The Intersection of Traumatic Brain Injury, Substance Abuse, Mental Illness and Criminality in Justice-Involved Adult and Juvenile Populations

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Introduction

Traumatic brain injury history rates are elevated in offender populations and can reach as high as 88% in incarcerated populations (Farrer & Hedges, 2011).

Traumatic brain injury is associated with:
- memory and attention deficits
- irritability or anger
- disinhibited behavior
- slow response times

(Daneshvar, Riley, McKee, Stern, & Cantu, 2011).

These symptoms can negatively impact inmate behavior and functioning, which also partially contribute to increased recidivism rates (Williams, Mewse, Tonks, Mills, Burgess & Cordan, 2010).

Justice-involved individuals with a history of traumatic brain injury also experience a higher incidence of mental health problems such as severe depression and anxiety, substance use disorders, difficulty controlling anger, suicidal thoughts and/or attempts (Sherer, Bergloff, High & Nick, 1999). Research has previously not assessed the intersection of traumatic brain injury, substance abuse, mental illness and criminality in the criminal justice system.

Methods

The TBI Implementation Grant database, DU IRB Protocol #674894-2, was used for this study. The database includes data from adult and juvenile probationers in four county jails.

Study data were collected and managed using REDCap electronic data capture tools hosted at the University of Denver. REDCap (Research Electronic Data Capture) is a secure, web-based application designed to support data capture for research studies, providing: 1) an intuitive interface for validated data entry; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for importing data from external sources (Harris, Taylor, Thielke, Payne, Gonzalez & Gonde, 2009).

Individuals are screened by jail and probation staff using a revised version of the Ohio State University Traumatic Brain Injury Identification Method (OSU-TBI-ID, Corrigan & Bogner, 2007, 2009). Those indicating a positive history of traumatic brain injury then participated in a neuropsychological screening battery, including effort tests, a clinical interview (Gorgens, 2010), and the Automated Neuropsychological Assessment Metric Core Battery (ANAM; Reeves, Winter, Bleiberg, & Kane, 2007) or the Neuropsychological Assessment Battery Screening Module (NAB-SM; Stern & White, 2000). We utilized SPSS to review frequencies of data including gender, ethnicity, risk factors (e.g., victim of violence, suicidality), mental illness, and substance abuse.
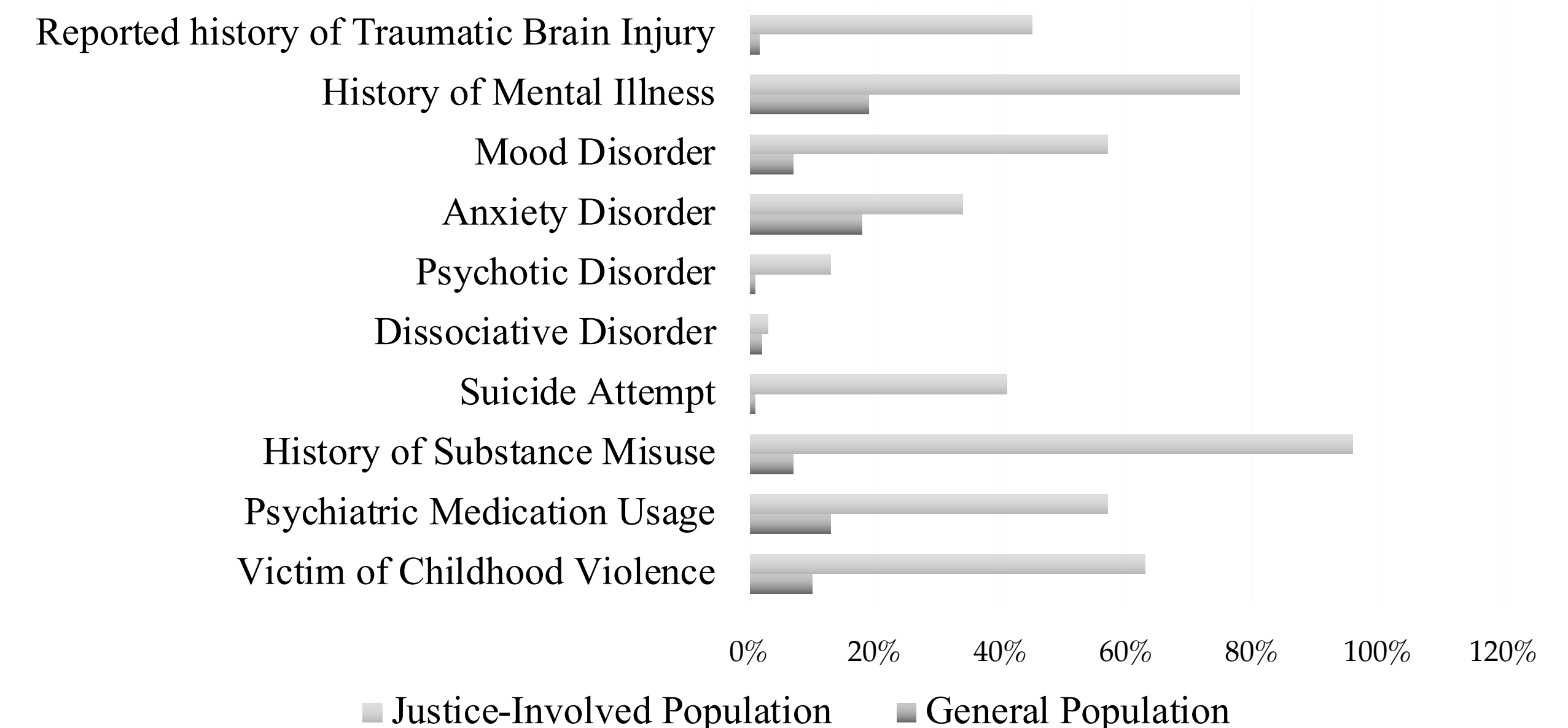
Results

This research found that while approximately 1.6% of the general population has a history of traumatic brain injury (TBI; CDC, 2015), 45% of individuals involved in this research have had a significant TBI history.

TBIs are rarely isolated and are often comorbid with other behavioral health issues.

78% of our survey population also reported a mental illness, relative to 19% of the general population.

Psychosocial Characteristics of Justice Involved Persons with Traumatic Brain Injury History

A total of 934 justice-involved individuals were referred for secondary, neuropsychological screening from 16 community judicial sites (e.g county jails, probation). They range in age from 11 to 75 and the ethnicity breakdown includes: 53.8% White, 22.9% Hispanic, 12.5% Black or African-American, 4.9% as More Than One Race, and 1.3% reported Unknown. These demographic data suggest that this population is more diverse than the general Colorado population. According to 2016 Census data, the Colorado general population is as follows: 87.5% White, 21.3% Hispanic, 4.5% Black, 1.6% Native American, <1% Native Hawaiian/Pacific Islander.

Discussion

The results reflect the alarming vulnerabilities in an incarcerated population, including the high co-morbidity of brain injury and behavioral health problems. Understanding the intersection between criminality, mental illness, substance use, and traumatic brain injury has important implications for improving individual functioning, reducing recidivism, and promoting safer behavior management in criminal justice settings.

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