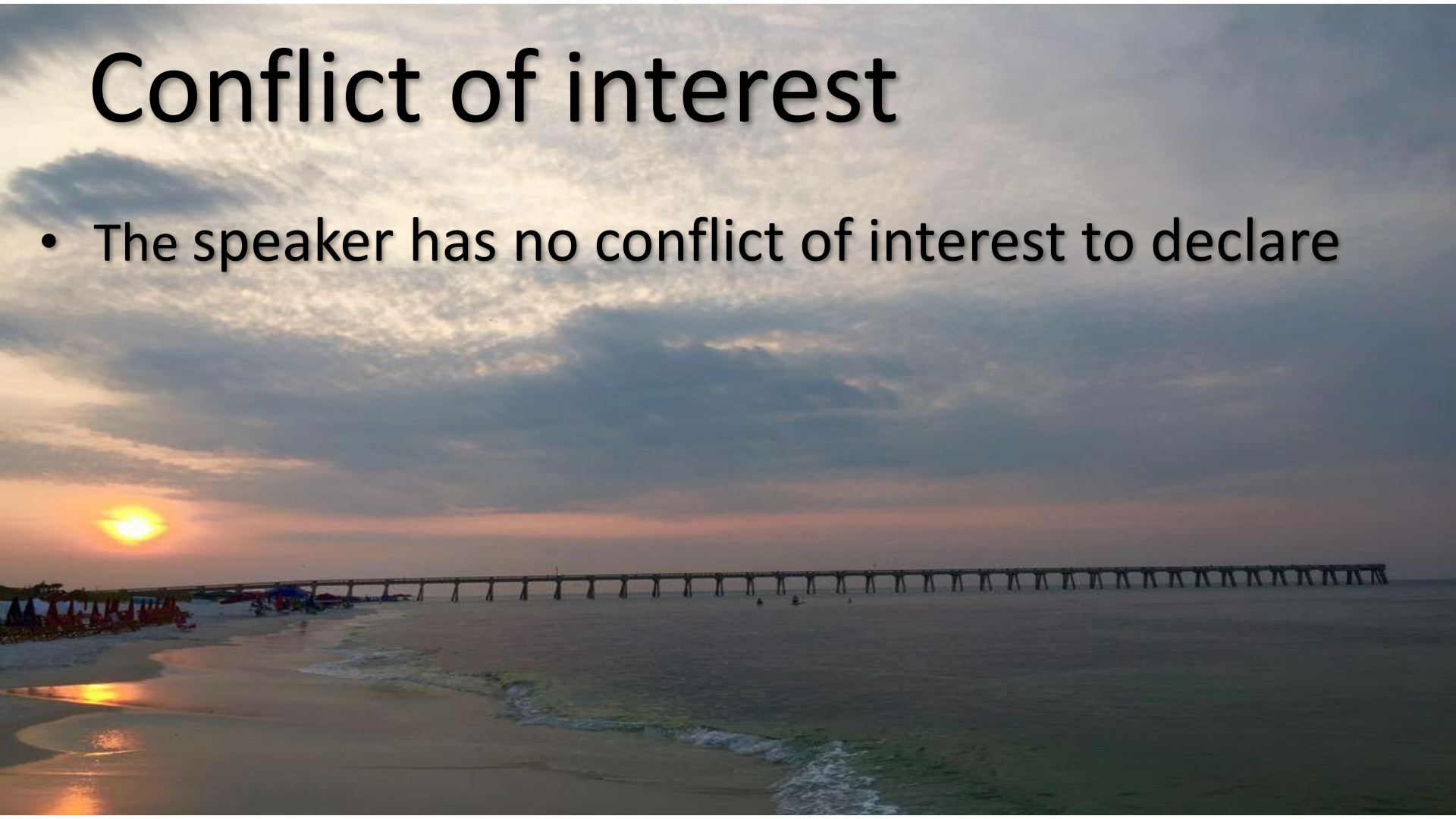


Stress, Early Trauma, PTSD and the Effect on HIV

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Conflict of interest

- The speaker has no conflict of interest to declare



Objectives

- Name one aspect of how adverse childhood events effect adults years later
- Identify two physical issues related to chronic stress and PTSD and HIV
- List two management strategies to decrease chronic stress

Treating people with HIV

- Requires more than just treating the virus
- Understanding the role of trauma in keeping people sick
 - Can help teams support the person's movement toward optimum health

Stress and distress ...What is the difference ??

- Normal life stress- psychological and physical reaction to a positive or negative situation like a new job or significant loss
- **Eustress**- positive stress-motivates, & focuses energy, feels exciting & improves performance
- Negative stress – **Distress**- causes anxiety, perceived as outside our coping ability, feels unpleasant & decreases performance

Selye Stress Adaptation Model (1956)

- **Three stages**
 - **Alarm** –“fight or flight”
 - Increased alertness, mobilize resources & defenses
 - Release of norepinephrine & epinephrine
 - Vasoconstriction, increased BP, increased HR & cardiac contraction
 - If stressor continues & is not adaptively or effectively resolved,.....

Selye -- Stress Adaptation Model

- **Resistance**

- Optimal adaptation to stress within the person's capabilities
 - Hormones readjust, reduction in activity and size of the adrenal cortex
 - Increased & intensified use of coping mechanisms
 - Rely on **defense oriented behavior, psychosomatic symptoms**

- **Stage III- Exhaustion**

- Loss of ability to resist stress due to depletion of body resources
- **Decreased immune response**
 - **suppression of T cells and atrophy of thymus**
 - depletion of the adrenal glands & hormone production
- Person become disorganize/reality may be impaired

Anxiety related response critical for survival

- Increased noradrenergic and dopaminergic system activation (leading to central nervous system hyperarousal & hypervigilance) facilitates rapid reaction
- The effectiveness of the response **fades** if continuously exposed to stressor.
- Decrease in effectiveness
 - related to the alteration in catecholamine & thyroid systems
 - depressed immune system.

Long term stressors

- Individual increasingly sensitive to subsequent stressors which more easily reactivate the anxiety related response

PTSD risk factors

- Experiencing intense or long lasting trauma
- Experiencing other trauma earlier in life
 - Abused or neglected as child
 - Adverse childhood event (ACE)
- Having other MH problems including anxiety or depression
- Lacking good support system of family or friends
- Being female
- Having a first degree relative with MH problems

Adverse child hood experiences (ACE)

- Includes psychological, physical, sexual forms of abuse
- house hold dysfunction: substance use, mental illness, violence & incarceration

- Dose response of 4 or more ACE
 - Increase in HIV risky behaviors

Adverse Childhood Experience 11 item survey

- 1. Lived with anyone who was depressed, mentally ill or suicidal
- 2. Lived with anyone who was a problem drinker or alcoholic
- 3. Lived with anyone who used illegal drugs or abused prescription drugs
- 4. Lived with anyone who served time in a correctional facility
- 5. Experienced parental separation or divorce
- 6. Witnessed parent or adult in the home slap, hit, kick, punch or beat each other

- 7. Being slapped, hit, kicked, punched or beat by parents or adults in the home
- 8. Being swore at, insulted or put down by parents or adults in the home
- 9. Being touched sexually by adult or anyone at least 5 years older than respondent
- 10. Being made to touch sexually an adult or any at least 5 years older than the respondent
- 11. Being forced to have sex with an adult or anyone at least 5 years older than the respondent

Physical Effect of high levels of violence/trauma

- Blunted heart rate variability in response to stress is an indicator of autonomic dysfunction-
 - when stressed- HR increased by 17 BPM less than children matched to their age who had not been exposed to violence
 - cardiovascular risk factor
- Children exposed to high levels of urban violence demonstrate accelerated cellular aging measured by DNA methylation
 - predicts all cause mortality risk later in life

Noradrenergic hyperactivity

- **Excessive noradrenergic output from the locus ceruleus** – autonomic overdrive
 - Central symptoms of anxiety & fear
 - Nightmares, hyper-arousal states
 - Flashbacks and panic attacks
 - Excessive noradrenergic activity can also reduce the efficiency of information processing in the prefrontal cortex

Risky behavior --increases risk - Sex workers

- Crystal methamphetamine Injection (CM)
 - Women use at the same rate as men
 - >61% reported sexual physical abuse before age 18
 - Among those who Injected CM 75% experienced abuse
 - Of the CM injection users 25% had HIV
 - Among sex workers, CM- direct effect on sexual desire, also impaired judgment and increased likelihood of unprotected sex and syringe sharing heightening the risk of HIV.
- Argento, et al. (2017) Violence, Trauma, and living with HIV: Longitudinal predictors of initiating crystal methamphetamine injection among sex workers. *Drug and Alcohol Dependence*. 175, 198-204.

Women, HIV and history of trauma

- 30% of HIV positive women had PTSD
 - 5 X > national sample of women
- 55% of HIV positive women have experienced intimate partner violence – 2 X national rate
- Women account for 27% of all new HIV/AIDS dx
- African American & Hispanic women represent 77%

Child hood sexual abuse (CSA)

- Risk factor for negative mental and physical health outcomes in adults
- Linked to depression, substance use and PTSD
- Among men-having-sex-with-men (MSM)
 - CSA as high as 35.5%
 - Compared to general pop. Estimates of 13.5% of women
 - 2.5% of men

Untreated depression

- Reduction in adherence
 - Complications prevent effective treatment
 - Hopeless
 - More impulsive
 - Careless about own safety
 - Increases disease progression



Strategies

- Visualization, guided imagery & meditation
- Relaxation training
- Decrease unhealthy & self destructive behaviors
- Engaging in hobbies
- Spending time with caring, supportive & optimistic people
- Engage in personal growth activities

Breathing Based Meditation

- Mindfulness practice can help address dissociative symptoms as the person focuses on inner self
- Training also facilitates neurological changes responsible for the regulation of emotion & positively correlates to anxiety symptom improvement
- Consistent mindfulness decreases amygdala reactivity
 - fosters greater functional connectivity between amygdala
 - & prefrontal cortex regions

- Breathing exercises
 - activates both sympathetic & parasympathetic systems
- Elucidating both alertness & calm
- Increased optimism & general wellbeing

Group therapy –Support and CBT focused

- “Not alone”
- Altruism
- Social connections
- Cognitive behavioral focus- interrupting maladaptive thinking
 - Prevention focus
 - Healthy lifestyle

Common coping techniques

- Problems solving
- Assertiveness skill building
- Positive self talk
- Stress and Anger Management
- Skills needed for communication and relationships

• Medications

- SSRIs – paroxetine, venlafaxine, fluoxetine & sertraline
- Significantly more effective than placebo
- May take up to 6 weeks to reach therapeutic blood level
- Side effects – wt gain, sexual side effects & stigma
- Pharmacological interventions can be effective
 - About 40 % with PTSD no longer meet criteria for PTSD

Tai Chi



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Ancient Chinese medicine/martial arts

- Mind-body concept
- Human body has energy channels –

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Yoga

- Yoga based interventions
- Decrease autonomic nervous system activation
- Decreases blood pressure and heart rate
- Participants experience a sense of relaxation
- Post yoga improves GABA levels
- Decrease PTSD hyper-arousal system
- Promotes psychological flexibility and emotional regulation

Yoga • Elucidating both alertness and calm

- Increased optimism and general wellbeing



Adjunctive therapies such as yoga, Tai chi and breathing based meditation have a growing evidence base

Sense of improved symptom management, purpose and internal locus of control

Offering individualized patient centered care includes non-pharmacological treatment to augment traditional therapy

Recommendations:

- Given the behavioral consequences of not treating PTSD:
 - Screening for recent and past trauma, PTSD
 - Screening should be part of the core components of HIV treatment
 - Interventions to increase resilience through self-efficacy
 - Increasing access to integrated, trauma informed mental health, addiction treatment and HIV care

Suggested reading:

- The Body keeps the Score Brain, Mind and Body in the Healing of Trauma
 - Bessel Van Der Kolk MD

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