Neuropsychological Characteristics of Individuals with and without ABI in the Victorian Correctional System: Implications for Rehabilitation

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Status of the Research

• Collection of the data 2007 to 2009
• Summary of the initial findings: https://assets.justice.vic.gov.au/corrections/resources/f55a3ea3-b9d5-41a7-a5c6-9eed4f824ea0/acquired_brain_injury_victorian_prison_system.doc
• Discussed in recent publications reviewing the area e.g., “Issues and inequalities facing people with acquired brain injury in the criminal justice system”
• Recent advancements in the research
Rationale for the Current Study

Pre 1990
Post 1990

• Sequelae of ABI may affect compliance with the law
• Other factors common in prison populations are associated both with risk of ABI and risk of offending

Implications for rehabilitation and management

Issues with past research

Focus on TBI

• Meta-analyses: Shiroma, Ferguson, & Pickelsimer (2010) and Farrer & Hedges (2011)

Other issues

• Mostly male samples
• Different measures of TBI
• Different classifications of TBI
• Ignored other risk factors for ABI

**Neuropsychological assessment addresses most issues**
Aims of the study

1. Determine the prevalence of ABI
2. Examine the risk factors for ABI
3. Look at the association between reported risk factors and evidence of ABI on neuroΨ assessment
4. Examine the common cognitive deficits in individuals with ABI

Hypotheses

1. Prevalence of ABI
   > prevalence in the general community ($\varphi = \varphi$)
2. Risk factors for ABI
   $\text{ETOH/substance use, overdose, and suicide } = \text{to TBI}$
3. Association between reported risk factors and evidence of ABI on neuroΨ assessment
   Association will be significant
4. Common cognitive deficits in ABI
Methods

Participants
♂ 74  ♀ 43

• Exclusion criteria:
  1) ID  2) acute ψ treatment 3) CALD background

Ethics

Procedures
1. ABI screening tool
2. Clinical interview
3. Neuropsychological assessment

ABI Screening Tool – risk factors

• Alcohol:  ♂ : ≥ 6 std. drinks/day > 8 years
  ♀ : ≥ 3 std. drink/day > 8 years
• Drug Use: > 8 years (daily/near daily)
• Overdose: requiring resuscitation
• LOC: > 30 minutes
• Hospitalisation: > 1 day
• Stroke
• Knock out
  Stage 2
Neuropsychological assessment

- WAIS-III
- WMS-III
- Rey Complex Figure
- Rey Auditory Verbal Learning Test (RAVLT)
- Controlled Oral Word Association Test (COWAT)
- Trail Making Test
- Stroop
- TOMM
- DASS-21

Descriptive Statistics

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<tr>
<th></th>
<th>Age</th>
<th>Education</th>
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<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Males</td>
<td>35.7</td>
<td>12.3</td>
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<td>Females</td>
<td>32.9</td>
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<tr>
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<td>p</td>
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<td>.04</td>
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<tr>
<td>ABI</td>
<td>.59</td>
<td>.06</td>
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</table>
Descriptive statistics continued

Heritage
6% – Aboriginal or TSI

Employment status
44% unemployed
51% employed (P/T or F/T)
4% unpaid duties (e.g., study)

Offending
80% previous criminal offending
53% previous prison sentence
27% previous > 3 prison sentences
35% prison sentence in last 2 years

Results & Discussion

Prevalence of ABI
Total 37.6%  ♂ 40.5%  ♀ 32.6%

↓ TBI estimates
↑ community estimates
Equivalence between males and females
Correlated with suspected ABI based on risk factors
Risk Factors for ABI

Substance use > 8yrs 47.9%
♂ 36.5% ♀ 67.4%

LOC due to MVA/Assault 35.9%

Overdose requiring resuscitation 33.3%
♂ 21.6% ♀ 53.5%

Attempted suicide with LOC 29.1%

Alcohol use > 8yrs 25.65%

Stroke/boxing with KO rare

Table 1

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Total Sample</th>
<th>Male</th>
<th>Female</th>
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<tbody>
<tr>
<td></td>
<td>(n = 117)</td>
<td>(n = 74)</td>
<td>(n = 43)</td>
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<td>Alcohol</td>
<td>30</td>
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<td>.33</td>
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<td>12</td>
<td>11</td>
<td>.32</td>
<td>.11</td>
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<tr>
<td>Motor Vehicle Accident with LOC</td>
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<td>11</td>
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<td>1.00</td>
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</table>

Note: LOC = Loss of consciousness. Statistical comparisons were unable to be made between male and female groups for stroke and boxing due to the minimal number of participants endorsing these risk factors.
Neuropsychological Characteristics

After controlling for premorbid IQ, sig ↓ in

- Vocabulary
- Basic attention
- Working memory
- Speed of information processing
- Idea generation
- Learning of less structured/meaningful information
Compensatory strategies

- extra time
- provide info in limited amounts
- use basic language
- external aids
- teach encoding strategies
- ↑ meaningfulness of info
- prompting or provide options

Take home findings

- High rate of ABI in both males and females
- Risk factors other than TBI are common and need to be considered/addressed
- The ABI Screening Tool is a time/cost efficient measure that is useful in detecting risk of ABI
- Individuals with ABI in prison have ↓ executive functioning and speed of processing relative to other prisoners
Future Research

- Longitudinal studies
- Examination of Ψ symptoms and personality/behaviour changes
- Other causes of cognitive impairment
- Comparison with non-offenders
- Individualised programs
- Access to neuropsychological reports

Acknowledgements

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- Questions
- Comments