

THE IMPACT OF TRAUMA ON CHILDREN'S MENTAL HEALTH

Rebecca Barclay, MD
Child and Adolescent Psychiatry
Seattle Children's Hospital, PAL Program

Disclosures

- Financial: No relevant financial relationships exist.
- Unlabeled/unapproved uses: Off-label medication use is discussed in this presentation, and it will be highlighted when it occurs.

Trauma is Common

- 1 in 4 is commonly accepted rate.
- Some studies show rates as high as 68%.

What is it?

- Child abuse
- Domestic, community, school violence
- Disasters/War/Terrorism
- Vehicular and other accidents
- Medical traumas
- Death of loved one
- Terrifying and unexpected experiences

Who's the aggressor?

- Parent (81%)
 - ▣ Mother acting alone (37%)
 - ▣ Father acting alone (19%)
- Non-parent perpetrator (13%)

You're not hearing about half of it (at least)

- 50% of 18-21 year olds gave false negative reports of abuse.
- Those not abused did not falsely report being abused.
- Self-initiated disclosure rare. Multiple informants helpful.
 - child, parent, and CPS data indicate each source misses a number of traumas identified by other

Children are resilient

- Most recover from trauma without difficulty by using inherent resiliency, learned coping mechanisms, and social supports.
- Feelings of loss, anger, blame are normal.

Some individuals are not as resilient...

- Children with difficulties related to trauma have higher rates across the lifespan of...
 - ▣ Functional impairment
 - ▣ Psychiatric disorders other than PTSD
 - ▣ Increased healthcare utilization and costs
 - ▣ Increased polypharmacy years later

Lifetime prevalence of PTSD is 9.2%

Who's at risk of having trauma sequelae?

- Those who experience >1 trauma,
- Have preexisting psychiatric difficulties or in families with preexisting pathology,
- with limited social supports,
- with a parent having difficult time recovering from trauma him/herself.

Screening

Ask routinely.

Open ended questions (“What’s the worst thing that’s ever happened to you?”—gives child control of his/her response)

Meet with child and parent separately if possible.

If following up to past trauma event, “Does the (event) ever bother or upset you (your child) these days?”

Screening

The American Academy of Pediatrics provides specific questions:

- 1) Has your home life changed in any significant way (moving, new people, people leaving)?
- 2) Are there any behavioral problems with the child at home, at child care or school, or in the neighborhood?
- 3) How do you deal with stress?
- 4) Has anything bad, sad, or scary happened to your child recently (or “to you” for an older child)?

Screening

- At routine visits or well child, could ask, “Since the last time I saw your child, has anything really scary or upsetting happened to your child or anyone in your family?”

History-taking

- Avoid asking child for specific details of the trauma during a brief office visit (consider asking caregiver instead).
- With child, focus on eliciting trauma-reactivity symptoms... “sometimes when a child (or an adult) experiences a frightening event, they can continue to be bothered by it and it can affect them in different ways.”

How might a child present?

- Clingy, fearful, easily frightened, difficult to console, irritable, aggressive, tantrums, impulsive, inattentive, sleep troubles (dreams/nightmares), flashbacks, avoidance of trauma cues, disengagement from activities/people, sense of foreshortened future, appetite impacted, regression, difficulty with skill acquisition, trouble keeping up in school.
- Help parent understand child is doing best they can.

What if child denies a known traumatic event?

- Let them know you know.
- Reassure that you don't want to know lots about the experience, but want to know if child is having common problems other kids you know have had after that type of thing.

Biology of Trauma

- Neuroendocrine and structural development is dependent on absence of toxins (like toxic stress).
- Life experiences can alter gene transcription.
- The more emotionally charged an experience, the more likely it is to be impactful to learning.

Neuroendocrine and neurochemical effects in PTSD

- Hypocortisolism—up-regulates stress response, abnormal fear processing
- Increased corticotropin-releasing hormone—blunts adrenocorticotropin response, promotes hippocampal atrophy
- Abnormal T3:T4 ratio—increases subjective anxiety
- Increased dopamine—interferes with fear conditioning
- Increased norepinephrine—increased arousal, startle, fear memory encoding, pulse, blood pressure
- Decreased serotonin—disturbs dynamic between amygdala and hippocampus
- Decreased GABA—compromises anxiolytic effects
- Increased glutamate—fosters dissociation
- Increased CSF b-endorphin levels--fosters numbing

Neuroanatomic changes in PTSD

- Hippocampus—reduced volume
- Amygdala—increased activity
- Cortex—dysregulated executive function

Physiologic response

- Stimulation of reticular activating system can cause sleep troubles, nightmares.
- Inhibition of satiety center/anxiety can impact eating.
- Increased sympathetic tone can lead to bowel/bladder changes.

DSM 5 PTSD Criteria

- A. Exposure to actual or threatened death, serious injury, or sexual violence.
 - ▣ Can be direct, witnessed, learning about an event occurring to close family or friend
 - Does not include exposure through electronic media, TV, movies.

DSM 5 PTSD Criteria

- B. Intrusive symptoms (1 or more)
 - Recurrent, involuntary, intrusive memories (or play in children—not necessarily obviously distressing)
 - Distressing dreams (non-specific frightening dreams in children)
 - Dissociative reactions in which person feels trauma events recurring (trauma-specific reenactment in play)
 - Psychological distress at trauma cues
 - Physiologic reaction to trauma cues

DSM 5 PTSD Criteria

- C. Avoidance (1 or more)
 - ▣ Avoid distressing memories, thoughts, feelings of trauma
 - ▣ Avoid trauma reminders
 - ▣ For children <7 yo, increased frequency of negative emotional states, diminish interest or participation in activities (including play constriction), social withdrawal, reduction in positive emotions.

DSM 5 PTSD Criteria

- D. Negative alterations in cognitions and mood (2 or more)
 - ▣ Inability to remember aspects of trauma
 - ▣ Exaggerated beliefs about oneself or the world –“I am bad”
 - ▣ Distorted cognitions about cause of events leading to incorrect blame
 - ▣ Negative emotional state (fear, horror, guilt, shame)
 - ▣ Diminished participation or interest in activities
 - ▣ Detachment or estrangement
 - ▣ Inability to experience positive emotions
 - ▣ For children < 7 yo, these features are grouped with C criteria in previous slide.

DSM 5 PTSD Criteria

- E. Alterations in arousal and reactivity (2 or more)
 - Irritable, angry outbursts
 - Reckless behavior
 - Hypervigilance
 - Exaggerated startle
 - Concentration problems
 - Sleep disturbance

DSM 5 PTSD Criteria

- Duration of symptoms—1 month or more.
 - ▣ Prior to that, acute stress disorder.

- With delayed expression (at least 6 months after event) also a diagnostic specifier.

UCLA PTSD Reaction Index

AACAP OFFICIAL ACTION

TABLE 1 Abbreviated University of California at Los Angeles PTSD Reaction Index.⁴³ © 2001 Robert S. Pynoos and Alan M. Steinberg. Reprinted with permission from Alan M. Steinberg.

Here is a list of nine problems people sometimes have after very bad things happen. Think about your traumatic experience and circle one of the numbers (0, 1, 2, 3, or 4) that tells how often the problem happened to you DURING THE PAST MONTH. For example, 0 means not at all and 4 means almost every day.

1. I get upset, afraid or sad when something makes me think about what happened.	None <input type="checkbox"/> 0	Little <input type="checkbox"/> 1	Some <input type="checkbox"/> 2	Much <input type="checkbox"/> 3	Most <input type="checkbox"/> 4
2. I have upsetting thoughts or pictures of what happened come into my mind when I do not want them to.	None <input type="checkbox"/> 0	Little <input type="checkbox"/> 1	Some <input type="checkbox"/> 2	Much <input type="checkbox"/> 3	Most <input type="checkbox"/> 4
3. I feel grouchy, or I am easily angered.	None <input type="checkbox"/> 0	Little <input type="checkbox"/> 1	Some <input type="checkbox"/> 2	Much <input type="checkbox"/> 3	Most <input type="checkbox"/> 4
4. I try not to talk about, think about, or have feelings about what happened.	None <input type="checkbox"/> 0	Little <input type="checkbox"/> 1	Some <input type="checkbox"/> 2	Much <input type="checkbox"/> 3	Most <input type="checkbox"/> 4
5. I have trouble going to sleep, or wake up often during the night.	None <input type="checkbox"/> 0	Little <input type="checkbox"/> 1	Some <input type="checkbox"/> 2	Much <input type="checkbox"/> 3	Most <input type="checkbox"/> 4
6. I have trouble concentrating or paying attention.	None <input type="checkbox"/> 0	Little <input type="checkbox"/> 1	Some <input type="checkbox"/> 2	Much <input type="checkbox"/> 3	Most <input type="checkbox"/> 4
7. I try to stay away from people, places, or things that make me remember what happened.	None <input type="checkbox"/> 0	Little <input type="checkbox"/> 1	Some <input type="checkbox"/> 2	Much <input type="checkbox"/> 3	Most <input type="checkbox"/> 4
8. I have bad dreams, including dreams about what happened.	None <input type="checkbox"/> 0	Little <input type="checkbox"/> 1	Some <input type="checkbox"/> 2	Much <input type="checkbox"/> 3	Most <input type="checkbox"/> 4
9. I feel alone inside and not close to other people.	None <input type="checkbox"/> 0	Little <input type="checkbox"/> 1	Some <input type="checkbox"/> 2	Much <input type="checkbox"/> 3	Most <input type="checkbox"/> 4

AACAP. Practice parameter for the assessment and treatment of children and adolescents with posttraumatic stress disorder. J. Am. Acad. Child Adolesc. Psychiatry 2010;49(4).

Differential Diagnosis

- MDD
- ADHD
- ODD
- Bipolar
- Psychosis
- Developmental delays

- --look for trauma triggers or symptoms pre-dating trauma.

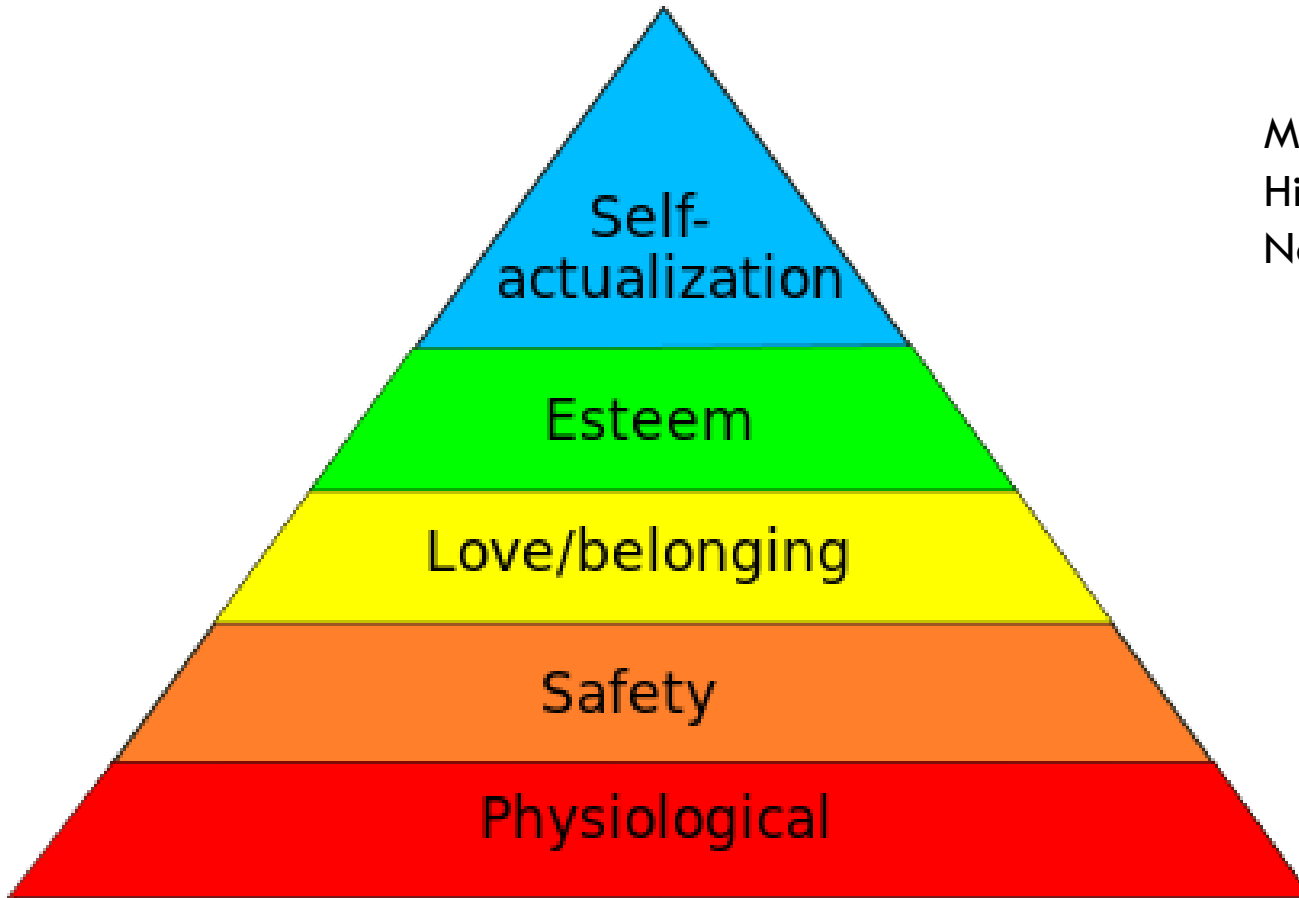


Initial Interventions to help a child after a trauma

First...

- Ensure a child is safe
- Children cannot recover from a trauma if the trauma is on-going or at risk of occurring again.

Attend to basic needs and safety



Maslow's
Hierarchy of
Needs

After trauma has occurred, next steps...

- 1) Empathy. “I’m sorry to hear that happened to you.”
- 2) Elicit more. “What differences have you noticed in your child since the event?”
- 3) Praise child if coping well (as most children do).
- 4) Educate about typical trauma response. “It can be really scary for kids at first, but most get back to feeling the way they did before.” This is manageable and skills can be learned that will help.

Support

- Return to the routine
- Consistent caretaking, sense of security
- Reassure that the child is safe and emphasize it was not the child's fault
- Feelings are normal
- It's okay to talk about the event, feelings, what could have been done to prevent the event. Correct distortions.

Support (cont.)

- Encourage verbalization and constructive outlets for feelings (drawing, dancing, relaxation, mindfulness, etc)
- Encourage social connections (school, friends, etc) and self-care (exercise, sleeping, eating, etc)
- Discuss realistic consequences of revenge urges.
- Psychoeducation about symptoms to look out for (some regression is normal as is relationship strain)
- Enlist supports (parents may want to inform school)

Parental support

- Parent needs to attend to their own mental health to be an effective support for the child.
- Parents are integral to the child's recovery.
Encourage parental self-care.
- Remind parents that they are the key to child's resiliency.

Educational support

- Monitor academic performance
- Modifications if needed for a short time

When to refer...

- Consider how long child has been struggling and severity of symptoms. If > 1 month after traumatic event, child remains seriously symptomatic, consider referral.
- Seek providers with experience working with children after trauma. Ask how provider plans to approach child's issues?

Psychotherapy is first line

- Trauma-focused therapy is preferred over non-specific (eg, play or supportive) therapy.
- Trauma-focused cognitive behavioral therapy (TF-CBT or TI-CBT) when possible for ages 3-17 years old
- For younger children, joint child-parent therapy may be helpful.

What is TF-CBT?

- Generally short-term (12-16 weeks)
- Effective following a wide range of traumas
- Involves direct discussion of the traumatic event

Components of TF-CBT?

- Psychoeducation about the effect of trauma,
- Identifying affects and expressing them,
- Understanding the relationship between thoughts, feelings, and behaviors (challenging unhelpful/inaccurate thoughts),
- Mastery of trauma reminders (graduated exposure),
- Creating a trauma narrative (put in perspective),
- Learning skills for stress management (muscle relaxation, breathing, imagery),
- Positive self-talk (bossing back worries, regaining control).
- Building future plans and engendering hope for the future.
- An online training course for therapists is available at <http://tfcbt.musc.edu/>

Psychopharmacology

- Limited studies, limited evidence
- No FDA approved medications for PTSD in children and adolescents
- Consider only if need acute symptom reduction in severe PTSD, if comorbid disorder requires medication treatment, or if unsatisfactory response to psychotherapy.

Pharmacologic options

SSRI—for comorbid anxiety/depression

Studies in adults show benefit, and paroxetine and sertraline have FDA indications.

But studies in children have not consistently demonstrated efficacy compared to placebo.

Cohen JA, Mannarino AP, Perel JM, Staron V. A pilot randomized controlled trial of combined trauma-focused CBT and sertraline for childhood PTSD symptoms. *J Am Acad Child Adolesc Psychiatry.* 2007;46:811-819.
Robb AS, Cueva JE, Sporn J, Yang R, Vanderburg DG. Sertraline treatment of children and adolescents with posttraumatic stress disorder: a double-blind, placebocontrolled trial. *J Child Adolesc Psychopharmacol.* 2010;20:463-471.

Pharmacologic options

Antiadrenergic medications modify noradrenergic system

--prazosin, clonidine or guanfacine, propranolol

No randomized controlled trials. Adult literature and some observational trials suggest benefit from antiadrenergic medications.

Cohen JA, Mannarino AP, Iyengar S. Community treatment of posttraumatic stress disorder for children exposed to intimate partner violence: a randomized controlled trial. *Arch Pediatr Adolesc Med.* 2011;165:16-21.
Fraleigh LA, Hendratta VD, Ford JD, Connor DF. Prazosin for the treatment of posttraumatic stress disorder-related nightmares in an adolescent male. *J Child Adolesc Psychopharmacol.* 2009;19:475-476.

Pharmacologic options

- Antipsychotics—only if clear treatment target and monitoring

PTSD in different age groups

- Case is a 4 yo
 - ▣ aggression at preschool and at home
 - ▣ seeking parents for reassurance at night, though previously slept through the night
 - ▣ is irritable, whiny during daytime
 - ▣ death and dying are themes of play

PTSD in preschool

- Loss of developmental skills
- Traumatic play
- Behavior changes
- Sensory sensitivity
- Irritable mood
- Anxiety
- Seeking excessive reassurance

PTSD in different age groups

- Justine is 10 yo
 - Stomach pain, headaches
 - School performance declining
 - Distracted and tired during the day
 - Irritable at home

PTSD in school age children

- Self-blame
- Seeking to understand why (was it because of the child him/herself?)
- Irrational beliefs may develop
- World feels unsafe
- Behavior and performance changes, irritable with redirection
- Somatic complaints, nightmares
- Sexualized behaviors
- Ruminative about the event (or avoidant)
- School refusal

PTSD in different age groups

- Lander is 15 yo
 - Academic decline
 - Talking back to adults
 - Decreased social engagement
 - Tired
 - Experimenting with marijuana

PTSD in adolescence

- Desire to fit in, mask emotional responses
- Shame/guilt
- Revenge fantasies
- Substance abuse risk increases
- Trouble trusting authority figures and others
- Reactive to environmental and interpersonal triggers
- Oppositional to regain control
- Detachment
- School avoidance
- Sense of foreshortened future

Sexualized behaviors after abuse

- Consider if child exhibiting adult-like sexual behaviors or knowledge beyond their years.
- Child may continue sexualized behaviors—to exert power or because of physical stimulation

Trauma repetition

- Cycle of abuse—child can learn that anger and aggression are ways of coping with frustration, are acceptable, and even advantageous.

Course and Consequences of trauma

- About half of patients recover within 3 months.
- Others experience slow decrease in symptoms over time.
- Many patients experience waxing and waning symptoms--episodic difficulty with new stressors.

A statewide pediatric psychiatry consultation to primary care program and the care of children with trauma-related concerns.

Barclay, Hilt, and Garrison; *Journal of Behavioral Health Services & Research*. [in press]

□ **ABSTRACT**

- The Partnership Access Line is a Medicaid-sponsored child and adolescent psychiatry consultation service for primary care providers in Washington and Wyoming. Primary care providers and consultants seek data about the children cared for within this model, and the sub-group of patients with trauma-related difficulties is the focus of this study. Among 4381 sequential patients the PAL team consulted about, those with trauma-related concerns were more likely to have Medicaid insurance (72% vs. 51%, $p < .001$), have been in foster care (36% vs. 9%, $p < .001$), have lower functioning (59% vs. 45% with CGAS < 50 , $p < .001$), be prescribed ≥ 2 concurrent psychotropics prior to consultation (29% vs. 21%, $p < .001$), and be using an antipsychotic (16% vs. 11%, $p = .002$). 1 in 8 children with past trauma had received child psychiatrist care. Within a primary care referred population, children with a trauma history are psychiatrically more ill, have more complicated medication regimens, and are more likely to have unmet care needs.

A statewide pediatric psychiatry consultation to primary care program and the care of children with trauma-related concerns.

Barclay, Hilt, and Garrison; Journal of Behavioral Health Services & Research. [in press]

Table 2					
Comparison of select characteristics of PAL patient group with trauma history versus patient group without trauma history					
	Trauma history		No trauma history		P value
	Patient number	Percent	Patient number	Percent	
Has seen child and adolescent psychiatrist (CAP) within 1 year*					
Yes	57	13%	363	10%	.057
No	351	79%	2997	81%	
Unknown	34	8%	364	10%	
Consultant reports patient needs to be seen by a CAP locally*					
Yes	202	46%	1171	32%	<.001
No	69	16%	1148	31%	
Uncertain at time of consult	167	38%	1395	38%	
Consultant recommends psychosocial interventions					
Yes	412	93%	3333	85%	<.001

A statewide pediatric psychiatry consultation to primary care program and the care of children with trauma-related concerns.

Barclay, Hilt, and Garrison; Journal of Behavioral Health Services & Research. [in press]

	Trauma history		No trauma history		P value
	Patient number	Percent	Patient number	Percent	
CGAS ≥50	179	41%	2019	55%	<.001
CGAS 36-49	199	46%	1265	34%	
CGAS ≤35	56	13%	397	11%	
	Mean	Confidence Interval	Mean	Confidence Interval	
CGAS	45.74	44.89-46.58	48.23	47.89-48.58	<.001
	Patient number	Percent of total patients	Patient number	Percent of total patients	<.001
No Medication	217	49%	1902	48%	
Receiving 1 Medication	102	23%	1191	30%	
Receiving 2 Medications	60	14%	477	12%	
Receiving ≥3 Medications	66	15%	365	9%	
	Mean	Confidence Interval	Mean	Confidence Interval	
Mean number of medications	1.09	.95-1.23	.90	.86-.94	.002

Case examples, discussion

- Delia is a 12 yo girl brought in by mother at school's request.
- Bright, but not meeting academic goals this year. Talks back to teachers and irritable with peers.
- At home, she often challenges parental authority. Over past 6 months, this is a notable change to her baseline.
- History of foster care participation at 2 yo for 9 months. Since then with mother who has maintained sobriety.
- Thoughts?

Case example, discussion

- Jay is a 7 yo who becomes hyper-aroused at school, aggressive, impulsive, tearful, and has tried to elope from school.
- School asking for evaluation/support given out of ideas for managing situation.
- Living with biologic parents after 2 brief stays in foster care at age 5 yo.
- Parents report behavior at home is okay.
- Thoughts?