



## An exploratory study of crime and brain injury: Implications for mental health management

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### Abstract

There is emerging evidence to link criminal offending and brain injury, but there is still limited research in this area, in particular for people with brain injury and psychiatric disorders. To explore this issue, we reviewed 276 individuals presented to the New South Wales Mental Health Review Tribunal (MHRT), an independent agency that reviews people who are deemed not guilty of offending by reason of mental illness. Nine individuals (3.3%) were identified with brain injury and psychiatric disorders, the majority as a result of non-traumatic brain injury related to alcohol and substance abuse. All of them were male. They were diagnosed with serious psychiatric disorders such as paranoid psychosis and schizophrenia and had committed serious offences such as murder, intent to murder, sexual assault and physical assault. Most had previous psychiatric, criminal, and alcohol and substance abuse histories. Two case studies suggest a lack of treatment follow-up. The study suggests an urgent need to consider early intervention and how services are offered post-rehabilitation, and the importance of collecting and maintaining data to ensure appropriate mental health management and policy formulation.

### Keywords

*brain injury, mental illness, substance abuse, treatment, forensic*

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### Introduction

There is increasing research on the association between acquired brain injury and psychiatric disorders. People with acquired brain injury may experience a range of psychiatric disorders such as depression, anxiety disorders, phobic disorder, obsessive-compulsive disorder, bipolar disorder or schizophrenia (Clark & Smith, 1998; Gerring, 1986; Mooney & Speed, 2001; Morris, Robinson, Andrzejewski et al., 1993; Van Reekum, Bolago, Finlayson et al., 1996; Van Reekum, Cohen &

Wong, 2000). There is also emerging research that suggests people with acquired brain injury, in particular those with traumatic brain injury, are more likely to experience psychiatric disorders (McGuire, Burrig, Williams & Donovick, 1998; Silver, Kramer, Greewald & Weissman, 2001; Van Reekum et al., 1996). In a review of research in the area, Van Reekum et al. (2000) suggest a biological rationale for traumatic brain injury causing psychiatric disorders.

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Another area of interest is the link between substance and alcohol abuse, and brain injury (Barnfield & Leatham, 1998; Bogner, Corrigan, Mysiw et al., 2001; Corrigan, 1995; Drubach, Kelly, Winslow & Flynn, 1993; Fuller, Fishman, Taylor & Wood, 1994). In a one year longitudinal study of 351 individuals with traumatic brain injury, Bogner et al. (2001) found that almost 80 percent of persons with violence-related causes had a history of substance abuse. A similar finding was reported by Drubach et al. (1993) that while motor vehicle accidents were the most common cause of traumatic brain injury, persons with drug and alcohol abuse were most likely to sustain violent injuries. In a questionnaire study of 118 inmates in a New Zealand prison, Barnfield and Leatham (1998) reported that 86 percent had sustained a traumatic brain injury and that the rates of illicit substance use were higher than in the general population. There is an inter-relationship between substance abuse and brain injury, that is, substance abuse as a factor in the causality of brain injury, and the abuse of substances post-injury (Corrigan, 1995; Drubach et al., 1993; Fuller et al., 1994).

Given that the above studies suggest that persons with brain injury, in particular those with traumatic brain injury, may experience psychiatric disorders and have associated alcohol and substance abuse problems, the question then arises as to whether they are more likely to commit criminal offences. Grabosky (1999) suggests that brain injury and alcohol and substance abuse may increase the risk of subsequent aggressive behaviour, and therefore potentially lead to criminal justice involvement. In their investigations of non-violent convicted felons in America, a community sample and felons, Sarapata, Hermann, Johnson and Aycock (1998) reported that people with head injury were at risk of committing crimes. For example, 50% of non-violent convicted felons reported a prior history of head injury, while 15% in a community sample reported the same, and 83% of felons who had reported a history of prior head injury also reported a date for their injury that preceded their first encounter with the law.

Therefore persons with brain injury appear to be at risk of criminal offending. Does this mean that persons with brain injury and psychiatric disorders are at increased risk of offending also?

There is a paucity of research on persons with brain injury and psychiatric disorders who may be in contact with the criminal justice system, and as such, there may be implications for policy direction and formulation in terms of mental health management. To explore these issues, we reviewed cases referred to the New South Wales Mental Health Review Tribunal (MHRT). The paper presents a profile of persons identified as having an acquired brain injury and discusses two case histories.

## **Method**

### ***Background***

MHRT is an independent agency established by the New South Wales Mental Health Act 1990 to uphold the civil and legal rights of people with a mental illness and ensure that such individuals receive the best possible care in the least restrictive environment. In New South Wales there are three categories by which a person can be classified as a 'forensic case': (a) those found unfit to be tried in the criminal courts, (b) those found to be not guilty by reason of mental illness, and (c) those who become mentally ill while in prison. MHRT conducts hearings and gathers evidence from individuals and professionals to determine findings. It reviews the case management plans developed by relevant professionals and decides whether the care provided is appropriate and consistent with the New South Wales Mental Health Act.

### ***File review***

A total of 276 files were reviewed, representing all individuals who were presented to the MHRT from 1 January 1997 to 30 June 2001. The files were manually reviewed by the second author. To ensure that individuals with acquired brain injury were identified, files that contained the following descriptors or diagnoses were reviewed: acquired brain injury, brain damage or syndrome, traumatic brain injury/damage, non-traumatic brain injury/damage, CVA, stroke, brain tumour, aneurysm, head trauma, or head injury. For these individuals, we extracted demographic information, including (a) history and types of offences, (b) present legal status, (c) psychiatric history, (d) alcohol or other drug history, (e) criminal history, (f) treatment plan, and (g)

current status of the individual. The first author reviewed the data to ensure accuracy of transcription from the files. It was found that data in the files were incomplete and that there was a lack of systematic data collection.

## Results

### *Age and gender*

Of the 276 people referred to the MHRT over the period, 9 (3.3%) were identified as having acquired brain injury. All of them were males and they were aged from 20 to 79 years, with a mean age of 38.5 years at the time of the offence for which they were referred. One other male may have had an acquired brain injury related to alcohol and other drug misuse - based on case history and file notes - but was excluded from the data as no official diagnosis was recorded.

### *Type of brain injury*

Type of brain injury was assessed and diagnosed by medical specialists, as recorded in the case file notes or hospital reports. Two of the individuals had traumatic brain injury (TBI) and seven had non-traumatic brain injury (non-TBI). Of the two with TBI, one was a result of a motor vehicle accident at 17.6 years of age and the other a result of a physical assault. All of the non-TBI was related to alcohol and other drug misuse. It is important to note that on further examination of the case history file notes, it is possible that at least two of the non-TBI may suffer from TBI. It was difficult to ascertain the severity of brain injury as information was not recorded in the case files or database (except for one individual with a high degree of brain injury).

### *Psychiatric diagnosis*

Table 1 shows the number of individuals with each major psychiatric diagnosis, based on psychiatric assessment. All presented with serious psychiatric disorders, except for one person for whom no specific psychiatric diagnosis was recorded. Case file notes indicate that a referral was made to MHRT because of the high level of severe closed head injury; as such this person was considered as being a forensic case.

**Table 1: Type of psychiatric diagnosis**

Diagnosis	Number
Schizophrenia	1
Paranoid psychosis and borderline personality disorder	1
Dementia	2
Bipolar affective disorder	1
Schizoaffective disorder	1
Drug induced psychosis and personality disorder	1
Drug induced psychosis	1
No specific psychiatric disorder	1

### *Offences*

Although most of the individuals had been charged with more than one offence, only the primary offence was recorded. Primary offences included sexual assault (n=1), murder (1), manslaughter (1), intent to murder (3), physical assault (2), and arson (1).

### *Psychiatric history*

Two thirds of the 9 individuals (n=6) had a history of psychiatric concerns. Two had no previous history of psychiatric disorder, and there was no information about prior psychiatric illness for one person. Most of those with a psychiatric history could be traced to adolescence and have had contact with the hospital system.

### *Use of alcohol and other drugs*

Seven of the 9 individuals had a history of alcohol and drugs abuse. One had no previous history of drug or alcohol use and for the other there was no known history recorded. For 3 of the 7 individuals, alcohol and other drug abuse could be traced to adolescence (at ages 15, 16 and 17 years). One person had a history of alcohol and marijuana abuse since 8 years of age.

### *Criminal history*

Prior to the current referral to the MHRT, 5 of the 9 individuals had a criminal history and 4 had no criminal history. Of those with a criminal history, only one had a minor offence recorded, that of stealing. The others had a long history of serious criminal offences, including physical assault, robbery, malicious damage, property damage, and sexual assault. Most of the victims of the crimes were known to the perpetrators.

### ***Current status***

At the time of referral to the MHRT, 4 individuals were living in the community, 3 resided in a prison or psychiatric hospital and one had an unknown address. At the time of writing, three individuals had been discharged from the MHRT.

### **Case studies**

Two brief case studies are presented in order to provide a further understanding of the profile of the cases reviewed in this preliminary study.

#### ***Case study 1***

MB was about 20 years old when he was referred to the MHRT for grievous bodily harm on three other persons. He was involved in a motor-vehicle accident at 17 years of age, resulting in a moderate to severe closed head injury with frontal lobe involvement. The case reports indicated MB suffered severe post-traumatic amnesia for four weeks. Some of the problems noted in the file notes are on-going memory loss, difficulties in attention and concentration, and reduced capacity for abstract thinking. Global cognitive impairment and behavioural problems are noted. He is currently living with his mother who reported significant behaviour change. MB has been referred to a brain injury rehabilitation service but there was no continuing case management in the community prior to his offence. He was recently discharged into the community with no further follow-up treatment plan.

#### ***Case study 2***

HA is currently in prison. He was 22 years old when he was found unfit to be tried for his offences under the New South Wales Mental Health Act. His offences were property damage, arson, and break and enter. There is a protracted history of alcohol and drug abuse starting at 8 years of age. There is also a paternal history of drug abuse. A history of several admissions to prison and psychiatric hospitals are recorded. HA was involved in a fight in which he lost consciousness and was diagnosed as having post-concussional syndrome. Medical reports indicate involvement of the posterior right temporal lobe. The case file notes indicate a history of constant headaches, visual and auditory difficulties, poor concentration and memory loss. A history of self-

harm and on-going aggression is reported. Attempts at drug rehabilitation failed. A psychiatric diagnosis of drug induced psychosis and personality disorder is recorded on file. There is a history of case management difficulties by a community mental health team but there is no mention of any involvement with a brain injury rehabilitation or community service even though there were notes in the case file to indicate the need for such involvement.

### **Discussion**

The study provides a preliminary, descriptive profile of people with brain injury and psychiatric disorders who presented to the MHRT. Most had a previous psychiatric history and alcohol and other drug history and three had a previous alcohol and other drug history that could be traced to adolescence. The offences committed were serious enough to demand attention.

The majority had non-traumatic brain injury related to alcohol and substance abuse, similar to reports by Barnfield & Leathem (1998), Corrigan et al. (1995), Drubach et al. (1993) and Fuller et al. (1994). The individuals presented with serious psychiatric disorders such as paranoid psychosis and schizophrenia. Furthermore, two thirds had a history of psychiatric concerns. A history of alcohol and substance abuse appears common in the sample. The crimes committed were of a serious nature such as murder, intent to murder and sexual assault. It is evident that they were likely to come into contact with the criminal justice system, as reported in previous research (Grabosky, 1999; Sarapata et al., 1998).

It is not the purpose of this paper to argue whether people with traumatic brain injury and psychiatric disorders were more at risk of criminal offending compared to those with non-traumatic brain injury and psychiatric disorders, that is, those with a history of alcohol or substance misuse. The fact remains that there is a group of individuals who present at the MHRT that require community-based mental health management follow-up post-rehabilitation. It is important to ensure that people with brain injury and psychiatric disorder do not fall between the gaps of service delivery.

This is an exploratory study with several limitations. First, it is important to note that the nine cases do not represent a random sample of people convicted of crime, rather they represent forensic cases referred to the MHRT because of their psychiatric condition. Second, this is a descriptive study based on cases referred to the MHRT; it is not representative of people with brain injury in prison who may have psychiatric disorders but are not referred to the MHRT. Third, there are problems in the MHRT database and case file notes, for example there is a lack of demographic information such as socio-economic status, education, employment status, marital status or other pertinent factors.

Given the limitations of the data available in the files, it is difficult to ascertain whether our finding that 3.3% of those referred to the MHRT had brain injury and psychiatric disorders is high. Further, the majority of the casenotes did not indicate severity level or duration of post-traumatic amnesia. It is difficult to generalise findings based on nine individuals due to the lack of systematic data in the MHRT. There is an urgent need to maintain systematic data and pertinent information that will be useful in terms of informing policy direction, developing mental health management, and informing appropriate resource allocation and service delivery.

The two brief case studies highlight the lack of effective treatment follow-up for people with brain injury who are at risk of psychiatric disorders. The case studies also suggest a lack of coordination between brain injury rehabilitation and mental health services. Therefore there is a need to review and offer early intervention services for people with brain injury and psychiatric disorders who might be most at risk of criminal offending.

The lack of early and effective rehabilitation services could also reflect a limited understanding of the rehabilitation process in brain injury for those most at risk. Additional research is needed to explore further the profile and risk indicators for people with brain injury and psychiatric disorders who are likely to commit criminal offences.

It is also important to consider implications for on-going case management past the acute and

rehabilitative phases of treatment, in particular when individuals return to community living. There is an urgent need to consider the impact of the lack of services on these individuals and on the community, in order to ensure quality mental health management.

### Note

Part of this paper was presented at the 7<sup>th</sup> Annual Research Forum: Brain Injury Rehabilitation Program, Royal Rehabilitation Centre of Sydney, 11 October 2002.

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