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Disclosures

Rae Anne Ho Fung, PhD, LP, and Christopher Takala, DO, have each declared that they do not, nor does their family have, any financial relationship in any amount occurring in the last 12 months with a commercial interest whose products or services are discussed in the presentation.

The presenters have each declared that they do not have any relevant non-financial relationships. Additionally, all planners involved do not have any financial relationships.

2

Learning objectives

Upon completion of the instructional program, participants should be able to:

1. List three treatment barriers unique to the intersection of identity and mental health conditions among individuals with trauma histories and experiences of marginalization.
2. Identify at least three symptoms common to various psychiatric disorders and engage in differential diagnosis with attention to the role of identity.
3. Name the three brain structures related to posttraumatic stress symptoms, as well as identify current evidence-based approaches to pharmacological management of posttraumatic stress disorder.

3

What we'll cover in this webinar

| | |
|---|--|
| The role of identity in diagnosis | The role of identity in treatment |
| <ul style="list-style-type: none">• Diagnostic overlaps and intersection of identity• Pediatric trauma prevalence• Alternative explanations: Research on intersectionality of identity and mental health-related stigma | <ul style="list-style-type: none">• Brief overview of neuroanatomy of trauma• Review of pharmacological treatments for trauma• Review of evidence based behavioral interventions• Recommendations and future directions |
| | Moderated Q&A |

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Presenter subjectivities

| | |
|---|--|
| <p>Dr. Rae Anne Ho Fung</p> <ul style="list-style-type: none">• Professional identities• Clinical Director• Counseling Psychologist, PhD, LP• Trauma Psychologist, Supervisor, Mentor• Former 4th/5th grade teacher• Personal identities• She/her/hers• White, cis-gender female, heterosexual, able-bodied, social justice advocate, OIF Army Veteran• Partner, mother <p><i>We acknowledge that our experience, intersectionality, privilege – and lack thereof – inform what we each bring to our research, clinical practice, and teaching</i></p> | <p>Dr. Christopher Takala</p> <ul style="list-style-type: none">• Professional identities• Medical Director of Rogers Brown Deer campus• Doctor of Osteopathic Medicine• Board Certified Child & Adolescent Psychiatry, Adult Psychiatry, and Addiction Medicine• Personal identities• He/him/his• White, cis-gender male, heterosexual, Mental Health Advocate, construction worker, percussionist• Partner, father |
|---|--|

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Case study: Jasmine

A: 16
D: ADHD, ODD, CD, MDD, PTSD, GD, SUD
D: Unspecified communication disorder (speech interventions & Headstart); STD
R: Believes in God; No active religion
E: African American, American Indian, and white (Identifies as Black)
S: Bi-sexual; Multiple partners
S: Low SES, full time student
I: American Indian heritage
N: U.S. born
G: Transgender female (she/her)

Jasmine is a 16-year-old Black transgender female diagnosed with ADHD, Oppositional Defiant Disorder, Conduct Disorder, Major Depressive Disorder, PTSD, Gender Dysphoria, and Cannabis Use Disorder. She has been psychiatrically hospitalized nine times 2017 – 2022 for aggression, suicidal ideation with plan (two attempts), and self injurious behavior (started at age 11).

Jasmine is the fifth of nine siblings and lives with her mother. She has a complex psychosocial history including unstable living environment, eviction, and witnessing interpersonal violence by her father including the murder of her step-mother. Her father has been incarcerated since she was 5 years old.

Jasmine has a history of engaging in sex work for money and currently has multiple sexual partners. She currently uses nicotine and marijuana with a history of trying other substances. Jasmine is concerned about alcohol use and abstains.

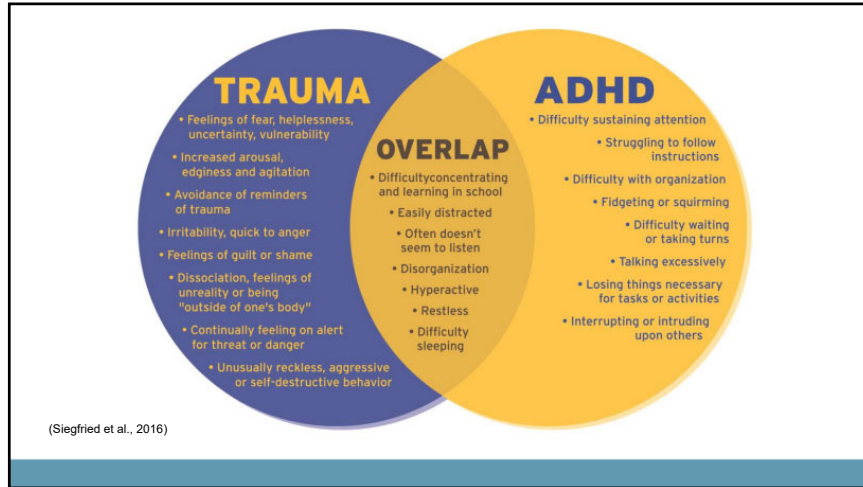
She was first hospitalized in 2017 after she threatened to kill herself, told teachers she hoped they would die, pushed a teacher, engaged in other physically aggressive behaviors in school, and generally did not follow school behavioral expectations (e.g., would leave classroom).

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What diagnosis is it?

- Difficulty concentrating and learning in school
- Easily distracted
- Often doesn't seem to listen
- Disorganization
- Hyperactive
- Restless
- Difficulty sleeping

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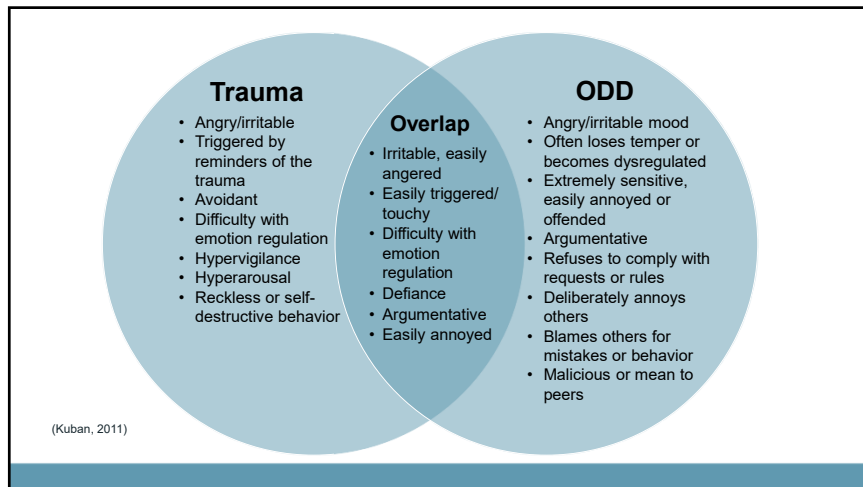


9

What diagnosis is it?

- Irritable, easily angered
- Temper loss
- Defiance
- Argumentative
- Easily annoyed

10

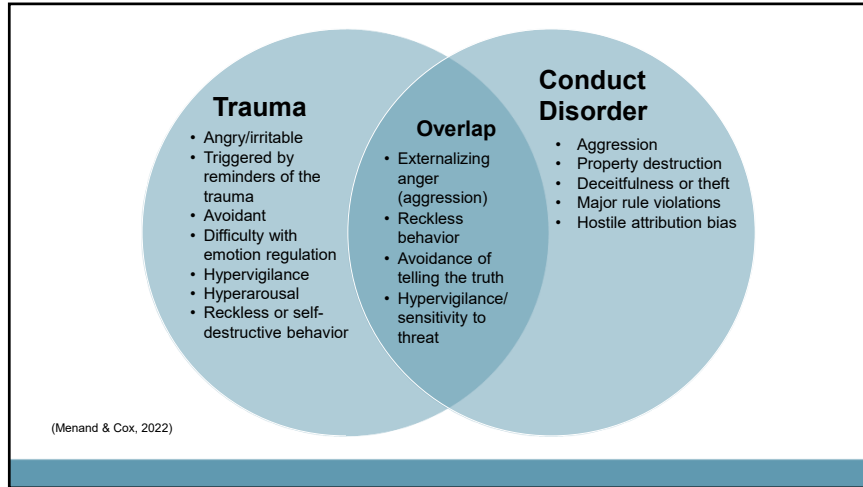


11

What diagnosis is it?

- Externalizing anger (aggression)
- Reckless behavior
- Avoidance of telling the truth
- Hypervigilance/ sensitivity to threat

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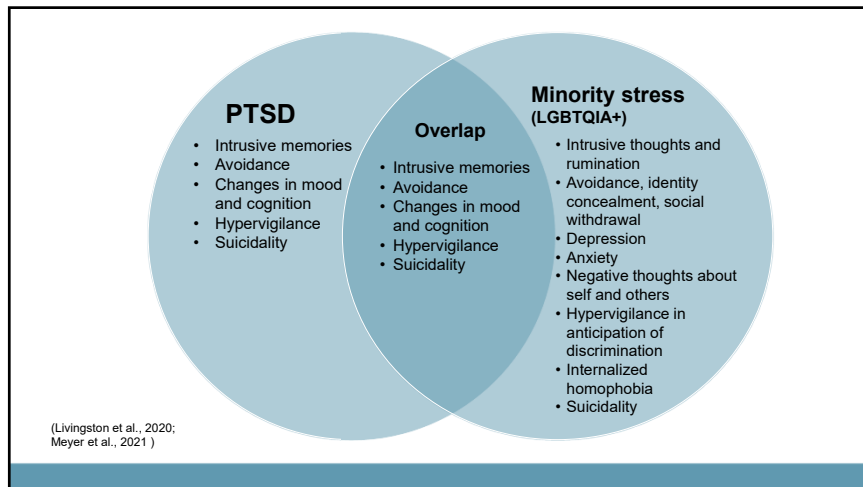


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What diagnosis is it?

- Intrusive memories
- Avoidance
- Changes in mood and cognition
- Hypervigilance
- Suicidality

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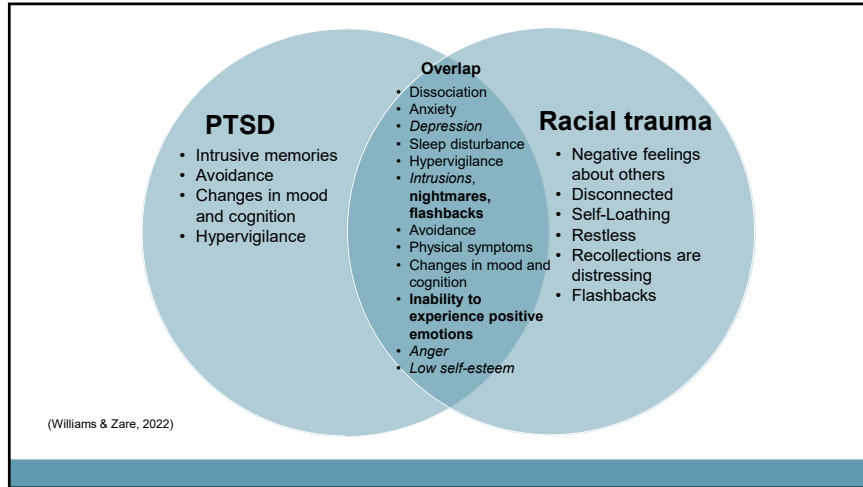


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What diagnosis is it?

- Dissociation
- Anxiety
- Depression
- Sleep disturbance
- Hypervigilance
- Intrusions, nightmares, flashbacks
- Avoidance
- Physical symptoms
- Changes in mood and cognition
- Inability to experience positive emotions
- Anger
- Low self-esteem

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Trauma exposure and PTSD prevalence (general population, binary gender categories)

- Over 33% experience a potentially traumatic event (PTE) before age 16
 - PTSD prevalence 3-15% girls, 1-6% boys (NCTSI, 2023)
- Approximately 60% of adults experience a PTE
 - PTSD prevalence 8% women, 4% men (National Center for PTSD)

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The intersection of identity and trauma: LGBTQ

- Trauma at higher rates than general population
- PTSD prevalence
 - Lesbian, gay, bisexual (LGB) 1.3 – 47.6%
 - Transgender and gender diverse (TGD) 17.8 – 42%
- Added stress related to policies that fail to protect from discrimination at work, housing, and public spaces

(Livingston et al., 2020)

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The intersection of identity and trauma: BIPOC

- Racial trauma prevalence (Williams & Zare, 2022)
 - Black Americans, 47.4%
 - Asian Americans, 22.6%
 - Hispanic Americans, 50%
- PTSD prevalence (Grau et al., 2022)
 - Black Americans, 8.7% - 9.1%
 - Asian Americans, 2%
 - Latinx, 5.6 - 6.5%
- 71% of counselors report encountering patients with race-based trauma experiences (Hemmings & Evans, 2018 as cited in Williams, Haeny, & Holmes, 2021)
- Exposure to race-related stressors accounted for 20% variance in PTSD symptoms (Loo et al., 2001 as cited in Williams, Haeny, & Holmes, 2021)

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Impact of trauma: Perceived discrimination

FLORES, TSCHANN, DIMAS, PASCH, AND DE GROAT

Figure 1. Mediation model predicting health risk behaviors. * $p < .05$. ** $p < .01$. *** $p < .001$.

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Impact of trauma: Gendered racial microaggressions

Table 2
Hierarchical Linear Regression of Microaggressions, Discrimination, and Trauma Symptoms and Cognitions Entered Separately

| Dependent variables | B | Standard error | Standardized coefficients beta | t | p |
|------------------------------------|--------|----------------|--------------------------------|-------|------|
| Total PTSD symptoms | | | | | |
| HIV-related discrimination | 4.033 | 1.660 | .267 | 2.429 | .018 |
| Race-related discrimination | 2.317 | 1.213 | .212 | 1.907 | .061 |
| Gendered racial microaggression-A | 9.943 | 3.184 | .344 | 3.123 | .003 |
| Gendered racial microaggression- F | 10.251 | 3.379 | .323 | 3.034 | .003 |

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Alternative explanations

Jasmine is a 16-year-old Black transgender female diagnosed with ADHD, Oppositional Defiant Disorder, Conduct Disorder, Major Depressive Disorder, PTSD, Gender Dysphoria, and Cannabis Use Disorder. She has been psychiatrically hospitalized nine times 2017 – 2022 for aggression, suicidal ideation with plan (two attempts), and self injurious behavior (started at age 11).

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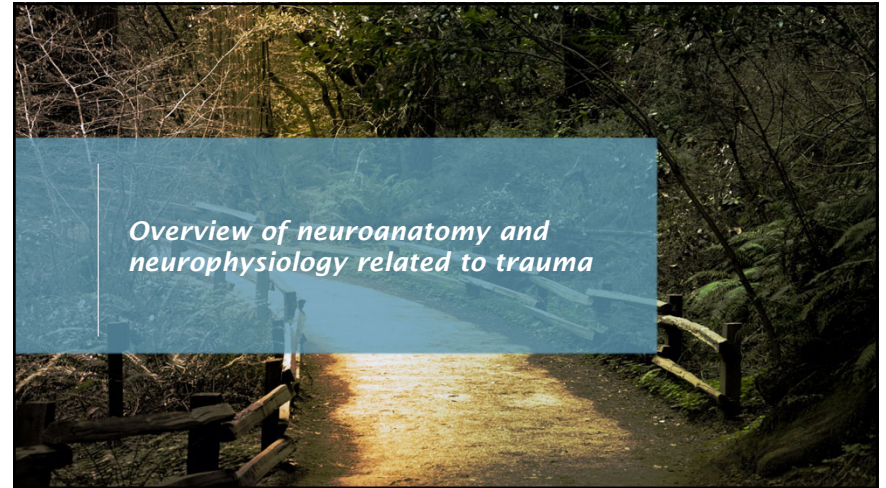
She was first hospitalized in 2017 after she threatened to kill herself, told teachers she hoped they would die, pushed a teacher, engaged in other physically aggressive behaviors in school, and generally did not follow school behavioral expectations (e.g., would leave classroom).

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Alternative explanation

- Minority stress
- Race based trauma
- Trauma

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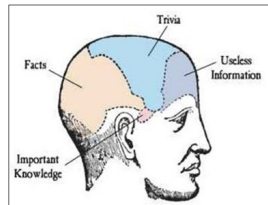
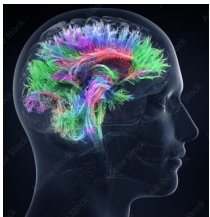


Overview of neuroanatomy and neurophysiology related to trauma

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Disclaimer

The brain is complex... I am not an expert... Gregory Burek, MD, is



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Stress response

Courtesy of Dr. Gregory Burek

Purpose:

- "Fight, Flight or Freeze" response
 - Get the body ready to ACT!
 - Respond to a threat
 - Helps the organism to survive



Components:

- Brain
 - Limbic lobe: Amygdala, Hippocampus, Locus Coeruleus, Anterior Cingulate Cortex (ACC)
 - Thalamus, Hypothalamus, Pituitary
- Body
 - Sympathetic Chain Ganglion
 - Adrenal Glands
 - → Effects every organ system

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Stress response

Courtesy of Dr. Gregory Burek

Pavlovian Classical Conditioning

Unconditioned Stimulus (US)

Unconditioned Response (UR)

The diagram illustrates Pavlovian Classical Conditioning. On the left, a stick figure stands. In the center, a brown bear is shown with a line pointing to it labeled 'Unconditioned Stimulus (US)'. To the right, another stick figure stands with a line pointing to it labeled 'Unconditioned Response (UR)'. Below the second stick figure is a plate of food with steam rising from it, indicating the response to the stimulus.

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Stress response

Courtesy of Dr. Gregory Burek

A 3D anatomical model of the human torso, showing the skeletal structure and internal organs in a light blue color against a black background. The model is positioned centrally on the slide.

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Sympathetic nervous system

Courtesy of Dr. Gregory Burek

GI: ↓Motility ↓Blood

The diagram shows a large profile of a human head with a glowing blue brain. A line connects the brain to a smaller profile of a head with a glowing brain. Another line connects the brain to a 3D anatomical model of the human torso, which is glowing blue. A third line connects the torso to a smaller 3D anatomical model of the torso, which is glowing blue. The text 'GI: ↓Motility ↓Blood' is placed between the torso models.

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Cortical processing: Bottom-up

Courtesy of Dr. Gregory Burek

Activation of sensory areas


- Primary Visual Cortex:
 - Fast movement, large object
 - Visual Association Areas – "Where" & "What"
- Primary Auditory Cortex
 - Loud noise, High frequency
 - Auditory Association Areas
- Sensory Association Cortices
 - Memory areas
 - ...anything threatening (associated to memory)
- Frontal Lobe
 - Planning, decision-making
- Bottom-up attention
 - Salience = >stimulation → greater attention

A 3D anatomical model of the human brain, showing the cerebral cortex in various colors (red, yellow, green, blue, purple). A smaller 3D anatomical model of the brain is shown in the top right corner. The main model is positioned centrally on the slide.

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Courtesy of Dr. Gregory Burek

Cortical processing: Top-down



Frontal Lobe


- Prefrontal Cortex
 - Primarily inhibitory (GABA)
- regulate **Attention**
 - Parietal & Temporal Associative cortices – *filtering*
 - Subcortical area – eye movement & hearing
- regulate **Behavior**
 - Premotor & Motor cortices
 - Subcortical – Caudate & Cerebellum
- regulate **Emotion**
 - Amygdala, Hypothalamus, Nucleus Accumbens, Brainstem
- access **Memories**
- **Suppression**
 - Voluntary inhibition of memories, impulses, or desires
- Top-down Processing
 - Relevance = desire → greater attention

Very **Slow!!** = **Getting Eaten**

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Courtesy of Dr. Gregory Burek

Subcortical processing




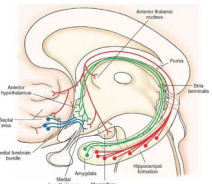
Thalamus

- Hub for sensory & motor
 - connects brain & body
- **Afferents** (inputs)
 - Visual stimuli
 - Lateral Geniculate Nucleus
 - Auditory stimuli
 - Medial Geniculate Nucleus
 - Dorsomedial nucleus
 - Amygdala, caudate, frontal cortex
- **Efferents** (outputs)
 - Everywhere!
 - Prefrontal cortex
 - **Amygdala**

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Courtesy of Dr. Gregory Burek

Subcortical processing


Amygdala

- Fear & Anger
- "smoke alarm"
- **Afferents** (inputs)
 - Sensory systems ~ thalamus
 - Prefrontal cortex = inhibition
 - Anterior cingulate cortex = emotional memory
- **Efferents** (outputs)
 - Dorsomedial **thalamus** = pain, attention, memory
 - **Hypothalamus** → Pituitary → Adrenals
 - **Hippocampus** = memory
 - **Ventral Tegmental Area (VTA)** = ↑ Dopamine
 - **Locus Coeruleus** = ↑ Norepinephrine

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Courtesy of Dr. Gregory Burek

Subcortical processing



Amygdala ↔ vmPFC

- "**The Balance**" = Reactive vs. Rational
- Reciprocal inhibition
 - ↑ Amygdala = ↓ vmPFC
 - Fight, Flight or Freeze
 - ↓ inhibition = ↓ voluntary action
 - ↑ instinctual/reactive behavior
 - ↑ vmPFC = ↓ Amygdala
 - Relaxed & Rational
 - ↑ inhibition = ↑ choice of action




Amygdala **vmPFC**

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Courtesy of Dr. Gregory Burek

Subcortical processing




Hypothalamus

- **Afferents** (inputs)
 - Amygdala
 - Solitary Nucleus (sensory tracts)
 - Locus Coeruleus
- **Efferents** (outputs)
 - Ventrolateral medulla (rVLM)
 - → sympathetic chain ganglion → body response
 - Lateral nucleus
 - Orexin (hypocretin) – sleep switch
 - posterior hypothalamus – stress response
 - Ventral Tegmental Area (DA)
 - Locus Coeruleus (NE)
 - Raphe Nuclei (5-HT)
 - Tuberomammillary nucleus (Histamine)
 - Tuberomammillary Nucleus
 - Histamine
 - Cortex – cognition
 - Hippocampus – memory
 - Striatum – movement
 - Nucleus accumbens – reward
 - Hypothalamus – arousal

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Courtesy of Dr. Gregory Burek

Subcortical processing




Pituitary

- **Afferents** (Inputs)
 - Hypothalamus
 - sends axons to Posterior Pituitary
 - Oxytocin
 - Vasopressin
 - Corticotropin-Releasing Hormone (CRH)
 - anterior pituitary
- **Efferents** (outputs)
 - Anterior Pituitary
 - Adrenocorticotropic Hormone (ACTH)
 - Adrenal Cortex
 - **Cortisol** (glucocorticoids)
 - "stress hormone"
 - ↑ blood glucose
 - ↓ inflammation
 - ↓ immune function

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Courtesy of Dr. Gregory Burek

Subcortical processing



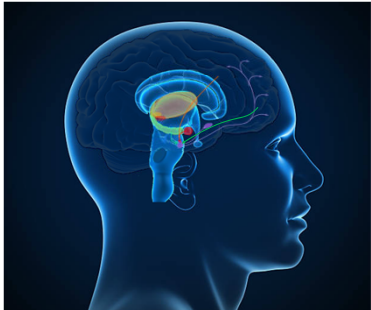
Locus Coeruleus

- releases Norepinephrine (NE)
- **Afferents** (inputs)
 - Orbitofrontal cortex (inhibitory)
 - Medial prefrontal cortex
 - Autonomics from brainstem
 - Lateral Hypothalamus
- **Efferents** (outputs)
 - Cerebral cortex
 - Amygdala – ↑ arousal & vigilance
 - Hippocampus – memory
 - Cerebellum
 - Brain stem & Spinal cord
 - → sympathetic chain → whole body response
 - Thalamus
 - Hypothalamus → Pituitary → adrenals
 - ↑ Epinephrine & ↑ Cortisol
 - Tectum – audio & visual reflexes
 - Ventral tegmental area (VTA)

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Courtesy of Dr. Gregory Burek

Subcortical processing




Ventral Tegmental Area (VTA)

- releases Dopamine (DA)
- **Afferents** (inputs)
 - Amygdala
 - Cingulate cortex
 - Hippocampus
 - Prefrontal Cortex
- **Efferents** (outputs)
 - Mesocortical pathway
 - VTA to Prefrontal cortex
 - ↑ attention, concentration, cognition
 - Mesolimbic pathway
 - VTA to Nucleus Accumbens
 - Reward (pleasure, reinforcement)
 - Motivation & Learning
 - Aversion-related cognition
 - **Avoidance** (negative reinforcement)

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Courtesy of Dr. Gregory Burek

Subcortical processing



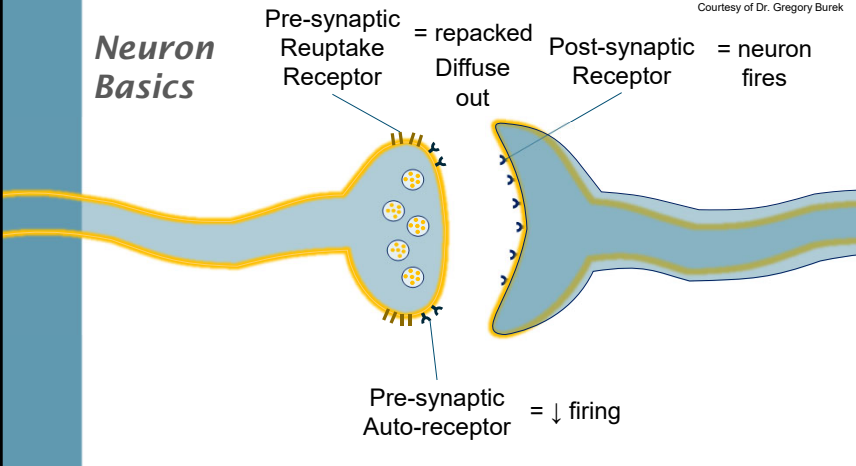
Raphe Nuclei

- release Serotonin
- **Afferents** (inputs)
 - Orbital cortex
 - Cingulate cortex
 - Hypothalamus
 - Medial & Lateral preoptic areas
- **Efferents** (outputs)
 - Rostral nuclei
 - Cerebral Cortex
 - Amygdala (10%) – inhibitory
 - Caudate & Putamen (movement)
 - Caudal nuclei
 - Brain stem & Spinal cord
- 90% of serotonin in GI Tract
- Side effects – nausea, vomiting, diarrhea

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Courtesy of Dr. Gregory Burek

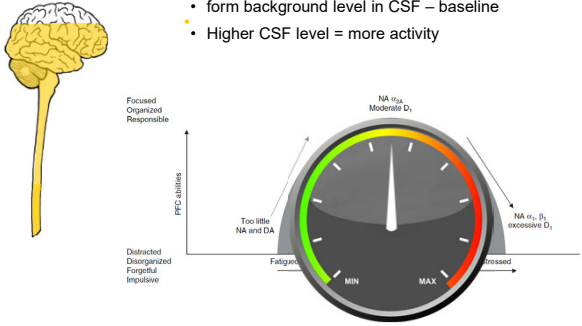
Neuron Basics



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Courtesy of Dr. Gregory Burek

Neuron Basics

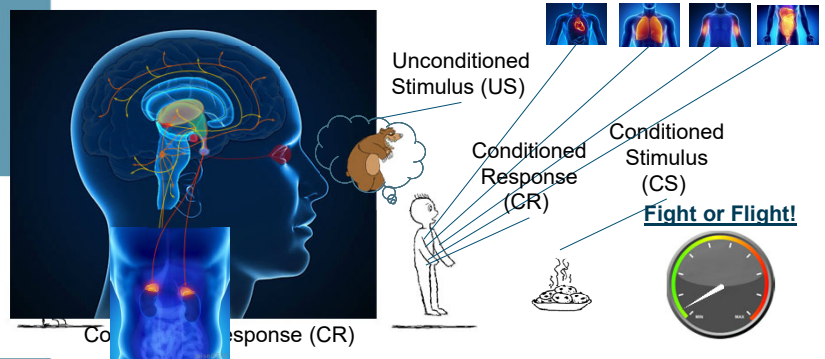


- **Diffuse out**
 - form background level in CSF – baseline
 - Higher CSF level = more activity

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Courtesy of Dr. Gregory Burek

Posttraumatic Stress Disorder



Unconditioned Stimulus (US)

Conditioned Response (CR)

Conditioned Stimulus (CS)

Fight or Flight!


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Current evidence base is limited


- **Paroxetine** and **sertraline** are approved by the Food and Drug Administration for the treatment of PTSD.
- **Venlafaxine** and nefazodone have been recommended for PTSD
- Mirtazapine, trazodone, and prazosin have been used for insomnia and nightmares
- Topiramate has been used in patients with PTSD and alcohol use disorder.
- **Benzodiazepines:** No benefit shown in treating PTSD symptoms; may dampen response to exposures
- These agents alleviate symptoms but rarely induce remission, and there is a substantial risk of relapse on discontinuation.
- Most patients with PTSD (e.g., 74% of affected war veterans) receive some form of pharmacologic treatment, including antidepressant agents, anxiolytic or sedative-hypnotic agents, and antipsychotic agents (prescribed, respectively, for 89%, 61%, and 34% of those receiving pharmacotherapy).
- Over 8% of Iraq and Afghanistan Veterans received five or more CNS-acting medications in 2011. Multimorbidity of mental disorders and traumatic brain injury was strongly associated with CNS polypharmacy. Suicide-related behavior and drug/alcohol overdose were significantly associated with CNS polypharmacy.



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Gaps in PTSD pharmacotherapy research

- Examination of pharmacotherapy for PTSD comorbid with other disorders



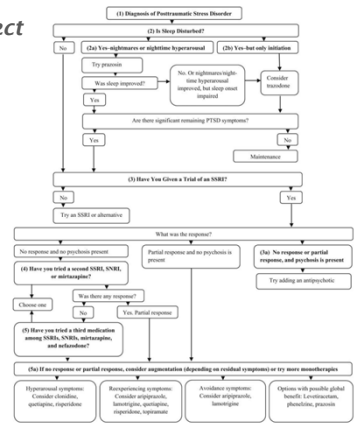
- Polypharmacy may result in improvement in PTSD symptoms, but it may also result in more side effects and contribute to noncompliance to treatment

NON-COMPLIANCE

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Psychopharmacology Algorithm Project at the Harvard South Shore Program

- **The treatment of PTSD remains a challenge for physicians and patients.**
- **More needs to be learned** about the pathophysiology of this chronic, disabling condition and about the comorbidities with which it often presents.
- Improvements in our understanding of genetics, the neurobiological underpinnings of PTSD, and mechanisms related to each symptom cluster promise to add refinements to the current treatment strategy.



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Pharmacologic interventions in the aftermath of trauma

- Negative for propranolol, escitalopram, temazepam, and gabapentin
- Hydrocortisone administered shortly after exposure to trauma may reduce subsequent PTSD symptoms
- Morphine may reduce the prevalence of PTSD among injured survivors of trauma
- Intranasal oxytocin reduced anxiety, irritability, and intrusive recollections in trauma survivors



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Experimental interventions

- Transcranial magnetic stimulation of the right dorsolateral prefrontal cortex has a positive effect
- Cycloserine, a partial agonist of the glutamatergic N-methyl-d-aspartate (NMDA) receptor, has conflicting results
- Cannabinoids may decrease PTSD-related insomnia, nightmares, and hyperarousal.
- Intravenous ketamine, a glutamate NMDA receptor antagonist, rapidly reduces the severity of PTSD symptoms
- Randomized clinical trials support the efficacy of MDMA in the treatment of PTSD but the database is insufficient for FDA approval of any psychedelic compound for routine clinical use



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Practical considerations

- **One group of medications is often not enough** for the treatment of all the PTSD symptoms
- Many patients with PTSD receive **off-label medications** and might be **overmedicated** (well-intended but misses the mark?)
- Irrespective of the different mechanisms of action of drugs used in the treatment of PTSD, the final goal is always the same:
 - **Reduce distress**
 - **Reinforce the psychological defense system**
 - **Restore the functioning** of the person



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Review of evidenced based psychotherapies



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APA Guideline for treatment of PTSD in adults

Strongly recommends:

- Cognitive behavioral therapy
- Cognitive processing therapy
- Cognitive therapy
- Prolonged exposure therapy

Suggests:

- Brief eclectic therapy
- Eye movement desensitization and reprocessing
- Narrative exposure therapy

Insufficient evidence:

- Seeking Safety
- Relaxation

(APA, 2017)

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Evidence-based psychotherapies: Children

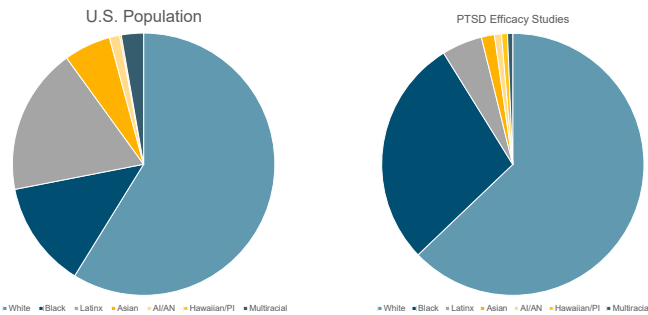
Trauma-focused CBT

- 3 – 21 years
- Target population
 - U.S. ethnracial evidence base: Caucasian, African American, Latino
 - Global: Europe, Australia, Africa
 - Diverse SES and religions
 - Urban, suburban, and rural regions
 - Languages: Mandarin, German, Dutch, Polish, Japanese, and Korean

(NCTSN, 2012)

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EBP limitations



(APA, 2017; Grau et al., 2022)

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EBP limitations

- Overall lack of LGBTQIA+ participants in research
- “Gold standard” treatments developed for Criterion A traumas
- Is de-conditioning overgeneralized fear responses and remediating cognitive distortions appropriate?
- Existing theories are limited in applicability for chronic victimization and daily identity-based threats

(Livingston et al., 2020)

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Recommendations

- Inclusive paperwork (Livingston et al., 2020) and research (APA, 2017; Grau et al., 2022)
- Focus on empowerment, self-control, and connectedness with community (Williams, Haeny, & Holmes, 2021)
- Provide education to patients and families about the effects of exposure to discrimination (Trent et al., 2019)
- Train ALL staff in culturally competent care (Trent et al., 2019)
- Assess patients for stressors and social determinants of health associated with discrimination (Trent et al., 2019)
- Ask about experiences of police violence, racial threats, immigration difficulties, workplace harassment (Williams, Haeny, & Holmes, 2021)
- Ensure true safety when assigning exposures and affirming contexts rather than thought challenging (Livingston et al., 2020)

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Assessments – symptoms related to discrimination

- Race-Related Stressor Scale (RRSS)
- Race-Based Traumatic Stress Symptom Scale (RBTSSS)
- Trauma Symptoms of Discrimination Scale (TSDS)
- UConn Racial/Ethnic Stress & Trauma Survey (UnRESTS)
- Everyday Discrimination Scale
- Major Experiences of Discrimination Scale
- Chronic Work Discrimination and Harassment: Abbreviated
- Gender Minority Stress and Resilience Measure
- Perceptions of Local Stigma Questionnaire
- In Development: Oppression-Based Traumatic Stress Inventory (OBTSI)
(Holmes, Zalewa, Wetterneck, & Williams, 2023, under review)

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Revisiting Jasmine

- Completed TF-CBT at PHP/IOP level of care focused on murder of step-mom
- Non-adherence to medications and continued use of marijuana
- Publicly started identifying as female and using chosen name/pronouns
- Decreased healthcare utilization (last hospitalization 1 year ago)
- Decrease self-harm and suicidality
- Increased quality of life as evidenced by school attendance and staying in family home
- Reports satisfaction with living authentic identity

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We meet these kids in the present, and we start with what we see. We get stuck on the things they do and say, and we focus on managing their behavior. We get so caught up in the urgency and intensity of the current moment that we forget about the past; we're so concerned with making their behavior stop that we ignore the reasons it exists.

(Menand & Cox, 2022)

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Time for questions and answers...

- Please use the Q&A button – not the chat – to submit your question
- If we don't get to your question, please feel free to send an email to **webinars@rogersbh.org** and we will follow-up with you



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Recommended resources

- APA Guidelines on Race and Ethnicity in Psychology: Promoting Responsiveness and Equity
<https://www.apa.org/about/policy/guidelines-race-ethnicity.pdf>
- APA LGBTQ Resources and Publications
<https://www.apa.org/pi/lgbt/resources>
- Dr. Monnica Williams, Equity in Care
<https://www.monnicawilliams.com/> (publications, lectures, workshops)

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About the presenters...



Rae Anne Ho Fung, PhD, LP
Clinical Director of Outpatient Services at Rogers West Allis hospital campus



Christopher Takala, DO
Medical Director of Rogers Brown Deer hospital campus and its child and adolescent services

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ROGERS
Behavioral Health

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