ECHO IDAHO: ADOLESCENT SUBSTANCE USE DISORDER

Trauma and Addiction

April 12, 2023

Ryan Billington, MD

St. Luke's Hospital System

Psychiatrist

None of the planners or presenters for this educational activity have relevant financial relationship(s) to disclose with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients.

Disclosures

- I have no financial disclosures

Learning Objectives

- Briefly discuss “trauma” and “addiction”: clinical difficulty of present unknown
- Explore data: association between them in adolescents
- Explore models of clinical thinking to increase clinical judgment, utility, & significance
- Case presentation?
- Questions

"Being traumatized is not just an issue of being stuck in the past; it is just as much a problem of not being fully alive in the present."

"If the elements of [_____] are replayed again and again, the accompanying stress hormones engrave those memories ever more deeply in the mind. Ordinary, day-to-day events become less and less compelling. Not being able to deeply take in what is going on around them makes it impossible to feel fully alive. It becomes harder to feel the joys and aggravations of ordinary life, harder to concentrate on the tasks at hand. Not being fully alive in the present keeps them more firmly imprisoned in the past."

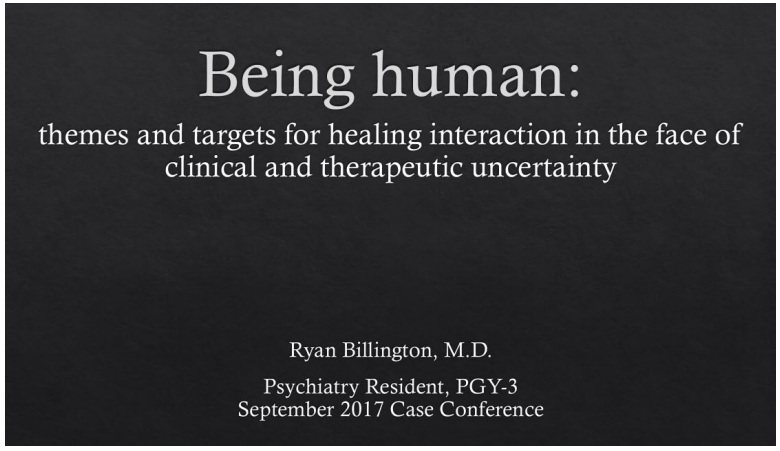
Bessel Van Der Kolk, The Body Keeps the Score

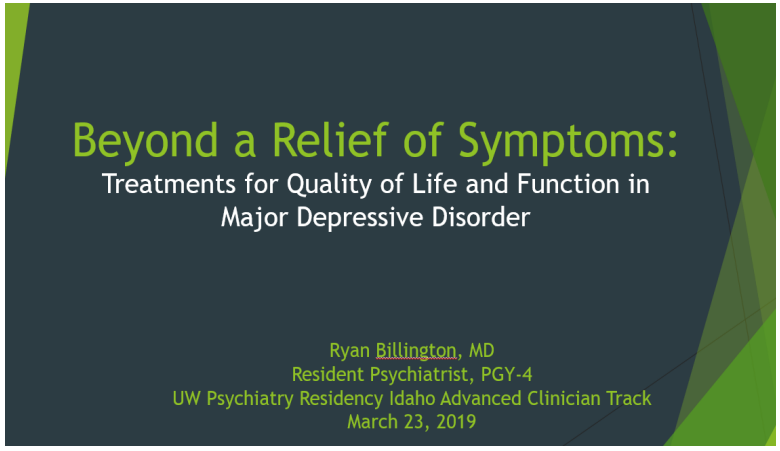
Background: Me

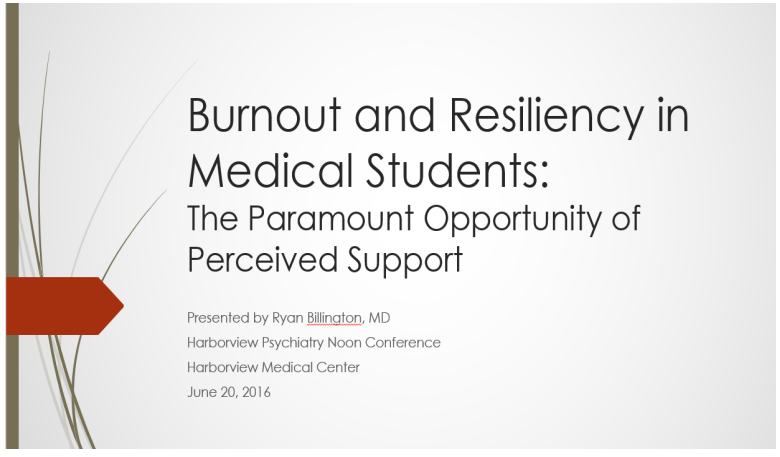
- I am an adult psychiatrist
- Emphasis & particular interest: sustained trauma & personality disorders, psychotherapy, psychiatric diagnostic constructs
- Passion: How people to heal?

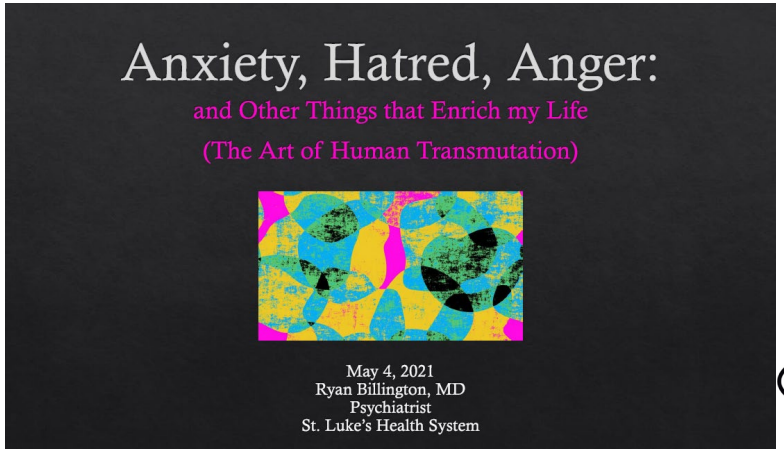
Background: Me

- I crave more for psychiatry and mental health
- Over course of career, given talks such as these:









Project ECHO | University of Idaho WWAMI Medical Education

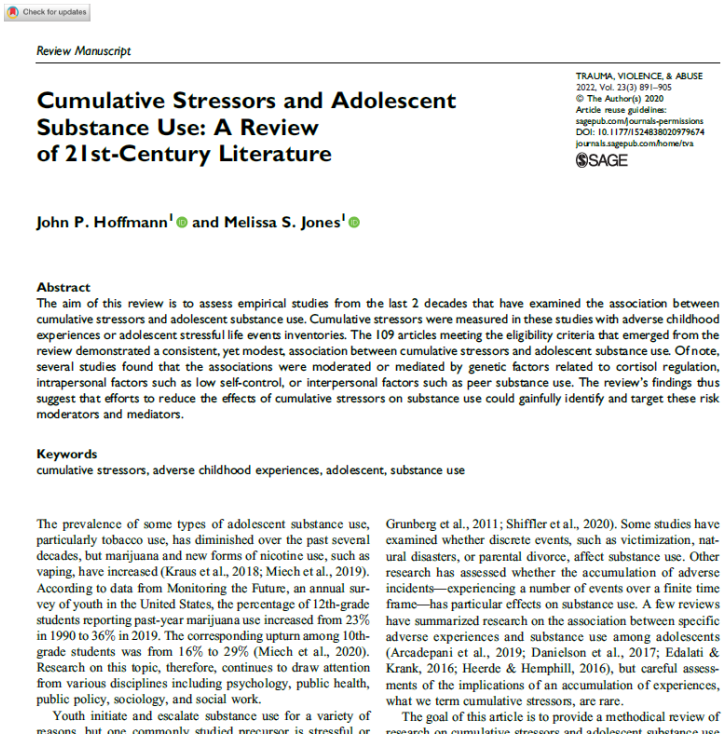
Background: The Topic

- There is very little data to guide clinically integrated approach to (not-PTSD) trauma & addiction in adolescents
  - "Research about the relationship between [adverse childhood events] and substance use disorder diagnosis in adolescence and adulthood is still scarce."[1]
- Despite a common sense of connection between trauma and addiction/substance use disorders, practicing of evidence-based medicine/psychotherapy is hard
- Key point: Substance use & sustained trauma interact, but we have little guidance about "how" and what to do about it

1. Leza L, Siria S, López-Goñi JJ, Fernández-Montalvo J. Adverse childhood experiences (ACEs) and substance use disorder (SUD): A scoping review. Drug Alcohol Depend. 2021 Apr 1;221:108563. doi: 10.1016/j.drugalcdep.2021.108563. Epub 2021 Jan 29. PMID: 33561668.

Background: The Topic

- Hoffman JP, Jones MS: 2022.
  - 109 papers over last 20 years on adolescent SUD & adverse childhood events
  - "We did not deliberately omit experimental studies, though the review did not turn up any that were within the outlined parameters."



Check for updates

Review Manuscript

Cumulative Stressors and Adolescent Substance Use: A Review of 21st-Century Literature

TRAUMA, VIOLENCE, & ABUSE
2022, Vol. 23(3) 891–905
© The Author(s) 2020
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/1524838020979674
journals.sagepub.com/home/tva
SAGE

John P. Hoffmann[1] and Melissa S. Jones[1]

Abstract

The aim of this review is to assess empirical studies from the last 2 decades that have examined the association between cumulative stressors and adolescent substance use. Cumulative stressors were measured in these studies with adverse childhood experiences or adolescent stressful life events inventories. The 109 articles meeting the eligibility criteria that emerged from the review demonstrated a consistent, yet modest, association between cumulative stressors and adolescent substance use. Of note, several studies found that the associations were moderated or mediated by genetic factors related to cortisol regulation, intrapersonal factors such as low self-control, or interpersonal factors such as peer substance use. The review's findings thus suggest that efforts to reduce the effects of cumulative stressors on substance use could gainfully identify and target these risk moderators and mediators.

Keywords

cumulative stressors, adverse childhood experiences, adolescent, substance use

The prevalence of some types of adolescent substance use, particularly tobacco use, has diminished over the past several decades, but marijuana and new forms of nicotine use, such as vaping, have increased (Kraus et al., 2018; Miech et al., 2019). According to data from Monitoring the Future, an annual survey of youth in the United States, the percentage of 12th-grade students reporting past-year marijuana use increased from 23% in 1990 to 36% in 2019. The corresponding upturn among 10th-grade students was from 16% to 29% (Miech et al., 2020). Research on this topic, therefore, continues to draw attention from various disciplines including psychology, public health, public policy, sociology, and social work.

Youth initiate and escalate substance use for a variety of reasons, but one commonly studied precursor is stressful or

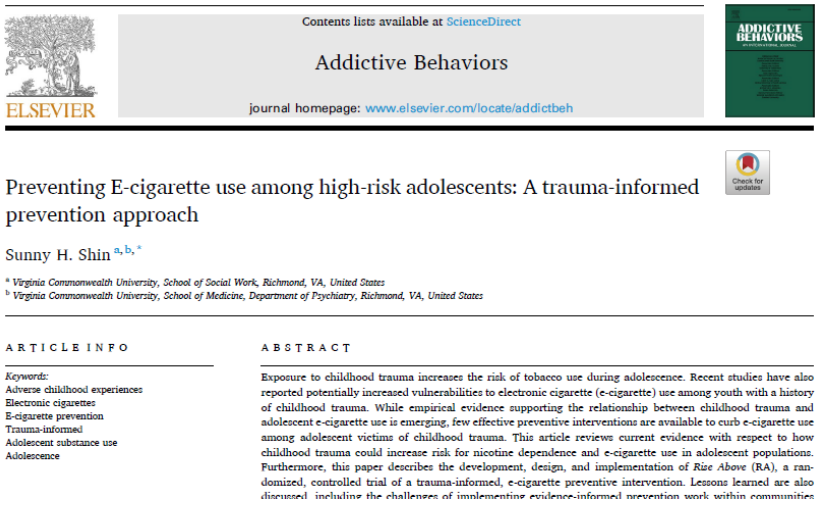
Grunberg et al., 2011; Shiffler et al., 2020). Some studies have examined whether discrete events, such as victimization, natural disasters, or parental divorce, affect substance use. Other research has assessed whether the accumulation of adverse incidents—experiencing a number of events over a finite time frame—has particular effects on substance use. A few reviews have summarized research on the association between specific adverse experiences and substance use among adolescents (Arcadepani et al., 2019; Danielson et al., 2017; Edalati & Krank, 2016; Heerde & Hemphill, 2016), but careful assessments of the implications of an accumulation of experiences, what we term cumulative stressors, are rare.

The goal of this article is to provide a methodical review of research on cumulative stressors and adolescent substance use

1. Hoffmann JP, Jones MS. Cumulative Stressors and Adolescent Substance Use: A Review of 21st-Century Literature. Trauma Violence Abuse. 2022 Jul;23(3):891-905. doi: 10.1177/1524838020979674. Epub 2020 Dec 20. PMID: 33345723.

Background: The Topic

- 1 Intervention Paper!
- Shin: 2021
  - 7 pages, 2.5 pg references
  - Rise Above RCT: an in-process trauma informed, e-cigarette preventive intervention study



Contents lists available at ScienceDirect

Addictive Behaviors

journal homepage: www.elsevier.com/locate/addictbeh

Preventing E-cigarette use among high-risk adolescents: A trauma-informed prevention approach

Sunny H. Shin [a,b,*]

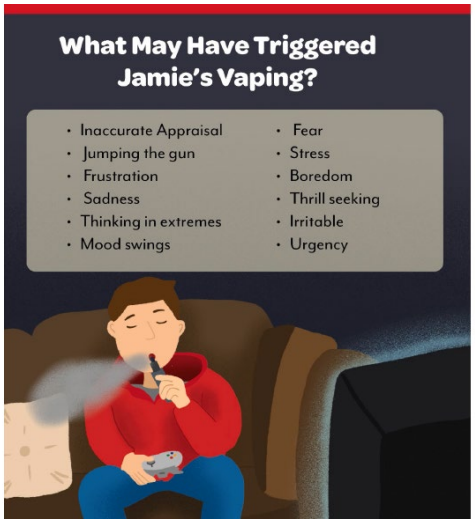
[a] Virginia Commonwealth University, School of Social Work, Richmond, VA, United States
[b] Virginia Commonwealth University, School of Medicine, Department of Psychiatry, Richmond, VA, United States

ARTICLE INFO

Keywords:
Adverse childhood experiences
Electronic cigarettes
E-cigarette prevention
Trauma-informed
Adolescent substance use
Adolescence

ABSTRACT

Exposure to childhood trauma increases the risk of tobacco use during adolescence. Recent studies have also reported potentially increased vulnerabilities to electronic cigarette (e-cigarette) use among youth with a history of childhood trauma. While empirical evidence supporting the relationship between childhood trauma and adolescent e-cigarette use is emerging, few effective preventive interventions are available to curb e-cigarette use among adolescent victims of childhood trauma. This article reviews current evidence with respect to how childhood trauma could increase risk for nicotine dependence and e-cigarette use in adolescent populations. Furthermore, this paper describes the development, design, and implementation of *Rise Above* (RA), a randomized, controlled trial of a trauma-informed, e-cigarette preventive intervention. Lessons learned are also discussed, including the challenges of implementing evidence-informed prevention work within communities



1. Shin SH. Preventing E-cigarette use among high-risk adolescents: A trauma-informed prevention approach. Addict Behav. 2021 Apr;115:106795. doi: 10.1016/j.addbeh.2020.106795. Epub 2020 Dec 24. PMID: 33387976.

Project ECHO

University of Idaho
WWAMI Medical Education

Background: About DSM Diagnoses

- Premise: The point is diagnoses per the DSM-5 is mental health creation.
- Diagnosis: symptom criteria that impairs quality of life (significant distress) &/or functioning (functional impairment)
  - Example
- DSM criteria can be insufficient to separate health from illness[1]
- A diagnosis must:
  1. be augmented with clinical judgment[1]
  2. be clinically useful[2] and clinically significant – which are not defined
  - DSM-5-TR: "is an inherently difficult clinical judgment
- "Therapeutically useful diagnoses"

1. American Psychiatric Association. Desk Reference to the Diagnostic criteria from DSM-5-TR. Washington, DC: American Psychiatric Association; 2013. Pg 3; 6.

Background: About DSM Diagnoses

- In certain psychiatric conditions, the “absence” of illness is NOT recovery
  - The DSM is insufficient for many mental illness experiences for bridging to health, by its own admission
  - History: rich with examples where stigma, mechanisms of illness influence mental health experts => treatment is unhelpful, even harmful, for mental health creation

Background: About DSM Diagnoses

- Trauma and addiction: the challenge before us is the art of "how"
- Metaphor & meaning
- Resilience: specifically, coherence, agency, safety

- **What suffering is worth experiencing?**

Overview: Augment Clinical Judgment, Utility, & Significance

- Goal: to augment clinical judgment, utility, & significance

- Take a look at some of the literature
- Discuss “bridges” from mental illness to mental health creation:
  - **Attachment and Mentalization**
    - DSM-5 Alternative model for personality disorders
  - Neuroscientific model
  - Adverse childhood events and Positive Childhood Events
  - Demoralization and resilience

Substance Use Disorders & Trauma: Relationship via DSM Diagnoses

- Borderline Personality Disorder:
  - 87% substance use disorder comorbidity
- PTSD:
  - "As many as 50–75% of combat veterans with PTSD also have drug or alcohol use disorders (Kulka et al., 1990),
  - … and structured interviews detect PTSD in up to 42.5% of patients in inpatient substance abuse programs (Cottler et al., 1992)."[1]

1. María-Ríos CE, Morrow JD. Mechanisms of Shared Vulnerability to Post-traumatic Stress Disorder and Substance Use Disorders. Front Behav Neurosci. 2020 Jan 31;14:6. doi: 10.3389/fnbeh.2020.00006. PMID: 32082127; PMCID: PMC7006033.

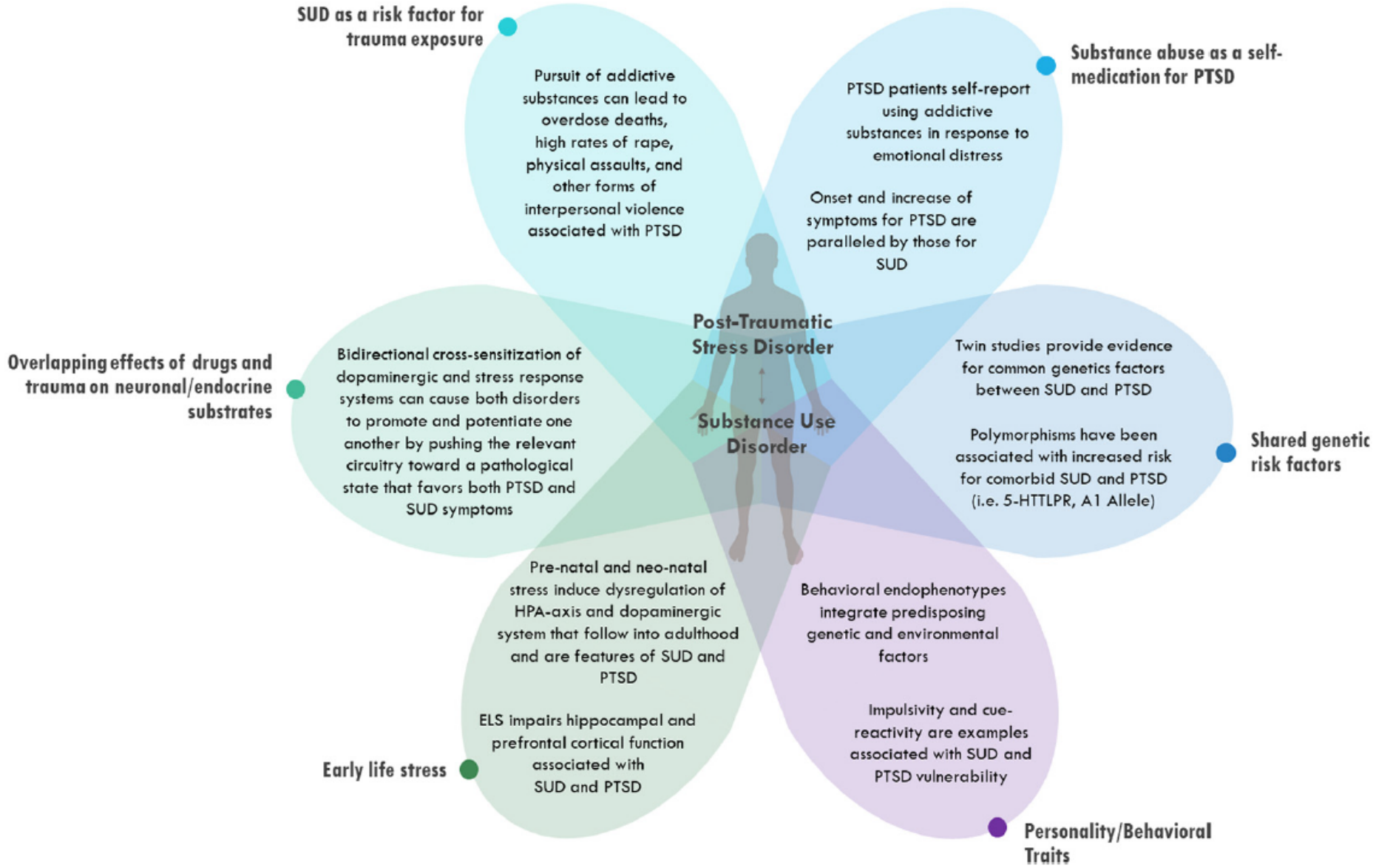


FIGURE 1 I Possible etiologies for comorbid post-traumatic stress disorder (PTSD) and substance use disorders (SUD). Different categories of explanations are depicted as being distinct form one another conceptually but overlapping at the level of the individual patient.

1. María-Ríos CE, Morrow JD. Mechanisms of Shared Vulnerability to Post-traumatic Stress Disorder and Substance Use Disorders. Front Behav Neurosci. 2020 Jan 31;14:6. doi: 10.3389/fnbeh.2020.00006. PMID: 32082127; PMCID: PMC7006033.

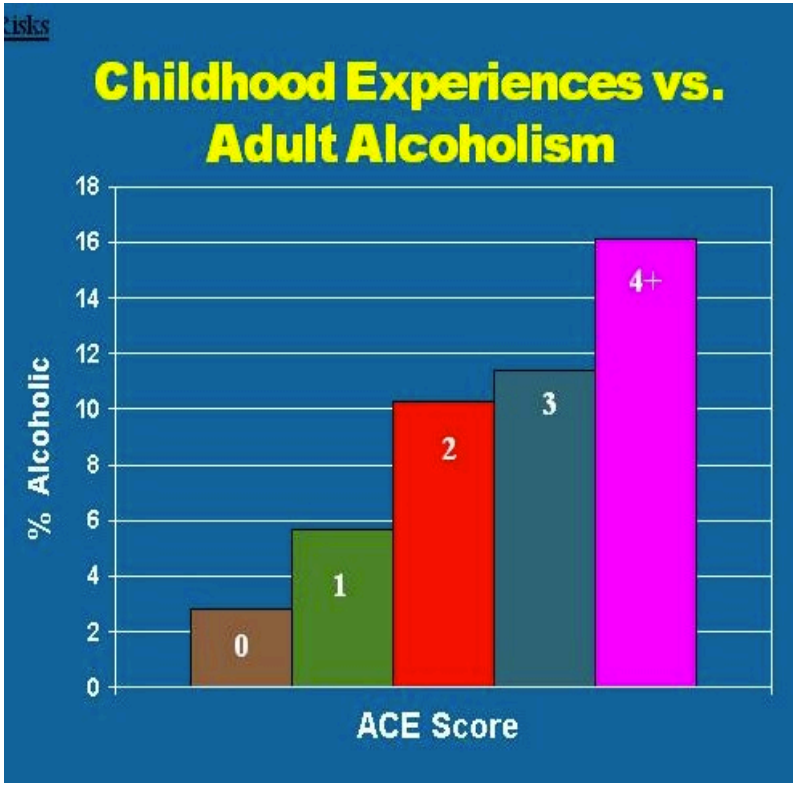
Substance Use Disorders & Trauma: Relationship via Adverse Childhood Events (ACEs)

- ACEs – "adverse childhood experiences"
  - "one of the largest investigations of childhood abuse and neglect and household challenges and later-life health and well-being"[1]
  - "include childhood emotional, physical, or sexual abuse and household dysfunction during childhood" (0-17 years)[2]
    - Categories: verbal abuse, physical abuse, contact sexual abuse, a battered mother, household substance abuse, household mental illness, incarcerated household members, and parental separation or divorce.
  - Original study was Kaiser study in 1995-1997
  - In 2009, CDC began collecting data across 5 states about ACEs prevalence via the Behavioral Risk Factor Surveillance System.
  - By 2022, 26 states collecting data[2]

1. Wikipedia. Adverse childhood experiences.
2. Center for Disease Control and Prevention. Adverse Childhood Experiences (ACEs). Last reviewed April 2, 2021. Accessed 4/6/23. Available from: https://www.cdc.gov/violenceprevention/aces/index.html.
3. Substance Abuse and Mental Health Services Administration. The Role of Adverse Childhood Experiences in Substance Misuse and Related Behavioral Health Problems. June 2018. Accessed 4/6/23. Available from: https://mnprc.org/2018/03/05/the-role-of-adverse-childhood-experiences-in-substance-misuse-and-related-behavioral-health-problems/

Substance Use Disorders & Trauma: Relationship via Adverse Childhood Events (ACEs)

- ACEs – "adverse childhood experiences"
  - 1 in 6 individuals has ACE score >4
  - ACEs can predict earlier age of drinking onset (Rothman, Edwards, Heeren, & Hingson, 2008)[1]
    - "… Therefore, underage drinking prevention programs may not work as intended, unless they help youth recognize and cope with stressors of abuse, household dysfunction, and other adverse experiences"
  - each ACE increased the likelihood of early initiation into illicit drug use by 2- to 4-fold. (Dube et al, 2003)[1]



1. Substance Abuse and Mental Health Services Administration. The Role of Adverse Childhood Experiences in Substance Misuse and Related Behavioral Health Problems. June 2018. Accessed 4/6/23. Available from: https://mnprc.org/2018/03/05/the-role-of-adverse-childhood-experiences-in-substance-misuse-and-related-behavioral-health-problems/
2. Stevens J. Aces Too High News. What ACEs/PCEs do you have? Accessed 4/6/23. Available from: https://acestoohigh.com/got-your-ace-score/
3. Lanius R, Vermetten E, Pain C, editors. The Impact of Early Life Trauma on Health and Disease: The Hidden Epidemic. 2010; Cambridge: Cambridge University Press. doi:10.1017/CBO9780511777042

Substance Use Disorders & Trauma: Relationship via Adverse Childhood Events (ACEs)

- Hoffmann JP, Jones MS (2022):
  - Lit review of 109 papers over last 20 years on adolescent SUB & adverse childhood events
  - Various findings
    - 84% of results show s.s. (statistically significant) association between cumulative stressors and substance use
    - "… that each one-unit increase in stressful life events (range 0-13) was associated with 4% increase in risk of drug abuse"
    - Dose dependent relationship: adolescents w/ 4+ ACEs were *four times* as likely to initiate alcohol or cannabis use than 0 ACEs group
    - Mediators: studied in few (4-5) studies
      - Peer substance use
      - Barnes et al. (2005): "an 'addiction-prone personality'—which included high novelty seeking and low self-regulation—mediated much of cumulative stressors on heavy marijuana use"
    - 16% of results failed to show statistically significant association

1. Hoffmann JP, Jones MS. Cumulative Stressors and Adolescent Substance Use: A Review of 21st-Century Literature. Trauma Violence Abuse. 2022 Jul;23(3):891-905. doi: 10.1177/1524838020979674. Epub 2020 Dec 20. PMID: 33345723.

Substance Use Disorders & Trauma:

- Key Takeaways:
  - though we are still learning, trauma and substance use are associated, & likely interwoven
  - Diagnoses can be problematic for creating healing

Overview: Augment Clinical Judgment, Utility, & Significance

- Goal: to augment clinical judgment, utility, & significance

- Take a look at some of the literature
- Discuss “bridges” from mental illness to mental health creation:
  - Attachment and Mentalization
  - DSM-5 Alternative model for personality disorders
  - Neuroscientific model
  - Adverse childhood events and Positive Childhood Events
  - Demoralization and resilience

Substance Use Disorders & Trauma: Bridge #1: Mentalization

- Mentalization
  - **Key Point: mentalization is what heals attachment patterns
  - stops insecure/disorganized intergenerational transmission (kids have secure attachment)

  - Discovered by Peter Fonagy
  - What is mentalization? ""the process by which we realize that having a mind mediates our experience of the world."
    - … realizing our thoughts, feelings, desires, and other mental state experiences are *merely representational* of reality.
    - this "representational system is what allows an individual to understand, interpret, and predict the behavior of others, as well as their own behavior."[1]

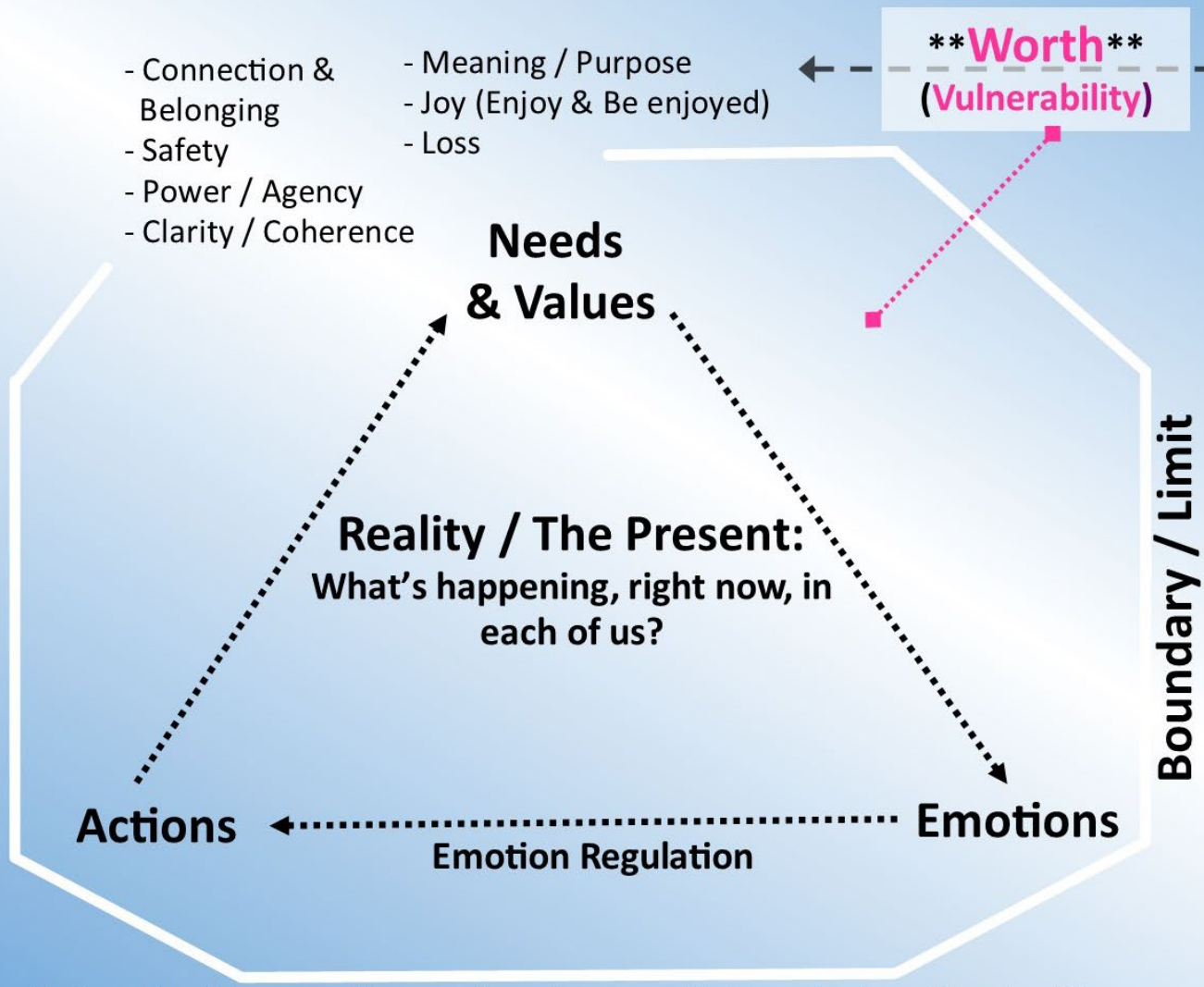
  - Mentalizing "modes":
    - Psychic equivalence
    - "Pretend" mode
    - Mentalization

  - Emotion regulation is necessary for mentalization

  - Resource: PsychologyToday article by Drevitch
    - Understanding the Other: Mentalizing with Attachment Theory https://www.psychologytoday.com/us/blog/the-freedom-change/202010/understanding-the-other-mentalizing-attachment-theory

1. Wallin DJ. Attachment in Psychotherapy. 2007. New York, NY: Guilford Press

Dr. Billington's Model for Active Mental Health Creation



Thought World:
(& Drivers of Trauma):

1. Thought labels
2. Shame

⇩

Hierarchy

Has Power
Judged w/ + labels
"Right"
"Good" / "Perfect"
Pursue

Lacks Power
Judged w/ - labels
"Wrong"
"Bad" / "Broken"
Disregard

2 Resulting Patterns for Relationship:

1. Attack (label) pattern
2. Passive Withdraw (passive) pattern

Need: shared by all humans. Absence of need creates suffering, and a loss of function/life.

Value: specific to an individual. Temperament, love language, moral fiber. Personal compass; shows what matters: what suffering is meaningful. Individual. Ex: love languages

Boundary: an invitation to accept a part of me, here. Can I still add to your life if I feel ____, have limits/needs, believe or find meaning in _____, etc)? Is not an attack, nor withdrawal.

Substance Use Disorders & Trauma: Bridge #1 Background

- Attachment Theory … in 5 minutes
  - Is predominant model of human social development
    - A two-person psychological, evolutionary, and ethological theory
  - Impact on society is difficult to overstate: legal system, hospitals, social services
  - Gross oversimplification: attention to relationship vs. attention to environment

  - An "individual's working model of attachment enables him or her to recognize patterns of interaction with the caregiver that have repeatedly occurred and thus to 'know' what the caregiver will do next."[1]

  - 4 attachment patterns: Secure, 2 types of insecure—avoidant and preoccupied (anxious)—and disorganized
  - is a continuum. Shifts minute by minute; general "theme," but exposure to interpersonal interaction shifts pattern
  - Pattern is adaptive when it develops
  - Pattern is actively invited/implemented

1. Wallin DJ. Attachment in Psychotherapy. 2007. New York, NY: Guilford Press

Attachment Patterns

*Attachment Pattern Name = **Infant or Strange Situation pattern / Adult Attachment or AAI pattern**
*(_____) = alternative pattern name in either infants or adults
*"Mother's behaviors" below refers to the infant's primary attachment figure. In the Strange Situation experiment, the infant's observed attachment figure was the mother.

Secure / Secure (or Autonomous) Attachment -- have equal access to impulses to explore when feeling safe, and seek solace in connection when they do not.

Mother's behaviors: reflect sensitivity rather than misattunement, acceptance rather than rejection, cooperation rather than control, emotional availability rather than remoteness. Is able to repair ruptures to the relationship, without leaving, escalating to frightening behavior, or seeming frightened by infant.
Adult Attachment: Secure/autonomous

Avoidant / Dismissing Attachment – incessantly exploring and appearing to not care about mother's departure or return. Inhibit virtually all communication that invites connection. Go limp when held, look away from mother. Despite blasé appearance, had higher physiologic markers (HR and cortisol rise) than the distress-displaying secure infants.

Mother's Behaviors: actively rebuffed infant's bids for connection—withdraw when infants appear sad, inhibit emotional expression, aversion to physical contact, brusque when physical contact occurs.

>> Why infant's response is adaptive: infant's anger could increase risk of rejection, and threaten to push mother further away when infant's needs were frustrated.

Ambivalent (or Resistant) / Preoccupied Attachment – too preoccupied with mother's whereabouts to explore freely, and react to her departure with overwhelming distress.

Mother's behaviors: unpredictably and occasionally available to infant; subtly discourages infant's autonomy.

>> Why infant's response is adaptive: persistent and unmistakable expression of distress might create pressure for attachment figure to keep up care.

Disorganized (or Disoriented) / Disorganized (or Unresolved) Attachment – discovered by Mary Main 20 years after the Strange Situation experiment.

- Infant's behaviors fit other attachment patterns, but additionally had behavior of freezing, rising upon parent's entrance than falling prong, clinging and crying while leaning away with averted gaze.
- Mother's behaviors:
- Main proposed infant was caught in simultaneous impulses to approach and to avoid attachment figure, as the infant's experience is that "the attachment figure is simultaneously experienced not only as the safe haven but also as the source of danger."
    - >> "infant disorganization is the outcome not only of interactions with parents whose anger or abuse is self-evidently *frightening*, but also of interactions in which the child experiences the parent as *frightened*."[2]

2. Wallin DJ. Attachment in Psychotherapy. 2007. New York, NY: Guilford Press

Substance Use Disorders & Trauma: Bridge #1 Background

- Attachment Theory … in 5 minutes
  - John Bowlby (1907 – 1990): British psychiatrist who proposed core attachment theory in trilogy *Attachment and Loss* (1969-1982)
    - the *attachment behavioral system*: biologically-based, evolutionary necessity. In response to threat, infants (mammals, human beings) seek physical proximity to promote both physical safety and emotional security.
    - Creates unconscious, pre-verbal blueprint for predicting human behavior (the internal working models of relationship"
  - Mary Ainsworth (1913 – 1999): Canadian developmental psychologist
    - Worked for 40 years empirically testing Bowlby's attachment hypotheses
    - Research: observed behavior in specific [mother-infant] relationships : The Strange Situation -> 3 patterns of attachment
    - Set by age 12 months
  - Mary Main (1943 – Present): one of Ainsworth's most recognized students.
    - Found 4th "disorganized" attachment category
    - **moved Attachment Theory** beyond Strange Situation's observation of behavior in a specific relationship **to the study of mental representations (through language patterns)** of relationship
    - Adult Attachment Interview--made empirical study of the internal working model possible in adolescents and adults
    - **Refined understanding of Internal working model:** best understood as "structured processes serving to obtain or limit access to information" (Main et al, 1985, pg. 77)2
    - These models form literal conscious and unconscious "rules to live by." **Such rules are actively implemented in relationship**
    - **"Intergenerational transmission"** of attachment patterns

1. Wallin DJ. Attachment in Psychotherapy. 2007. New York, NY: Guilford Press

Substance Use Disorders & Trauma: Bridge #2: Alternative Model for Personality Disorders

- Incorporate Personality Functioning into Substance use Disorder treatment:

Table 1. Elements of Personality Functioning

Self:

1. ***Identity:*** Experience of oneself as unique, with clear boundaries between self and others; stability of self-esteem and accuracy of self-appraisal; capacity for, and ability to regulate, a range of emotional experience.
2. ***Self-direction:*** Pursuit of coherent and meaningful short-term and life goals; utilization of constructive and prosocial internal standards of behavior; ability to self-reflect productively.

Interpersonal:

1. ***Empathy:*** Comprehension and appreciation of others' experiences and motivations; tolerance of differing perspectives; understanding the effects of own behavior on others.
2. ***Intimacy:*** Depth and duration of connection with others; desire and capacity for closeness; mutuality of regard reflected in interpersonal behavior.

Table 2. Level of Personality Functioning Scale

	SELF		INTERPERSONAL	
Level of impairment	**Identity**	**Self-Direction**	**Empathy**	**Intimacy**
0—Little or No Impairment	Has ongoing awareness of a unique self; maintains role-appropriate boundaries. Has consistent and self-regulated positive self-esteem, with accurate self-appraisal. Is capable of experiencing, tolerating, and regulating a full range of emotions.	Sets and aspires to reasonable goals based on a realistic assessment of personal capacities. Utilizes appropriate standards of behavior, attaining fulfillment in multiple realms. Can reflect on, and make constructive meaning of, internal experience.	Is capable of accurately understanding others' experiences and motivations in most situations. Comprehends and appreciates others' perspectives, even if disagreeing. Is aware of the effect of own actions on others.	Maintains multiple satisfying and enduring relationships in personal and community life. Desires and engages in a number of caring, close, and reciprocal relationships. Strives for cooperation and mutual benefit and flexibly responds to a range of others' ideas, emotions, and behaviors.
1—Some Impairment	Has relatively intact sense of self, with some decrease in clarity of boundaries when strong emotions and mental distress are experienced. Self-esteem diminished at times, with overly critical or somewhat distorted self-	Is excessively goal-directed, somewhat goal-inhibited, or conflicted about goals. May have an unrealistic or socially inappropriate set of personal standards, limiting some aspects of fulfillment. Is able to reflect on internal	Is somewhat compromised in ability to appreciate and understand others' experiences; may tend to see others as having unreasonable expectations or a wish for control. Although capable of considering and	Is able to establish enduring relationships in personal and community life, with some limitations on degree of depth and satisfaction. Is capable of forming and desires to form intimate and reciprocal relationships, but may be

Project ECHO | University of Idaho WWAMI Medical Education

Substance Use Disorders & Trauma: Bridge #2: Positive Childhood Events (PCEs) & Resilience

- PCEs – "positive childhood experiences"
  - Have a dose-dependent relationship with adult mental and physical health, no matter ACEs score[1,2]

  - What are PCEs? -- There are 7:

1. "feel able to talk to your family about feelings;
2. feel your family stood by you during difficult times;
3. enjoy participating in community traditions;
4. feel a sense of belonging in high school;
5. feel supported by friends;
6. have at least two non-parent adults who took genuine interest in you; and
7. feel safe and protected by an adult in your home."[2]

"**...** are the experiences that help children learn to trust others even when life is uncertain, difficult or frightening. They happen when we are willing to talk honestly about things that are hard to understand, scary, embarrassing or painful. When adults are willing to have these types of conversations with the children, the result is that children feel reassured that they are not alone in their struggles and they are better able to find meaning or purpose in their struggles."[1]

1. Krietz M. Positive Childhood Experiences. Child and Adolescent Behavioral Health. Accessed 4/11/23. Available from: https://www.childandadolescent.org/positive-childhood-experiences/
2. Stevens J. Aces Too High News. What ACEs/PCEs do you have? Accessed 4/6/23. Available from: https://acestoohigh.com/got-your-ace-score/

Substance Use Disorders & Trauma: Bridge #2: Positive Childhood Events (PCEs) & Resilience

- Resilience: the ability to grow from the stresses we experience

Table 1. Existential Postures of Vulnerability and Resilience to Illness[a]

Vulnerability	Resilience
Confusion	Coherence
Isolation	Communion
Despair	Hope
Helplessness	Agency
Meaninglessness	Purpose
Cowardice	Courage
Resentment	Gratitude

[a] This listing of existential postures is not an exhaustive one but does include most that are of frequent concern for hospitalized medically ill patients.

1. Griffith JL, Gaby L. Brief psychotherapy at the bedside: countering demoralization from medical illness. Psychosomatics. 2005 Mar-Apr;46(2):109-16. doi: 10.1176/appi.psy.46.2.109. PMID: 15774948.

Substance Use Disorders & Trauma: Bridge #2: Positive Childhood Events (PCEs) & Resilience

- Resilience: the ability to grow from the stresses we experience

Table 1. Existential Postures of Vulnerability and Resilience to Illness[a]

Vulnerability	Resilience
Confusion	Coherence
Isolation	Communion
Despair	Hope
Helplessness	Agency
Meaninglessness	Purpose
Cowardice	Courage
Resentment	Gratitude

[a] This listing of existential postures is not an exhaustive one but does include most that are of frequent concern for hospitalized medically ill patients.

1. Griffith JL, Gaby L. Brief psychotherapy at the bedside: countering demoralization from medical illness. Psychosomatics. 2005 Mar-Apr;46(2):109-16. doi: 10.1176/appi.psy.46.2.109. PMID: 15774948.

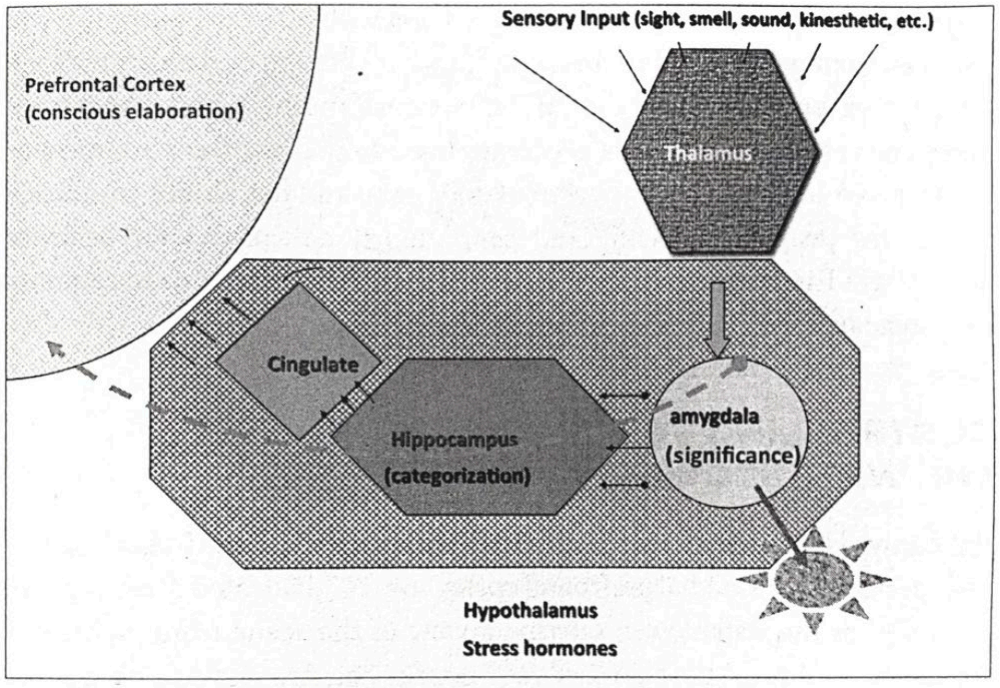
Substance Use Disorders & Trauma: Bridge #3: Neuroscientific Psychoeducation & Experiences

- Incorporate psychoeducation about the brain: effects of trauma, brainstorm healing experiences:
  - Van Der Kolk's book: The Body Keeps the Score
  - Fava NM, Trucco EM, et al. Childhood adversity, externalizing behavior, and substance use in adolescence: mediating effets of anterior cingulate cortext activation during inhibitory errors

1. Fava NM, Trucco EM, Martz ME, Cope LM, Jester JM, Zucker RA, Heitzeg MM. Childhood adversity, externalizing behavior, and substance use in adolescence: Mediating effects of anterior cingulate cortex activation during inhibitory errors. Dev Psychopathol. 2019 Oct;31(4):1439-1450. doi: 10.1017/S0954579418001025. PMID: 30585564; PMCID: PMC6594917.

Substance Use Disorders & Trauma: Bridge #3: Neuroscientific Model

- Van Der Kolk's book: The Body Keeps the Score



The emotional brain has first dibs on interpreting incoming information. Sensory Information about the environment and body state received by the eyes, ears, touch, kinesthetic sense, etc. converges on the thalamus, where it is processed, and then passed on to the amygdala to interpret its emotional significance. This occurs with lightning speed. If a threat is detected the amygdala sends messages to the hypothalamus to secrete stress hormones to defend against that threat. The neuroscientist Joseph LeDoux calls this the low road." The second neural pathway, the high road, runs from the thalamus, via the hippocampus and anterior cingulate, to the prefrontal cortex, the rational brain, for a conscious and much more refined interpretation. This takes several microseconds longer. If the interpretation of threat by the amygdala is too intense, and/or the filtering system from the higher areas of the brain are too weak, as often happens in PTSD, people lose control over automatic emergency responses, like prolonged startle or aggressive outbursts.

- **Thalamus**: "cook" – relays all sensory information, integrates sensory info to autobiography memory. Sensation is root of emotion.
- **Amygdala**: "smoke alarm" – instant: is this going to kill me? Outside awareness. Activates hippocampus, and brain stem for fight-flight
- **Hippocampus**: center for memory integration. Comes online age 2-3, so initial memories all thalamus/amygdala without watchtower view.
- **Cingulate**: bridge between "watchtower" and memory. May be responsible for conscious experience of emotion, moment-by-moment direction of attention
- **Prefrontal cortex**: "watchtower" – enables prediction & planning, sense of time/context, conscious choice.
- **Insula**: within middle prefrontal cortex: "interoception" – awareness of body state

1. van der Kolk BA. The body keeps the score: Brain, mind, and body in the healing of trauma. 2014; Viking.

Substance Use Disorders & Trauma: Bridge #3: Neuroscientific Model

- Dr. Billington's tips:
  - Use the model to frame need for action: emotion recognition & regulation (that creates pride), suffering that is worthwhile, boundaries, etc.
  - Do NOT frame individual as having "broken" mind; directly address this thought
    - Shame is horridly addressed within psychiatry
  - Normalization, normalization, normalization
  - Validation: values seen in individual now—self-worth, courage, agency

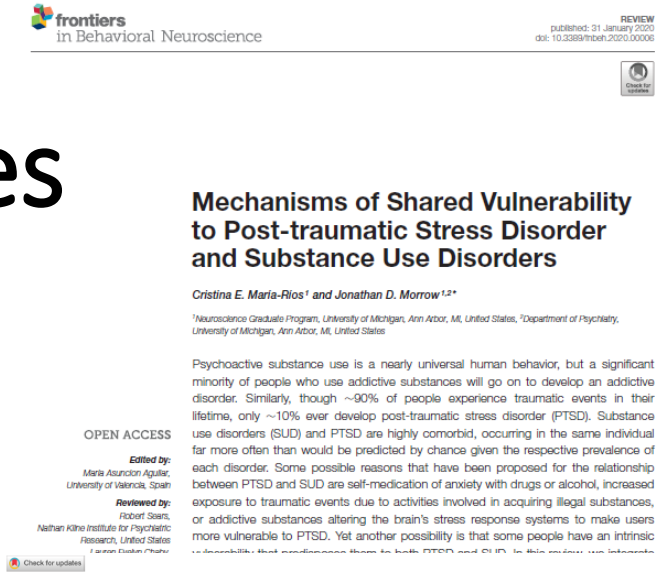
1. Fava NM, Trucco EM, Martz ME, Cope LM, Jester JM, Zucker RA, Heitzeg MM. Childhood adversity, externalizing behavior, and substance use in adolescence: Mediating effects of anterior cingulate cortex activation during inhibitory errors. Dev Psychopathol. 2019 Oct;31(4):1439-1450. doi: 10.1017/S0954579418001025. PMID: 30585564; PMCID: PMC6594917.

Key Points

- Trauma and substance use disorders are associated & likely interwoven in adolescents
- Data is limited, yet we can use clinical judgment to increase utility & significance
- Mental illness absence isn't enough
- Have several "bridges" that patients can learn to see, and use to walk toward mental health

Papers Shown in Slides

1. María-Ríos CE, Morrow JD. Mechanisms of Shared Vulnerability to Post-traumatic Stress Disorder and Substance Use Disorders. Front Behav Neurosci. 2020 Jan 31;14:6. doi: 10.3389/fnbeh.2020.00006. PMID: 32082127; PMCID: PMC7006033.
2. Hoffmann JP, Jones MS. Cumulative Stressors and Adolescent Substance Use: A Review of 21st-Century Literature. Trauma Violence Abuse. 2022 Jul;23(3):891-905. doi: 10.1177/1524838020979674. Epub 2020 Dec 20. PMID: 33345723.
3. Shin SH. Preventing E-cigarette use among high-risk adolescents: A trauma-informed prevention approach. Addict Behav. 2021 Apr;115:106795. doi: 10.1016/j.addbeh.2020.106795. Epub 2020 Dec 24. PMID: 33387976.



frontiers in Behavioral Neuroscience

REVIEW
published: 31 January 2020
doi: 10.3389/fnbeh.2020.00006

Mechanisms of Shared Vulnerability to Post-traumatic Stress Disorder and Substance Use Disorders

Cristina E. María-Ríos[1] and Jonathan D. Morrow[1,2]*

[1]Neuroscience Graduate Program, University of Michigan, Ann Arbor, MI, United States, [2]Department of Psychiatry, University of Michigan, Ann Arbor, MI, United States

Psychoactive substance use is a nearly universal human behavior, but a significant minority of people who use addictive substances will go on to develop an addictive disorder. Similarly, though ~90% of people experience traumatic events in their lifetime, only ~10% ever develop post-traumatic stress disorder (PTSD). Substance use disorders (SUD) and PTSD are highly comorbid, occurring in the same individual far more often than would be predicted by chance given the respective prevalence of each disorder. Some possible reasons that have been proposed for the relationship between PTSD and SUD are self-medication of anxiety with drugs or alcohol, increased exposure to traumatic events due to activities involved in acquiring illegal substances, or addictive substances altering the brain's stress response systems to make users more vulnerable to PTSD. Yet another possibility is that some people have an intrinsic

OPEN ACCESS

Edited by:
María Asunción Aguilar,
University of Valencia, Spain

Reviewed by:
Robert Sears,
Nathan Kline Institute for Psychiatric Research, United States

Check for updates

Review Manuscript

TRAUMA, VIOLENCE, & ABUSE
2022, Vol. 23(3) 891–905
© The Author(s) 2020
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/1524838020979674
journals.sagepub.com/home/tva
SAGE

Cumulative Stressors and Adolescent Substance Use: A Review of 21st-Century Literature

John P. Hoffmann[1] and Melissa S. Jones[1]

Abstract

The aim of this review is to assess empirical studies from the last 2 decades that have examined the association between cumulative stressors and adolescent substance use. Cumulative stressors were measured in these studies with adverse childhood experiences or adolescent stressful life events inventories. The 109 articles meeting the eligibility criteria that emerged from the review demonstrated a consistent, yet modest, association between cumulative stressors and adolescent substance use. Of note,

ated to cortisol regulation,
. The review's findings thus
dentify and target these risk

Addictive Behaviors 115 (2021) 106795

Contents lists available at ScienceDirect

Addictive Behaviors

journal homepage: www.elsevier.com/locate/addictbeh

ELSEVIER

ADDICTIVE BEHAVIORS

Check for updates

Preventing E-cigarette use among high-risk adolescents: A trauma-informed prevention approach

Sunny H. Shin[a,b,*]

[a] Virginia Commonwealth University, School of Social Work, Richmond, VA, United States
[b] Virginia Commonwealth University, School of Medicine, Department of Psychiatry, Richmond, VA, United States

, 2020). Some studies have
, such as victimization, nat-
affect substance use. Other
e accumulation of adverse
of events over a finite time
ubstance use. A few reviews
ssociation between specific
ce use among adolescents
ion et al., 2017; Edalati &
, 2016), but careful assess-
cumulation of experiences,
, are rare.
vide a methodical review of
nd adolescent substance use

ARTICLE INFO

Keywords:
Adverse childhood experiences
Electronic cigarettes
E-cigarette prevention
Trauma-informed
Adolescent substance use
Adolescence

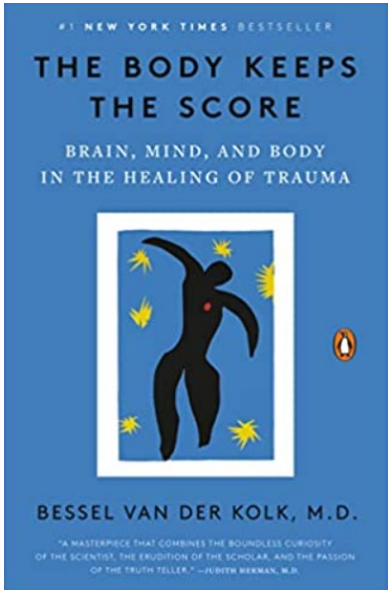
ABSTRACT

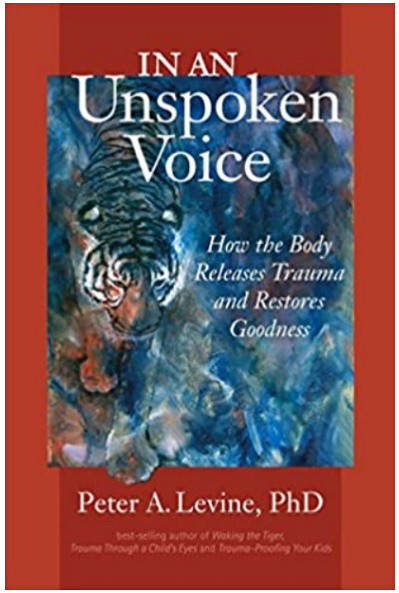
Exposure to childhood trauma increases the risk of tobacco use during adolescence. Recent studies have also reported potentially increased vulnerabilities to electronic cigarette (e-cigarette) use among youth with a history of childhood trauma. While empirical evidence supporting the relationship between childhood trauma and adolescent e-cigarette use is emerging, few effective preventive interventions are available to curb e-cigarette use among adolescent victims of childhood trauma. This article reviews current evidence with respect to how childhood trauma could increase risk for nicotine dependence and e-cigarette use in adolescent populations. Furthermore, this paper describes the development, design, and implementation of *Rise Above* (RA), a randomized, controlled trial of a trauma-informed, e-cigarette preventive intervention. Lessons learned are also discussed, including the challenges of implementing evidence-informed prevention work within communities

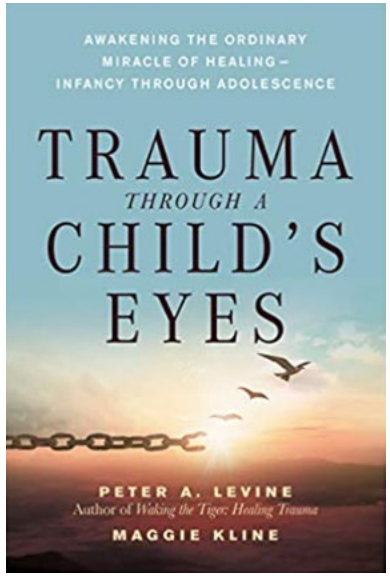
University of Idaho
WWAMI Medical Education

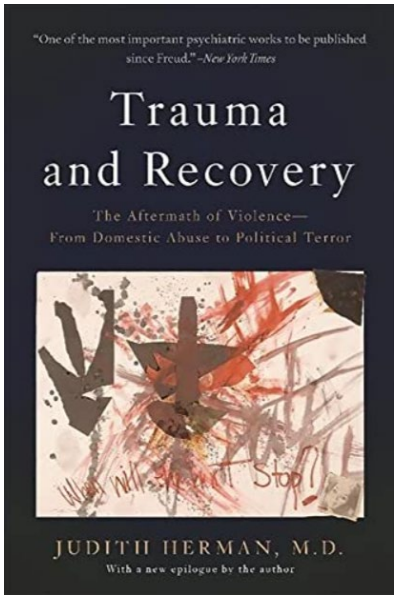
Resources for Understanding Trauma – Seminal Experts:

1. The Body Keeps the Score by Bessel Van Der Kolk
2. In An Unspoken Voice: How the Body Releases Trauma and Restores Goodness by Peter A. Levine, PhD
3. Trauma through a Child's Eyes by Peter A Levine and Maggie Kline
4. Trauma and Recovery by Judith Herman, M.D.





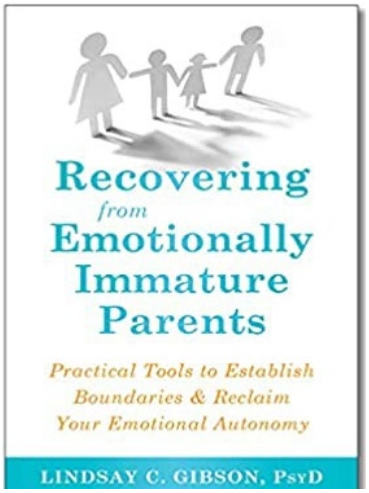


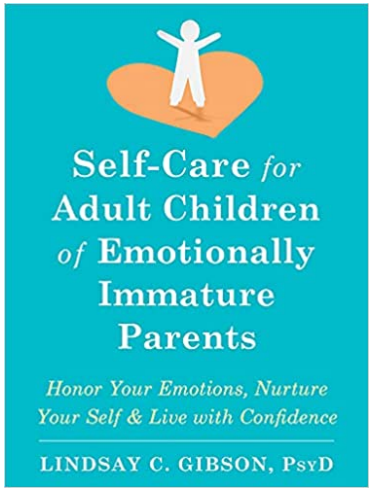


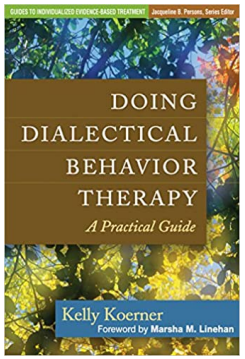
Project ECHO | University of Idaho WWAMI Medical Education

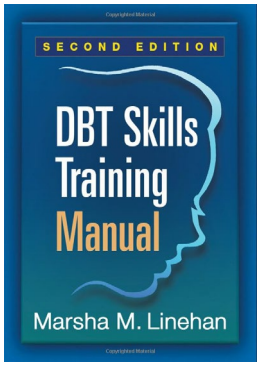
Resources for Sustained Trauma / Personality Disorder Healing:

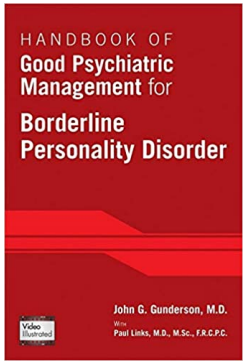
1. Recovering from Emotionally Immature Parents by Lindsay Gibson
2. Self-Care for Adult Children of Emotionally Immature Parents by Lindsay Gibson
3. Doing Dialetical Behavior Therapy by Kelly Koerner
4. DBT Skills Training Manual, 2nd Ed. & DBT Skills Training: Handouts and Worksheets by Marsha Linehan
5. Handbook of Good Psychiatric Management for Borderline Personality Disorder by John G. Gunderson









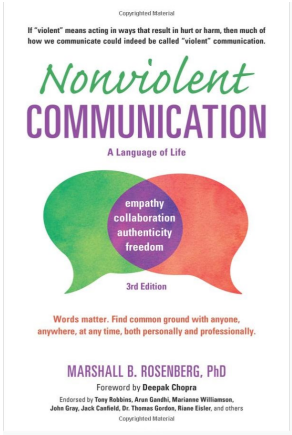


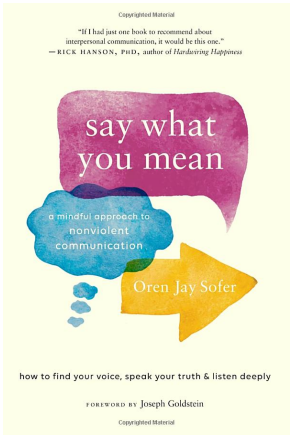
Project ECHO | University of Idaho WWAMI Medical Education

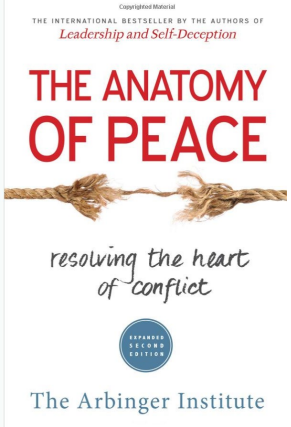
Resources for Mental Health Creation

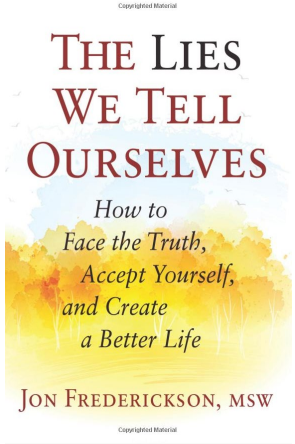
Books for Healing:

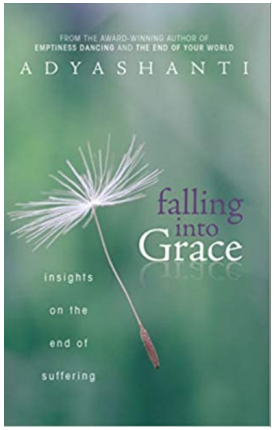
1. Book to heal the world –
   Nonviolent Communication, 3rd ed, by Marshal Rosenberg
2. "Graduate" book to NVC –
   Say What you Mean by Oren Jay Sofer
3. What breaks the world –
   The Anatomy of Peace: Resolving the Heart of Conflict by the Arbinger Institute
4. Wisest book, piercing quality about how we create our suffering. Complex trauma healing –
   The Lies We Tell Ourselves: How to face the Truth, Accept Yourself, and Create a Better Life by Jon Frederickson
5. My favorite book for grief –
   Read This Till You Believe It by **M.H. Clark
6. Funny, motivating actions to improve life –
   How to be Miserable: 40 Strategies You Already Use by Randy Paterson
7. Beautiful short poems on internal experiences –
   Inward by Yung Pueblo
8. Acceptance, mindfulness, suffering –
   Falling into Grace: Insights on the End of Suffering by Adyashanti

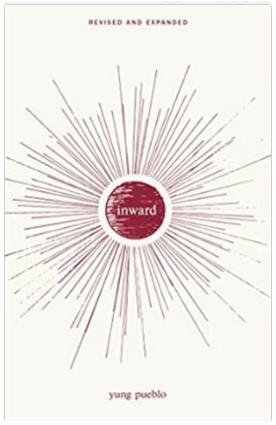


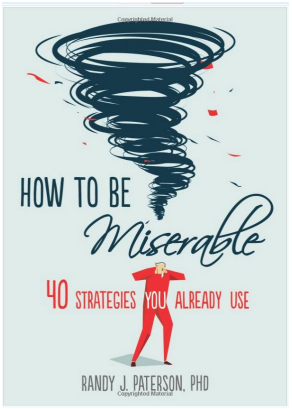


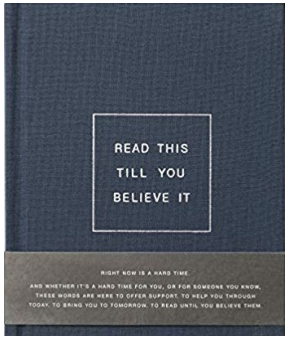












Project ECHO | University of Idaho WWAMI Medical Education

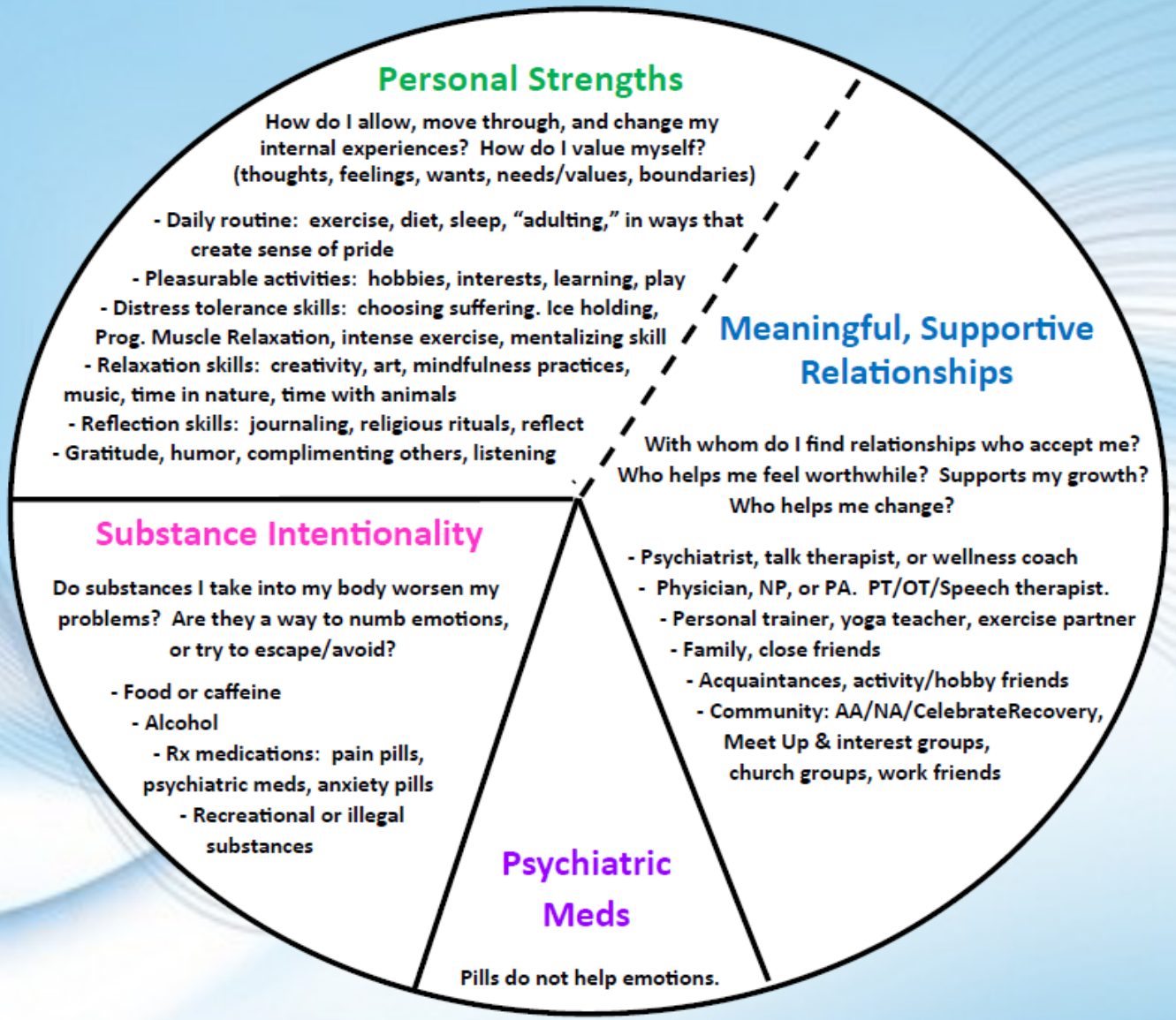
Case Presentation

17 y/o F w/ PMHx ADHD, combined type, polysubstance abuse (alcohol, cannabis, nicotine, cocaine), history of cutting and remote suicide attempts presents to BSU Student Wellness after ADHD testing, requesting treatment for ADHD with stimulants.

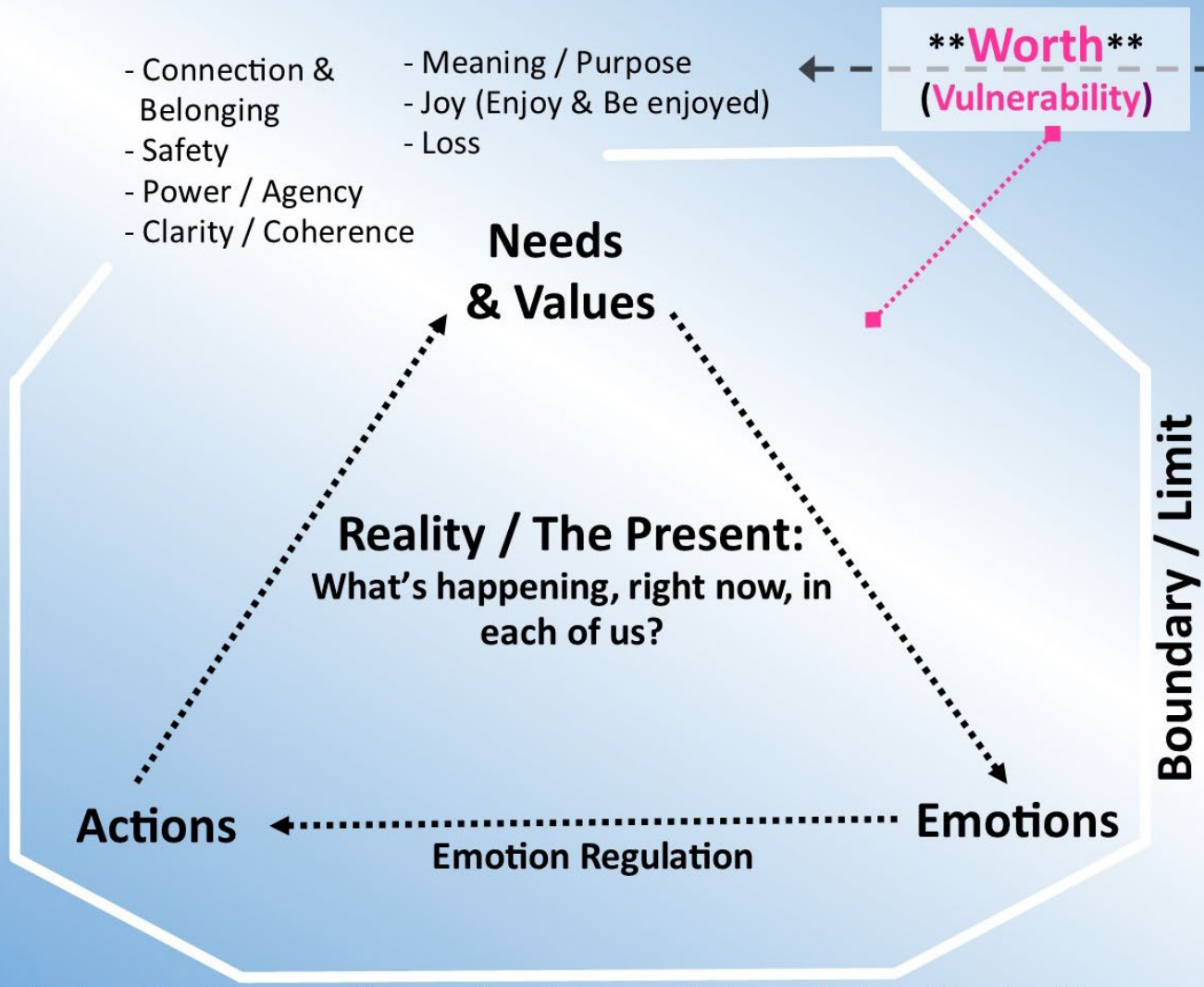
- Suicide attempt at age 13, resulting in hospitalization
- history of cutting for ~3-4 years
- Binge alcohol use pattern, previous blackout drinking
- Cocaine use for ~20 times over 3 months. None for >1 year.
- Not currently in psychotherapy
- Has rules for alcohol use, related to stimulants

- Safety:
- Alliance:
- Availability
- Goal, tasks
- What happened?

Dr. Billington's Summary of Psychiatric Treatment for Named Problem Patterns (Diagnoses) that Interfere w/ My Quality of Life or Ability to Do What Matters



Dr. Billington's Model for Active Mental Health Creation



Thought World:
(& Drivers of Trauma):

1. Thought labels
2. Shame

⇩

Hierarchy

Has Power
Judged w/ + labels
"Right"
"Good" / "Perfect"
Pursue

Lacks Power
Judged w/ - labels
"Wrong"
"Bad" / "Broken"
Disregard

2 Resulting Patterns for Relationship:

1. Attack (label) pattern
2. Passive Withdraw (passive) pattern

Need: shared by all humans. Absence of need creates suffering, and a loss of function/life.

Value: specific to an individual. Temperament, love language, moral fiber. Personal compass; shows what matters: what suffering is meaningful. Individual. Ex: love languages

Boundary: an invitation to accept a part of me, here. Can I still add to your life if I feel ____, have limits/needs, believe or find meaning in _____, etc)? Is not an attack, nor withdrawal.