Psychosocial Issues
Section 5
Certified Brain Injury Specialist Training

This training is being offered as part of the Brain Injury Alliance of Connecticut’s ongoing commitment to provide education and outreach about brain injury in an effort to improve services and supports for those affected by brain injury.

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ACBIS Exam Study Outline

- Factors affecting duration of psychiatric symptoms

- Co-occurring brain injury and psychiatric illnesses and crises events
  - Depression after TBI
  - Organic personality disorder
  - Pseudobulbar affect (note: info on Pseudobulbar affect is in Chapter 11, page 206 of the text)

- Substance misuse
  - Description of substance use disorder
  - Prevalence of and screening tools for SUD
  - Deficits affecting treatment for SUD
  - TBI and SUD
Learning Objectives

Be familiar with factors associated with the post-injury development of a psychiatric disorder.

Be able to discuss Organic Personality Disorder as a potential outcome of TBI.

Gain an understanding of the relationship between location and severity of the injury and the development of psychiatric symptoms and conditions.

Be able to distinguish between mania caused by TBI versus mania originating from a different cause.

Be able to articulate why patients living with a TBI are at an increased risk for certain psychiatric disorders, such as depression, bipolar disorder, panic disorder, generalized anxiety disorder, and schizophrenia.

Be able to describe how a psychiatric disorder can complicate the rehabilitation process and create additional barriers to community return and independence for a person with TBI.
Neuropsychiatric Symptoms

- There are many factors that play a role in developing neuropsychiatric symptoms after a TBI

- Premorbid Symptoms
- Individualized factors: marital discord, poor relationships, history of problems at work, financial instability

- Gender
- Age

- Injury Location
- Injury Severity

- MILD: GCS 13-15
- MODERATE: GCS 9-12
- SEVERE: GCS 3-8
Dual Diagnosis

- **Definition**: the relationship of a set of symptoms, including behaviors, which are or resemble symptoms of a known psychiatric disorder

- When individuals have such symptoms and a TBI, it is considered a dual diagnosis

- The two diagnoses create disabling conditions for individuals as the comorbidity creates additional stressors, affects long-term recovery, and quality of life

- It is often difficult for providers to determine if the symptoms are related to the injury or a previous medical condition
Psychiatric Problems = Rehab Barriers

- Individuals with psychiatric symptoms may become extremely agitated, confused, or combative, causing problems on units where the primary emphasis is on physical rehabilitation.

- This could lead to brain injury patients being inappropriately placed in other settings or being discharged home too early.

- These patients are often unable to participate in traditional counseling due to cognitive deficits.

- Psychiatric medication may exacerbate aspects of the brain injury and make matters worse.
Psychiatric Problems = Rehab Barriers

- Onset of psychiatric symptoms **may be early or later**, and therefore may **interfere with patients’ ability to reintegrate into the community and regain independence**

- **Caregiver stress** increases greatly when behavior problems and/or psychiatric issues are present

- Rehab providers may respond negatively, leading to **premature termination**

There is a direct relationship between behavioral problems and psychiatric symptoms and caregiver stress. This can reduce the effectiveness of the individual’s support network.
Co-occurring brain injury & psychiatric illnesses and crisis events

Agitation, confusion and combative behavior result in referral to inpatient psych unit

Talk therapy ineffective due to cognitive deficits

Psych meds don’t work or exacerbate brain injury

Rehab remains incomplete or disrupted

Behaviors subside rapidly and individual is discharged home without supports

Agitation, confusion and combative behavior occurs again due to lack of supports
- Integration of psychiatric and psychological services into rehabilitation programming can ensure treatment for individuals with co-occurring psychiatric disorders who might otherwise have been excluded from rehabilitation due to the dual diagnosis problems.

- Return to the community can add stress and complications.

- The outside environment may further intensify deficits related to work, finances, and daily life.

- Psychiatric problems may occur or intensify leading to an increase in hospitalizations.

*These problems can lead to further complication of injury as well as neuropsychiatric issues.*

**Areas Requiring Special Attention:**
- Community Reintegration
- Peer Relationships
- Caregiver Burden
- Loss of Independence
- Economic Stress
Dx and Long-Term Outcome

- For patients with TBI: **anxiety and depression were linked to poorer outcomes later in life**

- Those with severe injuries had lower rates of depression, suggesting self-awareness plays a role in rate of depression

- Studies show that **Major Depressive Disorder** is the most common Axis I disorder for TBI patients

- **Most common Axis II disorders** include **avoidant, paranoid, and schizoid personality disorders**

Post-injury psychiatric problems hinder life outcomes, community reintegration, independence, and adjustment to disability. It is important to understand and treat these additional factors.
Injury Severity & Psychiatric Problems

Factors to consider for post-injury development of a psychiatric disorder

- Neurophysiological effects of the injury
- Psychological vulnerability
- Self-awareness of deficits
- Social influences

Mild traumatic brain injury (mTBI)

- Recognition of signs/symptoms can be particularly difficult
- Symptoms such as pain, headache, cognitive or emotional change may be signs of psychiatric condition or direct result of injury
- Monitoring and follow up are VERY important for accurate diagnosis!
Studies have found links between depression and:

- General tissue injury linked to chronic neurobehavioral problems
- Serotonin levels are also linked to depression
- Disturbances in neurotransmitters (serotonin, glutamate, dopamine) can also create depressive symptoms and have been found in TBI patients

Key brain regions:
- Left prefrontal gray matter reduction
- Lateral and medial frontal lobe lesions
- Amygdala & hippocampus lesions
- Basal ganglia lesions
Factors Related to Development of Depression

- Pre-existing difficulties in areas of:
  - Social functioning
  - Job dissatisfaction
  - Low economic status
  - Less education
  - Lack of close personal relationships

- Other psychiatric problems may accompany depression after TBI:
  - Pre-morbid alcoholism is linked to post injury depression
  - Anxiety intensifies depression symptomology

- Depression alone tends to relate to left hemisphere injury

- Co-occurring depression and anxiety tends to relate to right hemisphere injury
Factors Related to Development of TBI

- TBI can lead to isolation
- Increase in care needs
- Restricted socialization opportunities
- Alternate employment or unemployment
- These multiple factors contribute to individuals’ ability to cope, and place them at risk for further complications and hardships in addition to the TBI and dual diagnosis
Can TBI Cause Psychiatric Disorders?

- TBI relates to increased risk for:
  - Depression
  - Bipolar disorder
  - Panic disorder
  - Generalized anxiety
  - Schizophrenia
  - and more...

- TBI is associated with changes in personality and behavior

- Other factors to consider:
  - Gender and genetic predisposition
  - Premorbid personality
  - Psychological resilience
  - Social support
  - Socioeconomic status

When comparing the TBI population to the general public, the rates for depression, panic disorder, phobic disorder, and generalized anxiety disorder were far greater along with an increase in suicide attempts, although frequency varied
Disorders: Major Depressive Episode

- Definition: At least **2 weeks** in which the individual experiences loss of interest or depressed mood accompanied by **at least four** additional symptoms
  - Change in appetite
  - Weight gain
  - Decreased energy
  - Feelings of worthlessness
  - Suicidal ideation

Risk factors associated with developing MDD following TBI:
- Socioeconomic status
- Premorbid psychiatric pathology
Disorders:

Manic Episode

Identified by a period of at least 1 week where the individual has a noticeably elevated, expansive, or irritable mood with at least 3 additional symptoms (4 if the mood is only irritable):

- Extremely amplified self-esteem
- Decreased desire for sleep
- Grandiose ideas
- Distractibility
- Risk activities

- It can be difficult to determine whether mania is related to TBI or additional factors

- Those relevant to TBI include increased aggression, irritability, and activation, and decreased euphoria and sleep
Disorders: Bipolar Affective Disorder

- Definition: recognized as a mood disorder further classified as bipolar I, bipolar II, cyclothymia, and bipolar disorder not otherwise specified (NOS)
  - **Bipolar I**: 1 or more manic episodes; **Bipolar II**: one or more depressive episode followed by one or more hypomanic episode.
  - **Cyclothymic disorder**: a chronic fluctuating mood disturbance including both depressive and hypomanic states.
  - Bipolar disorders can be seen at increased rates within TBI patients

- Risk factors associated with TBI & Bipolar Disorder:
  - Behavioral swings associated with mood instability (can damage social support and relationships) resulting in crisis situations at home/community.
  - Medication compliance
  - Substance use: self-medicating or mood-driven
Disorders: Generalized Anxiety Disorder

There are a multitude of factors that can create anxiety for individuals after brain injury:

- Loss of independence
- Cognitive deficits
- Fear of making mistakes

.. and these are just a few potentially anxiety provoking situations

- Most often described as feelings of fear or worry
  - May also include fatigue, irritability, muscle tension, restlessness, decreased concentration, and changes in sleep

- Those with TBI may worry about:
  - Making mistakes
  - Finances
  - Loss of control
  - Difficulty problem solving
  - Becoming overwhelmed
  - Fear of falling or pain
  - Memory deficits
Disorders:

Generalized Anxiety Disorder

- **Important Fact:** Those with anxiety or depression perceive their illness as far more severe regardless of injury severity/deficits
- Premorbid tendency to worry leads to increased risk for developing GAD post TBI
- Individuals with anxiety experience more difficulty in rehab setting than those without anxiety
- Anxiety complicates TBI & recovery

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Panic Attack

- When anxiety occurs **very suddenly and intensely**
- Include **intense fear** along with pounding heart, sweating, trembling, shortness of breath, feeling of choking, chest pain, abdominal symptoms, dizziness, fear of losing control or dying, numbness or tingling, chills, or hot flashes
Disorders: Panic Disorders

- **Definition:** Repeated panic attacks followed by worry about future attacks or changes in behavior related to the panic attack.

- Characterized by intense fear accompanied by at least four somatic symptoms including:
  - Sweating
  - Palpitations
  - Trembling/shaking
  - Nausea
  - Chest pain
  - Dizziness
  - Chills
  - Hot flashes

- Panic Disorder can often lead to barriers that negatively impact the patient from reintegrating into the community and returning to social roles.

*When panic attacks occur repeatedly and the individual worries about more attacks occurring or behavioral changes that occur during attacks this rises to the level of a panic disorder.*
Disorders: Obsessive-Compulsive Disorder

- Definition: Obsessive-Compulsive Disorder (OCD) is characterized by repetitive, ritualistic behavior that is so severe that it becomes time consuming.
- OCD does not appear to be common post-TBI.
- OCD, if not diagnosed and treated, can significantly impair a patient’s ability to rehabilitate and reintegrate.

- Treatment: Cognitive Behavior Therapy (CBT) may be useful in assisting and treating ritualistic behaviors.
Disorders:
Post Traumatic Stress Disorder (PTSD)

- PTSD symptoms can be incapacitating
- A person with PTSD and TBI would likely have great difficulty with:
  - Community living
  - Participation in rehab
  - Maintaining relationships

- **PTSD**
  - A group of symptoms following a traumatic event that may include **re-experiencing the traumatic event**, persistent avoidance of stimuli, increased arousal, anger issues, irritability, and flashbacks
  - Reduced awareness/amnesia following the traumatic event may decrease the likelihood for developing PTSD

- **PTSD can occur following TBI**

- Contributing factors:
  - Psychosocial adversity
  - Early post-TBI depressive symptoms
  - Pre-morbid anxiety
Disorders: Schizophrenia

- **Definition:** A disorder lasting for **at least 6 months** characterized by **a minimum of a 1-month phase of symptoms** that include delusions, hallucinations, incoherent speech, catatonia, or avolition

- **Studies suggest a correlation between TBI and Schizophrenia**

- Schizophrenia and TBI can lead to:
  - Problems with social relationships
  - Independence
  - Cognitive, behavioral, and psychological problems
  - Will severely compromise rehab efforts and create additional stressors that further complicate the reintegration process

Research has suggested that there is an increased probability of the development of schizophrenia post injury. Brain injury, when coupled with a diagnosis of schizophrenia, can greatly reduce prospects of independence.
Disorders:

Personality Disorders

- Personality Disorders: Organic Personality Disorder is the traditional diagnosis for individuals who develop personality disorder following TBI, exhibiting a change from the person’s pre-injury personalities.

- Changes that fall into the category of personality disorder.
  - Apathy
  - Affective lability
  - Uncontrolled emotions
  - Aggression

- Most frequently reported personality disorders: avoidant; paranoid; and schizoid.

- Loss of recognition of inappropriate behavior can be an additional obstacle to modifying/improving behavior lead to greater hardships within rehabilitation, daily living, relationships, and independence.

- One study showed personality disorders in approximately 23% of those with TBI.
Frontal Lobe Syndromes, Neurobehavioral Deficits, and Psychiatric Problems

- **Definition:** Frontal Lobe Syndrome presents symptoms of other psychiatric disorders including depression, psychosis, mood disorders, and various other conditions.

- The frontal lobe plays a large role in our ability to consciously recognize what is occurring within our brains and our bodies.

- Damage can often increase risk for development of depression or anxiety related to damage to the neural networks, leaving the brain unable to regulate emotions.

- The difference between diagnosing a frontal lobe deficit and depression is the individual’s personal ability to recognize and acknowledge the deficits.

- EEG, neuropsychological testing, and MRI Scans all assist in the diagnosis of Frontal Lobe Syndromes.
Pseudobulbar Affect (PBA)

Also known as emotional incontinence, is a neurologic condition in which people are prone to sudden, unexpected, inexplicable, and often inordinate episodes of crying or laughing.

- Misattributed to psychiatric disorders
- Related to injury and diseases affecting emotional lability
- Individuals with PBA cannot understand why they are displaying emotions in contract with their actual feelings

Associated with:
- TBI
- Stroke
- Parkinson’s disease
- MS
- Various dementias
## PBA Vs. Depression

<table>
<thead>
<tr>
<th>Clinical Characteristics</th>
<th>Pseudobulbar Affect</th>
<th>Depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Expression</td>
<td>Crying, laughing or both</td>
<td>Crying</td>
</tr>
<tr>
<td>Underlying neurologic conditions</td>
<td>Neurological disease or brain injury always present</td>
<td>May or may not have underlying neurologic disorder</td>
</tr>
<tr>
<td>Episode length of time</td>
<td>Seconds to minutes; brief</td>
<td>Weeks to months; ongoing mood</td>
</tr>
<tr>
<td>Ability to control episodes</td>
<td>Uncontrollable</td>
<td>May be moderated or controlled</td>
</tr>
<tr>
<td>Emotional experiences</td>
<td>Exaggerated or does not match feelings inside</td>
<td>Emotions match mood or sadness inside</td>
</tr>
<tr>
<td>Accompanying thoughts</td>
<td>Outbursts have no specific link to underlying thoughts</td>
<td>Worthlessness, hopelessness, thoughts of death</td>
</tr>
</tbody>
</table>
Changes in Functional Abilities and Lifetime Mental Health Issues

- Many factors contribute to the life changing aspects of brain injury:
  - Biomechanical & pathophysiological changes created by the injury
  - Rehabilitation
  - Adjustment to disability
- Social & Environmental Stressors
  - Social roles
  - Personal relationships
  - Lost vocational opportunities
  - Economic hardships/changes
  - Independence

Studies show the potential for gradual development of additional psychiatric disorders as the individual continues to battle the changing lifestyle.

These factors have a significant impact on a person and can contribute to mental health problems.
Implications for Rehab

- Rehabilitation will be a difficult process as the person with a brain injury becomes more aware of their deficits.

- **Family members will be greatly effected** by these changes and may distance themselves to cope with the stress.

- If the person develops **aggressive or problematic behaviors**, their ability to participate in rehabilitation will be compromised.

- Rehab professionals should request a **neuropsychiatry consultation** that could lead to helpful strategies including medication, counseling, and compensatory cognitive strategies that will aid in the process of adjusting to disability and self-managing psychiatric problems.

The key to achieving a successful rehabilitation outcome for the dual diagnosis patient requires:

- Integration of mental health services as part of the rehab plan

- Inclusion of specific strategies designed to address psychological issues in the skills-based approach.
Long-Term Implications

- Living with a TBI and a psychiatric disorder combined requires **specialized support** starting early in the rehab process and remaining available post-injury.

- Family, friends, and caregivers will need **ongoing support and education** to help the person with TBI maximize independence.

- **As the patient moves into the community**, assistance with accessing appropriately trained physicians, counselors, and therapists is essential to assist in coping with symptoms and problems associated with dual diagnosis.
Future Directions

- People living with brain injury will experience lifelong disabilities
- As this population continues to grow, so will the number of people who are facing dual diagnosis

They will need many ongoing supports including:

- Education
- Resources
- Access to appropriately trained doctors and therapists
- Assistance to identify and navigate:
  - Identifying community supports
  - Crisis support resources
  - Addressing long-term needs
  - Aging issues
  - Maintaining independence
Substance Misuse

Chapter 13
Learning Objectives

Be able to discuss the intersection between TBI and substance misuse

Be able to provide examples of at least two screening tools to assess misuse of alcohol and other drugs

Be able to identify characteristics in the TBI population which may interfere with the client-counselor relationship in substance treatment programs

Be familiar with the four-quadrant model for treatment and intervention of substance abuse disorder and TBI
TBI & History of Substance Misuse

Current research indicates for individuals receiving either TBI or substance misuse rehabilitation, up to two thirds had a history of TBI and substance misuse.

If an individual misused alcohol or other drugs prior to their injury, the risk of returning to substance misuse after injury is 10 times higher.
What Comes 1st? TBI or Substance Misuse?

The two disorders have a complicated relationship

Having a TBI relates to increased issues with substance misuse

Parental & childhood alcohol use increases the risk of having at least 1 TBI

Having a TBI and co-occurring substance misuse is associated with poorer functioning overall, including:

- Higher rates of re-injury
- Suicide attempts
- Decreased life satisfaction

- Children with TBI before age 5 are more likely to develop a substance use disorder
Definitions

- **Substance Misuse**: the consumption of alcohol and illegal drugs and the use of prescription drugs exceeding the prescribed amount or use of another person’s prescription drugs.

- **Substance Use Disorder (SUD)**: involves continued use despite health, psychological, or social consequences.

- **Hazardous Use**: the use of substances in a manner that is associated with higher risk of physical, mental, or social consequences and therefore represents a public health concern.

- **Psychoactive Substance Misuse**: the use of any psychoactive drug for non-medical purposes.

- **High-Risk Drinking**: the amount of alcohol use considered to be unhealthy for most of the U.S. population.
### High-Risk Drinking Definitions & People Advised to Avoid Alcohol Consumption

<table>
<thead>
<tr>
<th>High-Risk Drinking Definition</th>
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<tbody>
<tr>
<td>• For healthy men, more than 4 drinks in a day or 14 drinks in a week</td>
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<tr>
<td>• For healthy women, more than 3 drinks in a day or 7 drinks in a week</td>
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<table>
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<tr>
<th>People Advised To Avoid Any Alcohol Consumption</th>
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<tbody>
<tr>
<td>• Persons under 21 years of age, due to increased risk of traumatic events associated with use, as well as legal ramifications</td>
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<tr>
<td>• Women who are pregnant or may become pregnant</td>
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<tr>
<td>• Persons taking medications that may interact with alcohol</td>
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<tr>
<td>• Persons with certain medical conditions</td>
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<tr>
<td>• Persons engaged in activities requiring attention, skill, coordination, or judgment</td>
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</table>
Assessment of Substance Misuse

- Clinical interview by a trained healthcare provider who has built rapport with the person
- Use of open-ended questioning can be used to obtain necessary information and begin process of supporting behavior change
  - **Open-ended questions**: questions that require the person to give more than just a single word answer
    - Example: “Tell me about how you first started to drink.”
  - **Reflective Listening**: Check your understanding by restating the person’s response in your own words
Assessment of Substance Misuse

- **Standardized Assessment Tools** – assess use/misuse of alcohol and/or drugs:
  - CAGE (alcohol only)
  - AUDIT (alcohol only)
  - CRAFFT (alcohol/drugs)
  - ASSIST (alcohol/drugs/smoking)

  - Have you ever felt you should Cut down on drinking?
  - Have people Annoyed you by criticizing your drinking?
  - Have you ever felt bad or Guilty about your drinking?
  - Have you ever had a drink first thing in the morning to steady your nerves (Eye opener)?
Prevention and Treatment of Substance Misuse

- This four quadrant model describes the various settings where people with TBI and substance misuse could receive treatment.
- Quadrants are divided by whether the TBI and substance misuse are more or less severe.
Substance misuse is addressed in this setting using...

- **Screening and Brief Intervention methods**
- Persons who recently had an injury caused by substance misuse may be more open to reducing use
- Trained professional screens for amount of misuse, then provides information about risk for future problems due to misuse
- Professional uses **motivational interviewing** to support readiness to change
- Referral provided if necessary
- **These methods are likely to be effective for people with less severe TBI without severe cognitive deficits**
If the injury was caused by substance misuse, persons with more severe TBI may realize the connection while rehabilitating and be more open to behavior change.

All persons receiving TBI rehabilitation should be screened for risk of substance misuse.

All patients should be provided with education regarding the harms associated with substance use **AFTER TBI**.

High risk patients should receive a brief intervention, while those with more severe SUD should be appropriately referred.

Rehab teams must determine their message – often **no use** is the safest recommendation.

Teams must pay special attention to the referral process and make sure patients obtain appropriate treatment (setting up appointments, checking insurance coverage, transport, reminders, etc.).
- Those with more severe SUD require treatment by chemical dependency counselors
- Approximately 50% of people receiving SUD treatment have a history of at least one TBI
- People with cognitive deficits due to TBI and other disorders are more likely to drop out of treatment early due to problems developing rapport
- Effective therapeutic relationship requires mutual understanding, trust, and desire to achieve treatment goals
- Impaired social skills also have a negative impact on developing the therapeutic relationship
- Difficulty with attention, organization, and memory could lead to problems remembering and attending appointments and/or participation in group or learning activities
- SUD counselors may find it helpful to collaborate with TBI treatment providers for assistance in developing accommodations to address cognitive and executive functioning deficits
People with more severe TBI and SUD could greatly benefit from services in a setting that includes providers with expertise in the rehabilitation of both disorders.

Key components that have been identified for inclusion in integrated TBI and SUD treatment programs include:

- Intensive case management
- Holistic treatment focusing on increasing healthy, productive lifestyles
- Consultation and education between and for treatment professionals
- Skill building for clients

Few such treatment programs exist, and so the alternative is creating a treatment team that consists of both SUD and TBI professionals, working together to achieve optimal outcomes.
Deficits Affecting Treatment for Substance User Disorder

- Attention
- Processing
- Memory
- Initiation
- Impulsivity
- Planning & Organization
- Mental Flexibility
- Self-Awareness

Components of Substance Use Treatment

- Behavioral Therapy & Counseling (Individual, Family, Group)
- Self-Help/Peer Support Groups
- Appropriate duration of treatment
Suggestions for SUD Providers working with persons who have limitations in cognitive abilities...

**Assist The Individual To Compensate For A Unique Learning Style**

- **Modify written material** to make it concise and to the point
- Paraphrase concepts, *use concrete examples*, incorporate visual aids, or otherwise present an idea in more than one way
- If it helps, **allow** the individual to take **notes or at least write down key points** for later review and recall
- Encourage the use of a **calendar or planner**; if the treatment program includes a daily schedule, make sure a pocket version is kept for easy reference
- Make sure homework assignments are **written down**
- **After group sessions**, meet individually to **review main points**
- **Provide assistance** with homework or worksheets; **allow more time** and take into account reading or writing abilities
- **Enlist** family, friends, or other service providers to reinforce goals
- Do not take for granted that something learned in one situation will be generalize to another
- **Repeat, review, rehearse; repeat, review, rehearse**
Suggestions for SUD Providers working with persons who have limitations in cognitive abilities...

<table>
<thead>
<tr>
<th>Provide Direct Feedback Regarding Inappropriate Behaviors</th>
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<tbody>
<tr>
<td>▪ Let a person know a behavior is inappropriate; do not assume the individual knows and is choosing to do so anyway</td>
</tr>
<tr>
<td>▪ Provide straightforward feedback about when and where behaviors are appropriate</td>
</tr>
<tr>
<td>▪ Redirect tangential or excessive speech, including use of a predetermined method of signaling in groups</td>
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</tbody>
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<thead>
<tr>
<th>Be Cautious When Making Inferences About Motivation Based On Observed Behaviors</th>
</tr>
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<tbody>
<tr>
<td>▪ Do not presume that non-compliance arises from lack of motivation or resistance, check it out</td>
</tr>
<tr>
<td>▪ Be aware that unawareness of deficits can arise as a result of specific damage to the brain and may not always be due to denial</td>
</tr>
<tr>
<td>▪ Confrontation shuts down thinking and elicits rigidity; roll with resistance</td>
</tr>
<tr>
<td>▪ Do not just discharge for non-compliance; follow-up and find out why someone has no-showed or otherwise not followed through</td>
</tr>
</tbody>
</table>
Future Directions

- There is **still a lot of work to be done** in developing prevention and treatment methods that effectively reduce substance misuse among people with moderate-severe TBI.

- We need to **identify predisposing factors** that can potentially assist with improving prevention of both disorders.

- We need to **make effective SUD treatment more accessible** to those with TBI by improving counselor awareness of TBI and increasing the use of accommodations to adapt existing treatment methods.

- **Brain injury rehab field needs to become more engaged in the identification and treatment of SUD.**

- **Professionals from both fields need to come together** and assist in increasing awareness, prevention, identification, and treatment, of TBI and SUD together.
Q & A
Thank You!

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