case with children over 6.
- The more frequent the rate of verbal aggression by parents, the greater the probability of physical, aggressive, or delinquent behavior by the child.

### 40+ Years of Research in Child Abuse

- Even children who never experience being hit by their parents often exhibit behavior problems associated with verbal aggression.
- The correlation between verbal aggression and psychosocial problems affects all age groups, both sexes, and all families regardless of their socioeconomic status.
- The psychosocial problems of children is more directly related to parental verbal aggression than to physical aggression.
- Psychosocial behavior problems of children have been found to be more directly affected by a combination of verbal aggression and abusive violence rather than experiencing either by themselves.

### What about spanking?

- Over 100 studies show that spanking puts children at risk of serious harmful side effects.
- Research finds an increased probability of hitting other children, more delinquency, weaker bonds with parents, and, later in life, a greater likelihood of depression and hitting of marital and dating partners.
- There is a very high level of agreement among these studies - over 90 percent.

### What about spanking?

- Some parents may think that these results defy common sense because they can "see" that spanking worked and that the child is "OK."
- But it is impossible for them to see how it may affect the child months or years later.
- Once aggression set's in, it's one of more stable personality characteristics.

### 35+ Years of Domestic Violence Research

- Violence is divided into three types: Physical, Sexual and Non-Physical.
- Between 1-12 million people are victims of domestic violence each year.
- Research suggests that there is more symmetry in the direction of violence than was originally thought.
- Female same sex relationships (47v/38p) may have the highest rates of violence, followed by heterosexual relationships (25-35%), followed by same-sex male relationships (29v/21p).
- 44 states have laws mandating the arrest and treatment of perpetrators of domestic violence.
- Typologies of perpetrators rather than one type.

### Witnessing Family Violence

- Is it another form of child abuse?
- Different forms of psychological maltreatment (Spurning, Terrorizing, Exploiting/Corrupting, Denying Emotional Responsiveness, Rejecting, Isolating, Unreliable/Inconsistent and Neglect)
- Yes: Can result in any one or a number of these forms of psychological maltreatment.

### General Effects

- Not all children are affected the same way – situation specific.
- Protective factors – factors that mitigate against the deleterious effects of abuse.
- Emotional and cognitive effects
- Interpersonal functioning (aggression)
- Effects on parenting (long term effects)
- Psychiatric functioning (anxiety, depression)

### Neuroscience and Violence/Abuse

- Growing neuroscience literature on brain changes due to chronic stress during childhood
- All forms of abuse at it's their core can be conceptualized as a problem with affect regulation.
- Violence during development profoundly effects many different parts of the brain, but particularly those having to do with affect regulation.
- Neural Plasticity - Priming – Pruning – Sensitive Periods
- Early development (Pregnancy-2 years)
- Regulation: Affect and Arousal
- Internal working models of self and others

### Stress and the Stress Response

- Stress and development
- Stress: stimulus or experience that produces the fight or flight response (fear or a sense of loss of control).
- All forms of violence and abuse are a potent source of stress.
- Stress Response: HPA axis (hypothalamic-pituitary-adrenal axis); sympathetic nervous system; and the immune response.

### Stress and the Stress Response

- Hypothalamus releases CRH (corticotropin releasing hormone)
- Pituitary secretes ATCH (adreno-corticotropic hormone)
- Adrenal releases cortisol
- Negative feedback loop as specific brain centers receive cortisol they tells the adrenals to stop releasing cortisol
- Cortisol suppresses immune system; increase glucose; dampening fear response; reduce hippocampus functioning.
- Just one aspect of the stress response

### The effects of too much cortisol

- Corpus Callosum – degradation
- Brain size - smaller
- Memory effect – decrease in explicit memory
- Amygdala dysfunction (over dampened or hypervigilance)

### Pre-birth Stress and the Brain

- GABA (Gamma-Aminobutyric Acid)
- GABA is an inhibitory neurotransmitter: it calms things down.
- Inverse relationship between levels of GABA in the brain and aggression
- Study by Radtke, et. al. (2011):  
*Transgenerational impact of intimate partner violence on methylation in the promoter of the glucocorticoid receptor.*

### Pre-birth Stress and the Brain

- Found that domestic violence during pregnancy resulted in changes in the glucocorticoid receptor gene (GR) in the offspring of victims.
- Ten to nineteen years after birth, they found the offspring genes to be methylated: as a result, their synapses couldn't bind as much GABA as those with non-methylated genes.
- Their brains were different from those whose mother's didn't experience domestic violence.

### Bad News, Good News

- The bad news is that stress changes the brain of children.
- The brain likes to automate as many functions as possible, so that the more you do something a particular way, the more engrained the behavior becomes (solidifies those neural pathways).
- The good news is that the brain is constantly open to experience-based development.
- New pathways can be developed to circumvent commonly used pathways to dealing with stress and conflict.
- The solution: Repetition, repetition, repetition

### Other Neuroscience Findings

- Brain development and changes occur throughout life, but particularly during the first two to three years post birth.
- During this time, the prefrontal cortex is still developing (experience dependent development)
- Prefrontal cortex is involved in executive functions – affect regulation; social cognition; appraisal of threats and safety; positive/negative outlooks; concentration; fight/flight response; awareness of the body; problem-solving; reflective function; etc.
- Important because family stress and parenting experiences will affect the developing brain.

### Other Neuroscience Findings

- Affective Neurosciences has enjoyed a renaissance in the past twenty years due to scanning technology.
- Knowing the difference between emotion and feeling is critical to treating perpetrators and victims.
- Understanding how emotion is experienced in the body and feeling is a mental representation of the experience is critical to helping people learn to better control aggressive impulses. and children.

### Other Neuroscience Findings

- The relationship between emotion and memory is also important to our work with both victims and perpetrators.
- Some types of behaviors may be viewed as form of memory (flashbacks), called implicit memory.
- This is particularly important when working with people who were either physically, sexually or psychological abused as children, or who witnessed family violence.
- Because emotion centers in the brain don't have a time-stamp, it's the role of prefrontal cortex to connect the past with present reactions (autothetic consciousness).

## Other Neuroscience Findings

- Helping clients recognize this process and separate past from present helps to put things in perspective.
- It's not sufficient, but a necessary part of the process.
- It helps to strengthen the client's ability to step back and not be so reactive (reflective function).
- The study of mirror neurons is a very exciting new area in the neurosciences and is critical to our work with perpetrators, victims and children.
- Mirror neuron help us understanding our clients emotions and intentions.
- Strengthening our clients MNS, through mirroring, can help develop empathy and social cognition skills.

## Emotions and Feelings: Affect and its Regulation

## Presuppositions about Affect

- Emotion and feeling are two very different neurobiological processes.
- Emotion occurs in the body, feeling in the prefrontal cortex.
- Emotions are unlearned reactions to events that cause a change in state of the body.
- Emotions help us to solve problems or take advantage of opportunities.
- The purpose of emotions is to promote survival with the net result being to achieve a state of wellbeing.
- Emotions don't need to be felt
- 3 types of emotions: Primary, Background and Social
- Feeling occurs when we are when we are consciously aware of that fact that we are having an emotion.

## Presuppositions about Affect

- Feelings allow us to make decisions about how to respond to emotions; they allow us the opportunity to make a choice.
- Allow us to consciously connect the stimulus to the emotion.
- Feelings have the possibility of revealing "good for life" and "not-good for life" states.
- Emotions can be strong or weak, activating or calming.

## Emotion / Feeling Process

- Sensory input or attention (e.g., criticism from a partner or memory of abuse)
  - Feeling: Noticing a change in the body.
- Appraisal or evaluation: Is this a good or bad for life situation?
  - Feeling: Reevaluate situation
- Depending on appraisal activation of specific source points points in the brain, e.g., the amygdala (fear, disgust, anger); the ventral medial frontal cortex (sympathy, embarrassment, shame)
- Response: the behavioral response (e.g., change in facial expression, tone of voice, language, verbal or physical aggression, etc.)
  - Feeling: Noticing a change in behavior
- No feeling: No Choice

## Three Types of Emotions

- Primary: fear, anger, disgust, surprise, sadness and happiness.
- Background: good to bad and everything in between.
- Social emotions: shame, compassion, guilt, pride, gratitude.
- Background emotions are occurring much of our day.
- Primary emotions are more sporadic
- Social emotions occur within the context of relationships.
- One type can affect the other.

### Types of Emotion Regulation

- Antecedent-focused (e.g., visiting family for holidays)
  - Situation selection (to go or not to go)
  - Situation modulation (sleep there or in hotel)
  - Redirecting attention (keep away from stepfather)
  - Shift perspective (he can't help himself)
- Response-focused
  - Adaptive (talking, breathing, getting away, medication, etc.)
  - Maladaptive (food, drugs, alcohol, sex, violence, withdrawal, verbal attack, etc.)

### Relationships Complicate Things

- Mirroring is one way evolution helped us learn to recognize emotion in others.
- Language is another.
- Language actually reduces mirroring activity in the brain.
- When people show their emotions rather than talk about their emotions, contagion is more likely to occur.
- Families that experience domestic violence are potentially experiencing emotion contagion.
- If both members are not regulating emotions constructively, it increases the household temperature.

### Mirroring Can Be Your Friend

- Mirror Neuron System
  - Sensitive to emotional states in others
  - Activates similar emotion source points in observer's brain.
  - Activates similar motor neurons in observer's brain.
  - The better you read your own emotion states, the better you will read it in others.
- Emotions will be activated in you what your client is showing but not telling.

### Working with Emotion in Therapy

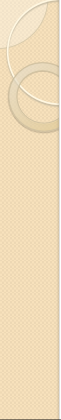
- Don't be afraid to bring out emotion.
- Can be difficult but rewarding
- Talk with client about the difference between showing emotions and talking about feelings
- Some therapists tend to move away from emotion and stay with the intellectual/ educational
- Client needs to be ready to talk about feeling, especially in a group setting

### Working with Emotion and Feeling: General Guidelines

- Connecting with the body is critical.
- Understand the difference between emotion and feeling
- Learn what events are like to trigger an emotion
- Slow down process - involve cognition to consider possibilities (response flexibility)
- Develop emotion identification strategies.
- Learn words for different types of emotions
- Develop calming strategies when overwhelmed
- Explore different ways of regulating emotion, especially antecedent strategies

### Resolution of Trauma

- Slow process with both children and adults
- Combination of verbal and non-verbal therapies
- Play and creativity
- Mindfulness and meditation
- Words are important (reflective function)
- But not everything can be expressed verbally
- Early and intergenerational trauma/loss
- Other family members can help
- Medication



**Additional Reading**

<http://www.danielsonkin.com/additionalreading.htm>

## *Additional Reading*

### *Domestic Violence, Child Abuse, Attachment and Neuro-Science*

*Daniel Sonkin, Ph.D.*

*[contact@danielsonkin.com](mailto:contact@danielsonkin.com)*

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