

Criminality and Brain Injury

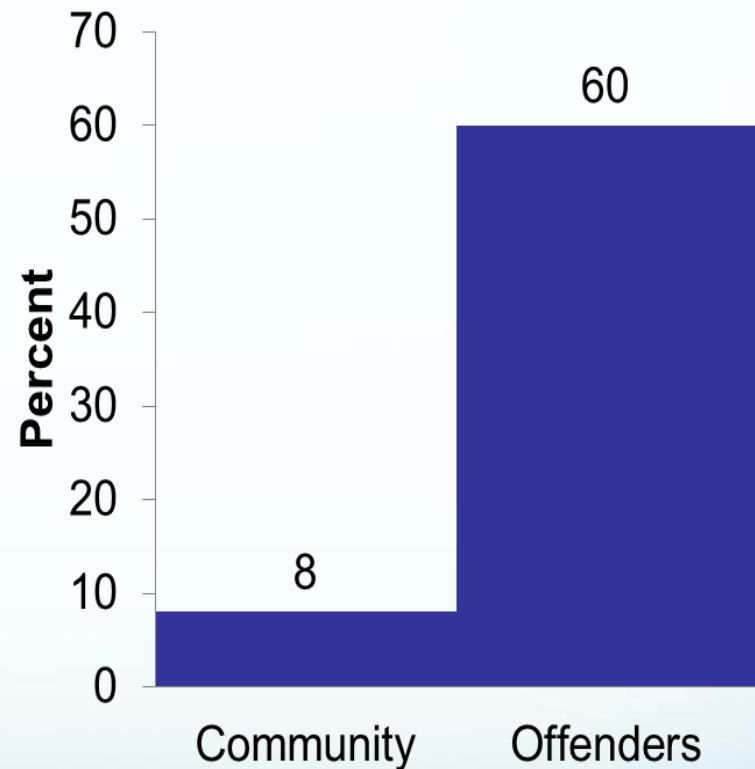
**Resource Facilitation Regional Conference
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Prevalence

Meta-analysis of 20 epidemiological studies found 60% of offenders had history of TBI ¹

Compared to 8.5% of people in the community ²



1. Shiroma, Ferguson, & Pickelsimer (2012). *J. Correctional Health Care*, 16 (2), 147-159.

2. McGuire, Burright, Williams, & Donovan (1998). *Brain Injury*, 12(3), 207-214.

Adolescent TBI and Crime

- Population-based clinical sample of 508 psychiatric inpatient adolescents from Northern Finland
- Adolescents with TBI had significantly more often committed crimes (53.8%) compared to adolescents without TBI (14.7%)
- Subjects with TBI had significantly more violent crimes
- TBI during childhood and adolescence increased the risk of:
 - any criminality 6.8-fold (95% 3.0–15.2),
 - conduct disorder 5.7-fold (95% 2.1–15.4). and
 - concomitant criminality and conduct disorder 18.7-fold (95% 4.3–80.1)

Relationship Between TBI and Incarceration

- 7% of survivors of severe TBI had had legal involvement within 1 year after the injury. ¹
- By 5 years after the head injury, 31% had legal involvement. ¹
- 24% of subjects with TBI had committed crimes leading to arrests within a 2-year period. ²

1. Brooks, Campsie, Symington, Beattie, McKinlay (1986). *J Neurol Neurosurg Psychiatry*, 49 (7), 764–770.
2. Hall, Karzmark, Stevens, Englander, O'Hare, Wright (1994). *Arch Phys Med Rehabil*, 75 (8) (1994), pp. 876–884

TBI a Clear Risk Factor for Incarceration

- 83% reported sustaining a TBI before their initial involvement with the criminal-justice

Sarapata, M, Herrmann, D, Johnson, T, & Aycok, R (1998). The role of head injury in cognitive functioning, emotional adjustment and criminal behaviour *Brain Injury*, 12 (10), 821–842

Urban TBI and Health Disparities

- Sample was
 - 20 African American men convicted of domestic violence
 - 20 African American men without criminal convictions matched for age and socioeconomic status.
- More than half of the participants in both groups had sustained a TBI,
 - injuries in the offender group were significantly more severe.
- Significantly greater problems with anger management in the offender group.
- Published epidemiological data regarding TBI may underestimate the prevalence in urban populations

TBI and Prison Adjustment

- TBI in offenders is associated with ^{1, 2}
 - higher rates of infraction while in custody
 - Higher levels of reoffending
 - Committing more violent crimes
- Inmates with TBI were found to have significantly greater risk of violence and self-harm³

1. Williams WH, Cordan G, Mewse AJ et. al. (2010). Self-reported traumatic brain injury in male young offenders: a risk factor for re-offending, poor mental health, and violence? *Neuropsychol Rehabil*, 20: 801-812.

2. Shiroma EJ, Pickelsimer EE, Ferguson, PL et. al., (2010). Association of medically attended traumatic brain injury and in-prison behavioral infractions: a statewide longitudinal study. *J Corr Health Care*, 16; 273-286.

3. Hawley CA and Maden A. (2003). Mentally disordered offenders with a history of previous head injury: are they more difficult to discharge. *Brain Injury*, 17: 743-758.

TBI and Criminal Behavior

- Aggressive behavior in TBI was significantly associated with
 - Major depression
 - Frontal lobe injury
 - History of drug and alcohol abuse (further compromise of brain functioning)
- The greater the impairment of executive functions, the greater the aggression

TBI and Criminal Behavior

- In a study of incarcerated adults,
 - violent inmates had a history of childhood and adolescent TBI for which they did not receive rehabilitation as well as academic and behavioral problems in school
 - Non-violent inmates had only a history of academic and behavioral problems in school

Leon-Carrion, J & Ramos, FJC. (2003). Blows to the head during development can predispose to violent criminal behaviour: rehabilitation of consequences of head injury is a measure for crime prevention. *Brain Injury*, 17, 207-216.

TBI and Capital Murder

- 100% of Inmates on death row have a history of TBI

Case Study

Clinical History “Kim”

- 49 year old Caucasian female.
- Completed 14 years of school- Has High School Diploma & Dental Assistant Diploma
- Worked as property manager for many years in multiple employment settings.
- Has 2 children (estranged relationships)

Medical History

- Possible undiagnosed and untreated injuries from parental abuse from toddler to 9th grade.
- Brain Injury (with LOC) in 8th grade from being assaulted by 5 females
- 2004- Treatment for Cocaine addiction at Fairbanks and Behavior Corps
- 2014- Motorcycle accident- Moderate/Severe Brain Injury with memory impairment and anosmia among other deficits.

Criminal History

- 2003: OWI Charge
- 2015-2016: 6 Theft charges after Moderate/Severe TBI in 2014
 - Shop-lifting
 - Money from businesses
- Only remembers 2 out of 6 theft events.
- Entered stores never been in & stole items not needed (salt and pepper shakers, towels, etc.)

Neuropsychological Test Results

- Average overall intellectual functioning'
- Effort good on all tests
- Left frontal-temporal impairment
 - Impaired naming (1st %ile)
 - Impaired verbal comprehension (4th %ile)
 - Impaired verbal memory (5th %ile)
 - Impaired working memory

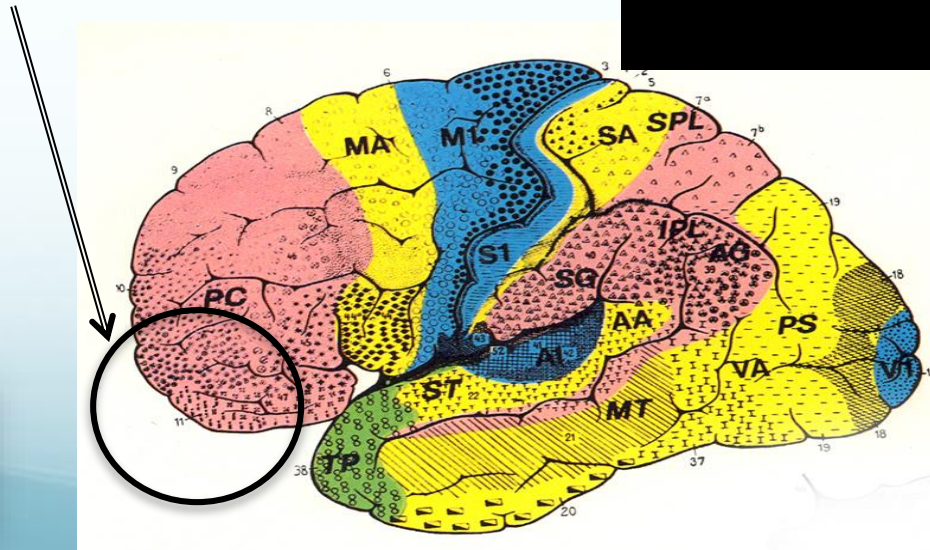
Psychological Test Results

- Severe anxiety and depression
- Mood dysregulation deficit
- Worthless, inept and uncertain self-image
- Emotionally immature
- Paranoid and Dependent Personality Disorder
- Probable Brain Injury induced Bipolar Disorder

So why are people with TBI
more at risk for criminal
behavior?

Orbitofrontal Injury

- disinhibition and impulsivity (“pseudo-psychopathic”)
- hyperkinetic & jocularity
- euphoric & irritability
- impaired maintenance of cognitive set/strategy



Most TBI Frontal Behavioral Impairments are Mis- Diagnosed as Psychiatric Disorders

Improving Return to Work and Decreasing Recidivism in Ex-Offenders with Acquired Brain Injury through Resource Facilitation Outcomes

- Decrease in return to incarceration
- Decrease in re-arrest
- Increase in employment d knowledge and capacity with health care providers and correctional system

Partners

- **Indiana Department of Correction** – Lead Agency
- **Rehabilitation Hospital of Indiana** – Project Co-Manager; Programmatic Partner
- **Community Solutions** – Project Co-Manager
- **American Institutes for Research (AIR)** - Evaluator
- **IDOC Parole District 3**
- **Marion County Community Corrections/Duvall Residential Facility** – Programmatic Partner
- **Public Advocates in Community re-Entry (PACE)** – Programmatic Partner (Resource Facilitation)

TBI Project Timeline

- | | |
|--------------------|---|
| Year 1 | <ul style="list-style-type: none">• Training on TBI screening protocol (OSU-TBI-ID) for Parole, Duvall Work Release Center, and PACE staff• Designing data system and developing data sharing agreements• Collect OSU-TBI-ID data to establish baseline• Referral to Support Groups of individuals screened positive• Developing educational materials for those who work with ex-offenders (CJ, mental health providers, etc.) |
| Years 2 – 4 | <ul style="list-style-type: none">• Screen and refer to Resource Facilitation• Ongoing Education of correctional and clinical staff• Evaluate outcomes |

Year One Accomplishments

- Developed partnership with Parole, Duvall and PACE and trained on screening tool
- Completed baseline screenings with 1,354 (28 screeners) and established comparison group of 149 (11%) who screened positive for moderate to severe brain injury
- Developed educational materials and began providing educational sessions for DOC

Year Two-Three Progress-to-Date

- 1,063 screenings completed
- 128 (12%) positive for mod/severe TBI
- 6,000+ DOC staff trained on BI Modules
- “Need to Know” BI Fact Sheet In Progress
 - Committee: Claire Brownson, MA, Flora Hammond, MD, Dan Shull, MD, & Lance Trexler, PhD
 - Designed to inform NP, PCP’s, others about relevance of history of BI/what to consider/look for

Year Two-Three Accomplishments

- Developed a feedback report for Community Corrections to inform them of the results and implications of findings from Resource Facilitation initial evaluation
- BI Training, Screening and Focus Groups for Marion County Problem-solving Courts: Veterans, Mental Health and Substance Abuse