Substance Abuse & TBI

John D. Corrigan, PhD
Department of Physical Medicine & Rehabilitation
Wexner Medical Center at The Ohio State University

Financial Disclosure

I have no other financial relationships relevant to this presentation.

Persons with TBI treated in addictions settings
Substance Abuse Treatment Clients Who Have Had a TBI with Loss of Consciousness

27 substance abuse treatment facilities in New York (Sacks et al, 2009)

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<td>11.4%</td>
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<td>19.6%</td>
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</table>
Substance Abuse Treatment Clients with TBI
(Corrigan & Mysiw, 2012)

- first used at a younger age
- have more severe SUD (worse use and more prior treatments)
- have more co-occurring mental health problems
- have poorer prognosis for successful treatment outcome (more so earlier the age at first TBI?)

Persons with substance misuse and abuse before and after rehabilitation for TBI

Pre-Injury Alcohol Misuse Among US Adults in Rehab for TBI

Drinking in excess of age and gender guidelines for healthy use at the period in their life when the injury occurred.
Drug Use in Year before Injury

Yes 12%
No 88%

Alcohol Misuse Among US Adults Alive 5 Years after Rehab for TBI

Yes 14%
No 86%

Drinking in excess of age and gender guidelines for healthy use when interviewed 5 years after injury.

14.2% misused alcohol in the 5 years since injury

Of the average annual 13,700 admissions to U.S. IRF’s* with a primary diagnosis of TBI, an estimated annual average of more than 1,945 have misused alcohol in the 5 years after injury.

*October 1, 2001 and December 31, 2007
Illicit Drug Use Among US Adults
Alive 5 Years after Rehab for TBI

5.1% have used an illegal drug in the 5 years since injury

Of the average annual 13,700 admissions to U.S. IRF's with a primary diagnosis of TBI, an estimated annual average of 700 have used illegal drugs in the 5 years after injury.

October 1, 2001 and December 31, 2007

Negative Effects of Substance Misuse and Substance Use Disorders

• Is associated with unemployment, criminal activity, depression, seizure, suicide, and other causes of premature mortality (see Corrigan & Mysiw, 2012)
• Interactive effect for indicators of brain function and structure (e.g., Dikmen et al., 1993; Bigler et al., 1996; Baguley et al., 1997; Barker et al., 1999)
Intervention and Treatment

- Models proposed initially for TBI were designed for residential settings (e.g., Blackerby & Baumgartner, 1990; Langley, 1991; Hensold, 2006)
- Quasi-experimental support for:
  - motivational interviewing (Bombardier & Rimmele, 1999; Cox, et al., 2003)
  - skills-based treatment (Vungkhanching et al., 2007)
- Equivocal results from RCT’s of SBI (Sander et al., 2012; Tweedly, Ponsford & Lee, 2012)
Intervention and Treatment (cont’d)

• Painfully little study of the effectiveness of proven treatment interventions with this population, whether behavioral, pharmacologic or systemic.

• Need for treatment going unmet—among persons with problems controlling use 1 year after TBI, a high proportion not getting assistance (Corrigan, Whiteneck & Mellick, 2004; Pickelsimer et al, 2007).

Percentage With Needs Unmet at 1 Year


<table>
<thead>
<tr>
<th>Needs</th>
<th>Unmet at 1 Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal assistance</td>
<td>12.7%</td>
</tr>
<tr>
<td>Self-care</td>
<td>19.0%</td>
</tr>
<tr>
<td>Traveling in the community</td>
<td>26.5%</td>
</tr>
<tr>
<td>Home making</td>
<td>28.5%</td>
</tr>
<tr>
<td>Coordinating services</td>
<td>33.1%</td>
</tr>
<tr>
<td>Managing money</td>
<td>44.2%</td>
</tr>
<tr>
<td>Managing stress</td>
<td>55.8%</td>
</tr>
<tr>
<td>Participating in recreation</td>
<td>66.5%</td>
</tr>
<tr>
<td>Improving cognition</td>
<td>71.0%</td>
</tr>
<tr>
<td>Controlling temper</td>
<td>73.6%</td>
</tr>
<tr>
<td>Controlling substance use</td>
<td>78.3%</td>
</tr>
<tr>
<td>Improving job skills</td>
<td>83.6%</td>
</tr>
<tr>
<td>Finding work</td>
<td>95.9%</td>
</tr>
</tbody>
</table>

Percentage With Needs Unmet at 1 Year (Pickelsimer et al. 2007)

<table>
<thead>
<tr>
<th>Needs</th>
<th>Unmet at 1 Year</th>
</tr>
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<tbody>
<tr>
<td>Opportunities to socialize</td>
<td>48.2%</td>
</tr>
<tr>
<td>Personal assistance</td>
<td>48.7%</td>
</tr>
<tr>
<td>Home making</td>
<td>53.9%</td>
</tr>
<tr>
<td>Improving job skills</td>
<td>57.8%</td>
</tr>
<tr>
<td>Information about services</td>
<td>61.2%</td>
</tr>
<tr>
<td>Managing stress</td>
<td>66.5%</td>
</tr>
<tr>
<td>Coordinating services</td>
<td>72.0%</td>
</tr>
<tr>
<td>Controlling substance use</td>
<td>78.8%</td>
</tr>
<tr>
<td>Finding work</td>
<td>88.7%</td>
</tr>
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</table>
% Hazardous Drinking

Baseline 6 months 12 months

TBI Enhanced Training TBI Control
No TBI Enhanced Training No TBI Control

4 Quadrant Model of Services

High Severity

Quadrant III
Substance Abuse System
Screening, Accommodation & Linkage

Quadrant IV
Specialized TBI & Substance Abuse Services
Integrated Programming

Low Severity

Quadrant I
Acute Medical Settings and Primary Care
Screening & Brief Interventions

Quadrant II
Rehabilitation Programs & Services
Education, Screening, Brief Interventions & Linkage

Traumatic Brain Injury

Substance Use and Abuse After Brain Injury: A Programmer’s Guide
Conclusions from Studies of SBI used in Rehabilitation for TBI

- Multimedia education ameliorates the negative effect of confusion
- Education appears to be the primary source of effects on knowledge and beliefs, with possible indirect effect on alcohol use
- Need to further modify brief interventions to increase effects

SBI for TBI

- How to accommodate confusion and/or diminished cognitive functioning?
- How can an interdisciplinary team optimize the impact of SBI?
- Are there opportunities to use SBI later post-injury:
  - Case managers?
  - Vocational rehabilitation counselors?
- Who and what use should be targeted?
Two Consistent Clinical Observations:

- Compared to others in SUD treatment there is an even greater disconnect between TBI clients’ intentions and their behavior.

- Clients with TBI are more likely to prematurely discontinue treatment, often after being characterized as non-compliant.

Reasons for negative effect on outcome due to TBI:

1. Neurobehavioral consequences undermine ability to participate “conventionally” in treatment
Persons with TBI face additional challenges seeking substance abuse treatment

• It is easy to see behavior as intentionally disruptive, particularly when there are no visible signs of disability:
  – Frontal lobe damage affects regulation of thoughts, feelings and behavior—promoting disinhibition.
  – Social “rules” may not be observed and interpersonal cues may not be perceived, creating consternation for fellow clients and staff.

Persons with TBI’s face additional challenges…(cont’d)

• Cognitive impairments may affect a person’s communication or learning style, making participation in didactic training and group interventions more difficult.

• Misinterpretation of neurological problems as resistance to treatment undermines treatment relationships.

Cognitive Impairment in the Match Study

(Bates et al. 2006)
Reasons for negative effect on outcome due to TBI:

1. Neurobehavioral consequences undermine ability to participate “conventionally” in treatment
2. Greater co-occurring psychiatric disorders for those with TBI

27 substance abuse treatment facilities in New York
(Sacks et al, 2009)

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Symptoms past 12 months of Clients Admitted for Substance Abuse Treatment in Kentucky (N=7,932)
Dually diagnosed SUD and Severe Mental Illness [N=295]
(McHugo et al. in review)

• 80% at least 1 TBI; 61% at least 1 TBI with LOC; 24% at least 1 mod/sev TBI
• Extent of TBI history associated with worse alcohol use, worse psychiatric symptomology, more arrests, greater homelessness
• TBI history associated with greater likelihood of PTSD and anti-social and borderline personality disorders.
• Earlier age at 1st TBI with LOC associated with presence of psychotic spectrum disorders

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<th>TBI</th>
<th>Non-TBI</th>
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</thead>
<tbody>
<tr>
<td>Schizophrenia</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Psychotic NOS</td>
<td>21</td>
<td>11</td>
</tr>
<tr>
<td>Bipolar</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>Schizoaffective</td>
<td>33</td>
<td>0</td>
</tr>
<tr>
<td>Major Depression</td>
<td>25</td>
<td>28</td>
</tr>
<tr>
<td>Dementia/Med. Ind.</td>
<td>19</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>19</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnosis on Axis II</th>
<th>TBI</th>
<th>Non-TBI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antisocial</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Borderline</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Personality NOS</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>None</td>
<td>75</td>
<td>100</td>
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Reasons for negative effect on outcome due to TBI:

1. Neurobehavioral consequences undermine ability to participate "conventionally" in treatment
2. Greater co-occurring psychiatric disorders for those with TBI
3. Less ability to sustain improvements without external structure

TBI among participants in IDDT (Corrigan & Deutschle, 2008)

- SAMHSA funded Targeted Capacity Expansion grant
- Collaborative program in 2 rural counties
- 51 program participants (50 included in analyses)
- in active treatment in one of the collaborating agencies
- previous diagnoses of both a psychiatric and substance use disorder

Hospital Days

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<th>Days per Month</th>
<th>Pre-treatment</th>
<th>Post-treatment</th>
</tr>
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<tbody>
<tr>
<td>TBI (N=36)</td>
<td>3.12</td>
<td>1.81</td>
</tr>
<tr>
<td>Non-TBI (N=14)</td>
<td>0</td>
<td>0</td>
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</table>

Days per Month for TBI and Non-TBI participants.
Emergency Service Utilization

![Graph showing the utilization of emergency services by TBI and Non-TBI individuals.]

- Pre-Involve
  - TBI (N=36): 0.68
  - Non-TBI (N=14): 0.39
- Act-Involve
  - TBI (N=36): 0.24
  - Non-TBI (N=14): 0.17

Jail Days

![Graph showing the number of jail days for TBI and Non-TBI individuals.]

- Pre-Involve
  - TBI (N=36): 0.03
  - Non-TBI (N=14): 0.43
- Act-Involve
  - TBI (N=36): 1.20
  - Non-TBI (N=14): 0.31

Staff Prognosis for Success in Treatment

![Bar chart showing the staff's prognosis for success in treatment.]
Recommendations for SUD Treatment Providers

- Treatment professionals need to know when TBI history is present and consider implications of onset and severity
- Treatment planning needs to incorporate:
  - Accommodations for neurobehavioral deficits
  - Co-morbid interactions (e.g., depression, anxiety, pain)
  - Formal and/or informal supports needed during and after treatment completion.
4 Quadrant Model: Types of Services

Quadrant I
Acute Medical Settings and Primary Care Screening & Brief Interventions
Quadrant II
Rehabilitation Programs & Services Education, Screening, Brief Interventions & Linkage
Quadrant III
Substance Abuse System Screening, Accommodations & Linkage
Quadrant IV
Specialized TBI & Substance Abuse Services Integrated Programming

7 Principles of Integrated Treatment for TBI and Substance Abuse

1. Substance abuse treatment and brain injury rehabilitation are interwoven—not sequential and not just parallel.
2. Is holistic—addressing all aspects of lifestyle, not just TBI and substance use.
3. Key staff are skilled in working with both TBI and substance use disorders.
4. Consumers and clinicians collaborate to develop an individualized treatment plan.

7 Principles of Integrated Treatment for TBI and Substance Abuse (cont'd)

5. During treatment different services will be helpful at different points in recovery.
6. Clinicians use specific listening and counseling skills to help consumers develop awareness, hopefulness, and motivation for recovery.
7. Smaller staff caseloads, more experienced staff, and longer-term treatment usually required.
Substance abuse (SA) and brain injury (BI) providers collaborate on treatment

- For mild TBI:
  - SA providers do SA treatment
  - BI providers provide support to client and SA provider
- For more severe TBI:
  - Provide Case Management (CM) - Intensive CM if more severe substance use disorder
  - BI providers do SA treatment
  - SA providers provide support

Interventions Used in the SUBI Program:

- Stages of Change theoretical model
- Motivational Interviewing
- Relapse Prevention
- Harm Reduction
- 12-step Programs

The OSU TBI Network

- Intensive case management model that is person-centered and holistic.
- Resembles IDDT for co-occurring disorders, except treatment teams are "ad hoc."
- Has a supported employment program embedded using the Individualized Placement and Support model.
- OSU PM&R Residents provide a free clinic for medical needs including pharmacologic treatment of affective disorders.
Interventions Used in the TBI Network:

• “Whatever It Takes”
• Stages of Change theoretical model, including groups based on stages
• Motivational Interviewing
• Strategic Use of Financial Incentives

Further Resources

www.SynapShots.org
www.BrainLine.org
corrigan.1@osu.edu