The Prevalence of Traumatic Brain Injury among Adult Male Offenders in the UK

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This study, the largest in the UK to consider the possible causal link between traumatic brain injury (TBI) and offending behaviour in adult males, showed that almost half (47%) of the men screened on admission to HMP Leeds had a history of TBI.

With almost three quarters of offenders receiving their first injury before their first offence, a possible causal link between experiencing a TBI and offending was a key finding.

In comparison with a group of offenders with no history of TBI, those offenders who had suffered a TBI had spent more time in prison, had been in and out of prison more often and were likely to experience higher rates of anxiety and depression.

Routine screening, coupled with increased awareness, staff training and effective support, could prove vital to reducing recidivism as well as improving the health and well-being of significant numbers of offenders with a history of TBI.

Research findings

The study sought to investigate the prevalence of TBI among the 82,000 adult male prisoners in England and Wales, looking in detail at the impact the severity of their injury had upon their cognitive, behavioural and emotional presentation. The study tested the Brain Injury Screening Questionnaire (BISQ®), designed by The Disabilities Trust Foundation for use by prison staff as a valid and easy to use measure to identify offenders with a history of TBI.

The BISQ asks each respondent ‘whether they had ever suffered a serious blow to their head that had rendered them very dazed or confused’ which is a widely recognised indicator of TBI. Respondents were also asked how many times they had suffered such blows and what treatment they sought following the injury. Injuries were then identified as being either mild, moderate or severe in nature.

More detailed interviews and assessments were conducted on a sample of offenders identified as having a TBI, and a control group of 50 offenders with no history of TBI as a comparator group.

Results of the BISQ questionnaire showed that of 613 offenders screened using the BISQ, 289 (47%) had a history of TBI, suffering a serious blow to the head where they felt very dazed or confused.

Interviews with 139 offenders who reported a TBI aimed to establish how accurately the questionnaire had been in identifying the prevalence of TBI, and examine the range of cognitive, behavioural and emotional symptoms experienced compared to those with no TBI. The length of time a person remained unconscious following a blow to the head is seen as an effective indicator of the severity of the injury.
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Research findings

Of the 139 offenders with a TBI:

- 70% were identified as having a mild TBI, with either no loss of consciousness or the length of time unconscious was less than 10 minutes
- 22% were identified as having a moderate TBI as their loss of consciousness was more than 10 minutes but less than six hours
- 8% were identified as having a severe TBI as they had lost consciousness for more than six hours
- 73% reported their first TBI happened before their first offence
- 71% of participants had experienced more than one TBI, and of these, 30% had experienced more than 5 TBIs
- the mean age at which the first TBI was sustained was 18
- 43% had been in prison on 5 or more occasions
- 9% of those prisoners with a history of TBI were in prison for the first time
- almost a third (31%) of the offenders had failed to report their injury or seek medical treatment
- 41% said they had received a TBI through fights, with road accidents (15%) and falls (14%) the other main causes
- 80% of offenders with history of TBI were using or had used drugs at the time of their arrest
- 32% were drinking over 20 units of alcohol a day at the time of arrest

Cumulative effects of mild TBIs

Cumulative effects of recurrent mild TBIs was explored as part of a full neurological assessment carried out with 103 of the 139 participants who had reported a TBI. These assessments showed that those with such injuries performed significantly worse in tests than the group without a TBI.

Previous research has suggested that offenders who have sustained a mild TBI (especially cumulative mild TBIs) may find it more difficult to engage with offence-focused rehabilitation due to possibly reduced processing abilities or disinhibited behaviour.\(^1\)

It has also been found in previous research that those offenders who had experienced a mild TBI reported more incidences of TBI, more initial symptoms and more persisting symptoms than those with a history of moderate or severe TBIs.\(^2\)

A series of mild injuries can have a cumulative effect which is similar to the impact of one severe injury. Mild injuries are, by their very nature, also less likely to be reported to health services, which increases the probability of any resulting problems going unrecognised, diagnosed and untreated.

Impact on frequency of offending

The likelihood of repeat offending also emerged from the questioning among the group of 139 offenders with a history of TBI. Offenders with a brain injury spent more occasions in prison and more years in prison than controls.

Those with a history of TBI were also more likely to report problems across the board with high levels of depression, anxiety, memory problems, communication, aggression, motivation/apathy and disinhibition compared to non-TBI offenders.

Those in the TBI group, when compared with the control group, were:

- 3.4 times more likely to report problems with anxiety and depression
- 3 times more likely to have held only partly skilled, unskilled jobs or to have never been employed
The TBI index

The scores of those offenders with a TBI were collated into a TBI index. The TBI index is frequency of TBI multiplied by most severe injury. The TBI index has been found to be a useful indicator within the screening questionnaire of TBI severity.

Those individuals who had higher TBI index scores:

• were younger when they experienced their first TBI
• were younger when they committed their first offence
• had spent more time in prison

These individuals were also more likely to report significant problems of memory, aggression, apathy, disinhibition and executive functioning.

Conclusion

Links between TBI and offending, and the impact of mild/moderate TBIs on an individual’s judgement, communication and behaviour show the importance of screening offenders and delivering appropriate rehabilitation and support. At present there are no routine procedures for screening for TBI in prison or offender health services in England and Wales, unlike learning disabilities or mental health, yet our research indicates nearly half of all prisoners experience a significant history of TBI. With a 95% accuracy rate in identifying those with TBI, we propose that the BISQ is used routinely in prison and throughout criminal justice services to identify offenders with a history of TBI.

Such early diagnosis can ensure those with a TBI, who are struggling with memory loss, aggression, lack of concentration, anxiety and depression, are offered the right support.

Such help could prove invaluable in the challenge of reducing reoffending.

Interventions

Following this research a Disabilities Trust Foundation brain injury linkworker has been providing support to offenders with a TBI at HMP Leeds. Training is also being piloted at the prison by the Foundation, drawing on Brain Injury Rehabilitation Trust expertise.

Further research is now taking place using a supplementary questionnaire looking in closer detail at the severity of the problems associated with a TBI.

Background to the study

Previous studies have painted a varied picture of prevalence of TBI among offenders, ranging from 25% to 87%. Recent meta analysis carried out by Shiroma et al (2010) estimated that the prevalence rate of TBI with a loss of consciousness among male offenders was 52%.

A smaller survey of adult male offenders previously indicated TBI prevalence levels of 60% and also discussed the impact of TBI on the ability to engage in rehabilitation.

One study examined the importance of the education of prison staff in the management strategies of offenders with a history of TBI, which could benefit both prisoners and prison staff by potentially decreasing negative interactions.

Methodology

HMP Leeds was chosen for this research as it is the local adult prison for men in West Yorkshire and has a high number of offenders coming into custody.

The prison is a category B prison with six wings with a maximum capacity of 1002 offenders.

The BISQ takes a few minutes for offenders to complete and was carried out by a healthcare assistant at the prison. The 613 offenders who completed the BISQ were under no obligation or incentive to take part.

The six issues covered in the BISQ were:

• Whether the individual had ever suffered a serious blow to their head that had rendered them very dazed or confused
• How many times they had suffered such blows
• What treatment they sought
• Whether they had ever been diagnosed with epilepsy or blackouts
• Whether they had problems with their memory, concentration or speech
• Whether they had ever been diagnosed with ADHD, learning disabilities, mental health problems or brain injury*

A TBI Index score was created for each participant combining the number of blows to the head (ranging from once to more than five times) with the severity of the injury, based on the longest period of loss of consciousness.

Among those who indicated a history of TBI in the BISQ, 139 took part in a structured interview and answered a series of questionnaires. Of those who were interviewed 103 underwent a neuropsychological assessment. The control group of 50 offenders with no history of TBI undertook the same interview, questionnaires and neuropsychological assessment.

The structured interview was carried out by a research psychologist, under supervision of a Consultant Clinical Neuropsychologist, and involved 38 questions focusing on offenders’ social background, offending history, record of substance misuse and history of TBI.

Participants completed several standardised questionnaires:

• Neurobehavioral Functioning Inventory (NFI) to identify depression, physical health problems, memory loss, communication, aggression and motor problems

• Frontal Systems Behaviour Scale (FrSBe) to identify apathy, disinhibition and executive dysfunction

• Dysexecutive Questionnaire (DEX)

• Becks Anxiety Inventory (BAI)

• Becks Depression Inventory (BDI)

• General Health Questionnaire (GHQ-12) to identify psychological distress. Higher scores indicate an increased likelihood of psychiatric disorder, psychological distress and decreased social functioning

Standardised neuropsychological tests administered included

• the Test of Premorbid Functioning (TOPF) (a measure of pre-morbid functioning)

• the Wechsler Abbreviated Intelligence Scale (WASI) (a short-form measure of intellectual functioning)

• the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) (a brief examination of immediate memory, delayed memory, language abilities, visuo-spatial abilities and attention abilities)

• Behavioural Assessment of the Dysexecutive Syndrome (BADS) (a battery of tests designed to assess the effects of executive functioning)

* The BISQ has since had a further question added on loss of consciousness


4. As 1 above


Further Information

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