

Traumatic Brain Injury Screening in Correctional Populations

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Introduction

The purpose of this paper is to describe the current literature available regarding prevalence of TBI in correctional populations and why it is an important variable to consider regarding treatment and recidivism. Existing literature regarding TBI screening in correctional populations will also be reviewed in order to determine what methods are currently used, and whether the psychometric properties of the various instruments have been empirically validated. The prevalence and implications of TBI in correctional populations will be discussed briefly below, followed by a review of one measure specifically created for TBI screening in correctional populations, the TBIQ. Finally, a future project that will look at the psychometric properties of the TBIQ will be described.

TBI In Correctional Populations

There are a variety of potential consequences of TBI, including cognitive, behavioral and emotional difficulties. Verbal and physical aggression, disinhibition, antisocial behavior, and lack of insight have all been identified as consequences, as have depression and anxiety (Jackson, Philp, Nuttall & Diller, 2002; Holtzer, Burrig, Lynn & Donovick, 2000). Taking these symptoms into account, one can see why much of the literature looking at TBI in offenders focuses on aggression and violence. In an effort to establish a causal link, researchers have examined brain injury as a potential cause for criminal behavior, and especially violent crime, as well as a consequence from engaging in criminal behavior (Turkstra, Jones & Toler, 2003; Miller, 1999a).

In a review of the literature examining violence and aggression, Golden and colleagues (1996) found that violent adult offenders tend to have higher levels of neuropsychological indicators of brain damage. One study in particular found that almost

three-quarters of an offender sample with known brain damage had committed violent offenses, compared to one-third of the group without brain damage (Bryant, Scott, Golden & Tori, 1984). In a review of the literature looking at brain injury's role in offending, Miller (2002) also found evidence that suggests a possible link between frontal brain injuries and violent offenses. Others have also made the connection between frontal damage and crime as well due to the impact frontal damage has on perception of social situations and impulse control (Turkstra et al., 2003).

Research has also shown that brain injury may be related more generally to increased rates of arrest, conviction, and incarceration following the injury (Miller, 2002). In a study looking at a community corrections sample, 83% of the offenders reported an incident of head injury some time prior to their offense (Sarapata, Herrmann, Johnson & Aycock, 1998). Another study looking at male batterers found “the occurrence of head injury preceded both aggression toward the wife and other assaults and batteries in almost every case” (Rosenbaum, Hoge, Adelman, Warnken, Fletcher, & Kane, 1994). It is important to note that although the research mentioned suggests that TBI may be a contributing factor in both violent offenses and recidivism, it is clearly stated throughout the literature that TBI is only one of many potential factors involved.

The prevalence of TBI within the US population is not clear, with estimates ranging from 2.5 to 6.5 million individuals (American Medical Association, 1999). Similarly, the prevalence rates among correctional populations have not been established, though the available evidence indicates a significantly higher rate than that estimated for the general population. One reason cited is that those who are more likely to have a significant head injury are often similar to those who are more likely to be incarcerated,

such as young adult males of a low socio-economic status (SES) (Miller, 1999b; Turkstra et al., 2003). One study specifically compared rates of TBI among offenders with a control sample of non-offenders from the same community in order to match the two groups by minority status and SES. The researchers did not find a significant difference in rates of TBI between the two groups, though they did find the severity of the TBI was significantly greater for the offenders (Turkstra et al., 2003).

Overall, estimates of the proportion of offenders who have experienced TBI range from 10% to 88% , clearly a much higher rate than that suggested for the general population (Diamond, Harzke, Magaletta, Cummins, & Frankowski, 2007; Miller, 2002; Sarapata et al., 1998). Given these high estimates and the evidence described above regarding the implication of TBI in violent offenses and recidivism, one can make the case for the importance of the identification of TBI among correctional populations.

There are a variety of factors, however, that complicate the identification of prevalence rates among correctional populations. These will be described below.

Rationale for Screening for TBI in Corrections

As noted above, there are limited data regarding the overall prevalence of TBI in correctional populations, yet many smaller scale studies seem to indicate the rates are significant. Several factors make it difficult to ascertain overall prevalence rates, one of which is that there currently is no ‘gold standard’ TBI screening instrument used in corrections (Diamond et al., 2007, p.337). As a result, many of the existing studies have used different methods for measuring and classifying head injury and TBI, making the results difficult to generalize. Further, research with offenders has often focused d on

specific subsets of the population (e.g., mentally ill offenders, death row inmates), which also limits the generalizability of the results.

Currently, there are no consistently implemented measures for TBI screening beyond inclusion of a yes/no questions inquiring about any past head injury on standard intake screens (Diamond et al., 2007). At the federal level, problems with inadequate screening have been identified as an issue. The Bureau of Prison (BOP) policy mandates a screening for mental or medical problems within 24 hours of being admitted to prison, followed by a psychological assessment completed within the first thirty days. However, problems such as inadequate staffing have interfered with this process being completed (U.S. General Accounting Office, 1991). At the state level, a recent review of growth in mental health services between 1988 and 2000 found that the number of prisons and prisoners was growing faster than the mental health services available, thereby decreasing their availability (Manderscheid, Gravesande, & Goldstrom, 2004).

Implementation of a standardized screening procedure that assesses for TBI when individuals enter correctional systems, both state and federal, would be a benefit to both the institutions and the offenders. One measure designed specifically for assessing lifetime history of head injury and identification of TBI in correctional populations has been created, called the Traumatic Brain Injury Questionnaire (TBIQ). The TBIQ was developed specifically for use with offender populations, and utilizes a structured interview format to gather information on frequency and severity of instances of head injury, along with frequency and severity of several cognitive and behavioral symptoms. The measure yields two symptoms scale scores, one for symptom severity, and one for symptom frequency (Diamond et al., 2007).

An initial study was done to establish the validity and reliability of the TBIQ with a sample of 225 federal prisoners selected from three security levels (low, medium, and high security). Participants were interviewed with the TBIQ and administered several other empirically validated measures of common symptoms associated with TBI, including the Neurobehavioral Rating Scale-Revised (NRS-R) for cognitive and behavioral symptoms (McCauley et al., 2001) and the Center for Epidemiologic Studies Depression Scale (CES-D) for depression symptoms (Radloff, 1977). A portion of the sample was re-administered the TBIQ two to four weeks later to determine test-retest reliability.

Results indicated test-retest reliability was adequate regarding lifetime prevalence of head injuries, and good regarding frequency of head injury. Internal consistency was high for both symptom scales, and criterion validity, measured by looking at the relationship between frequency and severity of head injury, and the symptom frequency and severity indexes, was also good. Finally, the TBIQ was found to do a better job of picking up on TBI related symptoms than the standard inmate intake questionnaire (Diamond et al., 2007).

These initial results provide support for the TBIQ as a potential screening measure that can be used in correctional populations, though additional research that confirms the measures effectiveness would be important. The following dissertation research project is being proposed as a way to further explore the TBIQ's effectiveness when implemented with a sample of individuals incarcerated at the state level. The project will be composed of two studies, the first of which will consist of administering the TBIQ to a large sample of individuals incarcerated within the Wisconsin Department

of Corrections (DOC). This study will help to identify whether the TBIQ does a better job of identifying possibly TBI than the DOC's standard screen, and will give a sense of the prevalence of potential TBI within the DOC population. The second study will take a random sample of the individuals screened in study one, and will consist of a brief neuropsychological battery looking at area of cognitive functioning that are often impacted by TBI. The results of the second study will give some indication of whether TBIQ results that are suggestive of TBI coincide with actual neurological declines consistent with a history of TBI.

Outline of Current Proposed Research Study

Research Questions

1. Does the TBIQ identify self-reported lifetime history of TBI among incarcerated individuals better than standard screening measures?
2. Are TBIQ symptom indices scores associated with performance on neuropsychological tests that assess for neurological impairments often associated with TBI?

Methods

Study One – Administer the TBIQ, along with the standard screening questionnaire to a sample of 150-200 incoming inmates in one or more Wisconsin prisons. Gather information regarding substance abuse and mental health information as well. Gather information regarding most recent conviction through Wisconsin's Circuit Court public access website - <http://wcca.wicourts.gov/index>.

Study Two – Administer a more comprehensive neuropsychological battery to a random sample (approximately one-quarter of the sample from Study One) of inmates to determine their current neuropsychological functioning and to identify performance suggestive of TBI.

Participants: Adult men and women currently incarcerated in a WI prison.

Instruments used:

Study One – Administer the TBIQ, the Wisconsin DOC's standard mental health screen, and a set of clinical interview questions regarding AODA and mental health.

Study Two – Administer a brief neuropsychological battery, around two hours or less, looking at cognitive abilities including memory, executive functions, impulsivity, attention and concentration.

Analysis:

Study One – Analyze data to determine how the TBIQ compares to the standard Wisconsin DOC screen in terms of identifying past instances of head injury that may have resulted in TBI.

Study Two – Compare TBIQ results with performance on neuropsychological tests that measure neurological deficits often associated with TBI. Is the TBIQ effective in identifying cases of possible TBI suggested by the neuropsychological test results?

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