



## The Neurobiology of Trauma and Gender-Based Violence

Partnership Against Domestic Violence:  
Dating Violence Prevention Program  
Spelman College Process Pool Training

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## Learning Objectives

Participants attending this training will be able to utilize a trauma-informed approach to investigating and adjudicating complaints.

**Modules Include:**

1. Understanding the Brain
2. The Stress Response
3. Effects of Stress/Trauma Post-Exposure
4. Trauma Informed Considerations
5. Working with Students Involved with Title-IX Processes in a Trauma-Informed Way

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## Disclaimer

Please note that some mental health professionals, agencies, or entities may or may not agree with models of the neurobiology of trauma, as scientific knowledge, models, and theories are rarely unanimously accepted.

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## Glossary

**GBV:** Gender-based violence; the umbrella term for intimate partner violence, sexual violence, and violence against women and gender minorities.

**Gender minorities:** Transgender, gender non-conforming, gender non-binary (third gender/2-spirit), or intersex individuals.

**Womxn/fxlks:** Intentional way to recognize gender minorities that are femme-leaning or femme-presenting as the womxn they are.

- This training will utilize non-gendered language (individuals, partner, etc.).

**Survivor:** A person who is or was the target of gender-based violence.

**Abuser:** A person who initiates and/or instigates gender-based violence.



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## “Gender-Based Violence” Policy Definitions

This training will utilize definitions of:

- “sexual harassment”*
- “sexual assault (sex offenses: forcible or non-forcible)”*
- “dating violence”*
- “domestic violence”*
- “stalking”*
- “online harassment and misconduct”*
- “sexual exploitation”*

as they are defined in Spelman College’s “Policy Prohibiting Sex Discrimination, Sexual Harassment, Sexual Assault, Dating Violence, Domestic Violence, and Stalking”, effective August 14, 2020 and revised November 13, 2020.



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## Understanding the Brain

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**Brain Stem:**

Basic bodily functions, relays information to body (breathing, swallowing, blood pressure)



**Medulla Oblongata:**

autonomic motor system functions (digestion, heart rate, blood vessels, etc.)



**Pons:**

motor control and sensory analysis (equilibrium, posture, etc.)



**Midbrain Regions:**

vision, hearing, and movement



**Thalamus:**

Relays sensory information to the appropriate processing regions



**Hypothalamus:**

Autonomic functioning (the four F's: food, fight, flight, and reproduce)



**Amygdala:**

Memory, emotion, and fear



**Hippocampus:**

Converts short-term memory into more permanent memory. Has a major role in learning and memory recall

# Regions of the Brain Involved in Trauma/ Stress

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## Prefrontal Cortex

- Holds thoughts and memories in mind.
- Helps us manage emotions and reflect on behavior.
- Helps us with reasoning and decision-making
- Allows us to focus our attention where we choose, and do what we choose, consistent with our goals and values.



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## Prefrontal Cortex + Brain Development

Increase of hormones during puberty triggers "growth spurt" of the following neural regions:

- Female: larger hippocampus (neural region most sensitive to estrogen)
  - Strong social skills, emotional support, coordinating complex relationships
- Male: larger amygdala/hypothalamus (neural region most sensitive to testosterone)
  - Enjoyment of contact sports, increase in sexual desire, assertiveness

Adolescent brain is not fully mature until early-mid 20s.

- Neural region that takes longest to develop is prefrontal cortex
- Links between prefrontal cortex and limbic center are not yet fully connected
  - Result is that young adults and teenagers do not have full frontal lobe capacity to make decisions until age 25.
  - Examples include: Ability to reason if something is a good idea, determine consequences of actions.



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# The Stress Response

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## Understanding Stress and Toxic Stress

- **Stress:** A physiological and psychological response to an external threat that individuals feel they do not have the resources to deal with
- **Toxic stress:** Refers to prolonged, frequent, and/or severe or extreme activation of the stress response due to exposure to adverse life experiences such as violence, trauma, and lack of social support.



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## The Trauma Response

1. When stress is present, the hypothalamus (area of the brain that controls fight/flight response) releases a chemical called CRF.
2. CRF signals the beginning of a cascade of reactions amongst several brain regions (HPA axis), which causes the brain to:
  - Mediate fear-related behaviors.
  - Trigger other physical responses to stress, examples include sweating, feeling cold, rapid heartbeat, etc.
  - Increase alert/vigilance behaviors.



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## The Trauma Response Example

Liz is on her way home from working out at the gym. She is crossing the street with her headphones in, when suddenly, a car comes out of nowhere and almost hits her. Immediately, Liz feels her whole world-view shifted. She feels like everything is moving in slow motion and is barely able to scream. Her ears are ringing, and her eyes are scanning around, desperately trying to see if she is still in traffic's way. Her hands feel clammy, but her whole body is shaking and feels cold. She eventually gets out of the street, and slowly starts to come out of shock. She is unable to really remember everything that happened, and feels numb and disconnected when officers try to question her.




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## Stress and its Effects on the Brain

In order to protect the body against future stressors/traumas, the brain undergoes a series of minor structural changes so that it can illicit the stress response quicker if a "trigger" is present.

- Causes emergence of several protective behaviors.
- When these behaviors shift from being "protective" to maladaptive, we see the emergence of PTSD.




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## Stress and its Effects on the Brain

What Happens to the Brain During Trauma	What Changes in the Brain post-Trauma	Effects on Survivor Behavior
The brain "learns" that the increase of these fear neurotransmitters helped the body react quickly and keep itself safe.	The brain undergoes a series of small structural changes to make these fear areas respond more quickly the next time negative stimulus is presented.	<b>Trigger formation, hypervigilance &amp; hyperarousal symptoms:</b> <ul style="list-style-type: none"> <li>• Panic attacks</li> <li>• Nightmares or difficulty sleeping</li> <li>• Irritability to minor provocations</li> <li>• Exaggerated startle reflex</li> <li>• Difficulty concentrating</li> <li>• Feeling "on-guard" or jumpy</li> </ul>

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## Stress and its Effects on the Brain

What Happens to the Brain During Trauma	What Changes in the Brain post-Trauma	Effects on Survivor Behavior
Attentional control is shifted from being controlled by the prefrontal cortex (rational thinking informed by previous memory) to the amygdala (fear response center, detects negative stimuli and acts to keep self safe).	Structural changes occur to make brain become more reactive toward trigger and anything like that trigger.  Brain is also unable to recall a clear, linear flow of events from the trauma due to affected attentional control, which causes memory issues.	<b>Re-experiencing and intrusive thoughts</b> <ul style="list-style-type: none"> <li>• Memory issues surrounding having a logical flow of events about the trauma</li> <li>• Flashbacks</li> <li>• Constantly thinking about the trauma or triggers from the event</li> </ul>

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## Stress and its Effects on the Brain

What Happens to the Brain During Trauma	What Changes in the Brain post-Trauma	Effects on Survivor Behavior
During trauma, the brain encodes a series of "triggers" into your memory so that your body can react quickly if these stimuli are presented again.	The brain encodes that the presence of these trigger cues should illicit an adverse, negative reaction.  Continuous exposure to these triggers can increase the chance the individual engages in avoidance behaviors.  Flashbacks of the trauma can also feed into the uncertainty a victim feels about security and safety in the future.	<b>Avoidance/ Disassociation:</b> <ul style="list-style-type: none"> <li>• Detachment – emotional/physical withdrawal due to trauma triggers within community environment (paranoia, anger, anxiety)</li> <li>• Disorientation – feeling dazed/distracted, or as if perceptions aren't quite on target</li> <li>• Denial – won't look at the "hard facts", rejects the idea that something is wrong</li> </ul>

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## Examples of Trauma Responses within Title-IX Settings

<b>Avoidance/Dissociation behaviors</b> may impact a survivor's willingness to schedule an interview.	Send out hearing notices and/or decision letters earlier during the week so that participants can connect with an advocate and/or walk-in services.
<b>Re-experiencing and Intrusive Thought behaviors</b> may affect recall of events while giving testimony.	Understanding that survivor testimonies, when they don't match up or include information from witnesses or respondents, does not immediately mean the survivor is falsely reporting.
<b>Hypervigilance/Hyperarousal behaviors</b> affect the rational decision-making process during trauma exposure, yielding testimonies in which "self-defense" tactics are absent.	Understanding that not "yelling for help" or "leaving the respondent with wounds" does not mean that the survivor consented to sexual activity.

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## Discussion Question!

**With or without an investigation/adjudication, a survivor may be experiencing trauma symptomology.**

**How do we craft a process that is mindful of the trauma response?**

**Please include ideas in the chat!**



## Effects of Stress/Trauma Post-Exposure

## Trauma's Effects on Neurobiology

Individual differences in a variety of factors shape the perception or evaluation of threat:

- Genetics: Expression of genes that mediate the fear response
- Development: How one grew up
- Experience: Did they experience Adverse Childhood Experiences (ACEs)?
- Coping mechanisms: Do they have healthy outlets to stress? Unhealthy outlets (self-medication, impulse behaviors, etc.)?
- Historical context: Intergenerational trauma



## Trauma's Effects on Neurobiology

**Biological embedding:** "The process by which individuals' previous experiences and environments systematically alter their health and functioning across the life span"

Overused stress mechanisms over time can lead to compromised functioning later in life. The long-term adverse health consequences of toxic stress are **adult-onset diabetes, cardiovascular disease, hypertension, osteoporosis, reproductive decline, and immune suppression.**



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## PTSD

Posttraumatic Stress Disorder:

- Symptoms include intrusive thoughts (involuntary unwelcome thoughts), hyperarousal (high alert state), flashbacks, nightmares, and sleep disturbances, changes in memory and concentration, and startle responses.



These symptoms are the behavioral signs of how stress has impacted the brain's structure and function.



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## The Brain Learns the Good and the Bad

Animal research has shown:

- Children can undergo trauma in the form of "adverse childhood experiences" (ACEs). Research indicates that children with higher amounts of ACEs have larger releases of neurotransmitters in adulthood when shown stressors.
  - Leads to a generation of adults who are entering adulthood with a traumatized brain
- Chronically stressed animals had more difficulty terminating the fear response than unstressed animals
- Stressed animals were associated with damage to the area of the hippocampus that controls verbal facts and data (declarative memory).



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## In Summary:

1. In the occurrence of a traumatic event, the brain undergoes a "trauma response" in order to keep the body safe.
2. After this traumatic event, a series of structural changes occur in the brain to form trigger cues. These cues are designed so that the brain can react faster in the presence of a subsequent trauma.
3. These structural changes can create the emergence of a series of behaviors that are maladaptive to the individual and causes fear to become the primary motivator for behavior. (Posttraumatic Stress Disorder).
  - Hypervigilance/Hyperawareness
  - Avoidance/Disassociation
  - Re-experiencing and intrusive thoughts



## Trauma-Informed Considerations

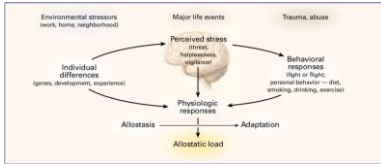
## Gender Differences in Stress Response

Three major regulators that affect the impact of GBV in women and gender minorities:

- Discrimination
- Marginalization
- Gender inequality



## Stress and our Relationship with Uncertainty



**Allostatic Load:** the compounding “wear-and-tear” of stress responses, caused by repeated exposure to stress, which creates a state of uncertainty around safety and proximity to future traumatization.

- A vicious cycle between the altered brain architecture and the systemic stressors (work/home/community stressors, major life events, trauma/abuse) is established that further damages the ability to cope with uncertainty.

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## Stress and our Relationship with Uncertainty

**Example:** Immigrant and undocumented individuals may have additional stressors such citizenship status and a reluctance to seek care due to fear of maltreatment.

- Acculturation (adjusting to a new cultural environment) is also an additional source of stress:
  - Having to adjust to a new culture and learn all the new societal norms takes a while, and the transition leaves individuals open to being vulnerable for abuse and confusion
- Physiological/Psychological impact of acculturation:
  - poor mental health
  - heightened psychosomatic symptom levels
  - identity confusion




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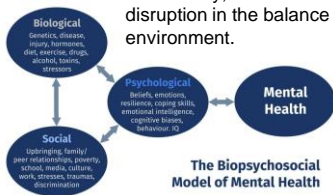
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## Frameworks to Analyze the Impact of Trauma

The **biopsychosocial perspective** suggests that health is best understood when a combination of biological, psychological and social/environmental factors are considered during diagnosis and treatment of the patient. Additionally, health concerns result from a disruption in the balance of body, mind and environment.




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# Working with Students Involved in Title-IX Processes in a Trauma-Informed Way

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## Interacting with Survivors of GBV

**DO:**

- Let her/him know that you are concerned.
- Mention other people that she/he may want to talk to (i.e. their parents or another trusted adult).
- Let her/him know that you are available to talk if she/he needs to.
- Let the her/him know if you are a mandated reporter.
- Listen to what she/he has to say.
- Create a Safety Plan!!!

**DON'T:**

- Ask a lot of yes or no questions.
- Feel like you have to know all of the answers.
- **Be judgmental.**
- Tell her/him that you will be able to keep information disclosed confidence if you are a mandated reporter.
- Make her/him feel stupid or ashamed.
- Force her/him to make a lot of decisions. She/he has to decide when she/he is ready to get help or end their relationship.




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## Interacting with Survivors of GBV

Post-trauma Behavior	Trauma-Informed Response
Avoidance	Be patient. Reassure the victim that you are there for them and will be there for them. Take things at the victim's speed (which may involve follow-up conversations).
Disengaged/Emotionless	Try a grounding exercise with the survivor. Breathe with them. Tell them you understand if they are feeling numb and unfocused, they have been through a lot.
Denial	Do not continuously outline facts, this can re-traumatize. Tell the survivor to say what they remember and recommend a follow-up with an advocate to help them get back on their feet.




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## Interacting with Survivors of GBV

Post-trauma Behavior	Trauma-Informed Response
Memory Issues	Be patient. Tell them that you are ready to hear their testimony and/or cross-examination responses at any pace they are comfortable with. Understand that memory recall can illicit trauma-response behaviors (denial, avoidance, hypervigilance, etc.).
Disassociation	Comfort the survivor, reassure them that they are not alone. Contact a psychological professional to do an evaluation if the survivor is not becoming responsive as time passes.

What are other trauma-informed responses?




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## Interacting with LGBTQ+ Survivors

- Practice using terms like “lover,” “partner”, or “significant other” instead of gendered terminology like “boyfriend” or “husband”.
- Utilize gender neutral terminology on forms/resources and be aware of your own use of pronouns and gendered language.
- Know how to respond to homophobia and transphobia within your institution, and the relevant offices that can provide support.
- Be aware of LGBTQ+ resources on- and off-campus.




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## Trauma Exposure Response

**Secondhand Traumatization**, aka **Trauma Exposure Response**, is: “a condition that affects many people who interact with those who have experienced a traumatic event” (American Counseling Association).

**Signs include:**

Hopelessness/Helplessness	A sense that one can never do enough
Hypervigilance	Diminished creativity
Inability to embrace creativity	Minimizing
Chronic exhaustion/Physical ailments	Inability to listen/Deliberate avoidance
Dissociative moments	Sense of persecution
Guilt	Fear
Anger and cynicism	Numbing/Inability to empathize
Addictions	Grandiosity

**Care for yourself!**  
Please utilize EAP services for emotional support during and after cases.




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# Trauma Exposure Response Prevention

## Recommendations from "Social Work License Map" (2020)

<b>Exercise</b> Walk more, hit the gym or join a dance class.	<b>Rest and relax</b> Get enough sleep, use mindful intention and meditate.
<b>Spend time in nature</b> Find places to appreciate the outdoors and maintain perspective.	<b>Connect with others and ask for help</b> Talk about your feelings with people you trust, such as loved ones, friends, and support groups, or see a mental health professional.
<b>Use your creative expression</b> Paint, cook, start a journal or do woodworking.	<b>Assertiveness yourself and manage your time</b> Learn to say "no" and set limits.
<b>Celebrate your work</b> Identify how you have helped others and be proud of positive outcomes you facilitated.	<b>Plan for coping</b> Identify the skills and strategies that work best for you when signs of secondhand trauma appear.

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# Course Wrap-Up

## Questions?




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# PADV Contact



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