Addiction through a Trauma-Informed Lens

September 3, 2020
• Participants will be able to identify at least two factors from the Adverse Childhood Experiences Scale (ACE).
• Attendees will name at least one link between traumatic experiences and substance use disorders.
• Participants will be able to state at least two considerations for treatment and recovery.
<table>
<thead>
<tr>
<th>ABUSE</th>
<th>NEGLECT</th>
<th>HOUSEHOLD DYSFUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>Physical</td>
<td>Mental Illness</td>
</tr>
<tr>
<td>Emotional</td>
<td>Emotional</td>
<td>Incarcerated Relative</td>
</tr>
<tr>
<td>Sexual</td>
<td></td>
<td>Mother treated violently</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Substance Abuse</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Divorce</td>
</tr>
</tbody>
</table>

**FIGURE 1: Types of Adverse Childhood Experiences**
Image courtesy of the Robert Wood Johnson Foundation
<table>
<thead>
<tr>
<th>ACE STUDY QUESTIONS</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has there been recurrent and severe emotional abuse?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has there been recurrent and severe physical abuse?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has there been contact sexual abuse?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has there been emotional neglect?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has there been physical neglect?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was there a person in the household with an alcohol or drug problem?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was there a parent who was imprisoned?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you live with someone who was mentally ill?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was your mother treated violently?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Were both parents physically absent?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Early Death, Disease, Disability, and Social Problems
Adoption of High-Risk Behaviors
Social, Emotional and Cognitive Impairment
Disrupted Neurodevelopment
Adverse Childhood Experiences
### Prevalence of ACEs by Category

#### ABUSE

<table>
<thead>
<tr>
<th></th>
<th>0%</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional</td>
<td>34%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical</td>
<td>18%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual</td>
<td>12%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### HOUSEHOLD CHALLENGES

<table>
<thead>
<tr>
<th></th>
<th>0%</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intimate Partner Violence</td>
<td>18%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance Abuse</td>
<td>28%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Illness</td>
<td>17%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Separation/Divorce</td>
<td>28%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incarcerated Household Member</td>
<td>8%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Merrick et al, 2018
4 or more ACEs (13%)

- 2.2 x more likely to have ischemic heart disease
- 2.4 x more likely to have a stroke
- 19 x more likely to have cancer
- 1.6 x more likely to have diabetes
- 2.4 x more likely to have COPD
- 3.3 x more likely to engage in risky sexual behavior

When untreated, results in a twenty (20) year difference in life expectancy

ACEs demonstrate a dose/response relationship (40 studies)

- 2.9 x more likely to smoke
- 3.2 x more likely to drink alcohol
- 7.4 x more likely to have an Alcohol Use Disorder
- 10.3 x more likely to use injection drugs
- 12.2 x more likely to attempt suicide

For each ACE, risk for early initiation of substance increases 2-4 x, score of 5 or more=10 x
Early Adversity has Lasting Effects

ADVERSE CHILDHOOD EXPERIENCE

- Traumatic Brain Injury
- Fractures
- Burns

Mental Health

- Depression
- Anxiety
- Suicide
- PTSD

Maternal Health

- Pregnancy (unintended, complications)
- Fetal death

Infectious Disease

- HIV
- STS

Chronic Disease

- Cancer
- Diabetes

Risky Behaviors

- Substance Use
- Unsafe Sex

Opportunities

- Education
- Occupation
- Home
Positive Stress
Mild/Moderate and short-lived stress response necessary for healthy development

Tolerable Stress
More severe stress response but limited in duration which allows for recovery

Toxic Stress
Extreme, frequent, or extended extension of the body’s response without presence of a supportive adult

INTENSE, PROLONGED, REPEATED AND UNADDRESSED

SOCIO-EMOTIONAL BUFFERING, PARENTAL RESILIENCE, EARLY DETECTION/INTERVENTION

*Stress reduces both opiate and dopamine receptors in brain
Stressors = external triggers for physiological stress reaction

- Most potent—loss of control and uncertainty
- React powerfully with neurobiology of addiction
- Examples: emotional isolation, being dominated by others
- Increase need for external sources of dopamine—increase risk for addiction
- Major trigger for use and other addictive behaviors
- Most predictable trigger for recurrence
CHANGES IN BRAIN ARCHITECTURE DUE TO TOXIC STRESS

- Loss of brain cells
- Damage to brain cell connections
- Enlargement or shrinking of certain parts of brain
- Hyperactivity of certain parts of brain
Prefrontal Cortex

- Decision making, judgment, impulse control, attention
- Difficulty focusing, poor memory, critical thinking
Amygdala

- Process emotional reactions (anxiety, fear)
- Increased anxiety, proneness to fear
Hippocampus

- Learning, memory, some stress response regulation
- Impaired memory, mood control
Infants react to and developmentally influenced by parental physiological state

Body language, arm tension, voice tone, despondent facial expression, pupil size, contact (presence or absence, quality)

Parental brain programs the infant’s brain; stressed parents rear children whose stress apparatus is in high gear

Electrical brain activity exquisitely sensitive in child and wired to adult

It is immaterial how much parents love their children or how much they desire to do their best

Oxytocin production critical to forming loving attachments. Builds capacity to manage psychological and physiological stress
Study with children (6 months old)

- Mothers with post-partum depression
- Mothers in normal good spirits
- EEG results—consistent differences between groups
- Noted in frontal lobe
- Even when depressed mothers were interacting joyously with the children

Other studies note increased cortisol levels when mother was depressed in first year of child’s life
Stress key factor

6 or more stressful events in a year, 3x amount of alcohol consumed daily + heavy consumption

Allostatic load (prolonged accumulation of stress)

Perseverative cognition (representation of a stressor after it is no longer present)

Results in amplified threat perception, catastrophizing negative events, rumination, downward spiral

Dysregulate neurological circuits with amygdala and alter normal setpoint

Setpoint increases sensitivity to stress, punishment, painful emotions or anhedonia

McEven and Wingfield, 2003; Koob, 2001; Garland, 2013
Compulsive engagement with behavior

Impaired control over behavior

Recurrence despite evidence of harm

Dissatisfaction, irritability, or intense craving when object is not readily available

Addiction

“You no longer feel that you have the power to stop. It seems stronger than you. It does give a fake sense of pleasure, pleasure that invariably turns into pain.”

Tolle

Mate, 2006
“Drug addictions wouldn’t occur unless they were related to natural reward process of some kind.”

Jack Panksepp, MD, 2006

“This aberrant behavior has traditionally been viewed as ‘bad choices’ that are voluntarily made by the addict. However, recent studies have shown that repeated drug use leads to long lasting changes in the brain that undermine voluntary control.”

Nora Volkow, MD, 2004
1/8 use tobacco (40 million)
26% report binge drinking in last 30 days
11.8 million use cannabis
3.4 million adults report use of cocaine
Approximately one million Americans use heroin
70,980 overdose deaths in 2019
Up 11.4% in first four months of 2020

Overdose deaths increased in Michigan by 26% from 2019 to 2020

ER visits increased by 42% in May

Alcohol sales up 55% nationally
Some drugs target the brain’s pleasure center

Brain reward (dopamine pathways)

How drugs can increase dopamine

While eating food

While using cocaine

Typically, dopamine increases in response to natural rewards such as food. When cocaine is taken, dopamine increases are exaggerated, and communication is denied.

“...I did heroin, it felt like a warm, soft hug.”

27 year-old sex trade worker
- Amphetamine (1000% increase)
- Cocaine (400% increase)
- Morphine/Heroin (150-300% increase)
- Nicotine (150-300% increase)
- Cannabis (225% increase)
- Alcohol (125-500% increase)
- Food or sex (50-110% increase)

Dopamine release over baseline
• Repeated exposure
• Increased neurobiological response in future

Hypersensitization

Incentive salience

• Desire for substance beyond simple preference
• Guarantees individual will repeat behavior

Unconscious process

• Develops into conscious craving
Diminished Dopamine Receptors

- Drive for more stimulation
- Compensate for diminished receptors
- Abnormal drives for attachment and aversion
Craving increases blood pressure and cortisol

Perceive physiological responses as equal to motivation for change

Feelings of guilt and shame

Attempt to suppress

Aggravates sympathetic arousal

Garland, 2013
Fight, flight or freeze

Rebound effect

Substance-related cues and increase intrusiveness of thoughts and feelings
- When aspect of the brain is analyzed, attempt to control
- Reduction in rate of change
- Attention and focus stabilize brain circuitry
- Paying attention keeps circuit open and undesired dynamic alive
Core

- Emptiness based on object fear
- Concerns the burden of the past and the anticipation of the future

“Self-centered fear is the chief activator of all our defects.”

12 Steps and 12 Traditions, page 7
82% of psychiatric hospitalizations have experienced physical or sexual abuse.

82% of adults diagnosed with BPR & 90% with DID were abused as children.

82% of adolescents in inpatient and residential treatment programs have histories of trauma.

80% of incarcerated women = victims of physical or sexual abuse.

Boys who witness or are victims of violence are 1000x more likely to commit violence.

Jennings, 2004
<table>
<thead>
<tr>
<th></th>
<th>No trauma (77)</th>
<th>Other trauma (134)</th>
<th>CSA (18)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Positive drug screens</td>
<td>26</td>
<td>33.8</td>
<td>72</td>
</tr>
<tr>
<td>Sanctions</td>
<td>30</td>
<td>39</td>
<td>75</td>
</tr>
<tr>
<td>Bench warrants</td>
<td>31</td>
<td>40.3</td>
<td>64</td>
</tr>
<tr>
<td>Any negative event</td>
<td>44</td>
<td>57.1</td>
<td>102</td>
</tr>
<tr>
<td>Failed drug court</td>
<td>11</td>
<td>14.3</td>
<td>36</td>
</tr>
</tbody>
</table>

Wolf, et al 2015
With abstinence, traumatic symptoms emerge
Treatment programs need to address SUD and PTSD simultaneously
Safety

Empowerment

Collaboration

Choice

Trustworthiness

Fallot and Harris, 2003
Physical: Eating and sleeping disturbances, pain, low energy, headaches, panic attacks and anxiety

Spiritual: Guilt, shame, self-blame, self-hatred, feeling damaged, questioning one’s own purpose

Cognitive: Memory lapses, loss of time, being flooded with flashbacks, difficulty making decisions, decreased ability to concentrated, thoughts of suicide

Behavioral: Self harm (cutting, substance misuse, self-destructive behaviors, isolation, choosing friends who may be unhealthy, suicide attempts, hypervigilance)

Emotional: Depression, crying, anxiety, extreme vulnerability, panic attacks, fearfulness, anger emotional numbness, difficulties in relationships

Expression of Trauma

Marcellus, 2014
<table>
<thead>
<tr>
<th>TRADITIONAL</th>
<th>TRAUMA-INFORMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traumatic Stress not perceived as a primary defining event</td>
<td>Trauma events are central events impacting everything else</td>
</tr>
<tr>
<td>Problems and symptoms are discreet and separate</td>
<td>Problems and symptoms are interrelated responses to or coping mechanism</td>
</tr>
<tr>
<td>Hierarchical</td>
<td>mechanism to deal with trauma</td>
</tr>
<tr>
<td>People providing the service are the experts</td>
<td>Sharing power</td>
</tr>
<tr>
<td>Primary goals are defined by service providers and focus on symptom</td>
<td>Clients are active experts and partners with people proving services</td>
</tr>
<tr>
<td>reduction</td>
<td>Primary goals are defined by those receiving services and focus on</td>
</tr>
<tr>
<td>Reactive</td>
<td>recovery, self-efficacy, and healing</td>
</tr>
<tr>
<td>Perceives clients as broken, vulnerable, damaged and needing protection</td>
<td>Proactive</td>
</tr>
<tr>
<td>from themselves</td>
<td>Understands that providing clients with the maximum level of choices,</td>
</tr>
<tr>
<td></td>
<td>autonomy, self-determination, dignity, and respect is central to healing</td>
</tr>
</tbody>
</table>

McGuire, et al 2005
Trauma Informed Care

Trauma Specific Care

Seeking Safety
Helping Women
Recover
TREM
EMDR
Mindfulness

Brainspotting
Comprehensive Resource Model
Core Transformation
Coming to Wholeness