The Complexity of Complex Trauma

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Disclosures

- I have no financial relationships to disclose
Children’s Medical and Mental Health Resource Network
QUIZ YOUTHS ON FATAL BULLET

Mother of Six Children Dies When Shot While Standing at Door of Home

Times Staff Correspondent
FLINT, March 23—The death of Mrs. Vera G. Beemon, 32, on the front steps of her home, was termed accidental today by police, although they have not yet determined which of six boys fired the bullet that killed her.

They will all be questioned today by police, not only on the fatal shot, but on how they came into possession of the 22-caliber rifle. In preliminary questioning yesterday the boys told police they were all firing at targets and did not see Mrs. Beemon.

Mrs. Beemon had gone out on the sidewalk in front of her home to call several of her children home for their evening meal. Her husband, Earl, was still at work in the Chevrolet Motor Company plant.

Three of the boys are believed to have been continuing the rifle when it discharged. The bullet struck Mrs. Beemon in the eye, entering her brain.

Her aged mother, Mrs. Emma Neeberson, became hysterical when approached by screams she found Mrs. Beemon's body on the front steps.

"Only yesterday my daughter told police about those boys playing with guns. They came and took a revolver away from them, but they didn't take the bullets. Why didn't they take the bullet?"

"This wouldn't have happened."

The Beemon children are Billy 11, Donna 8, Emily 7, Barbara 6, Sally 4 and Peggy 2.

Six children were left motherless in Flint when Mrs. Vera G. Beemon was killed by a shot from a group of small boys as she stood in the doorway of her home. Police are questioning the boys to fix the blame. Mrs. Beemon's children, left to right are: BILLY, 11; BARBARA, 6; SALLY 4; DONNA 8; PEGGY 3, and EMILY 7.
Police Rebuke Goes Unheeded
Flint Woman Shot as She Calls Children

FLINT, March 20—Because a group of children could not restrain their desire to play with firearms even after a parental and police rebuke, one of their playmates was made orphan Wednesday night.

Mrs. Vera Beemon, 52 years old, was instantly killed by a stray rifle bullet fired from under a porch covering the steps of her home in a street near the intersection of the Ninth and Main streets. As she stepped from the sidewalk to her front steps after calling two of her four children into the house for supper,

Identity of Shooter Unknown

No one knows who fired the fatal shot. Three boys were playing near the home of John K. Tabor, 12, with whom were John Beemon, 13, at 1232 Lapeer St., and his brother, Alfie, 8. On the porch was Arthur Tabor, 11, who heard the shot, saw Mrs. Beemon fall with a bullet in the back of her head, and who can tell the others of the accident.

Both the Tabor and elder Beemon boys had been shooting the gun at wood piles, but both said the younger Beemon boy had not handled the rifle.

Monday Mrs. Beemon had complained to the police that a group of the neighborhood children had found a pistol in a garage, and the gun was confiscated by the mother of John Tabor. The gun was turned over to police Tuesday, and the bullet destroyed.

Tragedy Jumps to Rifles

Possession of the rifle was obtained later by the boys at a second hand store and "swap shop," the boys explained to Detective Sergeant Roy Martin, after John Beemon had presented a spurious note purportedly giving parental permission. The kids traded junk for it, they said.

Grief is expressed by the husband of the slain woman, who was at work at the local manufacturing plant at the time the story was heard.

His six children are Willy, 11, Donna, B; Emily, 7; Barbara, 4; Daily, 3, and Prage. S. Willy was with the group that found the pistol, but was not with them when they obtained the rifle, or played with it.

The family moved to the Ninth St. address last November, when Beemon obtained work after a long period of unemployment.

Further investigation ruled that the shooting was accidental.

MRS. VERA G. BEEMON

—Author Unknown
Human Body is Complex

Physical
Mental
Emotional
Childhood Trauma

**Toxic stress** -- repeated adverse experiences, such as child abuse or neglect, parental substance abuse and maternal depression -- that cause strong, frequent, or prolonged activation of the body’s stress response systems in the absence of the buffering protection of a supportive, adult relationship.
Childhood Trauma

Traumatic experiences - threaten the life or physical integrity of a child or of someone important to that child (parent, grandparent or sibling); cause an overwhelming sense of terror, helplessness and horror; and produce intense physical effects.
Psychological maltreatment -- a repeated pattern of damaging interactions between parent and child, such as belittling, rejecting and terrorizing, that becomes typical of the relationship.
Children Trauma

**Complex trauma** - describes exposure to multiple or prolonged traumatic events, including the conditions mentioned above, which typically begins in early childhood within the care-giving system, and the impact of this exposure on the child’s development.
Reactions to Toxic Stress
TRAUMA EXPERIENCES
"A child’s brain changes in a use dependent way."

Bruce Perry

- Most of the brain’s growth occurs within the first 2-3 yrs of life.
  - Conception to 3 yrs.

**Figure 3–3** Victimization Rates by Age Group, 2005

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>RATE PER 1,000 CHILDREN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age &lt;1–3</td>
<td>16.5</td>
</tr>
<tr>
<td>Age 4–7</td>
<td>13.5</td>
</tr>
<tr>
<td>Age 8–11</td>
<td>10.9</td>
</tr>
<tr>
<td>Age 12–15</td>
<td>10.2</td>
</tr>
<tr>
<td>Age 16–17</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Based on data from table 3–9.
“A child’s brain changes in a use dependent way.”

Bruce Perry

- The brain develops from the bottom up.
  - From lower centers to higher center.
  - Brainstem to cortex.
- 100 million to 100 billion neurons with tens of thousands of connections to other neurons.
### 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>

Perry, 2004
“A child’s brain changes in a use dependent way.”
Bruce Perry

- “...in children, neuronal activity literally provides the organizing template for neural systems.
  - Positive experiences
  - Negative experiences.
- In adults, activity can alter pre-existing neural organization...”
“A child’s brain changes in a use dependent way.”
Bruce Perry

- “use it or lose it”
  - The more you do something over and over the easier it becomes (i.e. throwing a baseball).
  - Same for fear...the more you experience it, the quicker that response will come next time it is stimulated.

- 75% of all child abuse is documented in the 0-3 yr age range.

- 75% of the maltreatment perpetrated on the 0-3 yr age range is NEGLECT.
Perceived Danger

Hypothalamus

corticotropin-releasing hormone (CRH)
vasopressin

Pituitary

adrenocorticotropic hormone (ACTH)

Adrenal Cortex

glucocorticoids (primarily cortisol)
epinephrine and norepinephrine

Stress Response
“A child’s brain changes in a use dependent way.”

Bruce Perry

- Lack of stimulation = no neuronal pathways develop.
- Over years the ability to create those firm pathways are lost forever.
  - Attachment
  - Relationships
    - Empathy
    - Compassion.
  - Higher cognition.
Why is Trauma so detrimental to a child’s developing brain?

- Trauma in childhood can “turn on” certain genes that might otherwise have remained “off”.
- Trauma can create chaotic biochemical changes that interfere with the maturation of the coping systems in the brain.
  - Epinephrine, norepinephrine, dopamine, serotonin.
  - This leads to problems with emotional regulation, relationships and identity formation.
Why is Trauma so detrimental to a child’s developing brain?

- Chronic trauma creates:
  - Hyperarousal
  - Dissociation

  “Fight, flight or freeze.”
Trauma can change brain structure:

And can change the endocrine system responses:

- Cortisol
- Neurotransmitters
- Immune function
Toxic Stress

- Increased levels of stress hormones actually damage brain cells:
  - Those involved in inhibiting fear and anxiety (amygdala)
  - Those involved in creating and retrieving factual memories (hippocampus and pre-frontal cortex).
Toxic Stress

▶ Brain responds to chronic, low grade stress the same way as acute trauma.
▶ Both disrupt circuitry involved in learning and increase arousal.
Toxic Stress

- With damage to these areas and creation of patterned reactions in the brain:
  - Fear reactions
  - Impulsivity
  - Ability to recall (learn) facts and information from daily life are decreased.
ACES Video
- Sexual Abuse or Assault
- Physical Abuse or Assault
- Emotional/Psychological Abuse
- Neglect
- Serious Accident/Illness or Medical Procedure
- Witness Domestic Violence
- Victim/Witness Community Violence
- Natural Disaster
- Forced Displacement
- War/Terrorism
- Victim/Witness to Extreme Personal Violence
- Traumatic Grief/Separation
- System Induced Trauma (removal from the home)
Medical Community’s Response to Complex Trauma
<table>
<thead>
<tr>
<th>SYMPTOM(S)</th>
<th>FUNCTION</th>
<th>CENTRAL CAUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty falling asleep</td>
<td>Sleeping</td>
<td>Stimulation of the reticular activating system- sleep wake cycle</td>
</tr>
<tr>
<td>Difficulty staying asleep</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nightmares</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rapid eating</td>
<td>Eating</td>
<td>Inhibition of Satiety center, anxiety</td>
</tr>
<tr>
<td>Lack of Satiety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Hording</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of Appetite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other eating disorders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constipation</td>
<td>Toileting</td>
<td>Increased sympathetic tone, increase catecholamine (adrenaline, norepinephrine and dopamine)</td>
</tr>
<tr>
<td>Encopresis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enuresis</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Behavioral Response

Table 2. Child’s Response to Trauma: Misunderstood Causes

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>MORE COMMON IN</th>
<th>MISUNDERSTOOD CAUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detachment</td>
<td>Females</td>
<td>Depression</td>
</tr>
<tr>
<td>Numbing</td>
<td>Young Children</td>
<td>ADHD Inattentive Type</td>
</tr>
<tr>
<td>Compliance</td>
<td>Children with ongoing trauma/pain</td>
<td>Developmental Delay</td>
</tr>
<tr>
<td>Fantasy</td>
<td>Children unable to defend themselves</td>
<td></td>
</tr>
<tr>
<td>Hypervigilance</td>
<td>Males</td>
<td>ADHD</td>
</tr>
<tr>
<td>Aggression</td>
<td>Older Children</td>
<td>ODD</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Witnesses to Violence</td>
<td>Conduct Disorder</td>
</tr>
<tr>
<td>Exaggerated Response</td>
<td>People able to fight or flee</td>
<td>Biploar Disorder</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Anger Management difficulties</td>
</tr>
<tr>
<td>AGE</td>
<td>EFFECTS ON WORKING MEMORY</td>
<td>EFFECTS ON INHIBITORY CONTROL</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------------------------</td>
<td>-------------------------------------------------------------------</td>
</tr>
<tr>
<td>Infant/toddler/preschooler</td>
<td>Difficulty acquiring developmental milestones</td>
<td>• Frequent severe tantrums</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Aggressive with other children</td>
</tr>
<tr>
<td>School Aged Child</td>
<td>• Difficulty with school skill acquisition</td>
<td>Frequently in trouble at school and with peers for fighting and disrupting</td>
</tr>
<tr>
<td></td>
<td>• Losing details can lead to confabulations, viewed by others as lying</td>
<td></td>
</tr>
<tr>
<td>Adolescent</td>
<td>• Difficulty keeping up with material as academics advance</td>
<td>• Impulsive actions which can threaten health and well-being</td>
</tr>
<tr>
<td></td>
<td>• Trouble keeping school work and home life organized</td>
<td>• Actions can lead to involvement with law enforcement and increasingly serious consequences</td>
</tr>
<tr>
<td></td>
<td>• Confabulation increasingly interpreted by others as integrity issue</td>
<td></td>
</tr>
</tbody>
</table>
Anticipatory Guidance with Caregivers
Protective Factors

Protective factors cannot guarantee resilience just as toxic stress does not guarantee mental illness.

- Protective Factors: Individual level - Easy going temperament, social competence, confidence, problem solving skills
- Family level - warm and engaged parenting
- Community level - access to caring adults outside the family
Amy and Bridgette’s Story
Early Life Stress and Epigenetic Changes

- Children’s environment can lead to biological vulnerabilities
  - Behavioral problems
  - Mood dysregulation
  - Anxiety aggressive disorders
  - Difficulties with emotional regulation
  - Misinterpret the world as dangerous and unpredictable

The data from this study revealed that children who experience physical maltreatment displayed a specific epigenetic change to the glucocorticoid receptor gene which can cause dysfunction of development of the brain, also causes impairment of negative feedback of the system and results in stress regulation problems.
Muddy Complicated Waters
Common Diagnoses you see in your children and families
PTSD

- Listed under Trauma and Stressor- Related Disorders (reactive attachment disorder, acute stress disorder and adjustment disorder)

- New DSM 5 includes a new subtype for children younger than 6. This change was based on recent research detailing with PTSD looks like in young children. Adding the developmental subtype should help clinicians in tailoring treatment in a more age appropriate and age effective way.

- There are four PTSD diagnostic criteria which over lap with the four major depressive disorders. - decreased interest in activities, sleep disturbance, restricted range of affect and decreased concentration)

- Three symptoms of PTSD (decreased concentration, irritability and sleep disturbance also overlap with symptoms of generalized anxiety disorder (GAD)
Comorbidity is an issue that drives concerns about lack of specificity for adults and lack of sensitivity for children.

Comorbidity is clouding the picture because of the overlapping symptoms.

In both the adult and child population, 80%-90% of the time PTSD occurs with at least one other disorder.

In adults, commonly it is depression, anxiety, and substance abuse.

In preschool children, the most common comorbid disorders are ODD and separation anxiety disorder.

Good history taking is the key—knowledge of the symptoms onset and understanding of the research.

Not all comorbidity develops with PTSD following trauma—some comorbid conditions predate and are vulnerability factors for the development of PTSD.
Psychological trauma changes normal brain development and disrupts neurobiological functioning.

Brains of traumatized children can look remarkably similar to brains of children with only ADHD.

Studies showing trauma/PTSD leads to development of apparent ADHD symptoms.
- 2014 study looked at 201 victims of urban violence: increased Intrusive symptoms of PTSD leads to decreased attention.

Studies showing ADHD is risk factor for post-trauma symptoms/PTSD
- At least one study shows a significant association of ADHD increasing the vulnerability for developing PTSD.
<table>
<thead>
<tr>
<th></th>
<th>ADHD</th>
<th>ODD</th>
<th>PTSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irritability</td>
<td>Often present, low frustration tolerance</td>
<td>Loses temper, angry, argues</td>
<td>Often present, Outbursts of anger</td>
</tr>
<tr>
<td>Sleep Changes</td>
<td>Insomnia common</td>
<td></td>
<td>Difficulty falling or staying asleep</td>
</tr>
<tr>
<td>Impulsivity</td>
<td>Present</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talkativeness</td>
<td>Present</td>
<td></td>
<td>Anxious verbosity</td>
</tr>
<tr>
<td>Aggression</td>
<td>Often present (impulsive or reactive)</td>
<td>Verbal aggression, occasional provocative physical aggression</td>
<td>Outburst of anger/ occasional impulsive aggression, Re-enactments</td>
</tr>
<tr>
<td>Hyperactivity/ Restlessness</td>
<td>Present</td>
<td>Can be present, Provokes and annoys others</td>
<td>“nervous energy,” anxious restlessness agitation</td>
</tr>
<tr>
<td>Concentration-related</td>
<td>Inattentive, distractible, Forgetful, careless</td>
<td></td>
<td>Hypervigilance, Flashbacks, Intrusive memories</td>
</tr>
<tr>
<td>Sexually in appropriate behavior</td>
<td>Occasionally present (impulsive)</td>
<td>Occasionally present (provocative)</td>
<td>Present from rare to frequent</td>
</tr>
</tbody>
</table>
• If trauma affects the brain such that children exhibit symptoms of ADHD,

  ▪ How do we differentiate the two? Is it possible to do so? Is it important to do so?

  ▪ How does this guide treatment decisions: both pyschosocial and medication?
ADHD-inattentive
1) Careless
2) Can’t sustain focus
3) Does not seem to listen
4) Can’t follow instructions
5) Disorganized
6) Procrastinates
7) Loses things
8) Distracted
9) Forgetful

ADHD-hyper/impulsive
1) fidgets/squirms
2) Trouble sitting still
3) Runs about/feels restless
4) Can’t do activities quietly
5) “driven by a motor”
6) Talkative
7) Blurs out
8) Impatience
9) Interrupts/ intrudes

PTSD
Exposure to a traumatic event (victim, witnessed).

Response involved intense fear, helplessness, or horror.

Re-experiencing:
Distressing thoughts, psychological/physiological reactivity from internal or external cues, acting or feeling as if trauma re-occurring: flashbacks, illusions, hallucinations.

Avoidance/ Numbing (dissociation):
Avoid thoughts, feelings, activities, people; Can’t recall aspect of trauma (dissociative amnesia), diminished interest, detached/ restricted range of feelings, sense of foreshortened future.

Abnormal arousal: persistent and increased;
Difficulty sleeping, concentrating, restlessness, easily startled and hypervigilant, irritable, angry outbursts.

Complex Trauma/DevTrauma Disorder
Multiple or chronic exposure to one or more forms of developmentally adverse interpersonal trauma (abandon

Subjective experience of rage, betrayal, fear, resignation, defeat, shame.

Triggered pattern of repeated dysregulation in response to trauma cues:
Affective
Somatic (physiologic, motoric, medical)Cognitive (thinking it is happening again, confusion, dissociation, depersonalization, even psychosis)
Relational (clinging, oppositional, distrustful, compliant)
Identity/ Self-attribution (self-hate and blame)

Persistently altered attributions and expectations:
Enduring negative self-attribution/ identity
Enduring distrust of caretaker
Loss of expectancy of protection by others
Loss of trust in social agencies to protect
Lack of recourse to justice/ retribution
Inevitability of future victimization
Trauma<--->ADHD
How do we differentiate?

- Develop and utilize a BIOPSYCHOSOCIAL perspective on all pediatric mental health conditions.

- ADHD is NOT solely a neurobiological condition.

- Trauma/PTSD is not solely the result of a psychosocial problem.

- Often co-exist (co-morbid) and influence the development and severity of each other (recall earlier slide).
Trauma<--->ADHD

How does this guide treatment decisions: both psychological and medication?

- **Stimulants**
  - No clear evidence for trying a stimulant in a child with clear ADHD symptoms with a history of trauma.
    - 1) severe ADHD symptoms 2) partial response to therapy or inadequate psychological specialists available.

- **Non-stimulants**
  - Study using Guanfacine ER in children with PTSD and trauma suggest that Guanfacine may have therapeutic effects on PTSD in children and adolescents.
  - Clonidine has been found in two open studies to decrease basal heart rate, anxiety, impulsivity, and PTSD hyperarousal symptoms in children with PTSD.
Traumatic Events or Serious Losses in Childhood
Adjustment to the Traumatic Events or Stressors
Current Symptoms
Mental Health History if given
Create a timeline
Where there is Breath there is hope... Tonir Cain

https://www.youtube.com/watch?v=N8HimRalqiw
Resources

Children’s Medical and Mental Health Resource Network
618-833-6488
Ginger Meyer
Email: gmeyer@siumed.edu
Website: www.siumed.edu/peds/cmmhrn