Impacts of PTSD on Learning:
Prevalence, Behaviors and Strategies for Adult Classroom Success

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Or...

Things I wish I’d known about trauma and learning while I was an ABE teacher

And...

Why I left ABE to learn more about my students’ needs
Objectives

- Define trauma and prevalence rates
- Explain trajectories of trauma response
- Distinguish PTSD symptoms and comorbidities
- Identify brain regions and cognitive mechanisms involved in PTSD
- Describe how they impact learning and behaviors
- Try strategies to improve learning and behaviors
- Discriminate between the roles of mental health professionals and classroom teachers in addressing PTSD

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What is trauma?

Diagnostic and Statistical Manual of Mental Disorder (DSM) 5\(^1\):
- “Exposure to actual or threatened death, serious injury, or sexual violence”
- Direct experience, witnessing in person, learning of violent or accidental threat to close family member or friend, experiencing repeated or extreme exposure to aversive details of the event (e.g., first responders with human remains)

In the general population **61% of men and 51% of women** reported exposure to at least one lifetime traumatic event, with the majority reporting more than one traumatic event.\(^2\)
Prevalence of trauma

Fig. 1. Prevalence of exposure to any traumatic event in each survey of the 24 countries.
Types of Trauma

- Sexual abuse or assault
- Physical abuse or assault
- Emotional abuse or psychological maltreatment
- Neglect
- Serious accident, injury or medical procedure
- Victim or witness to domestic violence
- Victim or witness to community violence
- Historical trauma
- School violence

- Bullying
- Natural or manmade disasters
- Forced displacement
- War, terrorism, political violence
- Military trauma
- Victim or witness to extreme personal or interpersonal violence
- Traumatic grief or separation
- System-induced trauma and retraumatization

https://www.samhsa.gov/trauma-violence/types

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How do people respond to trauma?

- **Resistance:** dysfunction is minimal because of coping strategies
- **Resilience:** short periods of dysfunction followed by a stable, rapid return to normal functioning
- **Recovery:** dysfunction followed by a gradual return to functioning
- **Relapsing/remitting:** cyclical course of symptoms
- **Delayed dysfunction:** PTSD or trauma-related disorder appears after time has passed
- **Chronic dysfunction:** initial high stress reaction persists

![Graphs of different response types](image)

Fig. 1. Hypothesized trajectories of the course of stress responses.
What is Posttraumatic Stress Disorder?¹

Experiencing at least one traumatic event (Criterion A) with the presence of symptoms (Criteria B-E) which persist more than 1 month (Criterion F), with clinically significant distress or impairment in key areas of functioning (Criterion G), where the symptoms and impairment cannot be attributed to some substance (such as medication or alcohol) or another medical condition (Criterion H)

See handout
How common is PTSD?

- Very dependent on the population assessed:
  - **Military**: depends on type of trauma
    - Impact of combat exposure is significant
    - Overall average prevalence internationally – 6%; 13% combat-exposed units
    - 11% of Vietnam veterans still symptomatic 40 years after war
  - **Civilian**:
    - Overall internationally: current (i.e., past 12 months) 1.1% (0.2-3.8%); lifetime is substantially higher
    - Prevalence relates directly to severity of events (e.g., rape is very high risk - >25-50%); intentionality matters
  - **Specific populations**:
    - Known to be higher in refugee populations
    - Lifetime risk is 2x higher in women than men
- Commonly co-occurs with Major Depressive Disorder (MDD), panic disorder, substance abuse

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What parts of the brain are affected by PTSD? 

Higher cognitive function requires:

- **Salience Network**: dorsal anterior cingulate cortex and frontoinsular cortex – detecting what internal and external stimuli require attention for directing behavior
- **Default Mode Network**: cortical midline structures and lateral parietal lobes – autobiographical memory, future thinking, social cognition
- **Central Executive Network**: frontoparietal network – critical for working memory and controlling thought, emotion and behavior

Critical for **attention**, **working memory**, and **higher-order cognition** and impaired in PTSD.
How does this impact learning?

- Impairments in networks can cause problems with storing and retrieving new information, affecting language acquisition, new academic and procedural knowledge, etc.\(^6\)
- Cognitive resource allocation theory\(^7\)
  - Limited capacity system
  - The limit is changeable
  - We optimize performance by allocating resources
  - Influenced by arousal, motivation, task demands, nervous system
  - If the system is taxed too much, it becomes inefficient

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Brown, 2017\(^8\)
How does this impact learning?

Generally:

- Attention is required for language acquisition – Noticing Hypothesis.\textsuperscript{9,10}
- Declarative and procedural memory abilities affect acquisition.\textsuperscript{11}

Refugee studies from Sweden

- Speed of language acquisition is inversely correlated with PTSD symptom severity – i.e., the worse your symptoms, the more slowly you’ll learn.\textsuperscript{12}
- Difficulties with cognition and learning are related to the duration and severity of trauma exposure.\textsuperscript{13}
What parts of the brain are affected by PTSD?  

- Emotional undermodulation: lessened control over emotions and autonomic responses – fear, anger, guilt
- Emotional overmodulation: increased control of emotional states – numbing, depersonalization

PTSD is dynamic – shifting between heightened and lessened emotional and autonomic responses.
How does this impact behavior?

Symptoms of Un-Discharged Traumatic Stress

- Traumatic Event
- Stuck on “On”
- Stuck on “Off”

- Anxiety, Panic, Hyperactivity
- Exaggerated Startle
- Inability to relax, Restlessness
- Hyper-vigilance, Digestive problems
- Emotional flooding
- Chronic pain, Sleeplessness
- Hostility/rage

Depression, Flat affect
Lethargy, Deadness
Exhaustion, Chronic Fatigue
Disorientation
Disconnection, Dissociation
Complex syndromes, Pain
Low Blood Pressure
Poor digestion

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Somatic Experiencing Institute
**How does this impact behavior?**

<table>
<thead>
<tr>
<th>Hypoarousal Behaviors</th>
<th>Hyperarousal Behaviors</th>
</tr>
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<tbody>
<tr>
<td>• Frequent absences (missing whole days / leaving early / arriving late)</td>
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</tr>
<tr>
<td>• Refusal to work with certain staff / other students</td>
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<tr>
<td>• Refusal to do certain assignments</td>
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<tr>
<td>• Frequent bathroom breaks</td>
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</tr>
<tr>
<td>• Unwilling to answer questions / engage in class or one on one</td>
<td>• Constant movement / wandering</td>
</tr>
<tr>
<td>• Falling asleep during class</td>
<td>• Extreme startle in “safe” environment</td>
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<tr>
<td>• Not starting tasks when asked</td>
<td>• Slamming down books</td>
</tr>
<tr>
<td>• Staring off into space during lessons</td>
<td>• Irritability / short fuse</td>
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<td>• Looking bored or emotionless all the time</td>
<td>• Inappropriate laughter / crying</td>
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<tr>
<td></td>
<td>• Frequent talking / guessing / responding very quickly</td>
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So what do we do about it?

Caution:

- Even the most supportive organization and staff cannot replace a mental health professional when those services are needed.

- Treatment of PTSD requires a partnership between parties – an individual displaying symptoms may not be ready for individual or group therapy.

<table>
<thead>
<tr>
<th>Precontemplation</th>
<th>Contemplation</th>
<th>Preparation</th>
<th>Action</th>
<th>Maintenance</th>
<th>Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>No intention to change in the foreseeable future</td>
<td>Aware that there is a problem and thinking about doing something about it</td>
<td>Ready to work on change</td>
<td>Person modifies behavior, experiences and/or environment</td>
<td>Free of the problem for &gt;6 months</td>
<td>Confident and free of problem</td>
</tr>
</tbody>
</table>

Table 2. Stages of Change


Wheeler, 2007
So what do we do about it?

At school we can:

- Create a safe, welcoming, trauma-informed environment to **prevent** re-traumatization and **promote** effective cognitive resource allocation and healthy emotional regulation.

- **Respond** to the particular learning needs of those under traumatic stress with easy-to-implement evidence-informed interventions.

- **Respond** to classroom behaviors with preventive activities and redirection.
Organizational, classroom, and individual attitudes and approaches can help students stabilize in school by increasing external and internal resources.

SAMHSA’s Trauma-Informed Principles can help:
1. Realize the impact of trauma
2. Recognize the signs of trauma
3. Respond by integrating knowledge into practice
4. Resist re-traumatization

www.samhsa.gov
6 Key Principles of a Trauma-Informed Approach

1. Safety: physical and psychological, both staff and clients
2. Trustworthiness and transparency: organizational goals for decision making
3. Peer support and mutual self-help: key for building trust, safety and empowerment
4. Collaboration and mutuality: partnership between staff and clients, among all staff
5. Empowerment, voice and choice: individuals’ strengths are built on and enhanced
6. Cultural, historical and gender issues: organization considers language, addresses trauma, leverages culture

Substance Abuse and Mental Health Services Administration: www.samhsa.gov/topics/trauma-violence/samhsas-trauma-informed-appraoch
Trauma-Informed Care Information

SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach

Average Rating: 4 out of 11 ratings.

Price: FREE (shipping charges may apply)

This manual introduces a concept of trauma and offers a framework for becoming a trauma-informed organization, system, or service sector. The manual provides a definition of trauma and a trauma-informed approach, and offers 9 key principles and 10 implementation domains.

Pub id: SMA14-4884
Publication Date: 10/2014
Last Reviewed: 10/07/2014
Popularity: Not ranked
Format: Guidelines or Manual
Audience: Public Health Professionals, Program Planners, Administrators, & Project Managers, Professional Care Providers, Policymakers, HHS Staff

Tags: Self Direction, Cultural Competence, Substance Abuse, Mental Illness, Peer Support, Trauma-Informed Care, Trauma

store.samhsa.gov/product/SAMHSA-s-Concept-of-Trauma-and-Guidance-for-a-Trauma-Informed-Approach/SMA14-4884
Learning after Trauma

- Lessons from Speech Language Pathology: Attention
  - Learning novel language and academic information requires multiple forms of attention.
    - Arousal, orienting, vigilance, sustained, selective, divided
    - In language learning, attention relates to external environment (arousal, orienting, vigilance) and motivation (sustained, selective)
  - In PTSD, attention is complicated by:
    - Broad (big picture – arousal/orientation) vs. narrow (specific details – selective)
    - Voluntary (consciously controlled) vs. automatic (fast, effortless, involuntary)
  - Attention is right-hemisphere dominant (arousal, orienting, vigilance, selective)
Improving Attention:

- **Selective Attention Task:** Read a story with a target word (or a list of letters with a target letter). Every time the target is read, students complete some action (raising hand, tapping table, writing the word/letter or some cue).
  - Make it harder – add an additional task, such as answering comprehension questions (requires shifting attention between specific stimuli and gist meaning).

- **Alternating Attention Task:** Have students sort decks of cards (or flashcards with geometric shapes in specific colors) by number or color, and change the rules every so often.
  - Make it harder by having at least 3 different “rules” and changing often.
Lessons from Speech Language Pathology: Memory

Learning novel language and academic information requires multiple forms of memory as well as encoding, storing and retrieving information.

- Procedural, declarative
- Working memory (short term) vs. long term

In PTSD, memory is complicated by:

- Distressing memories/flashbacks and efforts to avoid them, which can impair retrieval of previously learned information.
- Difficulties encoding new material from working memory to long term storage.
Learning after Trauma

- **Improving Memory:**
  - Encoding, storing and retrieval may be functioning correctly, but **slowly**. Wait a little longer, repeat instructions orally and visually whenever possible.
  - Errorless learning (sometimes!): when beginning a new topic, give students the answers to avoid guessing or rehearsal of error responses.
  - Spaced retrieval task: recall specific information or actions over gradually increasing time period
    - E.g., read a story and immediately ask a comprehension task, tell the group when you’ll ask again, and progressively space it out.
    - Requires attention as well as memory
Mindfulness techniques and grounding - preventive
- Useful in transitions – between tasks
- Can be incorporated to begin and end the day

1. Breathing – take 5 refreshing breaths (count 3 in, count 3 out)
   - An excellent way to start off the day and during transitions
   - Can be extended by posture and feeling the chair and floor

2. Stretching breaks – reach for the sky with one hand, while grounding the other, slowly, with no pain (really, any pain free movement can help)
   - Encourages movement, blood flow, etc.

3. Tense/relax – tighten and release various muscle groups after five second hold
   - Physical release promotes healthy emotional release.
Mindfulness techniques and grounding - responsive
  - Can be used one on one in emergencies
  - Can be used in a group after a difficult conversation

1. 5-4-3-2-1 – Describe 5 things you see in the room, 4 things you can feel, 3 things you can hear, 2 things you can smell, 1 good thing about yourself
  - Can help to settle and return to the moment after arousal

2. Cognitive Awareness Grounding – Where am I? What is today? What is the date? What is the month? What is the year? How old am I? What season is it?
  - Can help return to the present after flashbacks or intrusive memories

3. Tapping – with feet flat on the floor and your back against the back of the chair, cross your arms over your chest and gently tap your shoulders, alternating sides (bilateral physical stimulation)
  - Positive self-touch, can deepen positive feelings
Protecting yourself

- Compassion fatigue, burnout, secondary traumatic stress – all terms for internalization of others’ trauma exposure and/or traumatic stress
- Take your temperature – PROQOL – Friday session!
  - [www.proqol.org/ProQol_Test.html](http://www.proqol.org/ProQol_Test.html)
- Helping can hurt – The National Child Traumatic Stress Network
  - [nctsn.org/sites/default/files/assets/pdfs/secondary_traumatic_tress.pdf](http://nctsn.org/sites/default/files/assets/pdfs/secondary_traumatic_tress.pdf)
- Self-care can help reduce the effects of STS; counselors and therapists can help with self-awareness, mindfulness techniques and emotion regulation.
Take Home Messages

- People are remarkably resilient!!
  - But we don’t discount the prevalence of traumatic events and the impacts they can have on people’s lives.
- Maintaining a trauma-informed organization, classroom and mindset will enhance safety and promote regulation.
- The brain and body can only handle so much stress at one time.
  - But that doesn’t mean people can’t learn under traumatic stress; it just may take longer or require more intervention.
- Many behaviors are strategy-based and may seem protective to individuals engaging in them.
  - But we can retrain with positive strategies.
- Secondary trauma is real. Support networks and strategies can help with your emotional regulation.

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References


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