Introduction to Brain Injury & Mental Health

Brain Injury Alliance of NJ Rachel Ishak, MSW, LSW 1-800-669-4323

Brain Injury Alliance NEW JERSEY

bianj.org

Objectives



- Provide overview of brain injury
- Identify the relationship between mental health and brain injury
- Explore issues and treatment barriers related to mental health and brain injury
- Review strategies for professionals



Functions of the Brain

Frontal Lobe

Initiation Problem solving Judgment Inhibition of behavior Planning/anticipation Self-monitoring Motor planning Personality/emotions Awareness of abilities/limits Organization Attention/concentration Mental flexibility Speaking

Temporal Lobe

Memory Hearing Expressive and receptive language Comprehension of language Musical awareness Organization & sequencing skills

Parietal Lobe

Sense of touch Differentiation of size, color, shape Spatial perception Visual perception

Occipital Lobe

Visual perception and input Reading (perception and recognition of printed words)

Cerebellum

Coordination Balance Skilled motor activity **Brain Stem** Breathing

Heart rate Arousal/Consciousness Sleep/wake functions Attention/concentration



Brain Injury

Acquired Brain Injury

Injury to the brain that has occurred after birth

Examples

- Anoxia
- Stroke/Aneurysms
- Infections to the brain
- Toxic exposure

Traumatic Brain Injury

Blow to the brain caused by an external physical force

Examples:

► Falls

- Motor vehicle crashes
- Acceleration-deceleration forces
- Assault/DV/Military
- Sports/recreation



"The Silent Epidemic"

Estimated 5.3 million

Americans live with a disability as a result of traumatic brain injury Brain Injury

(CDC, 2016)

Severity of Brain Injury





Mild

An individual who sustains a **mild brain injury** may experience:

- ► Loss of consciousness up to 30 min
- Vomiting
- Dizziness
- Memory loss
- ► Fatigue
- Not present on imaging

A concussion is considered a mild traumatic brain injury or mTBI (BIAA, n.d.)



Moderate



An individual who sustains a **moderate brain injury** will experience:

- Contusions or bleeding on/within the brain
- Be unconscious for up to 24 hours
- Signs of brain trauma

(BIAA, n.d.)





An individual who sustains a **severe brain injury** will experience:

- ► Unconscious for more than 24 hours
- Show signs of injury on neuroimaging tests
- May experience post-traumatic confusion or amnesia



Effects of Brain Injury









Emotional and behavioral



Symptoms

- Motor control, balance & coordination
- Sleep disturbances
- ► Hearing & vision
- Speech & communication
- Memory
- Processing & reasoning
- Planning & organizing
- Attention
- Impulsivity
- Depression, anxiety, aggression
- Impaired judgment & self-awareness





Brain injury is unpredictable in its consequences

Injury severity doesn't necessarily determine symptoms or outcome

Things might not return to the way they were before the injury

Rehabilitation can be a slow process











Psychosocial Consequences

Interpersonal Difficulties

Establishing and Maintaining RelationshipsIntimacy/Sexuality

Intra-Personal Difficulties

- Loss of Self Esteem
- Shaken Sense of Self
- Depression/Frustration
- Profound Sense of Loss





Long Term Impact





Mental Health & Brain Injury



Prevalence of Mental Health Concerns Among Individuals with BI

With severe impairments face some related emotional, behavioral, or psychiatric problem 2.8-4x

Greater risk for developing a psychiatric illness in the 6 months following injury



(McMorrow, 2016), (Fann et al., 2004)

90%

Study Review

In over half of the studies identified, over **50%** of those presenting for mental health or addiction services had a history of TBI

In three quarters of the studies, 25%
 had a history of TBI





(Davies et al., 2023)

Mental Health Concerns & Brain Injury

Depression: over **50%** of those with TBI are affected by depression within the 1st year of injury, **66%** within 7 years of injury (Fann & Hart, n.d.)

PTSD: those with TBI are 2x more likely to report symptoms of PTSD/depression than other trauma patients (Stein et al., 2019)

Substance Use Disorder (SUD): ~50% presenting for treatment have a BI (Dane et al., 2018)

Suicidality: 19.1% experienced suicidal ideation (Chen et al., 2022); Individuals with mTBI are **2x** more likely to die by suicide (Fralick et al., 2019)

Increased risk for **schizophrenia** (Molloy et al., 2011) and **personality changes** (Norup & Mortensen, 2015)



Why might someone develop a mental health disorder after a brain injury?





Distinguishing Between MH & BI

- Depressed mood
- Anhedonia
- Fatigue
- □ Sleep changes
- Difficulty concentrating
- Irritable/angry

Risky behavior
Memory loss
Negative thoughts about self
Social withdrawal/feeling isolated
Negative affect
Avoidance of trauma related stimuli



Mental Health/Injury Treatment Barriers







Strategies for Professionals



Case Questions

- Does this individual have a history of brain injury?
- What is the impact of injury-related symptoms on client's life?
- How would injury-related cognitive deficits affect treatment?



Treatment Considerations



Medications

Compliance with treatment Support networks



Adapt Environment for Success





Adapt Environment for Success







Set clear goals/objectives Repeat

Summarize





Rachel Ishak, Community Outreach Specialist

rishak@bianj.org

825 Georges Road 2nd Floor North Brunswick, NJ 08902

1-800-669-4323

bianj.org



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