

Traumatic Brain Injury Amongst Juvenile Offenders: An Investigation into Violent Offending, Intellectual Functioning, Substance Abuse and Psychological Distress

Racquel Mason (B. Psych)

This thesis is presented in partial fulfilment of the requirements for the degree of  
Master of Clinical Psychology

University of Newcastle

November 2016

**Declarations****Statement of Originality**

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to the final version of my thesis being made available worldwide when deposited in the University's Digital Repository\*\*, subject to the provisions of the Copyright Act 1968.

\*\*Unless an Embargo has been approved for a determined period.

**Acknowledgement of Authorship and Collaboration**

I hereby certify that the work embodied in this thesis contains a scholarly work of which I am a joint author. I have included as part of the thesis a written statement, endorsed by my supervisor, attesting to my contribution to the joint scholarly work.

Student:

Date: 20<sup>th</sup> September 2017

Racquel Mason

Supervisor:

Date: 20<sup>th</sup> September 2017

Dr Peter Schofield

### **Acknowledgements**

I am dedicating this work to my dad who very unexpectedly passed away in 2014. At the time I wanted to quit, but have kept on going in his honour.

I would like to thank my principle supervisor Dr Peter Schofield, for all his help, suggestions, edits, as well as co-authors Tony Butler and Dianna Kenny for all their input and help. Also to Terry Lewin for his help with statistics, not my strong point.

Thanks lastly to my family for being supportive and accepting of my absence while working on this research. To my children, who have only known me as the mum who is always studying. To my partner for supporting me and picking up the slack in parenting.

## Table of Contents

<b>Declarations.....</b>	<b>2</b>
<b>Acknowledgements.....</b>	<b>3</b>
<b>Table of Contents.....</b>	<b>4</b>
<b>List of Tables.....</b>	<b>6</b>
<b>Structured Abstract.....</b>	<b>7</b>
<b>Critical Literature Review.....</b>	<b>10</b>
Epidemiology of TBI.....	11
Complications of TBI.....	12
Characteristics of Adult Offenders.....	13
Characteristics of Juvenile Offenders.....	14
TBI in Adult Offenders and its correlates.....	16
Correlates of TBI in Juvenile Offenders.....	18
The proposed study.....	25
Aims.....	25
Hypotheses.....	27
References.....	29
<b>Manuscript Title Page.....</b>	<b>36</b>
<b>Abstract.....</b>	<b>37</b>
<b>Manuscript.....</b>	<b>38</b>

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

<b>Introduction</b> .....	38
Aims and Hypotheses.....	40
<b>Methods</b> .....	40
Study Participants.....	40
Measures.....	41
Data Analysis.....	43
<b>Results</b> .....	43
Table 1.....	45
Violence and offending.....	47
Table 2.....	48
Table 3.....	49
<b>Discussion</b> .....	50
<b>Conclusions</b> .....	56
<b>References</b> .....	57
<b>Appendix A</b> .....	63
<b>Appendix B</b> .....	64
<b>Appendix C</b> .....	73

## List of Tables

**Tables**

<b>Table 1.</b> Characteristics of the Sample.....	45
<b>Table 2.</b> Associations with Most Recent TBI.....	48
<b>Table 3.</b> Predictors with Regard to Medium/High Violence.....	49

### Structured Abstract

**Scope.** Traumatic brain injury (TBI) prevalence rates vary depending on the study. The definition of TBI for study inclusion and the criteria for characterising the severity of TBI also vary across studies, influencing prevalence and incidence rates.

There are many indicators of wide-spread disadvantage in offending populations, both in adults and juveniles. The subject of TBI has been researched comprehensively in the adult offending population with a high prevalence reported. TBI has been associated with increased rates of major mental illness, substance abuse, aggression and violence.

By contrast with TBI in adult offenders, the research on juvenile offenders regarding the prevalence and/or correlates of TBI is limited. Among juvenile offenders, a history of TBI predicted high-level psychosocial disadvantage and neuropsychiatric morbidity.

**Purpose.** The proposed study examines TBI in juvenile offenders in New South Wales, Australia. It expands on previous Australian studies by including subjects who have never been in custody, and this is likely to include individuals with less serious offending. We investigate the associations between a history of past TBI and violent offending as well as a range of important psychiatric, and other psychosocial characteristics in a population of young offenders. The proposed study will attempt to overcome the limitations of some of the previous work by having available official criminal records, the use of cognitive assessments, recording of cultural background and indigenous status, and the relatively large sample size of 800 Australian juvenile offenders.

**Methodology.** In the proposed study we used existing data derived from the NSW Young People on Community Orders Health Survey (YPoCOHS). Cross-sectional analyses were carried out on the data. The participants were gathered from all young people aged between 12 to 21 years on a supervised community order in New South Wales from October 2003 to December 2005. Study participants were administered a health questionnaire, a physical assessment and standardised psychological tests. They were questioned in relation to a history of TBI, and information on offending history was accessed through Juvenile Justice administrative records. The data which was available in SPSS were examined in particular comparing those with and without TBI, with respect to other exposures and outcomes (as below). Non-parametric correlations, cross tabulations, frequencies, Pearson Chi Square and ANOVA were used to analyse the data.

**Results.** Data were obtained from 802 young offenders, and it was found that of this sample, 307 had a history of TBI, (191 had 1 TBI, 116 had 2 or more TBIs). A history of TBI was associated with increased rates of mental illness, current psychological distress as indicated by scores on the K-10 and substance abuse. In addition, past TBI was associated with higher scores on the Child Trauma Questionnaire. However, there was no association of past TBI with violence of offending, despite TBI being associated with higher scores on an anger/violence proneness scale. TBI was also associated with physical abuse/neglect, and cultural status. Surprisingly, TBI was associated with better intellectual functioning.

**General Conclusions and Implications.** Within the public health sector, occurrence of a TBI, however mild, should lead to focused inquiries concerning the context for the injury, a history of previous injuries and of substance use. TBI in the adolescent population is an important public health issue. Knowledge that an offender



## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

has a history of TBI could be an easily obtained important predictor and can serve to flag the possibility that the individual may have experienced past psychosocial deprivation, and may be at increased risk of mental illness, substance abuse, and future TBI. Early recognition and intervention for adolescents with TBI may assist in reducing re-offending.

In offending populations specifically, screening instruments for TBI, crime type and difficulty with impulse control is important to characterise needs and to facilitate entry into enhanced rehabilitation programs. The design of interventions focussed on risk factor reduction and engagement with pro-social activities, increased assistance with impulse control and anger management has the potential for diverting individuals away from future self-destructive or criminal behaviours. This has potential benefits for the individual, their families and ultimately the general public.

*Keywords:* Traumatic Brain Injury, Juvenile Offenders, Violence, Substance Use, Mental Illness.

## Critical Literature Review

Traumatic brain injury (TBI) can be defined as damage to the brain which changes brain functionality, and which has been caused by an external force (Menon, Schwab, Wright, & Maas, 2010). It is common and can range from minor to serious, and there are many recognised complications, affecting cognition, psychological well-being, and behaviour. The standard TBI severity definitions as outlined in the DSM V encompass loss of consciousness (LOC), post traumatic amnesia and disorientation and confusion at initial assessment. LOC ranges from Mild TBI < 30 minutes, Moderate TBI 30 minutes to 24 hours, and Severe TBI > 24 hours. Post traumatic amnesia ranges from Mild TBI < 24 hours, Moderate TBI 24 hours to 7 days, and Severe TBI > 7 days. Disorientation and confusion at initial assessment in terms of the Glasgow Coma Scale Score ranged from Mild TBI 13 to 15 (not below 13 at 30 minutes), Moderate TBI 9 to 12, and Severe TBI 3 to 8 (Association, 2013).

TBI prevalence rates vary depending on the study. In two birth cohort studies comprising general population samples, prevalence has been reported as ranging from 1.9% (birth to 31 years, Timonen et al. (2002)) to 30% (birth to 25 years, McKinlay et al. (2008)). The definition of TBI for study inclusion and criteria for characterising the severity of TBI also vary across studies, influencing prevalence and incidence rates. For example, in recent published studies, minimum criteria for recording instances of TBI have ranged from “a blow to the head” (León-Carrión & Ramos, 2003) , to “LOC > 20 minutes” (Perron & Howard, 2008). In another study, TBI severity categories included mild (no LOC) up to severe (LOC > six hours) (Huw Williams, Cordan, Mewse, Tonks, & Burgess, 2010).

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

There may be further variability between studies depending on whether they utilise self-report or access medical records. Self-report of TBI amongst the offending population need not be considered unreliable. P. Schofield, Butler, Hollis, and D'Este (2011) conducted a validation of self-report of TBI in an Australian prisoner population, using medical records as the gold standard. The results showed that prisoners' self-reports of TBI were surprisingly accurate compared to hospital medical records.

### **Epidemiology of TBI**

Higher rates of TBI are seen in developing countries, and this is largely attributed to road traffic injuries (Corrigan, Selassie, & Orman, 2010). In the USA, TBI rates are highest for African Americans and Native Americans (Corrigan et al., 2010). Major risk factors for TBI in the USA include age, with the extreme ends of the age range being highest; gender is important, with males experiencing almost twice the rate of TBI compared to females, most likely due to the higher incidence of male risk-taking activities; and low socioeconomic status is the third major risk factor, with a higher incidence of TBI among uninsured populations compared to the privately insured (Corrigan et al., 2010).

In relation to the epidemiology of TBI in young people, the results of studies by McKinlay et al. (2008) are noteworthy. Their data was obtained from a prospective longitudinal study of a large birth cohort of 1265 children born in Christchurch, New Zealand. The incidence of TBI's was highest in those aged 15–20 years, followed by 20–25 years, and lowest in those aged 0-5 years. More than half (65.72%) of those who experienced TBI were males. Common causes of injuries for children under 15 years were falls (66.9%) and being hit by an object (10.13%). For

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

children aged 15 and over, injuries were commonly from rugby, assaults and MVA (over 64%). Moderate/severe TBI's were most commonly caused by MVA's (in the 15 – 25 years age range).

### **Complications of TBI**

In a review by van Reekum, Cohen, and Wong (2000), the authors examined associations between TBI and psychiatric disorders. Post TBI, prevalence rates were 44% for depression, up to 14% for anxiety disorders, 4% for Bipolar disorder, 22% for substance use disorder, and less than 1% for psychosis (van Reekum et al., 2000). TBI has been associated with increased incidence of disorders in cognitive dysfunction, lack of motivation, depression, increased risk of suicide, and anxiety disorders. It is also noted that personality changes can occur such as lability, disinhibition, aggression, irritability, apathy, and paranoia. (Hoofien, Gilboa, Vakil, & Donovan, 2001; Nicholl & LaFrance, 2009) Cognitive deficits in areas including arousal, attention, language, executive function, concentration, and memory have also been noted (Rao & Lyketsos, 2000).

Among many different neuropsychiatric sequelae that may occur as complications of TBI in adults, aggression is of particular relevance for the present thesis. Baguley, Cooper, and Felmingham (2006) examined 228 patients with moderate to severe traumatic brain injury from a specialised brain injury rehabilitation service. The patients were followed up at six, 24, and 60 months with assessments. At each time period, it was found that approximately 25% of the sample were classed as aggressive. Predictors of aggression included depression, and younger age at time of injury. Aggression following TBI in juveniles has also been found. Using a validated measure of aggression, Cole et al. (2008) investigated

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

aggressive behaviours in 97 children who were aged 4 to 19 years when they sustained a severe TBI. The authors found a significant increase in caregiver ratings of aggressive behaviours after TBI that was also influenced by multiple pre-injury child behaviour variables, and by the level of post-injury disability with higher rates of functional disabilities being associated with increased aggressive behaviour (Cole et al., 2008).

### **Characteristics of Adult Offenders**

Among the offender population, there are many indicators of wide-spread disadvantage. Butler et al. (2006) found that prisoners had an 80% prevalence of any psychiatric illness in the past 12 months as opposed to 31% for a comparison community sample. The prisoner sample also tended to be younger, more likely to be male and single, and less educated than the community sample. Differential rates were particularly notable for substance use disorder, with a prevalence of 66% among prisoners but only 18% in the community. Opioids and amphetamines were the main drugs abused. Other areas of concern were post traumatic stress disorder, with a prevalence of 26% in prisoners, and elevated rates of psychosis and personality disorders (Butler et al., 2006).

A pattern of verbal deficits is a further characteristic associated with disadvantage that is found in offending populations. Manninen et al. (2013) explored neuropsychological performance and predictors of adult criminal offending in reform school adolescents. Overall, the study found that cognitive performance of reform school adolescents was significantly lower than the normal population, with most deficits found in the verbal domain. The authors noted that cognitive deficits and in particular verbal deficits, have been known to correlate with antisocial lifestyle. They

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

proposed that the reason could be that verbal abilities are essential in the socialisation process and for educational achievement; verbal abilities can improve resilience for antisocial risk factors by promoting pro-social behaviour, and emotional control. After analysing criminal records of the sample five years after baseline testing, half of reform school adolescents had a criminal record, and for males specifically, it was three out of four. Half had violent crimes compared to 1.7% in the general population for individuals of the same age. Males were 10 times more likely to have violent crimes compared to females (Manninen et al., 2013).

### **Characteristics of Juvenile Offenders**

The previously discussed areas of disadvantage associated with adult offenders are also evident amongst juvenile offenders. The results of a study by Forrest, Tambor, Riley, Ensminger, and Starfield (2000) indicated that incarcerated male adolescents, when compared to a male adolescent school sample, were significantly older, more likely to participate in welfare programs, to have an unemployed mother, and to originate from single parent families. The incarcerated youths, compared to school sample youths, had significantly poorer outcomes in areas of self-esteem, physical discomfort, acute, chronic, and psychosocial disorders, family involvement, physical activity, risk behaviours, and academic performance. The largest difference between the two groups was noted in the area of acute major disorders. More incarcerated youths had experienced a past year history of trauma including broken bones, head injuries and gunshot wounds (Forrest et al., 2000).

Childhood trauma such as exposure to extreme, traumatic or repetitive stressors including abuse, and witnessing or being the victim of domestic violence

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

can lead to triggering of the fight-or-flight response among children exposed to these types of stressors. This can result in feelings of panic, depression, anxiety, hallucinations, and increased use of alcohol and other drugs (Heim & Nemeroff, 2001). Further issues include risky sexual behaviour, difficulty controlling anger and risk for violence against partners. Resultant detrimental effects of traumatic stress can impact on developing neural networks (Anda et al., 2006). Exposure of the brain during childhood to high levels of stress hormones can push its development along a stress-responsive pathway (Teicher et al., 2003).

Palfrey et al. (1983) investigated the health and neurodevelopmental factors associated with delinquent behaviour in early adolescence. Palfrey et al. (1983) found that significantly more accidents and hospitalisations were reported for a delinquent boys group (including 18 hospitalisations for head trauma), compared to a comparison school children group in which only two hospitalisations occurred for this condition. The delinquent boys group came from very unstable families, with parents more likely to have lower educational achievement and fewer skilled occupations than parents of those in the comparison group. The results of the study tended to suggest a de facto link between juvenile delinquency and poor health (Palfrey et al., 1983). Thus it is difficult to determine causation of neuropsychiatric sequelae and TBI when compounded by the disadvantage inherent in offending populations.

A study in the United Kingdom examining a national cross-sectional survey of 301 young offenders by Chitsabesan et al. (2007) found that 20% of young people met the ICD-10 criteria for mental retardation ( $IQ < 70$ ). It was further noted that 52% had problems with reading and 61% had problems with reading comprehension. Verbal IQ scores were found to be significantly lower than performance IQ scores

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

and this was especially the case in male offenders (Chitsabesan et al., 2007). This was in agreement with adult studies.

### **TBI in Adult Offenders and its Correlates**

The subject of TBI has been researched comprehensively in the adult offending population and are summarised in two recent meta-analyses. Farrer and Hedges (2011) found that the prevalence of TBI in incarcerated groups was higher than estimated in the general population. They reported on a total of 24 studies: these were predominately from the United States, but included one study from each of the United Kingdom, Canada, Spain, New Zealand and Australia. Three studies concerned offending youths. The prevalence of TBI within incarcerated samples ranged from 9.7% to 100%, compared to a (lower) general population range of 2% to 38.5% (Farrer & Hedges, 2011). The meta-analysis of Shiroma, Ferguson, and Pickelsimer (2010) examined 20 studies of adults, and reported a similar range of TBI prevalence in offender populations from 10% to 100%. The upper range of 100% in both meta-analyses derives from a study of fifteen death row inmates who had all allegedly suffered from severe head injuries (Lewis, Pincus et al. 1986).

An Australian cross sectional study by Perkes, Schofield, Butler, and Hollis (2011) reported on the rates of ever lifetime TBI both in the general population and for inmates. They found that 82% of inmates and 71.5% of a matched general population sample reported at least one TBI of any severity. However when restricting TBI to loss of consciousness (LOC) only, it was found that inmates reported TBIs at a rate of 64.5%, compared to 32.2% in the matched general population sample.



## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

That the presence of TBI can influence risk of offending and increase incidence of mental illness is evident in Timonen et al. (2002) where it was found that TBI was associated with a two-fold increase in the risk of developing mental disorders and, in the group of males with mental disorder and criminality, the increased risk was four-fold. The results of more recent cohort studies support the hypothesis that TBI is associated with subsequent criminality (Fazel, Lichtenstein, Grann, & Långström, 2011), (Peter W Schofield et al., 2015).

Within adult offender populations, TBI has been associated with increased rates of major mental illness and substance abuse (Peter W. Schofield et al., 2006). The authors of that study screened a sample of 200 incarcerated male offenders for a history of TBI. Positive associations were found between history of TBI and mental illness including depression and psychosis, playing contact sports, school expulsion, and daily use of illicit drugs.

An association between TBI and violence was identified in a study by León-Carrión and Ramos (2003) of two groups of male prisoners. Thirty-six were serving sentences for violent offences, and 13 were serving white-collar crime sentences involving no violence. Statistically significant differences were observed between the violent and nonviolent groups with the violent subjects scoring significantly higher in behavioural problems. Those in the violent group were also significantly more likely to have received a head wound, to have fallen from a great height, and have had a blow to the head with health consequences. The authors concluded from this that individuals who had had a severe brain injury may have sustained cognitive deficits. In consequence, they may not have been able to achieve things through normal means of talking, working or negotiating and might have been more likely to resort to motor activity such as aggression and violence (León-Carrión & Ramos, 2003).

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

Kreutzer, Marwitz, and Witol (1995) examined the interrelationships between alcohol use and criminal and aggressive behaviour in 327 outpatients with a history of TBI. A relationship between head injury, criminality and psychiatric disability was apparent. Patients with an arrest history prior to TBI were more likely to have pre-injury or post-injury psychiatric treatment. A higher incidence of criminal behaviour (nearly 25%) was found in the sample of people with TBI, compared to the general population arrest rate of 2%. The authors found that TBI and a history of arrest are clearly associated with moderate/heavy alcohol consumption (Kreutzer et al., 1995).

TBI aside, many other factors associated with violence and violent offending have been reported in the literature. Pickard and Fazel (2013) reviewed the literature on substance abuse and crime, finding that substance abuse is an important risk factor in relation to violence and re-offending for mentally ill forensic patients (Pickard & Fazel, 2013).

In a systematic review and meta-analysis of 110 studies concerning adults with diagnosis of schizophrenia, bipolar disorder and other psychoses, Witt, Van Dorn, and Fazel (2013) found that there were strong associations between these conditions and criminal history and violence. Substance use, weak impulse control, poor insight, hostility and poor adherence to medication were also associated with violence (Witt et al., 2013).

### **Correlates of TBI in Juvenile Offenders**

By contrast with TBI in adult offenders, a recent meta-analysis of prevalence of TBI in juvenile offenders by Farrer, Frost, and Hedges (2013) serves to highlight how few studies there are in this area. The authors identified only 9 studies presenting prevalence rates of TBI in juvenile offending populations, seven of these

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

from the USA, and two from the UK. Only 5 of these studies reported TBI prevalence for a control group (Carswell, Maughan, Davis, Davenport, & Goddard, 2004; Forrest et al., 2000; Hux, Bond, Skinner, Belau, & Sanger, 1998; Levine, Karniski, Palfrey, Meltzer, & Fenton, 1985; Palfrey et al., 1983). The prevalence of TBI in juvenile offenders ranged from 12.5% to 67% and, of the studies with control groups, juvenile offenders were significantly more likely than controls to have had a TBI.

In a more recent systematic review by Hughes et al. (2015), similar results were found, with a prevalence rate of TBI in incarcerated youth ranging from 16.5% to 72.1%. The authors reviewed ten studies with four having a control group. This review included six of the same studies assessed by Farrer et al. (2013), and four additional studies (Davies, Williams, Hinder, Burgess, & Mounce, 2012), (Kaba, Diamond, Haque, MacDonald, & Venters, 2014), (Kenny & Lennings, 2007) (Moore, Indig, & Haysom, 2014). The review highlighted the need for future studies to examine comorbidity of TBI and other neurodevelopmental disorders, or other mental health problems in particular, in offenders (Hughes et al., 2015).

A large investigation of TBI among juvenile offenders (n=1354, (Vaughn, Salas-Wright, DeLisi, & Perron, 2014) lent support to previous research with approximately 1/3 of the sample (30.35%, N=411) having a history of TBI, compared with 12% in the general population. The authors found that TBI was associated with higher levels of impulsivity and negative emotionality, and with those who had a TBI being a victim themselves in the past (Vaughn et al., 2014).

In an earlier study focusing on juvenile offenders and TBI, Hux et al. (1998) examined occurrences and consequences of TBI among delinquent and non-delinquent youths. Between one third and one half of all youths sustained one or

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

more blows to the head before adulthood, and these were mainly mild TBIs that did not result in permanent disability. The non-delinquent youths were more likely to have sustained a TBI from sporting injuries compared to delinquent youths, and this was thought to be related to social and economic status. Delinquent youths suffered more immediate and long term consequences of TBIs such as headaches and dizziness, and also effects on social and educational functioning. A study by Perron and Howard (2008), examined the prevalence and correlates of TBI among delinquent youths. They assessed in relation to TBI, substance use, psychiatric symptoms and antisocial behaviours and traits. This study defined TBI as an injury causing LOC > 20 minutes. This is quite stringent and presumably excluded many milder head injuries, which again highlights the wide variability in defining TBI and severity of TBI among studies in the field. The results of this study indicated a rate of TBI of approximately one in five. It was noted that compared to youths without TBI, those with TBI had significant early-onset criminal behaviours and increased history of criminality in the past year. Perron and Howard (2008) also found significantly more current psychiatric distress, depressive and anxious symptoms, substance abuse problems and suicidality in subjects with TBI.

Another study, by Huw Williams, Mewse, et al. (2010), noted that higher frequency of TBI was related to higher number of convictions, and three or more TBI's were associated with more violence in offences. Higher rates of mental health problems and misuse of cannabis were associated with self-reported TBI. In the sample of 186 young male offenders aged 11 to 19 years, it was found that by the age of 16 years there was a 65% prevalence of varying degrees of TBI, however TBI with LOC was at a lower rate of 46% (Huw Williams, Mewse, et al., 2010).

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

A longitudinal prospective study was conducted on 55 young adults who had an emergency department admission following TBI as a child/adolescent (Ryan et al., 2015). One in four of the participants demonstrated clinical or sub-threshold levels of externalising behaviours as a young adult, characterised by aggression, rule breaking and conduct problems. This compared to the general population of 5-10% prevalence of aggression. These findings highlighted the need for further focus on juveniles with a TBI as being at future risk of violence. Poorer pragmatic communication had an association with increased externalising behaviours. Difficulty in understanding social interaction may lead to distress and more frequent externalising behaviours, when combined with the TBI (Ryan et al., 2015).

In a considerably smaller and very specific sample of 14 juveniles, all of whom had been sentenced to death in the US for capital offences; Lewis et al. (1988) found that 100% of the sample reported a history of head injuries. Eight of the subjects had injuries severe enough to require hospitalisation and indentation of the cranium. In nine of the subjects, serious neurological abnormalities were noted. Psychiatric disorders were noted, including psychosis in seven of the subjects, severe mood disorders in four subjects, and periodic paranoid ideation in the three remaining subjects. IQ scores were below 90 except for two subjects. Sexual abuse was present in five of the subjects, physical abuse in 13 subjects, and family violence and family psychiatric illness in 13 subjects.

Davies et al. (2012) explored the relationships between frequency and severity of self-reported TBI and post-concussion symptoms (PCS) in incarcerated juvenile offenders. The sample consisted of 61 male juvenile offenders aged between 16 and 18 years, 72% of whom reported having ever experiencing a head injury. Of these individuals, 41% had experienced loss of consciousness as a result

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

of the head injury, and 45.9% had suffered more than one head injury. The authors found a dose–response effect of TBI in relation to the PCS – with the severity of symptoms increasing with the severity and frequency of TBI (Davies et al., 2012). Study participants had an average age of first conviction of 12.8 years. Offenders with a history of TBI with a LOC were a year younger at their age of first conviction than those without a TBI, consistent with findings in adult offender populations (Huw Williams, Mewse, et al., 2010; Perron & Howard, 2008). Alcohol abuse showed a relationship with TBI severity in this study, with greater alcohol abuse levels being associated with more severe TBI in participants (Davies et al., 2012).

An association between TBI and violent offending also emerged in a study by Huw Williams, Cordan, et al. (2010) when they investigated a sample of 186 young male offenders aged 11 to 19 years. Higher frequency of TBI was associated with a higher number of convictions, and having had three or more TBIs was associated with more violence in the offences. Higher rates of mental health problems and misuse of cannabis were associated with TBI. Among those 16 years and older, 65% reported a past TBI of any severity, and 46% a past TBI with LOC (Huw Williams, Cordan, et al., 2010). This study relied on self-report of criminal offences rather than accessing criminal records, and did not measure neuropsychological functioning.

It is also noted in a cohort study by Timonen et al. (2002) that sustaining a TBI in childhood and early adolescence greatly increased the risk of criminal offending in males with a mental disorder, and that a TBI during childhood or adolescence doubled the risk of developing mental disorders. The authors found that the onset age of criminal offending was earlier in participants who had a TBI before the age of 12 years (Timonen et al., 2002).

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

Further, the results of a study by Cole et al. (2008) suggested that children and adolescents who sustained a severe TBI were at an increased risk for aggressive behaviour post injury, especially if they had a pre-injury history of aggression, anxiety or attention problems. It is noted however that both the Timonen et al. (2002) and Cole et al. (2008) studies only examined TBI resulting in hospitalisation, thus potentially excluding some TBI's of a less serious nature.

In an Australian study, Moore et al. (2014) reported on lifetime occurrence of TBI in 316 juvenile incarcerated offenders in New South Wales. Correlates with TBI were examined, including psychological disorders, substance use, antisocial behaviour, and offending history. This study used data from a 2009 'Young People in Custody' health survey. TBI was found in one third of the sample, with 13% reporting two or more TBIs. Ninety two percent of the TBIs were reported in the mild category. Major causes of TBI included assaults (38%), and sporting injuries (31%). Psychological side-effects, including personality changes, depression and anxiety were reported rarely (4%) (Moore et al., 2014).

The study by Moore et al. (2014) found that those young offenders with a history of TBI, compared with those without such a history; had a significantly increased likelihood of being diagnosed with a psychological disorder including high psychological distress, problematic cannabis and other illicit drug use, including twice the risk of depression, and three times the likelihood of risky alcohol use. The authors noted that this was in support of previous research. They found that being placed in care before the age of 16 was a significant predictor of depression (Moore et al., 2014). The study was limited by not using a validated screening instrument for establishing a history of TBI, and not accessing medical records (Moore et al., 2014).

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

In a further study of an Australian sample of 242 juvenile detainees in New South Wales published as a 'Crime and Justice Bulletin', Kenny and Lennings (2007), reported on the relationship between TBI and violent offending. They found that 35% of subjects reported at least one TBI involving a LOC. Of the 35% reporting a TBI, 40% were indigenous, 48% were from an English-speaking background, and 12% were from a culturally and linguistically diverse (CALD) background. Subjects with a history of severe violence in their offending reported a significantly higher rate of TBI compared to subjects without such a history. Significantly higher rates of TBI were found in males. Offenders with a history of gambling or moderate to severe anger on the Adolescent Psychopathology Scale (APS) were more likely to have had a TBI. Subjects from English-speaking backgrounds, as well as subjects from CALD backgrounds, exhibited a higher rate of severely violent offences if they had a history of TBI. Indigenous offenders had lower rates of severely violent offences (less than 10%), regardless of whether they had a TBI or not. A limitation of the study by Kenny and Lennings is the use of a sample solely in custody, thus not examining juvenile offenders who have never been incarcerated.

An investigation of Australians of English speaking background in comparison to culturally and linguistically diverse CALD background with TBI found that the CALD group were more likely to have negative outcomes including increased depression and anxiety. The CALD participants were less likely to have an internal locus of control, believing instead in external causes which had poorer outcomes. Conversely the internal locus of control was associated with taking responsibility for recovery and increased psychological wellbeing. The cultural value system of participants influenced outcomes, with those having a value system as other than Australian having poorer outcomes (Saltapidas & Ponsford, 2008). Focusing on



## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

Indigenous Australians, a rate of hospitalisation for head injury due to assault was found to be 21 times of that among non-Indigenous Australians. The rates for Indigenous people were higher for every age group. The rate of head injury due to assault for Indigenous females was 69 times that of non-Indigenous females. The authors noted that these findings were consistent with reports in other developed countries with indigenous populations. The role of alcohol in violence among Indigenous communities was highlighted (Jamieson, Harrison, & Berry, 2008).

The limitations of individual studies have included self-report of criminal record as opposed to accessing official records, small sample sizes, not accounting for cultural background, the use of a purely custody based sample, and no use of assessments such as cognitive and psychological.

### **The Proposed Study**

The proposed study seeks to address limitations of the previous studies, and by so doing, the study should be of interest to the field and be worthy of publication. Specifically, the limitations of some of the previous work that will be overcome in the proposed study include: the availability of official criminal records, the use of cognitive assessments, recording of cultural background and indigenous status, and the relatively large sample size of 800 in an under reported area of Australian juvenile offenders.

### **Aims**

The aims of the proposed study are to investigate TBI in juvenile offenders in New South Wales, Australia. By contrast with the population studies by Kenny and Lennings (2007) and Moore et al. (2014) our population includes subjects who have never been in custody, and this is likely to include individuals with less serious

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

offending. To highlight the importance of this distinction between a purely custody based sample and a community based sample, there has been a 51% drop in the rate of detention of young people in Australia between the ages of 10 to 17 years since 1981. Taking the data from July 2006 to June 2007, juveniles were sentenced to detention in Australian children's courts at a level of 5% (Taylor, 2009). It makes sense then, to study a community sample of juvenile offenders rather than an in custody sample, as it is more representative.

We will attempt to replicate the findings of the Australian studies of Kenny and Lennings (2007) and Moore et al. (2014) as well as to determine if young offenders serving community based orders are equally as disadvantaged as those serving custodial sentences. The proposed study will also delve further by examining associations with all mental disorders, and establish whether there are any differences between offenders who have a history of incarceration, and those who have not (approximately 10% of the sample). We also aim to see if we replicate the findings with regard to the associations with Aboriginal status in our study.

Early recognition and intervention for adolescents with TBI may assist in reducing re-offence according to Huw Williams, Cordan, et al. (2010). They recommend the use of validated screening instruments to obtain the history of any past TBI. This information, together with knowledge of crime type and the presence of impulse control problems might guide individualised, enhanced rehabilitation including techniques such as anger management (Huw Williams, Cordan, et al., 2010).

Within the public health sector, occurrence of a TBI, however mild, should lead to focused inquiries concerning the context for the injury, a history of previous

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

injuries and of substance use, in particular. Interventions focussed on risk factor reduction and engagement with prosocial activities have the potential for diverting individuals away from future self-destructive or criminal behaviours (Anda et al., 2006; Heim & Nemeroff, 2001).

Before treating offenders with TBI in custody, there needs to be screening of incarcerated individuals for TBI when they first enter custody. This could be by self-report and followed up by interviews with trained staff members. An individual treatment plan should be developed for each affected offender to address their deficits. Treatment of offenders with a TBI should include psycho education about TBI, and treatment of any co-morbidities such as mental illness and drug and alcohol abuse. Therapies that would be effective include motivational interviewing, CBT and anger management, and these could be in group format or individually utilised (Horn & Lutz, 2016).

Based on the results of existing studies, and if confirmed in this proposal, the knowledge that an offender has a history of TBI could be an easily obtained important predictor. It could serve as a marker that the individual may be at increased risk of violence, mental illness, substance abuse, and cognitive difficulties. This knowledge would assist in the design of subsequent treatment programs such that they can be altered to take the above factors into account, for example by providing increased assistance with impulse control and anger management.

### **Hypotheses**

In juvenile offenders there would be an association between reported past TBI and increased rates of violent offending, substance abuse and mental illness. We also hypothesised that there may be an association between TBI and higher levels of

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

physical abuse and neglect, lower levels of intellectual functioning, greater diversity in culture, and higher likelihood of indigenous status.

### References

- Anda, R. F., Felitti, V. J., Bremner, J. D., Walker, J. D., Whitfield, C., Perry, B. D., . . . Giles, W. H. (2006). The enduring effects of abuse and related adverse experiences in childhood. *European Archives Of Psychiatry And Clinical Neuroscience*, 256(3), 174-186.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5<sup>th</sup> Edition)*: Washington DC.
- Baguley, I. J., Cooper, J., & Felmingham, K. (2006). Aggressive behavior following traumatic brain injury: how common is common? *The Journal Of Head Trauma Rehabilitation*, 21(1), 45-56.
- Butler, T., Andrews, G., Allnutt, S., Sakashita, C., Smith, N. E., & Basson, J. (2006). Mental disorders in Australian prisoners: a comparison with a community sample. *Australian and New Zealand Journal of Psychiatry*, 40(3), 272-276.
- Carswell, K., Maughan, B., Davis, H., Davenport, F., & Goddard, N. (2004). The psychosocial needs of young offenders and adolescents from an inner city area. *Journal of Adolescence*, 27(4), 415-428.
- Chitsabesan, P., Bailey, S., Williams, R., Kroll, L., Kenning, C., & Talbot, L. (2007). Learning disabilities and educational needs of juvenile offenders. *Journal of Children's Services*, 2(4), 4-17.
- Cole, W. R., Gerring, J. P., Gray, R. M., Vasa, R. A., Salorio, C. F., Grados, M., . . . Slomine, B. S. (2008). Prevalence of aggressive behaviour after severe paediatric traumatic brain injury. *Brain Injury*, 22(12), 932-939.

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

- Corrigan, J. D., Selassie, A. W., & Orman, J. A. L. (2010). The epidemiology of traumatic brain injury. *The Journal Of Head Trauma Rehabilitation*, 25(2), 72-80.
- Davies, R. C., Williams, W., Hinder, D., Burgess, C. N., & Mounce, L. T. (2012). Self-reported traumatic brain injury and postconcussion symptoms in incarcerated youth. *The Journal Of Head Trauma Rehabilitation*, 27(3), E21-E27.
- Farrer, T. J., Frost, R. B., & Hedges, D. W. (2013). Prevalence of traumatic brain injury in juvenile offenders: A meta-analysis. *Child Neuropsychology*, 19(3), 225-234.
- Farrer, T. J., & Hedges, D. W. (2011). Prevalence of traumatic brain injury in incarcerated groups compared to the general population: a meta-analysis. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 35(2), 390-394.
- Fazel, S., Lichtenstein, P., Grann, M., & Långström, N. (2011). Risk of violent crime in individuals with epilepsy and traumatic brain injury: a 35-year Swedish population study. *PLoS Medicine*, 8(12), e1001150.
- Forrest, C. B., Tambor, E., Riley, A. W., Ensminger, M. E., & Starfield, B. (2000). The health profile of incarcerated male youths. *Pediatrics*, 105(Supplement 2), 286-291.
- Heim, C., & Nemeroff, C. B. (2001). The role of childhood trauma in the neurobiology of mood and anxiety disorders: preclinical and clinical studies. *Biological Psychiatry*, 49(12), 1023-1039.
- Hoofien, D., Gilboa, A., Vakil, E., & Donovanick, P. J. (2001). Traumatic brain injury (TBI) 10-20 years later: a comprehensive outcome study of psychiatric symptomatology, cognitive abilities and psychosocial functioning. *Brain Injury*, 15(3), 189-209.

# TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

- Horn, M. L., & Lutz, D. J. (2016). Traumatic brain injury in the criminal justice system: identification and response to neurological trauma. *Applied Psychology in Criminal Justice*, 12(2).
- Hughes, N., Williams, W., Chitsabesan, P., Walesby, R. C., Mounce, L. T., & Clasby, B. (2015). The prevalence of traumatic brain injury among young offenders in custody: a systematic review. *The Journal Of Head Trauma Rehabilitation*, 30(2), 94-105.
- Huw Williams, W., Cordan, G., Mewse, A. J., Tonks, J., & Burgess, C. N. (2010). Self-reported traumatic brain injury in male young offenders: A risk factor for re-offending, poor mental health and violence? *Neuropsychological Rehabilitation*, 20(6), 801-812.
- Huw Williams, W., Mewse, A. J., Tonks, J., Mills, S., Burgess, C., & Cordan, G. (2010). Traumatic brain injury in a prison population: prevalence and risk for re-offending. *Brain Injury*, 24(10), 1184-1188.
- Hux, K., Bond, V., Skinner, S., Belau, D., & Sanger, D. (1998). Parental report of occurrences and consequences of traumatic brain injury among delinquent and non delinquent youth. *Brain Injury*, 12(8), 667-681.
- Jamieson, L. M., Harrison, J. E., & Berry, J. G. (2008). Hospitalisation for head injury due to assault among Indigenous and non-Indigenous Australians, July 1999-June 2005. *Medical Journal of Australia*, 188(10), 576-579.
- Kaba, F., Diamond, P., Haque, A., MacDonald, R., & Venters, H. (2014). Traumatic brain injury among newly admitted adolescents in the New York City jail system. *Journal of Adolescent Health*, 54(5), 615-617.

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

- Kenny, D. T., & Lennings, C. J. (2007). *The relationship between head injury and violent offending in juvenile detainees*: NSW Bureau of Crime Statistics and Research.
- Kenny, D. T., Nelson, P., Butler, T., Lennings, C., Allerton, M., & Champion, U. (2006). NSW Young People on Community Orders Health Survey 2003-2006.
- Kreutzer, J. S., Marwitz, J. H., & Witol, A. D. (1995). Interrelationships between crime, substance abuse, and aggressive behaviours among persons with traumatic brain injury. *Brain Injury*, 9(8), 757-768.
- León-Carrión, J., & Ramos, F. J. C. (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(3), 207-216.
- Levine, M. D., Karniski, W. M., Palfrey, J. S., Meltzer, L. J., & Fenton, T. (1985). A study of risk factor complexes in early adolescent delinquency. *Archives of Pediatrics & Adolescent Medicine*, 139(1), 50.
- Lewis, D. O., Pincus, J. H., Bard, B., Richardson, E., Pritchep, L. S., Feldman, M., & Yeager, C. (1988). Neuropsychiatric, psychoeducational, and family characteristics of 14 juveniles condemned to death in the United States. *The American Journal Of Psychiatry*, 145(5), 584-589.
- Manninen, M., Lindgren, M., Huttunen, M., Ebeling, H., Moilanen, I., Kalska, H., . . . Therman, S. (2013). Low verbal ability predicts later violence in adolescent boys with serious conduct problems. *Nordic Journal Of Psychiatry*, 67(5), 289-297.
- McKinlay, A., Grace, R., Horwood, L., Fergusson, D., Ridder, E. M., & MacFarlane, M. (2008). Prevalence of traumatic brain injury among children, adolescents and



## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

- young adults: prospective evidence from a birth cohort. *Brain Injury*, 22(2), 175-181.
- Menon, D. K., Schwab, K., Wright, D. W., & Maas, A. I. (2010). Position statement: definition of traumatic brain injury. *Archives Of Physical Medicine And Rehabilitation*, 91(11), 1637-1640.
- Moore, E., Indig, D., & Haysom, L. (2014). Traumatic brain injury, mental health, substance use, and offending among incarcerated young people. *The Journal Of Head Trauma Rehabilitation*, 29(3), 239-247.
- Nicholl, J., & LaFrance, W. C. (2009). *Neuropsychiatric sequelae of traumatic brain injury*. Paper presented at the Seminars in neurology.
- Palfrey, J. S., Karniski, W., Clarke, S., Tomaselli, M., Meltzer, L. J., & Levine, M. D. (1983). Health profiles of early adolescent delinquents. *Public Health Reports*, 98(5), 449.
- Perkes, I., Schofield, P. W., Butler, T., & Hollis, S. J. (2011). Traumatic brain injury rates and sequelae: a comparison of prisoners with a matched community sample in Australia. *Brain Injury*, 25(2), 131-141.
- Perron, B. E., & Howard, M. O. (2008). Prevalence and correlates of traumatic brain injury among delinquent youths. *Criminal Behaviour and Mental Health*, 18(4), 243-255.
- Pickard, H., & Fazel, S. (2013). Substance abuse as a risk factor for violence in mental illness: some implications for forensic psychiatric practice and clinical ethics. *Current Opinion In Psychiatry*, 26(4), 349.
- Rao, V., & Lyketsos, C. (2000). Neuropsychiatric sequelae of traumatic brain injury. *Psychosomatics*, 41(2), 95-103.

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

- Ryan, N. P., Hughes, N., Godfrey, C., Rosema, S., Catroppa, C., & Anderson, V. A. (2015). Prevalence and predictors of externalizing behavior in young adult survivors of pediatric traumatic brain injury. *The Journal Of Head Trauma Rehabilitation, 30*(2), 75-85.
- Saltapidas, H., & Ponsford, J. (2008). The influence of cultural background on experiences and beliefs about traumatic brain injury and their association with outcome. *Brain Impairment, 9*(1), 1-13.
- Schofield, P., Butler, T., Hollis, S., & D'Este, C. (2011). Are prisoners reliable survey respondents? A validation of self-reported traumatic brain injury (TBI) against hospital medical records. *Brain Injury, 25*(1), 74-82.
- Schofield, P. W., Butler, T. G., Hollis, S. J., Smith, N. E., Lee, S. J., & Kelso, W. M. (2006). Neuropsychiatric correlates of traumatic brain injury (TBI) among Australian prison entrants. *Brain Injury, 20*(13-14), 1409-1418.
- Schofield, P. W., Malacova, E., Preen, D. B., D'Este, C., Tate, R., Reekie, J., . . . Butler, T. (2015). Does traumatic brain injury lead to criminality? A whole-population retrospective cohort study using linked data. *PloS One, 10*(7), e0132558.
- Shiroma, E. J., Ferguson, P. L., & Pickelsimer, E. E. (2010). Prevalence of traumatic brain injury in an offender population: a meta-analysis. *Journal of Correctional Health Care, 16*(2), 147-159.
- Taylor, N. (2009). *Juveniles in detention in Australia, 1981-2007*: Australian Institute of Criminology Canberra.
- Teicher, M. H., Andersen, S. L., Polcari, A., Anderson, C. M., Navalta, C. P., & Kim, D. M. (2003). The neurobiological consequences of early stress and childhood maltreatment. *Neuroscience & Biobehavioral Reviews, 27*(1), 33-44.

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

- Timonen, M., Miettunen, J., Hakko, H., Zitting, P., Veijola, J., von Wendt, L., & Räsänen, P. (2002). The association of preceding traumatic brain injury with mental disorders, alcoholism and criminality: the Northern Finland 1966 Birth Cohort Study. *Psychiatry Research*, 113(3), 217-226.
- van Reekum, R., Cohen, T., & Wong, J. (2000). Can traumatic brain injury cause psychiatric disorders? *The Journal Of Neuropsychiatry And Clinical Neurosciences*, 12(3), 316-327.
- Vaughn, M. G., Salas-Wright, C. P., DeLisi, M., & Perron, B. (2014). Correlates of traumatic brain injury among juvenile offenders: A multi-site study. *Criminal Behaviour and Mental Health*, 24(3), 188-203.
- Witt, K., Van Dorn, R., & Fazel, S. (2013). Risk factors for violence in psychosis: systematic review and meta-regression analysis of 110 studies. *PloS One*, 8(2), e55942.

Manuscript for Submission to the Journal of Brain Injury

**Traumatic Brain Injury among Juvenile Offenders: An Investigation into Violent  
Offending, Intellectual Functioning, Substance Abuse and Psychological  
Distress**

Racquel Mason<sup>1</sup>, Tony Butler<sup>2</sup>, Dianna Kenny<sup>3</sup>, & Peter W Schofield<sup>4,5</sup>

1 School of Psychology, University of Newcastle

2 Kirby Institute, University of New South Wales

3 Faculty of Arts and Social Sciences, University of Sydney,

4 School of Medicine and Public Health, University of Newcastle

5 Neuropsychiatry Service, Hunter New England Local Health District

Word count - 5100

**Abstract***Primary objective:*

To investigate the associations between a history of past traumatic brain injury (TBI) and violent offending as well as a range of important psychiatric, and other psychosocial characteristics in a population of young offenders.

*Research design:*

Cross-sectional analyses conducted on a sample derived from the NSW Young People on Community Orders Health Survey (YPoCOHS) [1].

*Procedures:* Study participants were administered a health questionnaire, a physical assessment and standardised psychological tests. Participants were questioned in relation to a history of TBI, and information on offending history was accessed through Juvenile Justice administrative records.

*Outcomes and results:* Data were obtained from 802 young offenders.

A history of TBI was associated with increased rates of mental illness and substance abuse but not with a record of violent offending. However, TBI was associated with higher scores on an anger/violence proneness scale. TBI was also associated with physical abuse/neglect, and cultural status. Surprisingly, TBI was associated with better intellectual functioning according to the Wechsler Abbreviated Scale of Intelligence (WASI) [2].

*Conclusions:*

Among juvenile offenders, a history of TBI was associated with high-level psychosocial disadvantage and concurrent neuropsychiatric morbidity, but not more violent offending than in those without a TBI history.

## **Introduction**

A high prevalence of past traumatic brain injury (TBI) has been reported in numerous adult offender population studies, and results have been summarised in two recent meta-analyses [3, 4]. Prevalence rates of TBI within incarcerated adult samples have ranged from 9.7% [5] to 100% [6]; much higher than estimates derived from general population studies which range from 2% [7] to 38.5% [8]. In a number of the studies TBI was highly associated with aggression [3]. The occurrence of TBI has been determined both by accessing hospital medical records and by self-report. Schofield, Butler [9] in their study concluded that prisoners' self-report of TBI was accurate compared to hospital records.

By contrast there is a scarcity of information regarding the prevalence and/or correlates of TBI among juvenile offenders. This is reflected in a 2013 meta-analysis of TBI in juvenile offenders by Farrer, Frost [10] that identified only nine studies, seven of which were from the USA, and two from the UK. Only five of these studies reported the TBI prevalence for a control group ([11], [12], [13], [14], [15]). Among juvenile offenders, the prevalence of TBI ranged from 12.5% [12] to 67% [16] - significantly higher than for control groups, when reported. Increases in aggression post TBI were evident [17-20]. It is noted that there has not been a study in relation to the validity of self-reported TBI in Juvenile offenders.

A 2015 systematic review by Hughes [21] found similar results with a TBI prevalence ranging from 16.5% to 72.1% in incarcerated youth. This review looked at six of the same studies assessed by Farrer et al. [10], and included four additional studies [22], [23], [24] and [25]. This review highlighted the need for future studies to

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

examine comorbidity of TBI and other neurodevelopmental disorders or other mental health problems [21].

A large investigation of TBI among juvenile offenders (N=1354), [26] found approximately one third of the sample (30.35%, N=411) had a history of TBI compared with the general population (12%), and that TBI was associated with higher levels of impulsivity and negative emotionality, and those with TBI more likely to be a victim of crime [26].

In a study of 'delinquent' youths, Perron and Howard [27] reported a past TBI in approximately one in five. Associations of TBI were noted with early onset criminal behaviours, increased history of criminality in the past year, current psychiatric distress, substance abuse and suicidality. Huw Williams, Cordan [18] found an association between the number of TBIs and greater violence in offences as well as the frequency of any convictions in male offenders aged 11-19 years.

A longitudinal prospective study of 55 young adults who had an emergency department admission following TBI as a child/adolescent [28] found that one in four (25%) demonstrated clinical or sub-threshold levels of externalising behaviours as a young adult, characterised by aggression, rule breaking and conduct problems compared with 5-10% among the general population. Poorer pragmatic communication was associated with increased externalising behaviours. For those with a TBI, difficulty in understanding social interaction may lead to distress and more frequent externalising behaviours [28]. These findings highlight the need for further research on juveniles with a TBI to identify heightened risk of future violence and behavioural problems.

Findings of Jamieson, Harrison et al. 2008 noted that in Indigenous Australians, a rate of hospitalisation for head injury due to assault was found to be 21 times of that among non-Indigenous Australians. This was consistent with reports in other developed countries with indigenous populations [29]. Australians of culturally and linguistically diverse background with TBI were found to be more likely to have negative outcomes including increased depression and anxiety compared to other Australians [30].

TBI has been associated with higher levels of child trauma, and activities associated with child trauma such as increased use of alcohol and other drugs [31], risky sexual behaviour and difficulty controlling anger [32] can all increase risk of TBI.

Antisocial lifestyle has been known to correlate with cognitive deficits, especially verbal deficits [33] Verbal IQ scores were found to be significantly lower than performance IQ scores and this was especially the case in male offenders [34].

This study examined TBI in a sample of juvenile offenders serving a community-based sentence in New South Wales, Australia. The age range in this study was 12 to 21 years. We hypothesized an association between reported past TBI and increased rates of violent offending, substance use and mental illness, and an association between TBI and higher levels of physical abuse and neglect, lower levels of intellectual functioning and greater diversity in cultural status.

## **Methods**

### Study participants

The NSW Young People on Community Orders Health Survey (YPoCOHS) was undertaken with a representative sample of young people on a supervised community



## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

order in New South Wales from October 2003 to December 2005. (See Appendix A for more specific information regarding the sample).

Ethics approval for this study was originally obtained through the University of Sydney Human Research Ethics Committee, as well as the Department of Juvenile Justice Collaborative Research Unit – research applications sub-committee, Justice Health Human Research and Ethics Committee, and the Aboriginal Health and Medical Research Council [1]. For the current study, further ethics approval to use the existing data was granted by the University of Newcastle Human Research and Ethics Committee (See Appendix C).

Registered nurses recruited from Justice Health New South Wales (the organisation responsible for providing health services to the state's incarcerated juvenile offender population) administered a health questionnaire (developed by DK, TB and others) during interviews with each participant. The survey also included a physical assessment that tested for blood-borne viruses and sexually transmissible infections. Registered psychologists and final year forensic psychology master degree students from the University of New South Wales and the University of Western Sydney conducted the psychological tests under the supervision of a senior clinical/forensic psychologist (DK) [1].

### Measures

A history of TBI was determined by asking participants the following questions:

'Have you ever had a head injury where you became unconscious or "blacked out"?'

If yes,

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

‘How many times has this happened?’

For the three worst head injuries:

‘What caused you to become unconscious?’ (verbal description-categorised)

‘For how long were you unconscious?’ (Only a brief moment / Less than 10 minutes / More than 10 minutes / More than 30 minutes / More than 24 hours)

‘When did this occur?’ (Within last week / 1-4 weeks ago / 1-6 months ago / Over 6 months and less than 2 years / More than 2 years ago) [1]

Residual effects of head injury were assessed by asking:

‘Did you have any of the following problems as a result of this/ these head injuries?’ (weakness in any part of the body, poor concentration, memory loss, problems finding the right words when speaking, problem with co-ordination/ balance, personality/ behavioural changes, anxiety or depression, headache)

‘Which of these effects have not gone away (resolved)?’

Psychological and cognitive functioning were assessed using the following:

- Wechsler Abbreviated Scale of Intelligence (WASI) [2]
- Wechsler Individual Achievement Test II–Abbreviated (WIAT–II, A) [35]

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

- Childhood Trauma Questionnaire (CTQ) [36]
- Adolescent Psychopathology Scale–Short Form (APS–SF) [37]
- Kessler Psychological Distress Scale (K-10) [38]

Violence and offending behaviour:

Data on the index offence and criminal history data was provided by the Department of Juvenile Justice. This was then used to determine each individual's level of violence based on the method described by Kenny and Press (2006). To develop this method, the authors, in a sample of NSW juvenile offenders in custody, examined 6 classifications of violent offences derived from the legal system as well as published research. Based on the type, frequency and outcome of violent behaviour, Kenny and Press selected a classification system that enabled the authors to distinguish between varying levels of severity of violence.

The use of this approach in the current study allowed participants to be classified according to four categories of violence: minimal, low, moderate and severe. These four categories were further collapsed into two groups: low (comprising minimal and low violence) and high (moderate and severe).

### Data analysis

The data were entered into SPSS 23 and non-parametric correlations, cross tabulations, frequencies, Pearson Chi Square and ANOVA were used to analyse the data. Statistical significance was set at  $p < .01$ , whilst statistical trend was set at  $p < .05$ .

### **Results**

The sample comprised 802 young people (683 (85%) males, 119 (15%) females). The proportion of young males and females was comparable to the total

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

population on community orders during the period of the survey. The mean age of the sample was 16 years and 6 months (range: 12–21 years). One hundred and fifty-three (20%) participants identified as Aboriginal/Torres Strait Islander. This was an under-representation of Aboriginal young offenders given that they comprised 34% of all young offenders on community orders in NSW during the survey period [1]. In the sample, a high level had irregular attendance at school and had left without minimal education. The majority of the sample had performed within the borderline range in overall academic performance.

WIAT-II-A scores of the study sample were an average 1.5 standard deviations below the norm, with a composite standard score of 77 (range 46-118). Overall academic performance was within the borderline range for the sample, with the majority of scores equivalent to individuals with an intellectual disability. The average age subjects left school was 14.9 years. The majority of study participants had left school before completing year 10, and this was most pronounced with the females in the sample [1].

A total of 96 of the sample did not have offending data with sufficient detail to enable violence severity to be classified leaving a total of 692 with all data recorded. The characteristics of the sample, including the associations of psychosocial and other variables with TBI, are depicted in Table 1.

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

Table 1 near here

Table 1 - Characteristics of the sample

Characteristic	Categories	Whole sample (N=802)	Traumatic Brain Injury (TBI) status			P value
			No TBI (N=481)	One TBI (N=191)	Multiple TBIs (N=116)	
Gender	Male	85.3	83.0	87.4	91.4	$\chi^2_{(2)}=6.22$ , p=0.045 #
	Female	14.7	17.0	12.6	8.6	
Age	Under 16	22.2	22.0	23.6	20.7	$\chi^2_{(2)}=0.365$ , p=.833
	16 and over	77.8	78.0	76.4	79.3	
Cultural/language background	Non ATSI/CALD	66.1	62.2	67.0	81.0	$\chi^2_{(4)}=16.778$ , p=.002
	Aboriginal	19.4	20.6	20.4	12.9	
	CALD	14.5	17.3	12.6	6.0	
Child trauma history	Low	56.1	61.5	51.9	40.5	$\chi^2_{(2)}=18.492$ , p<.001
	Moderate/Severe	43.9	38.5	48.1	59.5	
Performance IQ	Mean (SD)	90.95 (13.77)	89.97 (14.44)	91.93 (12.72)	93.36 (12.20)	$F_{(2,770)}=3.444$ , p=.032 #
Verbal IQ (VIQ)	Mean (SD)	79.02 (13.60)	77.63 (13.69)	80.61 (13.24)	82.14 (13.09)	$F_{(2,774)}=6.930$ , p=.001
Discrepancy (PIQ-VIQ)	Mean (SD)	11.91 (12.78)	12.29 (12.99)	11.38 (12.02)	11.22 (13.13)	$F_{(2,769)}=.538$ , p=.584
Anger/violence proneness	None-Low	81.2	84.5	79.8	70.2	$\chi^2_{(2)}=12.619$ , p=.002
	Moderate/High	18.8	15.5	20.2	29.8	
Number of times in custody	None	10.1	10.9	9.2	8.2	$\chi^2_{(4)}=3.576$ , p=.466
	1-3	39.7	41.5	37.8	35.5	
	>3	50.2	47.7	53.0	56.4	
Substance abuse	None-Low	61.9	66.7	56.1	51.8	$\chi^2_{(2)}=12.106$ , p=.002
	Moderate/High	38.1	33.3	43.9	48.2	
Mental Health (K10) – Last month	Low	41.1	45.8	37.2	28.4	$\chi^2_{(4)}=32.806$ , p<.001
	Mod	33.9	36.0	29.3	32.8	
	High/Severe	25.0	18.1	33.5	38.8	

Note: ATSI = Aboriginal and/or Torres Strait Islander; CALD = Culturally and Linguistically Diverse;

Table reports column percentage unless otherwise stated; Statistical significance set at p<.01, # statistical trend p<.05

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

More than 40% of individuals reported moderate to severe childhood trauma (based on the level of abuse) according to the Child Trauma Questionnaire (CTQ). Almost 90% of those included in the survey had been in custody one or more times previously, and 38% reported moderate to high substance abuse. Based on the K-10 scores, 34% of the sample had 'moderate' stress (score of 16-21) and 25% 'high/severe' stress (> 21). Verbal IQ (mean - 79) tended to be lower on average than performance IQ (mean - 91).

In 481(60%) no history of TBI was reported, 14(1.7%) had missing TBI data and 307(38.3%) had at least 1 TBI. This figure comprised 191(23.8%) with one TBI and 116(14.5%) with 2 or more TBIs. Univariate analyses examined the association between TBI (none/single/multiple TBI) with other factors. TBI status was significantly associated with cultural background/ethnicity, CTQ score, anger/violence proneness, substance abuse, mental health status (K-10), and verbal IQ. There was a borderline association of TBI category with Performance IQ and gender. Those not of Aboriginal and Torres Strait Islander (ATSI) background had significantly higher rates of multiple TBIs compared to Culturally and Linguistically Diverse (CALD) and Aboriginal offenders. Individuals with moderate/severe CTQ scores were more likely to have sustained multiple TBIs than those with low CTQ scores. Interestingly, those who reported multiple TBIs scored higher on performance and verbal IQ than those with no TBI. Anger/violence proneness according to the APS-SF was associated with a higher rate of TBI, as was substance abuse and high/severe psychological distress as measured by the K-10.

Amongst participants with TBI, there was no relationship between frequency of TBI (i.e. single TBI versus multiple TBIs), and self-reported 'problems resulting from TBI' ( $\chi^2_{(1)} = 1.255$ ,  $p=0.263$ ) or 'residual problems resulting from TBI' ( $\chi^2_{(1)} = 1.955$ ,

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

$p=0.162$ ) or 'period of unconsciousness' ( $\chi^2_{(4)} = 9.016$ ,  $p=0.061$ ). Participants with multiple TBIs were more likely to have had a more recent TBI. Thus, of those who reported multiple TBIs, 6% occurred in the week before the interview, 14.7% 1-4 weeks ago, and 22.4% 1-6 months ago. By comparison, among those who had experienced a single TBI, 3.1% had occurred in the past week, 3.1% 1-4 weeks ago, and 11.5% 1-6 months previously ( $\chi^2_{(4)} = 33.774$ ,  $p<0.001$ ). The length of time unconscious was not associated with 'problems resulting from TBI' ( $\chi^2_{(4)} = 7.923$ ,  $p=0.094$ ), 'residual problems resulting from TBI' ( $\chi^2_{(4)} = 8.194$ ,  $p=0.085$ ), or 'most recent TBI' ( $\chi^2_{(16)} = 5.402$ ,  $p=0.993$ ).

In terms of severity of TBI, there was no significant association between LOC and level of violent offending, ( $\chi^2_{(4)} = 5.009$ ,  $p=.286$ ), or between LOC and anger/violence proneness, ( $\chi^2_{(4)} = 5.733$ ,  $p=.220$ ). The association of problems or residual problems with most recent TBI is shown in Table 2.

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

**Insert Table 2 near here**

Table 2 – Associations with Most Recent TBI

	Recency of TBI						
<b>Problems from TBI</b>	<b>Within last week</b>	<b>1-4 weeks ago</b>	<b>1-6 months ago</b>	<b>&gt;6 months/&lt;2 years ago</b>	<b>&gt; 2 years ago</b>	<b>Total</b>	<b>Chi-squared</b>
No problems	9 69.2%	17 73.9%	36 75.0%	82 83.7%	114 91.2%	258 84.0%	$\chi^2_{(4)} = 11.596, p = .021$
One or more problems	4 30.8%	6 26.1%	12 25.0%	16 16.3%	11 8.8%	49 16.0%	
<b>Residual Problems from TBI</b>							
No residual problems	12 92.3%	17 73.9%	38 79.2%	88 89.8%	117 93.6%	272 88.6%	$\chi^2_{(4)} = 12.550, p = .014$
One or more residual problems	1 7.7%	6 26.1%	10 20.8%	10 10.2%	8 6.4%	35 11.4%	

Based on a dichotomous classification of violence, 420 individuals (60.7%) were rated as low violence and 272, (39.3%) as high violence. Table 3 shows the percent with offences of high violence against a number of different predictors.



## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

Insert Table 3 near here

Table 3: Predictors with regard to Medium/High Violence

Predictors		% of individuals with offences involving Medium/High Violence	Statistical Result
Gender	Male	39.5	$\chi^2_{(1)} = .084, p = .772$
	Female	38.0	
Age	Under 16 (N=145)	28.3	$\chi^2_{(1)} = 9.36, p = .002$
	16 and over (N=547)	42.2	
Cultural/Language Background	Non-ATSI	39.6	$\chi^2_{(2)} = 1.866, p = .393$
	ATSI	35.0	
	CALD	43.5	
Child Trauma: Moderate-Severe	No	42.7	$\chi^2_{(1)} = 4.566, p = .033 \#$
	Yes	34.7	
Anger/Violence Proneness (APS)	None-Low	40.0	$\chi^2_{(1)} = .238, p = .625$
	Moderate-High	37.6	
Number of times in custody	None	49.2	$\chi^2_{(2)} = 3.645, p = .162$
	1-3 times	40.6	
	Over 3 times	36.8	
Substance Abuse	None-Low	41.0	$\chi^2_{(1)} = .948, p = .330$
	Moderate-High	37.3	
K-10	Low	38.2	$\chi^2_{(2)} = 2.200, p = .333$
	Moderate	42.9	
	High/Severe	35.8	
TBI	None	40.5	$\chi^2_{(2)} = .659, p = .719$
	Single	37.6	
	Multiple	37.0	

With age as a covariate, Performance IQ was significantly higher in 'high violence' (mean - 92.5), compared to 'low violence' (mean - 89),  $F(2,676)= 12.016$ ,  $p<.001$ . Verbal IQ was also significantly higher in 'high violence' (mean - 81.3), compared to 'low violence' (mean - 77.1),  $F(2,678)= 12.008$ ,  $p<.001$ . There was no significant differences between high and low violence groups in the PIQ-VIQ discrepancy.

## **Discussion**

Among young people serving a community order, past TBI was associated with a history of substance abuse and with current psychological distress as indicated by scores on the K-10. In addition, past TBI was associated with higher scores on the Child Trauma Questionnaire. However, there was no association of past TBI with level of violent offending, despite higher levels of anger proneness in those who reported TBIs. Surprisingly, TBI was associated with better performance on IQ testing, and those exposed to moderate/severe childhood trauma were less likely to have been engaged in medium/high level violent offending. Higher rates of single and multiple TBIs were reported by non ATSI/CALD offenders, relative to ATSI and CALD study participants.

This conflicts with other research in which it was noted that in Indigenous Australians, a rate of hospitalisation for head injury due to assault was found to be 21 times of that among non-Indigenous Australians. [29] These findings were consistent with reports in other developed countries with indigenous populations. Jamieson, Harrison [29] also highlighted the role of alcohol in violence among Indigenous communities. An investigation of Australians of English speaking background in comparison to culturally and linguistically diverse CALD background with TBI found

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

that the CALD group were more likely to have negative outcomes including increased depression and anxiety [30].

The lack of any association between TBI and violent offending contrasts with the findings of Williams who found that three or more TBIs were associated with violent offending [18]. Methodological differences that might account for these differences include the fact that our sample included males and females, that we categorised TBI into none, one or multiple TBIs, and the offending categories of violent/nonviolent were determined by access to existing records, in contrast with Williams et al. who used self-report criminal offences [18]. This may have included offences that did not come to the attention of the criminal justice system.

The association of TBI with higher levels of child trauma is expected given the negative impact of childhood physical abuse and neglect such as eliciting feelings of panic, depression, anxiety and hallucinations. Risky behaviour such as increased use of alcohol and other drugs [31], and risky sexual behaviour, difficulty controlling anger and risk for violence against partners [32] can all increase risk of TBI. Neurological changes at early development can result [32] [39].

Intellectual functioning, as reflected in Verbal IQ and Performance IQ scores on the WASI, was higher in offenders with single and multiple TBIs than those with no history of TBI. These differences were significant for Verbal IQ and at trend level for Performance IQ. Conceivably, this might have been a reflection of the association of non-Aboriginality with TBI frequency, and better performance in general of non-Aboriginal individuals on cognitive testing relative to the other two groups.

Cognitive deficits and in particular verbal deficits; have been known to correlate with antisocial lifestyle. Manninen, Lindgren [33] proposed that the reason could be

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

that verbal abilities are essential in the socialisation process and for educational achievement; a deficit in verbal abilities can increase antisocial risk factors, anti-social behaviour and poor emotional control [33]. Verbal IQ scores were found to be significantly lower than performance IQ scores and this was especially the case in male offenders [34]. Poor intellectual functioning is overrepresented in offending populations. By virtue of the sample selection, all participants in the current study had been convicted of crimes. Given the evidence to suggest TBI may lead to criminality, this might explain higher levels of TBI amongst those lacking other risk factors for crime such as lower intellectual functioning [40]. Importantly, the lack of an association between violent offending and head injury in the highly select sample of offenders in the current study does not negate such an association within the general community. Interestingly, a significant positive association was found in this study between TBI history and scores on the anger violence proneness scale.

Increased incidence of disorders in cognitive dysfunction, lack of motivation, depression, increased risk of suicide, and anxiety disorders have been associated with TBI. It is also noted that personality changes can occur such as lability, disinhibition, aggression, irritability, apathy, and paranoia [41, 42]. Rao and Lyketsos [43] have also noted cognitive deficits in areas including arousal, attention, language, executive function, concentration, and memory.

Alcohol abuse showed a relationship with TBI severity in a study by [22], involving a sample of 61 male juvenile offenders aged between 16 and 18 years, 72% of whom reported having ever experiencing a head injury. Greater alcohol abuse levels were associated with more severe TBI in participants. Substance abuse is recognised as a risk factor for offending but also is an important risk factor for violence and for re-offending, particularly in forensic psychiatric patients and individuals with psychosis

[44] [45]. It is interesting in this context, given the association of TBI with substance abuse in the current study, that we found no association between TBI and violence. Kenny and Lennings found that head injury in conjunction with hazardous alcohol use significantly increased the probability of committing a severe violent offence and that this association was greatest in the CALD population [24].

It is important to draw attention to methodological differences that might explain some lack of consistency in our findings with other studies. The definition of TBI and measures of severity can vary across studies. The study from which the present analyses were derived did not employ a validated TBI questionnaire, although the questions posed certainly have face validity. In one study, 'a blow to the head' sufficed to define a TBI [46], while in another, loss of consciousness (LOC) > 20 minutes was required, [27] a definition that would, in all likelihood, exclude many milder TBIs. In another study, TBIs were recorded and included in analyses from mild with no LOC to severe (LOC > six hours) [18]. Another determinant of variability between studies relates to the source of evidence for a past TBI, in particular whether by self-report or by access to medical records. Evidence in support of the validity of self-report of TBI amongst offending populations has been previously published [9]. However it is important to note that there has not been any research into the validity of self-report TBI in Juvenile offending populations. This would be a potential future research area and is a limitation of the current study. Juveniles may not be as reliable in reporting past TBIs compared to adults.

The current study was limited by use of intelligence measures which may be insensitive to the common cognitive sequelae of TBI. The study did not include measures of executive functioning and cognitive measures of impulsivity, inhibition, decision-making and risk-taking; this would be beneficial to include in future studies.

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

This was partly due to the use of an existing data set which led to a lack of control over what measures were used. Further limitations of the study included a lack of independent verification of TBI, severity of TBI not reported, no assessment of pre-existing neurodevelopmental conditions such as seizure disorder, foetal alcohol syndrome or ADHD and no control group (although TBI/non-TBI control). It would be beneficial to address these in any future studies.

With consideration to the limitations of the current study, future studies could also examine structural and functional neuroimaging changes and the relationship with moderate to severe TBI, and violent offending. Another area worth investigating would be to determine any difference between TBI and non-TBI populations. The subject of validity of self-report could be investigated further in future studies. Sustaining a moderate to severe TBI can lead to reduced insight, affecting an individual's ability to recognise changes in one's function. This may impact the reporting of residual problems post TBI. In future studies, the representation of data will be revised to assist with ease of understanding and to make it more clinically meaningful.

The findings of the present study can be compared to those of two earlier Australian studies that examined TBI in juvenile incarcerated offenders [24] [47]. Supporting prior research as well as the results of the present study, Moore, Indig [47] found that relative to those without a TBI history, those reporting a past TBI and multiple TBIs were more likely to have been diagnosed with a psychological disorder and were at increased risk of alcohol and illicit drug abuse [47]. By contrast with the present study, Kenny and Lennings [24], found that a history of severe violent offending was associated with significantly higher rates of TBI compared with a history of offences involving non/mild/moderate violence. In our analysis we combined moderate and severe violence which may explain the difference in findings. Consistent

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

with the present study Kenny and Lennings found that a history of moderate to severe anger on the Adolescent Psychopathology Scale (APS) was significantly associated with a history of TBI [24].

Strengths of the present study include the availability of official criminal records to unambiguously determine offending behaviour, the use of standardised cognitive assessments, and the relatively large sample size of 800 Australian juvenile offenders. The present study differs from the two Australian studies cited above in having a larger sample size and including subjects who had never been in custody, thus likely including individuals with less serious offending as they had not been incarcerated. There has been a 51% drop in the rate of detention of young people in Australia between the ages of 10 to 17 years since 1981. Based on data from July 2006 to June 2007, only 5% of juveniles found guilty of an offence were sentenced to institutional detention by Australian children's courts [48]. Thus, studies conducted within a community sample of juvenile offenders like ours are likely to better reflect the associations of TBI within the larger population of young people in contact with the criminal justice system.

TBI in the adolescent population is an important public health issue. Early recognition and intervention for adolescents with TBI may assist in reducing re-offending [18]. Children and adolescents who sustain a severe TBI appear to be at increased risk for aggressive behaviour post injury [17]. A TBI before the age of 12 years increases the risk of developing a mental disorder and of offending [49]. Within the public health sector, occurrence of a TBI, however mild, should lead to focused inquiries concerning the context of the injury, a history of previous injuries and substance use, in particular. Interventions focussed on risk reduction and engagement

with prosocial activities have the potential for diverting individuals from future self-destructive or criminal behaviours [31, 32].

Within offending populations specifically, screening instruments for TBI, crime type and difficulty with impulse control could guide the implementation of enhanced rehabilitation approaches [18]. Therapies that would be effective include Motivational interviewing, CBT and anger management, and these could be in group format or individually utilised [50]. Treatment of offenders with a TBI should include psycho education about TBI, and treatment of any co-morbidities such as mental illness and drug and alcohol abuse [50].

### **Conclusions**

In this sample of young offenders serving a community order, we found that knowledge of offender exposure to TBI can flag the possibility that the individual may have experienced past psychosocial deprivation, and may be at increased risk of mental illness, substance abuse, and future TBI. Other studies have suggested that the risk of violent offending may also be increased by a TBI. Systematic identification of such factors is important to characterise needs and to facilitate entry into programs designed to address these, with potential benefits for the individual, their families and ultimately the general public.



## References

1. Kenny, D.T., et al., *NSW Young People on Community Orders Health Survey 2003-2006*. 2006.
2. Wechsler, D., *Wechsler abbreviated scale of intelligence*. 1999: Psychological Corporation.
3. Farrer, T.J. and D.W. Hedges, *Prevalence of traumatic brain injury in incarcerated groups compared to the general population: a meta-analysis*. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 2011. **35**(2): p. 390-394.
4. Shiroma, E.J., P.L. Ferguson, and E.E. Pickelsimer, *Prevalence of traumatic brain injury in an offender population: a meta-analysis*. *Journal of Correctional Health Care*, 2010. **16**(2): p. 147-159.
5. Blake, P.Y., J.H. Pincus, and C. Buckner, *Neurologic abnormalities in murderers*. *Neurology*, 1995. **45**(9): p. 1641-1647.
6. Lewis, D.O., et al., *Psychiatric, neurological, and psychoeducational characteristics of 15 death row inmates in the United States*. *American Journal of Psychiatry*, 1986. **143**(7): p. 838-845.
7. Thurman, D.J., et al., *Traumatic brain injury in the United States: a public health perspective*. *The Journal of head trauma rehabilitation*, 1999. **14**(6): p. 602-615.
8. McKinlay, A., et al., *Prevalence of traumatic brain injury among children, adolescents and young adults: prospective evidence from a birth cohort*. *Brain injury*, 2008. **22**(2): p. 175-181.
9. Schofield, P., et al., *Are prisoners reliable survey respondents? A validation of self-reported traumatic brain injury (TBI) against hospital medical records*. *Brain Injury*, 2011. **25**(1): p. 74-82.

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

10. Farrer, T.J., R.B. Frost, and D.W. Hedges, *Prevalence of traumatic brain injury in juvenile offenders: A meta-analysis*. Child neuropsychology, 2013. **19**(3): p. 225-234.
11. Carswell, K., et al., *The psychosocial needs of young offenders and adolescents from an inner city area*. Journal of adolescence, 2004. **27**(4): p. 415-428.
12. Forrest, C.B., et al., *The health profile of incarcerated male youths*. Pediatrics, 2000. **105**(Supplement 2): p. 286-291.
13. Hux, K., et al., *Parental report of occurrences and consequences of traumatic brain injury among delinquent and non delinquent youth*. Brain Injury, 1998. **12**(8): p. 667-681.
14. Levine, M.D., et al., *A study of risk factor complexes in early adolescent delinquency*. Archives of Pediatrics & Adolescent Medicine, 1985. **139**(1): p. 50.
15. Palfrey, J.S., et al., *Health profiles of early adolescent delinquents*. Public Health Reports, 1983. **98**(5): p. 449.
16. Lewis, D.O., et al., *Biopsychosocial characteristics of children who later murder: a prospective study*. The American journal of psychiatry, 1985. **142**(10): p. 1161.
17. Cole, W.R., et al., *Prevalence of aggressive behaviour after severe paediatric traumatic brain injury*. Brain Injury, 2008. **22**(12): p. 932-939.
18. Huw Williams, W., et al., *Self-reported traumatic brain injury in male young offenders: A risk factor for re-offending, poor mental health and violence?* Neuropsychological rehabilitation, 2010. **20**(6): p. 801-812.

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

19. Dooley, J.J., et al., *Aggression after paediatric traumatic brain injury: A theoretical approach*. Brain Injury, 2008. **22**(11): p. 836-846.
20. Tateno, A., R.E. Jorge, and R.G. Robinson, *Clinical correlates of aggressive behavior after traumatic brain injury*. The Journal of Neuropsychiatry and Clinical Neurosciences, 2003.
21. Hughes, N., et al., *The prevalence of traumatic brain injury among young offenders in custody: a systematic review*. The Journal of head trauma rehabilitation, 2015. **30**(2): p. 94-105.
22. Davies, R.C., et al., *Self-reported traumatic brain injury and postconcussion symptoms in incarcerated youth*. The Journal of head trauma rehabilitation, 2012. **27**(3): p. E21-E27.
23. Kaba, F., et al., *Traumatic brain injury among newly admitted adolescents in the New York City jail system*. Journal of Adolescent Health, 2014. **54**(5): p. 615-617.
24. Kenny, D.T. and C.J. Lennings, *The relationship between head injury and violent offending in juvenile detainees*. 2007: NSW Bureau of Crime Statistics and Research.
25. Moore, E., D. Indig, and L. Haysom, *Traumatic brain injury, mental health, substance use, and offending among incarcerated young people*. The Journal of head trauma rehabilitation, 2014. **29**(3): p. 239-247.
26. Vaughn, M.G., et al., *Correlates of traumatic brain injury among juvenile offenders: A multi-site study*. Criminal Behaviour and Mental Health, 2014. **24**(3): p. 188-203.

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

27. Perron, B.E. and M.O. Howard, *Prevalence and correlates of traumatic brain injury among delinquent youths*. Criminal Behaviour and Mental Health, 2008. **18**(4): p. 243-255.
28. Ryan, N.P., et al., *Prevalence and predictors of externalizing behavior in young adult survivors of pediatric traumatic brain injury*. The Journal of head trauma rehabilitation, 2015. **30**(2): p. 75-85.
29. Jamieson, L.M., J.E. Harrison, and J.G. Berry, *Hospitalisation for head injury due to assault among Indigenous and non-Indigenous Australians, July 1999-June 2005*. Medical journal of Australia, 2008. **188**(10): p. 576-579.
30. Saltapidas, H. and J. Ponsford, *The influence of cultural background on experiences and beliefs about traumatic brain injury and their association with outcome*. Brain Impairment, 2008. **9**(1): p. 1-13.
31. Heim, C. and C.B. Nemeroff, *The role of childhood trauma in the neurobiology of mood and anxiety disorders: preclinical and clinical studies*. Biological psychiatry, 2001. **49**(12): p. 1023-1039.
32. Anda, R.F., et al., *The enduring effects of abuse and related adverse experiences in childhood*. European archives of psychiatry and clinical neuroscience, 2006. **256**(3): p. 174-186.
33. Manninen, M., et al., *Low verbal ability predicts later violence in adolescent boys with serious conduct problems*. Nordic journal of psychiatry, 2013. **67**(5): p. 289-297.
34. Chitsabesan, P., et al., *Learning disabilities and educational needs of juvenile offenders*. Journal of Children's Services, 2007. **2**(4): p. 4-17.
35. Weschler, D., *Wechsler individual achievement test*. 2005, San Antonio, TX: The Psychological Corporation.

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

36. Bernstein, D.P. and L. Fink, *Childhood trauma questionnaire: A retrospective self-report: Manual*. 1998: Psychological Corporation.
37. Reynolds, W.M., *Adolescent Psychopathology Scale, Short Form: Professional Manual*. 2000: Psychological Assessment Resources.
38. Kessler, R.C., et al., *Short screening scales to monitor population prevalences and trends in non-specific psychological distress*. *Psychological medicine*, 2002. **32**(06): p. 959-976.
39. Teicher, M.H., et al., *The neurobiological consequences of early stress and childhood maltreatment*. *Neuroscience & Biobehavioral Reviews*, 2003. **27**(1): p. 33-44.
40. Schofield, P.W., et al., *Does traumatic brain injury lead to criminality? A whole-population retrospective cohort study using linked data*. *PLoS one*, 2015. **10**(7): p. e0132558.
41. Nicholl, J. and W.C. LaFrance. *Neuropsychiatric sequelae of traumatic brain injury*. in *Seminars in neurology*. 2009. © Thieme Medical Publishers.
42. Hoofien, D., et al., *Traumatic brain injury (TBI) 10? 20 years later: a comprehensive outcome study of psychiatric symptomatology, cognitive abilities and psychosocial functioning*. *Brain injury*, 2001. **15**(3): p. 189-209.
43. Rao, V. and C. Lyketsos, *Neuropsychiatric sequelae of traumatic brain injury*. *Psychosomatics*, 2000. **41**(2): p. 95-103.
44. Pickard, H. and S. Fazel, *Substance abuse as a risk factor for violence in mental illness: some implications for forensic psychiatric practice and clinical ethics*. *Current opinion in psychiatry*, 2013. **26**(4): p. 349.

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

45. Witt, K., R. Van Dorn, and S. Fazel, *Risk factors for violence in psychosis: systematic review and meta-regression analysis of 110 studies*. PloS one, 2013. **8**(2): p. e55942.
46. León-Carrión, J. and F.J.C. Ramos, *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, 2003. **17**(3): p. 207-216.
47. Moore, E., D. Indig, and L. Haysom, *Traumatic Brain Injury, Mental Health, Substance Use, and Offending Among Incarcerated Young People*. The Journal of head trauma rehabilitation, 2013.
48. Taylor, N., *Juveniles in detention in Australia, 1981-2007*. 2009: Australian Institute of Criminology Canberra.
49. Timonen, M., et al., *The association of preceding traumatic brain injury with mental disorders, alcoholism and criminality: the Northern Finland 1966 Birth Cohort Study*. Psychiatry Research, 2002. **113**(3): p. 217-226.
50. Horn, M.L. and D.J. Lutz, *Traumatic brain injury in the criminal justice system: identification and response to neurological trauma*. Applied Psychology in Criminal Justice, 2016. **12**(2).

## **Appendix A- Information Regarding the Sample**

Initially there were approximately 1900 eligible young people considered for the survey. All were given the opportunity to participate in the survey, written consent was required as a condition of participation with parental consent required for any under the age of 14 years. Out of this group, 400 refused to participate, 600 were uncontactable or failed to respond to repeated attempts to contact them, and 100 (90 males, 10 females) were excluded (due to serious mental health problems, withdrawing from drugs, Department of Juvenile Justice staff considered them too violent or disruptive, or they had court appearances/were admitted into custody on the day of the survey). It is important to note then that the exclusions may have led to an under-estimation of prevalence of mental health disorders, substance abuse and violence in the sample [1].

The health questionnaire was developed by the survey authors and recorded information on self-reported health status in the form of a 12- item short form health survey (SF 12). The areas covered included disability, recent symptoms, injury, medication, health service use, health behaviours (health education, physical activity, sun protection, nutrition, health service utilisation) and risk behaviours (alcohol and other drug use, sexual health, smoking, gambling, tattooing and body piercing) [1].

## Appendix B- Brain Injury Journal instructions to authors

### Brain Injury

#### Instructions for Authors

**Brain Injury** publishes critical information relating to research and clinical practice, adult and paediatric populations. The Journal covers a full range of relevant topics relating to clinical, translational, and basic science research. Manuscripts address emergency and acute medical care, acute and post-acute rehabilitation, family and vocational issues, and long-term supports. Coverage includes assessment and interventions for functional, communication, neurological, and psychological disorders.

#### Manuscript Preparation

*Brain Injury* is committed to improving and maintaining the consistency and quality of manuscripts submitted and published. Authors are strongly encouraged to review and comply with the reporting guidelines relevant to their submission. Reviewers have been instructed to evaluate submissions on the basis of their conformity to the guidelines.

Authors should prepare and upload two versions of their manuscript. One should be a complete text, while in the second all document information identifying the author(s) should be removed from files to allow them to be sent anonymously to referees. When uploading files authors will then be able to define the non-anonymous version as "File not for review".

**Brain Injury** considers all manuscripts at the Editors' discretion; the Editors' decision is final.

**Brain Injury** considers all manuscripts on the strict condition that they are the property (copyright) of the submitting author(s), have been submitted only to **Brain Injury**, that they have not been published already, nor are they under consideration for publication, nor in press elsewhere. Authors who fail to adhere to this condition will be charged all



costs which *Brain Injury* incurs, and their papers will not be published. Copyright will be transferred to the journal *Brain Injury* and Taylor and Francis, if the paper is accepted.

### General Guidelines

Please write clearly and concisely, stating your objectives clearly and defining your terms. Your arguments should be substantiated with well-reasoned supporting evidence.

In writing your paper, you are encouraged to review articles in the area you are addressing which have been previously published in the Journal, and where you feel appropriate, to reference them. This will enhance context, coherence, and continuity for our readers.

For all manuscripts, gender-, race-, and creed-inclusive language is mandatory.

Use person-first language throughout the manuscript (i.e., persons with brain injury rather than brain injured persons).

### Publishing Ethics

The Editors and Taylor & Francis Group are committed to the highest academic, professional, legal, and ethical standards in publishing work in this journal. To this end, we have adopted a [set of guidelines](#), to which all submitting authors are expected to adhere, to assure integrity and ethical publishing for authors, reviewers, and editors.

Taylor & Francis is a member of the Committee of Publications Ethics (COPE). COPE aims to provide a forum for publishers and editors of scientific journals to discuss issues relating to the integrity of their work, including conflicts of interest, falsification and fabrication of data, ethical misconduct, unethical experimentation, inadequate subject consent, and authorship disputes. For more information on COPE please visit <http://publicationethics.org>.

Please note that *Brain Injury* uses [CrossCheck™](#) to screen papers for unoriginal material. By submitting your paper to the journal you are agreeing to originality checks during the peer-review and production processes.

**File preparation and types**

Manuscripts are preferred in Microsoft Word format (.doc files). Documents must be double-spaced, with margins of one inch on all sides. Tables and figures should not appear in the main text, but should be uploaded as separate files and designated with the appropriate file type upon submission. References should be given in Council of Science Editors (CSE) Citation & Sequence format (see References section for examples).

Manuscripts should be compiled in the following order: title page; abstract; main text; acknowledgments; Declaration of Interest statement; appendices (as appropriate); references; tables with captions (on separate pages); figures; figure captions (as a list).

**Title Page**

A title page should be provided comprising the manuscript title plus the full names and affiliations of all authors involved in the preparation of the manuscript. One author should be clearly designated as the corresponding author and full contact information, including phone number and email address, provided for this person. Keywords that are not in the title should also be included on the title page. The keywords will assist indexers in cross indexing your article. The title page should be uploaded separately to the main manuscript and designated as “title page – not for review” on ScholarOne Manuscripts.

**Abstract**

Structured abstracts are required for all papers, and should be submitted as detailed below, following the title and author's name and address, preceding the main text.

For papers reporting original research, state the primary objective and any hypothesis tested; describe the research design and your reasons for adopting that methodology; state the methods and procedures employed, including where appropriate tools, hardware, software, the selection and number of study areas/subjects, and the central experimental interventions; state the main outcomes and results, including relevant

data; and state the conclusions that might be drawn from these data and results, including their implications for further research or application/practice.

For review essays, state the primary objective of the review; the reasoning behind your literature selection; and the way you critically analyse the literature; state the main outcomes and results of your review; and state the conclusions that might be drawn, including their implications for further research or application/practice.

The abstract should not exceed 200 words.

**Tables and Figures:** Tables and figures should not be embedded in the text, but should be included as separate sheets or files. A short descriptive title should appear above each table with a clear legend and any footnotes suitably identified below. All units must be included. Figures should be completely labeled, taking into account necessary size reduction. Captions should be typed, double-spaced, on a separate sheet. All original figures should be clearly marked with the number, author's name, and top edge indicated.

**Illustrations:** Illustrations submitted (line drawings, halftones, photos, photomicrographs, etc.) should be clean originals or digital files. Digital files are recommended for highest quality reproduction and should follow these guidelines:

- 300 dpi or higher
- sized to fit on journal page
- EPS, TIFF, or PSD format only
- submitted as separate files, not embedded in text files

**Color Reproduction:** Color art will be reproduced in color in the online publication at no additional cost to the author. Color illustrations will also be considered for print publication; however, the author will be required to bear the full cost involved in color art reproduction. Please note that color reprints can only be ordered if print reproduction costs are paid. Print Rates: \$900 for the first page of color; \$450 per page for the next three pages of color. A custom quote will be provided for articles with more than four pages of color. Art not supplied at a minimum of 300 dpi will not be considered for print.

Authors are responsible for obtaining permission to reproduce copyrighted material from other sources and are required to sign an agreement for the transfer of copyright to the publisher. As an author you are required to secure permission if you want to reproduce any figure, table or extract text from any other source. This applies to direct reproduction as well as "derivative reproduction" (where you have created a new figure or table which derives substantially from a copyrighted source).

### Letters to the Editor

Letters to the Editor will be considered for publication subject to editor approval and provided that they either relate to content previously published in the Journal or address any item that is felt to be of interest to the readership. Letters relating to articles previously published in the Journal should be received no more than three months after publication of the original work. Pending editor approval, letters may be submitted to the author of the original paper in order that a reply be published simultaneously.

Letters to the Editor can be signed by a maximum of three authors, should be between 750 and 1,250 words, may contain one table/figure and may cite a maximum of five references. All Letters should be submitted via ScholarOne Manuscripts and should contain a Declaration of Interest statement.

### Notes on Style

All authors are asked to take account of the diverse audience of *Brain Injury*. Clearly explain or avoid the use of terms that might be meaningful only to a local or national audience.

Some specific points of style for the text of original papers, reviews, and case studies follow:

- *Brain Injury* prefers US to 'American', USA to 'United States', and UK to 'United Kingdom'. *Brain Injury* uses conservative British, not US, spelling, i.e. colour not color; behaviour (behavioural) not behavior; [school] programme not program; [he] practises not practices; centre not center; organization not organisation; analyse not analyze, etc.

## TRAUMATIC BRAIN INJURY IN JUVENILE OFFENDERS

- Single 'quotes' are used for quotations rather than double "quotes", unless the 'quote' is "within" another quote'.
- Punctuation should follow the British style, e.g. 'quotes precede punctuation'.
- Punctuation of common abbreviations should follow the following conventions: e.g. i.e. cf. Note that such abbreviations are not followed by a comma or a (double) point/period.
- Dashes (M-dash) should be clearly indicated in manuscripts by way of either a clear dash (-) or a double hyphen (- -).
- **Brain Injury** is sparing in its use of the upper case in headings and references, e.g. only the first word in paper titles and all subheads is in upper case; titles of papers from journals in the references and other places are not in upper case.
- Apostrophes should be used sparingly. Thus, decades should be referred to as follows: 'The 1980s [not the 1980's] saw ...'. Possessives associated with acronyms (e.g. APU), should be written as follows: 'The APU's findings that ...', but, NB, the plural is APUs.
- All acronyms for national agencies, examinations, etc., should be spelled out the first time they are introduced in text or references. Thereafter the acronym can be used if appropriate, e.g. 'The work of the Assessment of Performance Unit (APU) in the early 1980s ...'. Subsequently, 'The APU studies of achievement ...', in a reference ... (Department of Education and Science [DES] 1989a).
- Brief biographical details of significant national figures should be outlined in the text unless it is quite clear that the person concerned would be known internationally. Some suggested editorial emendations to a typical text are indicated in the following with square brackets: 'From the time of H. E. Armstrong [in the 19th century] to the curriculum development work associated with the Nuffield Foundation [in the 1960s], there has been a shift from heurism to constructivism in the design of [British] science courses'.
- The preferred local (national) usage for ethnic and other minorities should be used in all papers. For the USA, African-American, Hispanic, and Native American are used, e.g. 'The African American presidential candidate, Jesse Jackson...' For the UK, African-Caribbean (not 'West Indian'), etc.
- Material to be emphasized (italicized in the printed version) should be underlined in the typescript rather than italicized. Please use such emphasis sparingly. n (not N), % (not per cent) should be used in typescripts.

- Numbers in text should take the following forms: 300, 3000, 30 000. Spell out numbers under 10 unless used with a unit of measure, e.g. nine pupils but 9 mm (do not introduce periods with measure). For decimals, use the form 0.05 (not .05).

### **Acknowledgments and Declaration of Interest sections**

Acknowledgments and Declaration of interest sections are different, and each has a specific purpose.

The Acknowledgments section details special thanks, personal assistance, and dedications.

Contributions from individuals who do not qualify for authorship should also be acknowledged here. Declarations of interest, however, refer to statements of financial support and/or statements of potential conflict of interest. Within this section also belongs disclosure of scientific writing assistance (use of an agency or agency/freelance writer), grant support and numbers, and statements of employment, if applicable.

### **Acknowledgments section**

Any acknowledgments authors wish to make should be included in a separate headed section at the end of the manuscript preceding any appendices, and before the references section. Please do not incorporate acknowledgments into notes or biographical notes.

### **Declaration of Interest section**

All declarations of interest must be outlined under the subheading “Declaration of interest”. If authors have no declarations of interest to report, this must be explicitly stated. The suggested, but not mandatory, wording in such an instance is: *The authors report no declarations of interest.* When submitting a paper via ScholarOne Manuscripts, the “Declaration of interest” field is compulsory (authors must either state the disclosures or report that there are none). If this section is left empty authors will not be able to progress with the submission.

Please note: for NIH/Wellcome-funded papers, the grant number(s) must be included in the Declaration of Interest statement.

## References

References should follow the Council of Science Editors (CSE) Citation & Sequence format. Only works actually cited in the text should be included in the references. Indicate in the text with Arabic numbers inside square brackets. Spelling in the reference list should follow the original. References should then be listed in numerical order at the end of the article. Further examples and information can be found in The CSE Manual for Authors, Editors, and Publishers, Seventh Edition. Periodical abbreviations should follow the style given by Index Medicus.

Examples are provided as follows:

**Journal article:** [1] Steiner U, Klein J, Eiser E, Budkowski A, Feters LJ. Complete wetting from polymer mixtures. *Science* 1992;258:1122-9.

**Book chapter:** [2] Kuret JA, Murad F. Adenohypophyseal hormones and related substances. In: Gilman AG, Rall TW, Nies AS, Taylor P, editors. *The pharmacological basis of therapeutics*. 8th ed. New York: Pergamon; 1990. p 1334-60.

**Conference proceedings:** [3] Irvin AD, Cunningham MP, Young AS, editors. *Advances in the control of Theileriosis*. International Conference held at the International Laboratory for Research on Animal Diseases; 1981 Feb 9-13; Nairobi. Boston: Martinus Nijhoff Publishers; 1981. 427 p.

**Dissertations or Thesis:** [4] Mangie ED. A comparative study of the perceptions of illness in New Kingdom Egypt and Mesopotamia of the early first millennium [dissertation]. Akron (OH): University of Akron; 1991. 160 p. Available from: University Microfilms, Ann Arbor MI; AAG9203425.

**Journal article on internet:** [5] De Guise E, Leblanc J, Dagher J, Lamoureux J, Jishi A, Maleki M, Marcoux J, Feyz M. 2009. Early outcome in patients with traumatic brain injury, pre-injury alcohol abuse and intoxication at time of injury. *Brain Injury*

23(11):853-865. <http://www.informaworld.com/10.1080/02699050903283221>.  
Accessed 2009 Oct 06

**Webpage:** [6] British Medical Journal [Internet]. Stanford, CA: Stanford Univ; 2004 July 10 - [cited 2004 Aug 12]; Available from: <http://bmj.bmjournals.com>

**Internet databases:** [7] Prevention News Update Database [Internet]. Rockville (MD): Centers for Disease Control and Prevention (US), National Prevention Information Network. 1988 Jun - [cited 2001 Apr 12]. Available from: <http://www.cdcnpin.org/>

**Page Proofs:** All proofs must be corrected and returned to the publisher within 48 hours of receipt. If the manuscript is not returned within the allotted time, the editor will proofread the article and it will be printed per the editor's instruction. Only correction of typographical errors is permitted.



**Appendix C- Ethics Approval**

- **Ethics approval for current study from Newcastle University**
- **Original ethics approval from Sydney University (including participant information form, consent form and flyers for the study)**

## **Notification of Expedited Approval**

---

To Chief Investigator or Project Supervisor:	<b>Conjoint Associate Professor Peter Schofield</b>
Cc Co-investigators / Research Students:	<b>Professor Tony Butler Miss Racquel Mason</b>
Re Protocol:	<b>Head injury in juvenile offenders and the effect on level of violence in offending</b>
Date:	<b>06-Mar-2014</b>
Reference No:	<b>H-2014-0056</b>
Date of Initial Approval:	<b>06-Mar-2014</b>

---

Thank you for your **Initial Application** submission to the Human Research Ethics Committee (HREC) seeking approval in relation to the above protocol.

Your submission was considered under **L2 Low Risk Research Expedited** review by the HREC Panel.

I am pleased to advise that the decision on your submission is **Approved** effective **06-Mar-2014**.

**For noting:**

1. The application provided did not detail the skills and relevant experience of the researchers who will be analysing the data. Please provide an e-mail to [human-ethics@newcastle.edu.au](mailto:human-ethics@newcastle.edu.au) including this information.
2. The information provided on how the collected data will be stored, did not appear to address how the data will be protected. Please ensure that the student's computer on which the data will be stored, is password protected.

In approving this protocol, the Human Research Ethics Committee (HREC) is of the opinion that the project complies with the provisions contained in the National Statement on Ethical Conduct in Human Research, 2007, and the requirements within this University relating to human research.

Approval will remain valid subject to the submission, and satisfactory assessment, of annual progress reports. *If the approval of an External HREC has been "noted" the approval period is as determined by that HREC.*

The full Committee will be asked to ratify this decision at its next scheduled meeting. A formal *Certificate of Approval* will be available upon request. Your approval number is **H-2014-0056**.

**If the research requires the use of an Information Statement, ensure this number is inserted at the relevant point in the Complaints paragraph prior to distribution to potential participants** You may then proceed with the research.

## Conditions of Approval

This approval has been granted subject to you complying with the requirements for *Monitoring of Progress, Reporting of Adverse Events, and Variations to the Approved Protocol* as detailed below.

### PLEASE NOTE:

In the case where the HREC has "noted" the approval of an External HREC, progress reports and reports of adverse events are to be submitted to the External HREC only. In the case of Variations to the approved protocol, or a Renewal of approval, you will apply to the External HREC for approval in the first instance and then Register that approval with the University's HREC.

- **Monitoring of Progress**

Other than above, the University is obliged to monitor the progress of research projects involving human participants to ensure that they are conducted according to the protocol as approved by the HREC. A progress report is required on an annual basis. Continuation of your HREC approval for this project is conditional upon receipt, and satisfactory assessment, of annual progress reports. You will be advised when a report is due.

- **Reporting of Adverse Events**

1. It is the responsibility of the person **first named on this Approval Advice** to report adverse events.
2. Adverse events, however minor, must be recorded by the investigator as observed by the investigator or as volunteered by a participant in the research. Full details are to be documented, whether or not the investigator, or his/her deputies, consider the event to be related to the research substance or procedure.
3. Serious or unforeseen adverse events that occur during the research or within six (6) months of completion of the research, must be reported by the person first named on the Approval Advice to the (HREC) by way of the Adverse Event Report form (via RIMS at <https://rims.newcastle.edu.au/login.asp>) within 72 hours of the occurrence of the event or the investigator receiving advice of the event.
4. Serious adverse events are defined as:
  - Causing death, life threatening or serious disability.
  - Causing or prolonging hospitalisation.
  - Overdoses, cancers, congenital abnormalities, tissue damage, whether or not they are judged to be caused by the investigational agent or procedure.
  - Causing psycho-social and/or financial harm. This covers everything from perceived invasion of privacy, breach of confidentiality, or the diminution of social reputation, to the creation of psychological fears and trauma.
  - Any other event which might affect the continued ethical acceptability of the project.
5. Reports of adverse events must include:
  - Participant's study identification number;
  - date of birth;
  - date of entry into the study;
  - treatment arm (if applicable);
  - date of event;
  - details of event;
  - the investigator's opinion as to whether the event is related to the research procedures; and

- action taken in response to the event.
6. Adverse events which do not fall within the definition of serious or unexpected, including those reported from other sites involved in the research, are to be reported in detail at the time of the annual progress report to the HREC.
- ***Variations to approved protocol***

If you wish to change, or deviate from, the approved protocol, you will need to submit an *Application for Variation to Approved Human Research* (via RIMS at <https://rims.newcastle.edu.au/login.asp>). Variations may include, but are not limited to, changes or additions to investigators, study design, study population, number of participants, methods of recruitment, or participant information/consent documentation. **Variations must be approved by the (HREC) before they are implemented** except when Registering an approval of a variation from an external HREC which has been designated the lead HREC, in which case you may proceed as soon as you receive an acknowledgement of your Registration.

#### Linkage of ethics approval to a new Grant

HREC approvals cannot be assigned to a new grant or award (ie those that were not identified on the application for ethics approval) without confirmation of the approval from the Human Research Ethics Officer on behalf of the HREC.

Best wishes for a successful project.

Professor Allyson Holbrook

**Chair, Human Research Ethics Committee**

*For communications and enquiries:*

**Human Research Ethics Administration**

Research Services  
Research Integrity Unit  
The Chancellery  
The University of Newcastle  
Callaghan NSW 2308  
T +61 2 492 17894  
F +61 2 492 17164  
[Human-Ethics@newcastle.edu.au](mailto:Human-Ethics@newcastle.edu.au)

RIMS website - <https://RIMS.newcastle.edu.au/login.asp>

***Linked University of Newcastle administered funding:***

Funding body	Funding project title	First named investigator	Grant Ref
--------------	-----------------------	--------------------------	-----------



# The University of Sydney

2003/4484

6932



RUS00080WY

**RESEARCH (ACADEMIC) - ETHICS - Human - BREAKING THE JUVENILE  
CRIME CYCLE: REHABILITATING HIGH RISK YOUNG OFFENDERS  
KENNY, D 6932**

## RECORDS MANAGEMENT INSTRUCTIONS

**PRIVACY:** This file may contain personal information. The unauthorised disclosure of personal information is prohibited by the *SW Privacy and Personal Information Protection Act 1998*.

**DESTRUCTION OF RECORDS:** Do not remove or destroy documents from this file. The *NSW State Records Act 1998* prohibits the unauthorised destruction of records.

**ON COMPLETION OF ACTION:** The officer actioning the file should initial column (3) alongside the referral and return the file to Records Management Services.

**RESUBMIT REQUESTS:** If the actioning officer wishes to review the file at a future date they should also enter a Resubmit Date in column (4).

**FILE TRANSFERS:** If a file is referred to another officer you should advise Records Management Services of its movement; or you may refer the file to another officer indirectly via Records Management Services by completing columns (1) and (2).

**INQUIRIES:** Phone ext 12213 or 13174, Fax ext 14173, E-mail [rms@rms.usyd.edu.au](mailto:rms@rms.usyd.edu.au), URL <http://www.usyd.edu.au/arms/rms>

DATE OPENED: / /

RELATED RECORDS:

DATE CLOSED: / /

(1) Referred To	(2) Date Referred	(3) Initials	(4) Resubmit Date	(1) Referred To	(2) Date Referred	(3) Initials	(4) Resubmit Date
	9/7/03						
	23/6/04			PROCESSED	27 MAY 2011		
	23/6/04						
	9-8-04						
	16/8/04						
	11/7/05						
	2/8/05						
	2/9/05						
	4/10/05						
	28/01/07						
	25/1/07						
	16/6/08						
	11/11/08						



THE UNIVERSITY OF SYDNEY  
HUMAN RESEARCH ETHICS COMMITTEE  
COMPLETION REPORT FORM

2003/4484 / 24/1

ETHICS OFFICE
23 JAN 2007
DATE RECEIVED

RESEARCHERS MUST COMPLETE ALL SECTIONS

ENTERED

Project Number	Project title	Approval Date	Completion Date
6932	Breaking the juvenile crime cycle: Rehabilitating High Risk Young Offenders	2003	2006

SECTION 1

<b>Researchers current contact details</b>		
<b>Chief Investigator</b>		
<b>Title:</b> Prof	<b>Name:</b> Dianna Kenny	
<b>Department or Full postal address:</b> USYD		
<b>Phone 1:</b> 0425 358 275	<b>Phone 2:</b>	<b>Fax:</b> 9351 9540
<b>Email:</b> D.Kenny@usyd.edu.au		

<b>Co-investigator</b>		
<b>Title:</b> Ms	<b>Name:</b> Chris Lennings (usyd) and Tony Butler (Justice Health)	
<b>Department or Full postal address:</b>		
<b>Phone 1:</b>	<b>Phone 2:</b>	<b>Fax:</b>
<b>Email:</b>		

Please copy, paste and complete table for additional researchers.

<b>Number of Subjects</b>
800

<b>Location where the project was conducted</b>
Field study – Dept Juvenile Justice Community Centres across NSW

<b>Please advise if any publications resulted from this study.</b>
no

<b>Was the approval subject to certain conditions? Have these conditions been met? If not, please give details.</b>
no

<b>Please provide details of any unanticipated issues that have emerged in the course of the project. For example, serious or unexpected adverse incidents, or effects on participants.</b>
n/a

<b>Have you received any complaints concerning the conduct of the research? If YES please give details.</b>
no

**Have the approved procedures for confidentiality and security of data been followed?  
Please give details. Please describe the current arrangements for the storage of data**

yes

## SECTION 2

**Please provide brief details on the outcomes or benefits resulting from the research and any further avenues of research, which may have opened up as a result. The Committee is particularly interested in your comments on ethical issues.**

### Monographs

Kenny, D.T., & Lennings, C. (2007). Relationship between head injury and violent offending in young offenders. *Crime and Justice Bulletin*, NSW Bureau of Crime Statistics and Research.

### Government reports

Kenny, D. T., Nelson, P., Butler, T., Lennings, C., Allerton, M., & Champion, U. (2006). Young people on Community Orders Health Survey: Key Findings Report. Sydney, Australia: University of Sydney ISBN: 1 86487 845 2

Allerton, M., Champion, U., Kenny, D.T., Butler, T. et al (2003). 2003 Young People in Custody Health Survey. NSW Department of Juvenile Justice ISBN 0 7347 6518 5

Kenny, D.T. & Hunter, J. (2003). Review of Psychological Services and Specialist Programs in the NSW Department of Juvenile Justice. Commonwealth Cost and Quality of Government (Internal Audit Bureau). (170 pages).

### Journal articles

Butler, T., Belcher, J.M., Champion, U., Kenny, D.T., Fasher, M. & Alelton, M. (in review). The physical health status of young Australian offenders. *Journal of Adolescent Health*

Kenny, D. T., Lennings, C. J., & Munn, O. (in review). Risk factors for self-harm and suicide among incarcerated young offenders: implications for policy and practice. *Archives of Suicide Research*

Kenny, D. T., Lennings, C. J., & Press, A. (in review). The relationship between head injury and violent offending in juvenile offenders. *Criminal Justice and Behavior*

Denney-Wilson, E., Kenny, D.T., Hardy, L., & Nelson, P. (in review). Associations between overweight and obesity and risk factors for cardiovascular disease and fatty liver in young offenders serving community orders. *Vulnerable Children and Youth Studies*.

Kenny, D. T. & Grant, J. (accepted with revisions, Oct 2006). Reliability of self-report of health in adolescent offenders. *Vulnerable Children and Youth Studies*.

Cechaviciute, I. & Kenny, D.T. (in press). Neutralizations and delinquent self concept in young offenders on community orders. *Criminal Justice and Behaviour*.

Ashkar, P. & Kenny, D.T. (accepted with revisions, May 2006). Young offenders' subjective experiences of incarceration. *Journal of Criminology and Offender Therapy*

Lennings, C., Kenny, D.T., Nelson, P. (2006). Substance use and treatment seeking in young offenders on community orders. *Journal of Substance Abuse Treatment*, 31(4), 425-432.

Ashkar, P. & Kenny, D.T. (2007). Moral reasoning of adolescent male offenders: Comparison of sexual and nonsexual offenders. *Criminal Justice and Behavior*, 34, 108-118.

Kenny, D.T., & Press, A. L. (2006). Impact of violence classification of young offenders on observed relationships with psychological measures and mental and physical health indicators. *Psychology, Public Policy and Law*, 12(1), 86-105.

**Chief Investigator/Supervisor's Signature**

**23.1.07 .....**  
**Date**

.....  
**Co-Investigator/Student Researcher's Signature**

.....  
**Date**





The University of Sydney

NSW 2006 Australia

**Human Research Ethics Committee**

[www.usyd.edu.au/ethics/human](http://www.usyd.edu.au/ethics/human)

**Senior Ethics Officer:**

Gail Briody

Telephone: (02) 9351 4811

Facsimile: (02) 9351 6706

Email: [gbriody@usyd.edu.au](mailto:gbriody@usyd.edu.au)

**Human Secretariat**

Telephone: (02) 9036 9309

(02) 9036 9308

Facsimile: (02) 9036 9310

Room L4.13, Main Quadrangle - A14

15 January 2007

Associate Professor Dianna Kenny

Faculty of Health Sciences

Cumberland Campus - C42

The University of Sydney

Dear Associate Professor Kenny

**Title: Breaking the Juvenile Crime Cycle: Rehabilitating High Risk Young Offenders**

**Student/Co-investigators:** Butler, Tony - Associate

**Ref. No.:** 6932

The Committee advised you in its letter of approval for the above study that to comply with the *National Statement on Ethical Conduct in Research Involving Humans*, and in line with the Human Research Ethics Committee (HREC) requirements, approval is only for a 12-month period. At the end of this approval period the HREC may approve extensions for further 12-month periods, subject to satisfactory annual reports.

Please complete the appropriate Form that you will find on the Human Research Ethics Committee website: <http://www.usyd.edu.au/ethics/human> under "**Forms and Guides**". The following table will assist you in determining how to approach the HREC requirements to comply with the National Statement.

	<u><b>Type of Documents</b></u>
Continue the study	An <b>Annual Report</b>
Once the research has been completed	A <b>Completion Report</b>
If the study has been abandoned / withdrawn	A <b>Completion Report</b>

Please return the appropriate Form to the Ethics Office by **23 February 2007**.

Yours sincerely

**Gail Briody**

Senior Ethics Officer, Ethics Administration

5



# The University of Sydney

NSW 2006 Australia

## Human Research Ethics Committee

[www.usyd.edu.au/ethics/human](http://www.usyd.edu.au/ethics/human)

### Manager:

Gail Briody

Telephone: (02) 9351 4811

(02) 9351 4474

Facsimile: (02) 9351 6766

Email: [gbriody@ethics.usyd.edu.au](mailto:gbriody@ethics.usyd.edu.au)

Rooms L4.14 & L4.13 Main Quadrangle A14

**COPY**

### Human Secretariat

Telephone: (02) 9036 9309

(02) 9036 9308

Facsimile: (02) 9036 9310

Email: [r.todd@reschols.usyd.edu.au](mailto:r.todd@reschols.usyd.edu.au)

Room L4.13 & L4.14, Main Quadrangle – A14

4 October 2005

Associate Professor D Kenny  
School of Behavioural and Community Health Sciences  
Faculty of Health Sciences  
Cumberland Campus - C42  
The University of Sydney

Dear Professor Kenny

**Title:** *Breaking the Juvenile Crime Cycle: Rehabilitating High Risk Young Offenders*

**Reference:** 6932

Thank you for forwarding the Annual Report Form, as requested, for the above referenced study. Your protocol has been renewed to **31 July 2006**.

### NOTE:

Any changes to the authorised personnel must be advised and new staff must complete Section 1.4 and the Declaration of Researchers on the application form. Return both forms to the Manager for Ethics Administration.

Yours sincerely

Associate Professor J D Watson  
Chairman  
Human Research Ethics Committee

2003/4484 ✓

**Betty De Leon**

**From:** Dianna Kenny [D.Kenny@fhs.usyd.edu.au]  
**Sent:** Wednesday, 31 August 2005 1:12 AM  
**To:** b.deleon@reschols.usyd.edu.au  
**Subject:** MRF2k02\_2005.doc  
**Attachments:** MRF2k02\_20051.doc

Date: Wed, 24 Aug 2005 02:07:10 +1000  
 To: gbriody@mail.usyd.edu.au  
 From: Dianna Kenny <D.Kenny@fhs.usyd.edu.au>  
 Subject: MRF2k02\_2005.doc

#####

Dianna Kenny PhD  
 Associate Professor of Psychology  
 School of Behavioural and Community Health Sciences C42  
 Faculty of Health Sciences  
 PO Box 170, Lidcombe, NSW 1825  
 61 2 9351 9644 (ph)  
 61 2 9351 9540 (fax)

Associate Dean, Research and  
 Director, Australian Centre for Applied Research in Music Performance  
 Conservatorium of Music C41  
 Corner Bridge & Macquarie Streets  
 NSW 2006 Australia  
 61 2 9351 1383 (ph)

0425 358 275

The University of Sydney NSW 1825  
 D.Kenny@fhs.usyd.edu.au

#####

#####

Dianna Kenny PhD  
 Associate Professor of Psychology  
 School of Behavioural and Community Health Sciences C42  
 Faculty of Health Sciences  
 PO Box 170, Lidcombe, NSW 1825  
 61 2 9351 9644 (ph)  
 61 2 9351 9540 (fax)

Associate Dean, Research and  
 Director, Australian Centre for Applied Research in Music Performance  
 Conservatorium of Music C41  
 Corner Bridge & Macquarie Streets  
 NSW 2006 Australia  
 61 2 9351 1383 (ph)

0425 358 275

The University of Sydney NSW 1825  
 D.Kenny@fhs.usyd.edu.au

#####



**THE UNIVERSITY OF SYDNEY  
HUMAN RESEARCH ETHICS COMMITTEE  
ANNUAL REPORT FORM FOR 2005**

**NAME** Dianna Kenny

**ADDRESS** BACHS, FHS, USYD

**PROJECT TITLE** Breaking the juvenile crime cycle

**REFERENCE NUMBER** 6932

**1. STATUS OF PROJECT**

☐ COMPLETED ☒ IN PROGRESS ☐ ABANDONED ☐ NOT COMMENCED

**2. COMPLIANCE**

**HAVE YOU COMPLIED WITH THE CONDITIONS OF ETHICAL APPROVAL INCLUDING SECURITY OF RECORDS AND PROCEDURES FOR CONSENT?**

YES ☒ NO ☐ IF NO, PLEASE EXPLAIN

**3. ADVERSE EFFECTS**

**HAVE THERE BEEN ANY ADVERSE EFFECTS OF THE PROJECT ON SUBJECTS?**

YES ☐ NO ☒ IF YES, WHAT STEPS HAVE BEEN TAKEN TO DEAL WITH THESE?

**4. CHANGES IN RESEARCH PROTOCOL**

**HAVE THERE BEEN ANY CHANGES TO THE RESEARCH PROTOCOL?**

YES ☐ NO ☒ IF YES, WHAT ARE THE CHANGES AND WHAT ARE THE ETHICAL IMPLICATIONS OF THE CHANGES?

5. **UNFORSEEN EVENTS**  
**ARE THERE ANY OTHER UNFORESEEN EVENTS THAT YOU BELIEVE THE HUMAN ETHICS COMMITTEE SHOULD BE MADE AWARE OF?**

YES ☐ NO ☒ IF YES, INDICATE THESE EVENTS

6. **WERE ANY COMPLAINTS RECEIVED FROM ANY OF YOUR PARTICIPANTS/SUBJECTS?**

YES ☐ NO ☒ IF YES, PLEASE EXPLAIN

7. **PUBLICATIONS**  
**HAVE ANY ABSTRACTS OR PUBLICATIONS BEEN ACCEPTED AS A RESULT OF THIS RESEARCH?**

YES ☒ NO ☐ IF YES, PLEASE SUPPLY A REFERENCE AND A COPY IF AVAILABLE

Ashkar, P. & Kenny, D.T. The little house and the Big House: Subjective experiences of incarceration for juvenile offenders  
Ashkar, P. & Kenny, D.T. (in press). Moral reasoning of adolescent male offenders: Comparison of sexual and nonsexual offenders. *Criminal Justice and Behaviour*.

Kenny, D. T., Press, A. L., & Lennings, C. (in review). Relationship between head injury, intellectual functioning and violence: Fact or artefact of violence classification? *Aggressive Behavior*

Kenny, D. T., & Press, A. L. (in press). Impact of violence classification of young offenders on observed relationships with psychological measures and mental and physical health indicators. *Psychology, Public Policy and Law*.

8. **The Researcher(s) must lodge with this Report a copy of the Consent Form and Participant Information Sheet CURRENTLY IN USE with this Study. The Monitoring Procedure requires copies of the documentation that is being given to participants.**

ENCLOSED/ NOT ENCLOSED (please circle). If not enclosed give reason.

Exactly the same forms are still in use

5/9/05

9. **DECLARATION**

**I DECLARE THAT THE INFORMATION I HAVE GIVEN ABOVE IS TRUE AND THAT MY RESEARCH HAS NOT CONTRAVENED EITHER THE NH&MRC NATIONAL STATEMENT ON ETHICAL CONDUCT IN RESEARCH INVOLVING HUMANS (1999) OR THE PRIVACY PRINCIPLES (AS OUTLINED IN THE STATEMENT). I ALSO DECLARE THAT I HAVE RESPECTED THE PERSONALITY, RIGHTS, WISHES, BELIEFS, CONSENT AND FREEDOM OF THE INDIVIDUAL SUBJECT IN THE CONDUCT OF MY RESEARCH AND THAT I HAVE NOTIFIED THE UNIVERSITY OF SYDNEY HUMAN RESEARCH ETHICS COMMITTEE OF ANY ETHICALLY RELEVANT VARIATION IN THIS RESEARCH.**

CHIEF INVESTIGATOR ..

DATE .....22.8.05.....

## Betty De Leon

**From:** Betty De Leon  
**Sent:** Thursday, 1 September 2005 4:29 PM  
**To:** Dianna Theadora Kenny  
**Subject:** FW: MRF2k02\_2005.doc  
**Importance:** High  
**Attachments:** MRF2k02\_20051.doc

Dear Dianna

I refer to the email attachment above.

Please note that the above Annual Report relates to

**Title:** Breaking the Juvenile Crime Cycle: Rehabilitating High Risk Young Offenders  
**Reference Number:** 6932  
**Student:** Peter Ashkar

And NOT to

**Title:** The impact of yoga on children and adolescents with disruptive behaviour disorders  
**Reference Number:** 6945  
**Student:** Pauline Jensen

Ms Pauline Jensen has been communicating with the Ethics Office regarding the renewal of her study (Reference Number 6945). Before renewal can be given, please provide the Annual Report.

Regards  
Betty Jane

---

**From:** Dianna Kenny [mailto:D.Kenny@fhs.usyd.edu.au]  
**Sent:** Wednesday, 31 August 2005 1:12 AM  
**To:** b.deleon@reschols.usyd.edu.au  
**Subject:** MRF2k02\_2005.doc

Date: Wed, 24 Aug 2005 02:07:10 +1000  
To: gbriody@mail.usyd.edu.au  
From: Dianna Kenny <D.Kenny@fhs.usyd.edu.au>  
Subject: MRF2k02\_2005.doc

#####

Dianna Kenny PhD  
Associate Professor of Psychology  
School of Behavioural and Community Health Sciences C42  
Faculty of Health Sciences  
PO Box 170, Lidcombe, NSW 1825  
61 2 9351 9644 (ph)  
61 2 9351 9540 (fax)

Associate Dean, Research and  
Director, Australian Centre for Applied Research in Music Performance  
Conservatorium of Music C41  
Corner Bridge & Macquarie Streets  
NSW 2006 Australia  
61 2 9351 1383 (ph)

0425 358 275

1/09/2005

10

The University of Sydney NSW 1825  
D.Kenny@fhs.usyd.edu.au

#####

#####

Dianna Kenny PhD  
Associate Professor of Psychology  
School of Behavioural and Community Health Sciences C42  
Faculty of Health Sciences  
PO Box 170, Lidcombe, NSW 1825  
61 2 9351 9644 (ph)  
61 2 9351 9540 (fax)

Associate Dean, Research and  
Director, Australian Centre for Applied Research in Music Performance  
Conservatorium of Music C41  
Corner Bridge & Macquarie Streets  
NSW 2006 Australia  
61 2 9351 1383 (ph)

0425 358 275

The University of Sydney NSW 1825  
D.Kenny@fhs.usyd.edu.au

#####



# The University of Sydney

NSW 2006 Australia

## Human Research Ethics Committee

[www.usyd.edu.au/ethics/human](http://www.usyd.edu.au/ethics/human)

### Manager:

Gail Briody

Telephone: (02) 9351 4811

(02) 9351 4274

Facsimile: (02) 9351 6796

Email: [gbriody@mail.usyd.edu.au](mailto:gbriody@mail.usyd.edu.au)

Rooms L4.14 & L4.13 Main Quadrangle A14

### Human Secretariat

Telephone: (02) 9036 9309

(02) 9036 9308

Facsimile: (02) 9036 9310

Email: [r.todd@reschols.usyd.edu.au](mailto:r.todd@reschols.usyd.edu.au)

19 August 2005

Associate Professor D Kenny  
School of Behavioural and Community Health Sciences  
Faculty of Health Sciences  
Cumberland Campus - C42  
The University of Sydney

Dear Professor Kenny

### Monitoring of Research for 2005

**Title:** Breaking the Juvenile Crime Cycle:  
rehabilitating high risk young offenders  
**Reference:** 6932  
**Authorised Personnel:** Associate Professor D Kenny  
Mr P Ashkar

The Committee advised you in its letter of approval for the above study that, to comply with the NHMRC guidelines and in line with the Human Research Ethics Committee requirements, approval is only for a 12-month period. At the end of this annual approval period the HREC may approve extensions for further 12-month periods, subject to satisfactory annual reports.

Please complete **Annual Report Form-Monitoring of Research 2005** which you will find on the Ethics Website: <http://www.usyd.edu.au/ethics/human> under **Forms and Guides** and return it to the Ethics Office by **5 September 2005**.

Yours sincerely

Gail Briody  
Manager  
Ethics Administration





# The University of Sydney

NSW 2006 Australia

**Human Research Ethics Committee**  
<http://www.usyd.edu.au/ethics/human/>

**Chairman:**

Associate Professor Stewart Kellie  
Telephone: (02) 9845 2141  
Facsimile: (02) 9845 2171  
Email: [stewartk@chw.edu.au](mailto:stewartk@chw.edu.au)

**Manager:**

Gail Briody  
Telephone: (02) 9351 4811  
Facsimile: (02) 9351 6706  
Email: [gbriody@mail.usyd.edu.au](mailto:gbriody@mail.usyd.edu.au)

---

**Human Secretariat**

Telephone: (02) 9036 9309  
(02) 9036 9308  
Facsimile: (02) 9036 9310  
Email: [r.todd@reschols.usyd.edu.au](mailto:r.todd@reschols.usyd.edu.au)  
Room L4.13 & L4.14, Main Quadrangle – A14

12 August 2004

COPY

Associate Professor D Kenny  
School of Behavioural & Community Health Sciences  
Faculty of Health Sciences  
Cumberland Campus – C42  
The University of Sydney

Dear Professor Kenny

**Title**            ***Breaking the Juvenile Crime Cycle: Rehabilitating High Risk Young Offenders***

**Reference: 6932**

Thank you for forwarding the Monitoring Report Form, as requested, for the above referenced study. Your protocol has been renewed to **31 July 2005**.

**NOTE:**

Any changes to the authorised personnel must be advised and new staff must complete Section 1.4 and the Declaration of Researchers on the application form. Return both forms to the Manager for Ethics Administration.

Yours sincerely

**Belinda Wightley**  
**Deputy Chair, Human Research Ethics Committee**

Noted  
9.8.04

2003/4484 ✓



# REPORT FORM - MONITORING OF RESEARCH 2004

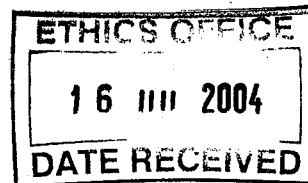
## HUMAN RESEARCH ETHICS COMMITTEE

NAME Dianna Kenny

ADDRESS BACHS C42

PROJECT TITLE Breaking the Juvenile Crime Cycle

REFERENCE NUMBER 6932



ENTERED

### 1. STATUS OF PROJECT

☐ COMPLETED ☒ IN PROGRESS ☐ ABANDONED ☐ NOT COMMENCED

### 2. COMPLIANCE

HAVE YOU COMPLIED WITH THE CONDITIONS OF ETHICAL APPROVAL INCLUDING SECURITY OF RECORDS AND PROCEDURES FOR CONSENT?

YES ☒ NO ☐ IF NO, PLEASE EXPLAIN

Enter data here

### 3. ADVERSE EFFECTS

HAVE THERE BEEN ANY ADVERSE EFFECTS OF THE PROJECT ON SUBJECTS?

YES ☐ NO ☒ IF YES, WHAT STEPS HAVE BEEN TAKEN TO DEAL WITH THESE?

Enter data here

### 4. CHANGES IN RESEARCH PROTOCOL

HAVE THERE BEEN ANY CHANGES TO THE RESEARCH PROTOCOL?

YES ☐ NO ☒ IF YES, WHAT ARE THE CHANGES AND WHAT ARE THE ETHICAL IMPLICATIONS OF THE CHANGES?

Enter data here

5. **UNFORSEEN EVENTS**  
**ARE THERE ANY OTHER UNFORESEEN EVENTS THAT YOU BELIEVE THE HUMAN ETHICS COMMITTEE SHOULD BE MADE AWARE OF?**

YES ☐ NO ☒ IF YES, INDICATE THESE EVENTS

Enter data here

6. **WERE ANY COMPLAINTS RECEIVED FROM ANY OF YOUR PARTICIPANTS/SUBJECTS?**

YES ☐ NO ☒ IF YES, PLEASE EXPLAIN

Enter data here

7. **PUBLICATIONS**  
**HAVE ANY ABSTRACTS OR PUBLICATIONS BEEN ACCEPTED AS A RESULT OF THIS RESEARCH?**

YES ☐ NO ☒ IF YES, PLEASE SUPPLY A REFERENCE AND A COPY IF AVAILABLE

Enter data here

8. **The Researcher(s) must lodge with this Report a copy of the Consent Form and Subject Information Sheet CURRENTLY IN USE with this Study. The Monitoring Procedure requires copies of the documentation that is being given to participants.**

**ENCLOSED / NOT ENCLOSED (please circle). If not enclosed give reason.**

There have been no changes to the approved CF and SIS which are currently in use and which you have on file

9. **DECLARATION**

**I DECLARE THAT THE INFORMATION I HAVE GIVEN ABOVE IS TRUE AND THAT MY RESEARCH HAS NOT CONTRAVENED EITHER THE NH&MRC NATIONAL STATEMENT ON ETHICAL CONDUCT IN RESEARCH INVOLVING HUMANS (1999) OR THE PRIVACY PRINCIPLES (AS OUTLINED IN THE STATEMENT). I ALSO DECLARE THAT I HAVE RESPECTED THE PERSONALITY, RIGHTS, WISHES, BELIEFS, CONSENT AND FREEDOM OF THE INDIVIDUAL SUBJECT IN THE CONDUCT OF MY RESEARCH AND THAT I HAVE NOTIFIED THE UNIVERSITY OF SYDNEY HUMAN RESEARCH ETHICS COMMITTEE OF ANY ETHICALLY RELEVANT VARIATION IN THIS RESEARCH.**

CHIEF INVESTIGATOR

DATE 13/7/04

CO-INVESTIGATOR/SUPERVISOR .....

DATE .....



**The University of Sydney**

NSW 2006 Australia

**Human Research Ethics Committee**

[www.usyd.edu.au/ethics/human](http://www.usyd.edu.au/ethics/human)

**Manager:**

Mrs Gail Briody

Telephone: (02) 9351 4811

(02) 9351 4474

Facsimile: (02) 9351 6706

Email: [gbriody@mail.usyd.edu.au](mailto:gbriody@mail.usyd.edu.au)

Rooms L4.14 & L4.13 Main Quadrangle A14

**Human Secretariat**

Telephone: (02) 9036 9309

(02) 9036 9308

Facsimile: (02) 9036 9310

Email: [r.todd@reschols.usyd.edu.au](mailto:r.todd@reschols.usyd.edu.au)

01 July 2004

Associate Professor D Kenny  
School of Behavioural & Community Health Sciences  
Faculty of Health Sciences  
Cumberland Campus - C42  
The University of Sydney

Dear Professor Kenny

**Monitoring of Research for 2004**

**Title: Breaking the Juvenile Crime Cycle: Rehabilitating High Risk Young Offenders**  
**Reference: 6932**

The Committee advised you in its letter of approval for the above study that, to comply with the NHMRC guidelines and in line with the Human Research Ethics Committee requirements, approval is only for a 12-month period. At the end of this annual approval period the HREC may approve extensions for further 12-month periods, subject to satisfactory annual reports.

Please complete **Report Form-Monitoring of Research 2004** which you will find on the Ethics Website: <http://www.usyd.edu.au/ethics/human> under **Forms and Guides** and return it to the Ethics Office by **16 July 2004**.

Yours sincerely,

**Mrs Gail Briody**  
*Manager for Ethics Administration*



# The University of Sydney

NSW 2006 Australia

## Human Research Ethics Committee

<http://www.usyd.edu.au/ethics/human>

### Manager:

Mrs Gail Briody

Telephone: (02) 9351 4811

(02) 9351 4474

Facsimile: (02) 9351 6706

Email: [gbriody@mail.usyd.edu.au](mailto:gbriody@mail.usyd.edu.au)

Rooms L4.14 & L4.13 Main Quadrangle A14

### Human Secretariat

Telephone: (02) 9036 9309

(02) 9036 9308

Facsimile: (02) 9036 9310

Email: [r.todd@reschols.usyd.edu.au](mailto:r.todd@reschols.usyd.edu.au)

[m.williams@reschols.usyd.edu.au](mailto:m.williams@reschols.usyd.edu.au)

3 July 2003

Associate Professor D Kenny  
School of Behavioural & Community Health Science  
Faculty of Health Science  
Cumberland Campus  
C42

Dear Professor Kenny

Thank you for your email correspondence of 30 June 2003 addressing comments made to you by the Committee. After considering the additional information, the Executive Subcommittee at its meeting on 3 July 2003 approved your protocol on the study below. Please note that subject to annual monitoring returns, the approved protocol is valid for five years.

**Title:** *Breaking the Juvenile Crime Cycle: Rehabilitating high risk young offenders*  
**Ref No:** 6932  
**Approval Period:** July 2003 – July 2004  
**Authorised Personnel:** Associate Professor Dianne Kenny  
MR Peter Ashkar

The additional information will be filed with your application.

In order to comply with the *National Statement on Ethical Conduct in Research Involving Humans*, and in line with the Human Research Ethics Committee requirements the Chief Investigator's responsibility is to ensure that:

- (1) The individual researcher's protocol complies with the final and Committee approved protocol.
- (2) Modifications to the protocol cannot proceed until such approval is obtained in writing.
- (3) The confidentiality and anonymity of all research subjects is maintained at all times, except as required by law.
- (4) All research subjects are provided with a Participant Information Sheet and Consent Form, unless otherwise agreed by the Committee.

- C
- (5) The Participant Information Sheet and Consent Form are to be on University of Sydney letterhead and include the full title of the research project and telephone contacts for the researchers, unless otherwise agreed by the Committee.
  - (6) The following statement must appear on the bottom of the Participant Information Sheet. ***Any person with concerns or complaints about the conduct of a research study can contact the Manager of Ethics Administration, University of Sydney, on (02) 9351 4811.***
  - (7) The standard University policy concerning storage of data and tapes should be followed. While temporary storage of data or tapes at the researcher's home or an off-campus site is acceptable during the active transcription phase of the project, permanent storage should be at a secure, University controlled site for a minimum of five years.
  - (8) A progress report should be provided by the end of each year. Failure to do so will lead to withdrawal of the approval of the research protocol and re-application to the Committee must occur before recommencing.
  - (9) A report and a copy of any published material should be provided at the completion of the Project.

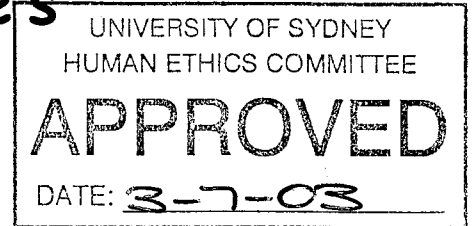
***Associate Professor Stewart Kellie***  
**Chairman, Human Research Ethics Committee**

Encl.

cc: Mr Peter Ashkar, Behavioural & Community Health Science, C42

18

# 2003 Young People's Interview Study



Juvenile Justice and The University of Sydney are conducting an interview study on young people in Juvenile Justice Centres in NSW.

## WHY?

- To understand why young people offend.
- To give you the opportunity to tell us about your life experiences.
- To help us plan better services for you

## WHAT WILL YOU GET?

- The chance to ask questions and discuss your personal opinions and goals for your future.
- Points for your 'buy-up' system to the value of \$10 if you are in custody; if you are serving community orders you will receive a voucher to the value of \$10 for food, the movies or a singles CD.

## WHAT WILL BE INVOLVED?

- You will have a conversation with one of the researchers that will last about one and half hours.

**If you are interested, please let your staff officer/Juvenile Justice Officer know and he or she will give your name to the researchers.**



**APPENDIX ONE:** Page 1 of 1



**The University of Sydney**

**School of Behavioural and Community Health Sciences**  
Faculty of Health Sciences  
College of Health Sciences

---

**PARTICIPANT CONSENT FORM**

**Subjective Experience of Juvenile Offending**

I, .....  
[name]

of .....  
[address]

have read and understood the information for participants on the above named research study and have discussed it

.....  
[signature]

I am aware of the procedures involved in the study, including any inconvenience, risk, discomfort or side effect, and of their implications.

I freely choose to participate in this study and understand that I can withdraw without compromise at any time.

I also understand that the research study is strictly confidential.

I hereby agree to participate in this research study.

**Signature:** .....

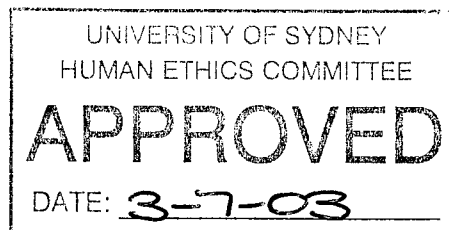
**Name:** .....

**Date:** .....

**Signature of witness:** .....

**Name of witness:** .....





APPENDIX TWO: page 1 of 1



# The University of Sydney

School of Behavioural and Community Health Sciences  
Faculty of Health Sciences  
College of Health Sciences

## PARENTAL (OR GUARDIAN OR CAREGIVER) CONSENT FORM

### Subjective Experience of Juvenile Offending

- I, ..... of.....  
.....  
agree to permit  
....., who is aged ..... years, to participate as a subject in the  
experiment described in the Parental Information Statement set out above (or attached to this form).
- I acknowledge that I have read the Information Statement, which explains the aims of the experiment and the nature and the possible risks of the investigation, and the statement has been explained to me to my satisfaction.
- Before signing this Consent Form, I have been given the opportunity of asking any questions relating to any possible physical and mental harm my child might suffer as a result of participation and I have received satisfactory answers.
- I understand that I can withdraw my child from the study at any time without prejudice to my or my child's relationship to the University (and the Department of Juvenile Justice).
- I agree that research data gathered from the results of the study may be published provided that neither my child nor I can be identified.
- I understand that if I have any questions relating to my child's participation in this research, I may contact Peter Ashkar on telephone 0425-328733, who will be happy to answer them.
- I acknowledge receipt of a copy of this Consent Form and the Information Statement.  
[If the child is old enough to understand the procedures involved in the study and give written consent space should be provided for the child's name and signature]

.....  
Signature of Parent/Guardian/Caregiver

.....  
Signature of Witness

.....  
Please PRINT name

.....  
Please PRINT name

.....  
Date

.....  
Nature of Witness

.....  
Signature of young person (<14 years)

.....  
Signature of Witness

.....  
Please PRINT name

.....  
Please PRINT name

.....  
Date

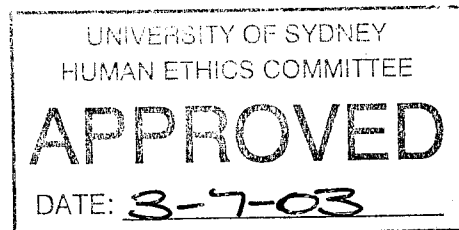
.....  
Nature of Witness

.....  
Signature of Investigator(s)

.....  
Signature of Investigator(s)

.....  
Please PRINT name

.....  
Please PRINT name



**APPENDIX THREE:**

page 1 of 1



**The University of Sydney**

**School of Behavioural and Community Health Sciences**  
Faculty of Health Sciences  
College of Health Sciences

---

**RESEARCH STUDY INTO THE SUBJECTIVE EXPERIENCE OF JUVENILE OFFENDING**  
**SUBJECT INFORMATION SHEET**

You are invited to take part in a research study about young people's progression towards offending. The object is to understand the meaning that young offenders attach to their life experiences and to gain an improved understanding of the way in which these life experiences contribute towards the development of offending behaviour. The results of this study will be used to inform the development of treatment programs targeted to address the particular needs of young offenders. The study is being conducted by PhD student Peter Ashkar, and will form the basis for the degree of Doctor of Philosophy at The University of Sydney.

If you agree to participate in this study, you will be asked to attend a one to two hour interview at your Juvenile Justice Community Centre or Custodial Centre (as appropriate), where you will be asked questions about your childhood, family, schooling, friends, relationships, and offending behaviours. The interview will be recorded on audiocassette. Some of the questions will be sensitive in nature and may cause you mild temporary distress. Experienced psychologists will be available for debriefing if required. You will also be asked to complete a short questionnaire regarding your personal relationship style. To compensate you for your time, you will receive a movie voucher (if you are on a community service order) or privilege points (if you are in custody).

All aspects of the study, including results, will be strictly confidential and only the researcher, and his supervisor (A/Professor Dianna Kenny) will have access to information on participants, except as required by law. This involves the researchers reporting to the appropriate authorities any disclosure of an imminent threat of harm to self or others. If this is necessary, it will be discussed fully with you before it happens. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

While we intend that the results of this study be used to inform the development of future treatment programs for young offenders, it is possible that you will not directly benefit from these programs.

Participation in this study is entirely voluntary: you are not obliged to participate and - if you do participate - you can withdraw at any time. Whatever your decision, it will not affect you financially or personally, and it will not affect the services you receive from the Department of Juvenile Justice.

When you have read this information, Peter Ashkar will discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact Peter Ashkar (0425-328733) or his supervisor, A/Professor Dianna Kenny (9351-9644). This information sheet is for you to keep.

**Any person with concerns or complaints about the conduct of a research study can contact the Manager for Ethics Administration, University of Sydney on (02) 9351 4811.**

22

**APPENDIX FOUR:**



# The University of Sydney

School of Behavioural and Community Health Sciences

Faculty of Health Sciences  
College of Health Sciences

## RESEARCH STUDY INTO THE SUBJECTIVE EXPERIENCE OF JUVENILE OFFENDING

### SUBJECT INFORMATION SHEET FOR PARENTS/GUARDIANS/CAREGIVERS

The young person in your care is invited to take part in a research study about young people's progression towards criminal offending. The object is to understand the meaning that young offenders attach to their life experiences and to gain an improved understanding of the way in which these life experiences contribute towards the development of offending behaviour. The results of this study will be used to inform the development of treatment programs targeted to address the particular needs of young offenders. The study is being conducted by PhD student Peter Ashkar, and will form the basis for the degree of Doctor of Philosophy at the University of Sydney.

If you agree to allow the young person in your care to participate in this study, they will be asked to attend a two hour interview at their Juvenile Justice Community Centre or Custodial Centre (as appropriate), where they will be asked questions about their childhood, family, schooling, friends, relationships, and offending behaviours. Follow up interviews may also be conducted where necessary. Interviews will be recorded on audio cassette. Some of the questions will be sensitive in nature and may cause them mild temporary distress. Experienced psychologists will be available for debriefing if required. They will also be asked to complete a short questionnaire regarding their personal relationship style. To compensate them for their time, they will receive a movie voucher (if they are on a community service order) or privilege points (if they are in custody).

All aspects of the study, including results, will be strictly confidential and only the researcher, and his supervisor (A/Professor Dianna Kenny) will have access to information on participants, except as required by law. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

While we intend that the results of this study be used to inform the development of future treatment programs for young offenders, it is possible that the young person in your care will not directly benefit from these programs.

Participation in this study is entirely voluntary: the young person in your care is not obliged to participate and - if they do participate - they may withdraw at any time. Whatever yours and their decision, it will not affect them financially or personally, and it will not affect the services they receive from the Department of Juvenile Justice.

When you have read this information, Peter Ashkar will discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact Peter Ashkar (0425-328733) or his supervisor, A/Professor Dianna Kenny (9351-9644). This information sheet is for you to keep.

**Any person with concerns or complaints about the conduct of a research study can contact the Manager for Ethics Administration, University of Sydney on (02) 9351 4811.**



# The University of Sydney

NSW 2006 Australia

## Human Research Ethics Committee

<http://www.usyd.edu.au/ethics/human/>

### Manager:

Mrs Gail Briody

Telephone: (02) 9351 4811

(02) 9351 4474

Facsimile: (02) 9351 6706

Email: [gbriody@mail.usyd.edu.au](mailto:gbriody@mail.usyd.edu.au)

Rooms L4.14 & L4.13 Main Quadrangle A14

---

### Human Secretariat

Telephone: (02) 9036 9309

(02) 9036 9308

Facsimile: (02) 9036 9310

Email: [r.todd@reschols.usyd.edu.au](mailto:r.todd@reschols.usyd.edu.au)

[m.williams@reschols.usyd.edu.au](mailto:m.williams@reschols.usyd.edu.au)

30 June 2003

To the Executive, Human Ethics Committee,

Herewith response to your dot points in letter dated 27<sup>th</sup> June, 2003.

**Title:** *Breaking the Juvenile Crime Cycle: Rehabilitating high risk young offenders*

**Ref. No.:** 6932

Approval of this project has been deferred for the following reasons. The Committee will give the application further executive consideration when these concerns have been addressed.

The Committee requests the following –

■ Clarification of precisely how approaches will be made to young offenders in institutions and those on community service orders. Would it be feasible for the young people to be invited to contact the researchers if interested in participating? A flyer will be used to assist with recruiting participants in the first instance (see attached flyer). Flyers will be placed on public notice boards in each Juvenile Justice Custodial and Community Centre by centre clinical staff two weeks prior to the proposed interviews. Centre clinical staff will explain the purposes and requirements of the study to interested young people and note expressions of interest, which will be given to researchers. The researchers will then contact the young people who have expressed interest and take them through the PIS in detail. If the young person wishes to participate, consent will be obtained and the interview will be arranged. Young people will not be approached by the researcher in the first instance. Interested young people will be advised to approach centre clinical staff in the first instance for the following reasons: (a) Centre clinical staff are immediately accessible and will be readily available to answer young people's questions about the study; (b) Young people will likely feel more comfortable approaching centre clinical staff with whom they have established relationships.

■ Clarification of the role of the custodial center and the juvenile justice community center in the recruitment process

Centre clinical staff will only be involved in the initial recruitment phase of the study as outlined above. After the young person has been introduced to the researcher, there will be no further involvement of the staff except to assist with the provision of a quiet room to conduct the interview.

- Clarification of the need to break confidentiality if the commission of crime not already dealt with is revealed.

Young people are advised not to reveal such information during research interviews. If they begin to reveal it, they are again immediately advised of the implications of such disclosure. This is standard procedure in this type of research. Participants will also be informed of the need to breach confidentiality if, during the course of the interview, imminent threat of harm to the participant or other individuals is revealed.

- Copies of correspondence with the Department of Juvenile Justice and each of the juvenile just community centers and custodial centers evidencing their consent to participating in the research.

Unlike research conducted within the Department of Education, where permission is required from each school after DET approval has been received to approach individual schools to participate in the research, seeking individual permissions from each centre in DJJ is unnecessary as the research already has the imprimatur of the Director General of Juvenile Justice who is jointly funding this research. We have already received permission to enter all Department of Juvenile Justice facilities for the purpose of conducting this research. We are currently working on phase 1 of the study in which 36 Juvenile Justice Centres are involved. The HEC rightly did not request that we seek individual permissions to enter each of these centres, which are the same as those to be used in the current study. They have no reason to request it now.

- A copy of the ethics approval from the Department of Juvenile Justice when available. Is currently under consideration – will be forwarded as soon as possible

■ Paragraph 2 of the Participant Information Statement for parents/guardians/caregivers' – Replace the words 'your child' with 'young person in your care'. Done

- Paragraph 3, third sentence of the Participant Information Statement for parents/guardians/caregivers' - Replace the word 'you' with 'the young person in your care'. Done

- A copy of the advertisement/flyer.

A copy of the advertisement/flyer is attached.

I trust that you will not further delay the conduct of this research.

Yours sincerely

Dianna Kenny

To: m.williams@reschols.usyd.edu.au  
Subject: Reply to Ethics

Maree

Please find attached documents for the Executive Committee meeting on July 3rd. Please let me know if there are "issues" arising that I should be alerted to so that further undue delay can be avoided.

Thanks

Dianna

Dianna Kenny  
A/Professor of Psychology  
School Behavioural and Community Health Sciences

A/Dean Graduate Studies  
Faculty of Health Sciences

A/Professor and Graduate Adviser  
Australian Centre for Applied Research in Music Performance  
Conservatorium of Music

The University of Sydney  
PO Box 170 (East St)  
Lidcombe 1825 NSW  
AUSTRALIA

Phone 9351 9644

Fax 9451 9540



Flyer Interview Study.doc



Ethics committee letter with amendments.doc



Subject information statement for parents, guardians, caregivers1.doc

To: D.Kenny@fhs.usyd.edu.au  
From: Maree Williams <m.williams@reschols.usyd.edu.au>  
Subject: EThics Application  
Cc:  
Bcc:  
Attached: C:\human\_shared\CORRESPONDENCE FROM MEETING\23 June 2003\Cat  
B\Kenny ref 6932.doc;

Dear

Your application entitled "*Breaking the Juvenile Crime Cycle: Rehabilitating high risk young offenders*"

" was considered at the HREC meeting on 23/6/06. An (unsigned) copy of the letter relating to your application is attached from which you will see that there are one or two concerns that need to be addressed before the Executive Sub-committee can approve the protocol. The Subcommittee will meet next Thursday - 3 July 2003 - and if you are able to send your amendments, etc. to the Ethics Office before noon on Thursday, these can be considered at the meeting.

Regards

Maree

Maree Williams  
Ethics Office  
Room L4.13  
Main Quadrangle, A14  
UNIVERSITY OF SYDNEY NSW 2006  
Telephone: (903) 69308  
Facsimile: (903) 69310  
Email: m.williams@reschols.usyd.edu.au



# The University of Sydney

NSW 2006 Australia

## Human Research Ethics Committee

<http://www.usyd.edu.au/ethics/human/>

### Manager:

Mrs Gail Briody

Telephone: (02) 9351 4811

(02) 9351 4474

Facsimile: (02) 9351 6706

Email: [gbriody@mail.usyd.edu.au](mailto:gbriody@mail.usyd.edu.au)

Rooms L4.14 & L4.13 Main Quadrangle A14

---

### Human Secretariat

Telephone: (02) 9036 9309

(02) 9036 9308

Facsimile: (02) 9036 9310

Email: [r.todd@reschols.usyd.edu.au](mailto:r.todd@reschols.usyd.edu.au)

[m.williams@reschols.usyd.edu.au](mailto:m.williams@reschols.usyd.edu.au)

27 June 2003

Associate Professor D Kenny  
School of Behavioural & Community Health Science  
Faculty of Health Science  
Cumberland Campus  
C42

Dear Dr Kenny

Thank you for your ethics application that was considered at the meeting of the University of Sydney Human Research Ethics Committee held on 23 June 2003.

**Title:** *Breaking the Juvenile Crime Cycle: Rehabilitating high risk young offenders*  
**Ref. No.:** 6932

Approval of this project has been deferred for the following reasons. The Committee will give the application further executive consideration when these concerns have been addressed.

The Committee requests the following –

- Clarification of precisely how approaches will be made to young offenders in institutions and those on community service orders. Would it be feasible for the young people to be invited to contact the researchers if interested in participating?
- Clarification of the role of the custodial center and the juvenile justice community center in the recruitment process.
- Clarification of the need to break confidentiality if the commission of crime not already dealt with is revealed.
- Copies of correspondence with the Department of Juvenile Justice and each of the juvenile just community centers and custodial centers evidencing their consent to participating in the research.
- A copy of the ethics approval from the Department of Juvenile Justice when available.
- Paragraph 2 of the Participant Information Statement for parents/guardians/caregivers' – Replace the words 'your child' with 'young person in your care'
- Paragraph 3, third sentence of the Participant Information Statement for parents/guardians/caregivers' - Replace the word 'you' with 'the young person in your care'.
- A copy of the advertisement/flyer.

28



The above concerns should be addressed in dot point form referring to the corresponding points above. If the Committee has requested amendments to particular questions in the application form, submit the relevant pages and underline the changes. DO NOT re-submit the entire application.

If the Committee has requested that you amend any additional documents, such as the Participant Information Statement or Consent Form. You are asked to underline these changes to assist the Committee's checking of the amended documents.

Your reply should be sent to the Ethics Office, Human Research Ethics Committee, Room L4.13, Main Quadrangle, A14.


**Please note that if the Ethics Office does not receive a response from you within three months, the application will be withdrawn and a new application will be required.**

Yours sincerely

*Associate Professor Stewart Kellie*  
**Chairman, Human Research Ethics Committee**

*cc: Mr Peter Ashkar, Behavioural & Community Health Science, Faculty of Health Science, C42*

28  
6932



## ETHICS APPLICATION FORM FOR RESEARCH INVOLVING HUMANS

**ETHICS OFFICE**  
**10 JUN 2003**  
**DATE RECEIVED**

**Please note the following:**

1. This application must be completed electronically or typewritten
2. All sections marked as obligatory must be completed in full
3. Use lay terms wherever possible
4. Do not alter the layout or pagination of the application form
5. "Y" signifies Yes, "N" signifies No, and "N/A" signifies Not applicable
6. Some "Y"/"N" boxes have been reversed
7. HREC refers to Human Research Ethics Committee

<b>SECTIONS:</b>	<b>Page</b>
<b>Section 1: Administration</b>	<b>2</b>
<b>Section 2: Nature of Research</b>	<b>6</b>
<b>Section 3: Risks and Benefits</b>	<b>7</b>
<b>Section 4: Participants and Recruitment</b>	<b>9</b>
<b>Section 5: Participant Information and Consent</b>	<b>11</b>
<b>Section 6: Conflict of Interest and Other Ethical Issues</b>	<b>12</b>
<b>Section 7: Privacy and Publication of Results</b>	<b>14</b>
<b>Section 8: Description of Project</b>	<b>16</b>
<b>Section 9: Field Based Research or Research Conducted Outside Australia</b>	<b>18</b>
<b>Section 10: Research Involving Blood, Tissue, etc.</b>	<b>20</b>
<b>Section 11: Clinical Trials</b>	<b>22</b>
<b>Declaration of Researchers</b>	<b>23</b>
<b>Checklist</b>	<b>24</b>

## SECTION 1: ADMINISTRATION

*This section is obligatory.*

### 1.1 (a) Full project title

Breaking the Juvenile Crime Cycle: Rehabilitating High Risk Young Offenders

### (b) Short name by which the project will be known

Subjective experience of offending in high risk young offenders

### (b) Name of Chief Investigator

A/Professor Dianna Kenny

### (d) Provide a brief summary of the project in lay language (≈100 words)

This application covers phase 2 of an ARC Linkage Grant with the NSW Department of Juvenile Justice and NSW Corrections Health. This phase will explore the life histories of young offenders using in depth qualitative interviews to advance our understanding of the subjective experience of adolescent offending, its role in young people's lives and the processes involved in shaping their social and psychological identity, crime persistence, and criminal life trajectory. A greater understanding of these factors will assist in the development of better programs to support their exit from a life of crime.

### e (e) Outline the scientific merit of this study (including potential contributions to the body of knowledge and methodological rigor) (≈100 words)

Previous research has focused on the psychological and sociological determinants of offending. To date, these factors have proven to be weak predictors of juvenile offending. Moreover, interventions designed to target these factors have demonstrated small effect sizes. There is a need to consider other factors that may increase prediction and more effectively influence treatment outcome. This study departs from previous theoretical approaches and focuses on the offender's "lived experience of criminality". The qualitative data derived from this study are expected to allow for improved prediction and treatment outcomes and will be used to inform the development, implementation, and later evaluation of treatment programs for a selection of juvenile offenders.

### (f) Outline the ethical considerations associated with this study (≈100 words)

Some of the questions may cause mild distress to a small number of participants as the questions may probe sensitive issues. Qualified and experienced psychologists will conduct the interviews and will be available for debriefing if needed. Prior experiences in conducting similar interviews suggests that participants will find the interview to be a pleasant and enjoyable experience. All information obtained from participants will remain confidential unless such information discloses a threat of harm to (a) the participant/s or (b) other person/s.

### 1.2 Indicate the institutional ethics committee that you consider to be the primary one for this project. (In general, if the Chief Investigator is a University employee, then the University should be considered to be the primary site. If participants are being recruited from a health care service, then the area health service ethics committee may be considered as the primary site.)

Juvenile Justice Collaborative Research Unit

### 1.3 (a) Has this project already been submitted to any other HREC(s)?

☐  
N

☒  
Y

### (a) Will this project be submitted to any other HREC(s)?

☒  
N

☐  
Y



If you answered YES to (a) or (b), give the name of the HREC(s), and indicate the status of the application at each (i.e., submitted, approved, deferred or rejected). Attach copies of the correspondence with each of the other HREC(s). Please do not submit to more than one HREC concurrently.

Phase 1 (Mental and physical health survey of young people on community orders) has received ethics approval from The University of Sydney, Corrective Health Services, Juvenile Justice, and ANHMRC.

**1.4 List the following details of the Chief Investigator/Supervisor, any Co-Researcher(s), Associate Researcher(s) and Student(s).**

Chief Investigator/Supervisor

Name	Dianna Kenny
Title	A/Professor
Qualifications	PhD, MA (Sch Couns), BA (Hons), DipEd, ATCL, MAPsS
Positions held: employed, conjoint/adjunct/visiting	A/Professor of Psychology, BACHS, FHS, The University of Sydney
Full mailing address (including building number)	BACHS, FHS, The University of Sydney PO Box 170 Lidcombe 1825 C42
Telephone	02-9351 9644
Fax	02-9351 9540
E-mail	d.kenny@fhs.usyd.edu.au

Co-Researcher(s), Associate Researcher(s), Student(s) or other Personnel involved in the study (indicate for each named person whether they are University staff, student or neither). If the named person is a student, nominate (in the Qualifications section) the degree for which he/she is enrolled.

Name	Peter Ashkar
Title	PhD (APAI) Scholar
Qualifications	MPsychol (For), BSocSc(Psych) (Hons), BA
Positions held: employed, conjoint/adjunct/visiting	PhD (APAI) Scholar
Full mailing address (including building number)	BACHS, FHS, The University of Sydney PO Box 170 Lidcombe 1825 C42
Telephone	0425 328 733
Fax	N/A
E-mail	pash5237@mail.usyd.edu.au

Name	Dr Tony Butler
Title	Research Manager and Epidemiologist, Corrections Health Service
Qualifications	Enter data here
Positions held: employed, conjoint/adjunct/visiting	Research Manager and Epidemiologist, Corrections Health Service
Full mailing address (including building number)	PO Box 150 Matraville 2036
Telephone	02-9289 2928
Fax	Enter data here
E-mail	Enter data here

Name	Dr Christopher Lennings
Title	Senior Lecturer
Qualifications	Enter data here
Positions held: employed, conjoint/adjunct/visiting	Senior Lecturer
Full mailing address (including building number)	BACHS, FHS, The University of Sydney PO Box 170 Lidcombe 1825 C42
Telephone	02-9351 9587
Fax	Enter data here
E-mail	Enter data here

Name	Mark Allerton
Title	Director of Psychological Services & Specialist Programs
Qualifications	Enter data here
Positions held: employed, conjoint/adjunct/visiting	Director of Psychological Services & Specialist Programs
Full mailing address (including building number)	Level 8, Roden Cutler House 24 Campbell Street Sydney NSW 2000
Telephone	02-9289 3471
Fax	Enter data here
E-mail	Enter data here

Insert additional boxes if necessary.

**a. Who is the nominated Contact Person (from those listed in 1.4 above) for this protocol?**

<b>Name</b> Dianna Kenny
--------------------------

**1.6 In addition to the researchers named in 1.4 are there students involved as researchers in this project?**

<input checked="" type="checkbox"/> N	<input type="checkbox"/> Y
---------------------------------------	----------------------------

If you answered YES, indicate the number of students covered by this study and the degrees which this study will contribute towards (i.e., Honours, Masters, PhD, etc.)

Enter data here
-----------------

**1.7 (a) Indicate the proposed date of commencement of the project.**  
*Projects may not commence without the prior written approval of the HREC.*

<b>Date</b> June 2003
-----------------------

**(b) Indicate the proposed completion date of the project.**

<b>Date</b> December 2003
---------------------------

**1.8 Indicate all location(s) at which the research will be undertaken.**

Interviews will take place among the nine Juvenile Justice CustodialCentres and among the 36 Justice Community Centres in NSW.
--

**1.9 (a) Has this protocol received research funding or is this submission being made as part of an application for research funding?**

<input type="checkbox"/> N	<input checked="" type="checkbox"/> Y
----------------------------	---------------------------------------

If you answered YES, list the funding bodies to which you have submitted, or intend to submit, this project. Attach a copy of the grant application(s).

Funding body 1:ARC
Funding body 2:Enter data here
Funding body 3:Enter data here

☐ (b) What is the outcome of these funding application(s) (please tick the appropriate box)

Funding body 1:	<input checked="" type="checkbox"/> A	<input type="checkbox"/>	<input type="checkbox"/>
	Approved	Pending	Refused
Funding body 2:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Approved	Pending	Refused
Funding body 3:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Approved	Pending	Refused

(b) If the title of the project submitted for funding is different from that listed under Q1.1(a), state it below.

(c) Will this study still be undertaken if funding is not successful?
 ☐ N
 ☐ Y

N/A

*Proceed to Section 2.*

**SECTION 2: NATURE OF RESEARCH****Refer to the National Statement on Ethical Conduct in Research Involving Humans, p. 23-45)***This section is obligatory.*

a. The nature of this project is most appropriately described as research involving:-  
(more than one may apply):

- |   |                                 |                                 |
|---|---------------------------------|---------------------------------|
| - behavioural observation                                   | <input type="checkbox"/> N<br>N | <input type="checkbox"/> Y<br>Y |
| - questionnaire(s)  | <input type="checkbox"/> N<br>N | <input type="checkbox"/> Y<br>Y |
| - qualitative methodologies (e.g. focus groups, interviews) | <input type="checkbox"/> N<br>N | <input type="checkbox"/> Y<br>Y |
| - psychological experiments                                 | <input type="checkbox"/> N<br>N | <input type="checkbox"/> Y<br>Y |
| - epidemiological studies                                   | <input type="checkbox"/> N<br>N | <input type="checkbox"/> Y<br>Y |
| - psychiatric or clinical psychology studies                | <input type="checkbox"/> N<br>N | <input type="checkbox"/> Y<br>Y |
| - human physiological investigation(s)                      | <input type="checkbox"/> N<br>N | <input type="checkbox"/> Y<br>Y |
| - biomechanical device(s)                                   | <input type="checkbox"/> N<br>N | <input type="checkbox"/> Y<br>Y |
| - human tissue  | <input type="checkbox"/> N<br>N | <input type="checkbox"/> Y<br>Y |
| - a clinical trial of drug(s) or device(s)                  | <input type="checkbox"/> N<br>N | <input type="checkbox"/> Y<br>Y |

If you answered YES to the question on clinical trial of drug(s) or device(s),  
indicate which one(s) of the following apply:

- |  |                                 |                                 |
|--|---------------------------------|---------------------------------|
| (c) Is the research being conducted under the Clinical Trial<br>Notification Scheme (CTN)?   | <input type="checkbox"/> N<br>N | <input type="checkbox"/> Y<br>Y |
| (ii) Is the research being conducted under the Clinical Trial Exemption<br>Scheme (CTX)?   | <input type="checkbox"/> N<br>N | <input type="checkbox"/> Y<br>Y |
| (iii) Is the research using only approved drug(s)/device(s) in accordance<br>with Therapeutic Goods Administration Approved Product<br>Information? (Note reversed order of the responses) | <input type="checkbox"/> Y<br>Y | <input type="checkbox"/> N<br>N |

If you answered YES to the question on clinical trial of drug(s) or device(s),  
be sure to complete Section 11 of the form regarding Clinical Trials.

Enter data here

**Proceed to Section 3.**

### SECTION 3: RISKS AND BENEFITS

(refer to the National Statement on Ethical Conduct in Research Involving Humans, p. 51)

*This section is obligatory.*

**a. Please estimate the level of risk for participants in this study**

Please tick the appropriate box:

High ☐ Moderate ☐  
Minimal ☐ No foreseeable risk ☒

**3.2 Could participation in the research adversely affect the participants?**

☒ N ☐ Y

If you answered YES, describe the possible adverse effects.

Enter data here

**3.3 Could the research induce any psychological distress in the participants?**

☐ N ☒ Y

If you answered YES, describe the aspect(s) of the research and all the risks involved. Indicate the rate at which these risks are expected to occur. Indicate what facilities and trained personnel are available to deal with such problems.

Some of the questions may cause mild distress to a small number of subjects since the questions may probe sensitive issues. Qualified and experienced psychologists will conduct the interviews and will be available for debriefing if needed.

**3.4 Will the true purpose of the research be concealed from the participants?**

☒ N ☐ Y

If you answered YES, outline the rationale and provide details for the concealment. Provide details of the debriefing. (If you do not intend to debrief, give reasons why not).

Enter data here

**3.5 (a) Could the research cause any physical harm to the participants?**

(e.g. from physically invasive procedures or from drug administration, etc.)

☒ N ☐ Y

If you answered YES, describe the aspect(s) of the research and all the risks involved. Indicate also the rate at which these risks are expected to occur. Indicate what facilities/trained personnel are available to deal with such problems.



Enter data here

(b) Are you doing research on patients?

☐ N

N

☐ Y

Y

If you answered YES, list the procedures/techniques which would not form part of routine clinical management.

Enter data here

3.6 Is this research expected to benefit the participants directly or indirectly?

☐ N

N

☐ Y

Y

If you answered YES, provide details.

The data derived from this study will be used to inform treatment programs to assist juvenile offenders in exiting from a life of crime.

**Proceed to Section 4**

#### SECTION 4: PARTICIPANTS AND RECRUITMENT

(refer to the National Statement on Ethical Conduct in Research Involving Humans, p. 25-34)

*This section is obligatory.*

4.1 (a) What is the age range of all participants involved in this study?

13-21 years

(b) If the participants include children has a Prohibited Employment Declaration Form for the researchers ("criminal record check") been lodged with the University or hospital? (see <http://www.kids.nsw.gov.au/check/>)

☐

N

☒

Y

If you answered NO, give reasons why not.

Enter data here

a. Are the participants:-

(more than one may apply)

- in a teacher-student relationship with the researchers or their associates?
- in an employer-employee relationship with the researchers or their associates?
- in any other dependent relationship with the researchers or their associates?
- wards of the state?
- prisoners?
- members of the armed services?
- mentally ill?
- intellectually impaired?
- unconscious or critically ill patients?
- under the Guardianship Act 1987 (as amended)?
- in a doctor-patient relationship or a health giver-receiver relationship with the researchers or their associates?

☐

N

☐

Y

☐

N

☐

Y

☐

N

☐

Y

☐

N

☒

Y

☐

N

☒

Y

☐

N

☐

Y

☐

N

☐

Y

☐

N

☐

Y

☐

N

☐

Y

☐

N

☐

Y

☐

N

☐

Y

If you answered YES to any of the above, provide details.

A percentage of the young people surveyed are expected to be known as "wards of the state". Negotiations are under way with the Department of Community Services to clarify each of the participants' status, based on their consent. Some of the young people will be serving custodial sentences in a Juvenile Justice Detention Facility. Others will be serving community orders and will not be incarcerated at the time of the interview.

4.3 (a) What is the sample size for the study? Comment on how this sample size will allow the aims of the study to be achieved.

Fifty participants will be purposefully sampled to maximise participant variation and avoid redundancy. Extreme or deviant case sampling will also be employed to target serious repeat offenders.

**(b) How will the participants be recruited?**

All nine Juvenile Justice Custodial Centres and 36 Juvenile Justice Community Centres in NSW will be used to access young people for participation in the study. Invitations will be issued in these centres for those willing to take part in the interview. Young people will be approached at their centre by the researchers and centre clinical staff. If they agree to participate after the research purposes and conditions have been explained to them, formal written consent will be obtained.

**4.4 (a) Does recruitment involve a direct personal approach from the researchers to the potential participants?**

☐ N

☐ Y

If you answered YES, explain how the real, or perceived, coercion from researchers for potential participants to enrol has been addressed.

Enter data here

**(b) Does recruitment involve the circulation/publication of an advertisement, circular, letter, etc?**

☐ N

☐ Y

If you answered YES, provide a copy and indicate where and how often it will be published.

A flyer will be used to assist with recruiting participants. It will be distributed to young people in juvenile justice centres by the centre support team one to two weeks before the field visit of individual centres.

**a. Will participants receive any reimbursement of out-of-pocket expenses, or financial or other "rewards" as a result of participation?**

☐ N

☐ Y

If you answered YES, what is the amount or nature of the reward and the justification for this?

A movie voucher will be given to each community participant and "privilege points" will be given to those in custody. The rationale for this is to increase the incentive to participate and to increase the response rate of the survey. It is a well established method that has been used in studies of juvenile offenders in the USA.

**4.6 Is the research targeting any particular ethnic or community group?**

☐ N

☐ Y

If you answered YES, which group is being targeted?

**If you answered YES, has this project been planned in consultation with a representative of this group?**

☐ Y

☐ N

If you answered YES, who have you consulted and how do they represent this group?

Enter data here

If you answered NO, give reasons why you have not consulted.

Enter data here

**Proceed to Section 5.**

**SECTION 5: PARTICIPANT INFORMATION AND CONSENT**

Refer to the National Statement on Ethical Conduct in Research Involving Humans, p.12-13, p.28-29, p. 40-42, p.44-45, p.47-50, p.54)

*This section is obligatory.*

**5.1 Will a Participant Information Statement be provided?**

☒ Y  
Y

☐ N  
N

**5.2 Will written consent be obtained?**

☒ Y  
Y

☐ N  
N

If you answered NO to either 5.1 or 5.2, give reasons why not.

Enter data here

**5.3 In the case of participants who may not be fluent in English or who have difficulty understanding English, will arrangements be made to ensure comprehension of the Participant Information Statement and Consent Form?**

☐ Y  
Y

☒ N  
N

If you answered NO, give reasons. If you answered YES, what arrangements have been made?

Only those participants who are fluent in English will be recruited for this study.

**5.4 (a) Does the Participant Information Statement and Consent Form:-**

– give the title of the project on every page? (Use a short title as appropriate)

☒ Y  
Y

N

– are the page numbers expressed as page 1 of .., 2 of .., 3 of .. etc?

☒ Y  
Y

N

– include an assurance that participation is voluntary and participants are permitted to withdraw from the project at any time without penalty or prejudice?

☒ Y  
Y

N

– give the name and telephone number of an appropriate researcher?

☒ Y  
Y

N

– give a telephone number, fax number and E-mail address for the HREC, should a participant wish to make a complaint about the conduct of the research project?

☒ Y  
Y

N

**How has the possibility of withdrawal from the study been addressed in the Participant Information Statement and Consent Form?**

Right to withdraw: I understand that I have the right to withdraw my consent and cease any further involvement in the research project at any time, without any penalty, either financial or personal, and that it will not affect the services I receive from the Department.

**(c) Are the first page of the Participant Information Statement and Consent Form printed on appropriate institutional letterhead?**

☒ Y  
Y

N

Enter data here

**Proceed to Section 6.**

**SECTION 6: CONFLICT OF INTEREST AND OTHER ETHICAL ISSUES**  
(refer to the National Statement on Ethical Conduct in Research Involving Humans, p. 51–54, Appendix 2)

*This section is obligatory.*

**6.1 Are any “conflict of interest” issues likely to arise in relation to this research?**

☐ N  
☐ Y

☐ N  
☐ Y

If you answered YES, provide details.

Enter data here

**6.2 Do the researchers have any affiliation with, or financial involvement in, any organisation or entity with direct or indirect interests in the participant matter or materials of this research?**

☐ N  
☐ Y

☐ N  
☐ Y

*(Note that such benefits must be declared in the Participant Information Statement.)*

If you answered YES, provide details.

Enter data here

**6.3 Do the researchers expect to obtain any direct or indirect financial or other benefits from conducting this research?**

☐ N  
☐ Y

☐ N  
☐ Y

*(Note that such benefits must be declared in the Participant Information Statement.)*

If you answered YES, provide details.

Enter data here

**6.4 (a) Have conditions already been imposed upon the use (eg. publication), ownership of the results (eg. scientific presentations) or materials (eg. audio-recordings) by any party other than the listed researchers?**

☐ N  
☐ Y

☐ N  
☐ Y

**(b) Are such conditions likely to be imposed in the future?**

☐ N  
☐ Y

☐ N  
☐ Y

If you answered YES to (a) or (b), provide details.

Enter data here

**6.5 Does your research involve the secretive use of photographs, tape-recordings, or any other form of record-taking?**

☐ N  
☐ Y

☐ N  
☐ Y

If you answered YES, provide details and a justification for the secrecy.

Enter data here

**6.6 Provide details of how feedback of the results of the study will be made available to participants.**

Debriefing will be provided at the end of each interview and participants will have access to the final results of the study through Juvenile Justice staff.

***Proceed to Section 7.***

## SECTION 7: PRIVACY AND PUBLICATION OF RESULTS

Refer to the National Statement on Ethical Conduct in Research Involving Humans, p. 52-53)

*This section is obligatory.*

**7.1** Is there a requirement for the researchers to obtain information of a personal nature (either identifiable or potentially identifiable) about individuals without their consent

(a) from Commonwealth departments or agencies?

☐ N

☐ Y

(b) from State departments or agencies?

☐ N

☐ Y

(c) from other third parties, such as non-government organisations?

☐ N

☐ Y

N

Y

If you answered NO to (a), (b) and (c), go to 7.2.

If you answered YES to (a), (b) or (c), state what information will be sought and how many records will be accessed.

Enter data here

Justify why personal identifiable (or potentially identifiable) data is necessary and why written consent will not be obtained from individual participants.

Enter data here

Justify how the public interest in this research outweighs to a substantial degree, the public interest in privacy.

Enter data here

**7.2** Will any part of the study involve recordings using audio tape, film/video, or other electronic medium ?

☐ N

☒ Y

N

Y

If you answered YES, what is the medium and how it will be used?

Interviews will be audio recorded.

**7.3** Is there any possibility that information of a personal nature could be revealed to persons not directly connected with this research?

☐ N

☐ Y

N

Y

If you answered YES, provide details.

Enter data here

**7.4 (a) How will the results of the study be disseminated?**

A summary document outlining the study's main findings will be presented to the Minister, Juvenile Justice and the Minister, Corrective Services. Findings will also be published in peer reviewed psychological journals and presented at national and international conferences. Special presentations will be made to DJJ staff.

**(b) How will the confidentiality of data collected/disseminated, including the identity of participants, be ensured?**

Each participant will be assigned a random identification code that will appear on questionnaires. A master list linking the young person's name and number will be held under secure conditions (i.e., a locked filing cabinet) by the chief investigator.

**(b) What is the proposed storage of, location, and access to, materials collected (including files, audiotapes, questionnaires, videotapes, photographs) during the study?**

Data collected during the study will be stored in tamper proof evidence bags in a locked filing cabinet with restricted access. Data stored in electronic format will have the numerical identifier only. This data will be stored on a password protected computer with restricted access.

**(b) Specify how long materials collected (including files, audiotapes, questionnaires, videotapes, photographs) during the study will be retained after the study and how they will ultimately be disposed of.**

Please ensure that the period of data retention stated here is appropriate to the nature of the proposed study. If the project involves clinical trial(s), the data should be kept for a minimum of 15 years (please refer to <http://www.fda.gov/oc/ohrt/irbs/websites.html>) If the projects do not involve clinical trial(s), the data should be kept for a minimum of 7 years after which time the data may be disposed of. (Please also refer to *National Statement on Ethical Conduct in Research Involving Humans*, 12.11 for further requirements).

**Data will be disposed of seven years after completion of the study.**

**Proceed to Section 8.**



## SECTION 8: DESCRIPTION OF PROJECT

Refer to the National Statement on Ethical Conduct in Research Involving Humans, p. 13)

*This section is obligatory.*

- a. Describe the project using lay terms wherever possible, including the aims, hypotheses, research plan and potential significance. Where relevant, provide the projected number, sex, and age range of participants (including inclusion/exclusion criteria). You must satisfy the HREC that the study is scientifically valid and conducted in accordance with the accepted principles governing research involving humans.

*The description must be no longer than 2 pages and must be in a font size of at least 10 points.*

The effective rehabilitation of juvenile offenders is an urgent social need. Previous research involving juvenile offenders has largely employed quantitative experimental methods to test "a priori" hypotheses about factors related to juvenile offending. Proposed factors have included intrapersonal characteristics (temperament, social cognitive intelligence), relationship processes (parenting practices, parent-child attachment, parent psychopathology, influence of siblings and peers), behaviour settings (family stress, neighbourhood settings, school environment), and contexts (media, ethnic minority status) (Dishion, French, & Patterson, 1995). Whereas a large body of research has delineated a number of salient factors related to juvenile offending, these have proven to be weak predictors. Moreover, interventions designed to target these factors have shown limited utility. For these reasons, there is a need to reconsider these and other factors that may increase prediction and more effectively influence treatment outcomes. This study employs a qualitative research design in order to improve our understanding of the abovementioned factors, and to gain a deeper understanding of the nature and meaning of juvenile offenders' "lived experiences" of criminality. A qualitative approach is employed because it allows for the study of juvenile offenders' experiences in a depth and detail that is simply not possible using quantitative methods. Quantitative methods require the use of standardised measures so that the varying perspectives and experiences of people can be fit into a limited number of predetermined response categories to which numbers are assigned (Patton, 1990). Whereas quantitative methods make it possible to measure the responses of a great many people to a limited set of questions, they are not sensitive to idiosyncratic detail. In contrast, qualitative methods typically produce a wealth of detailed information that increases idiosyncratic understanding. For example, Kanter (2000) employed a qualitative methodology to examine the attachment styles of a group of adult male sex offenders to their partners. The study revealed a lack of partner support and demonstrated a collusion of avoidance of the sexual offence by the offender and his partner. Kanter (2000) argued that if questionnaires had been used to collect information about the offenders' disclosures to their partners, the study might have reported that they tend to share a lot of details. The qualitative method made it possible to understand that the depth of the offenders' disclosures was superficial and not forthcoming, and that their experiences of disclosing had a negative impact on their sense of self. Qualitative methods have also been favoured over quantitative approaches that use self-report questionnaires (1988; Scharfe & Bartholomew 1994). Questions can be asked in a less self-evident way and unclear responses may be followed up with requests for further detail. Moreover, other researchers working with offending populations successfully employed qualitative methods (see Carhart, 1999; McDonald, 2002).

**PARTICIPANTS:** Fifty participants either in custody or serving community orders who are already enrolled in phase Young People in Custody Health Survey/Young People on Community Orders Health Survey will be invited to participate in this Phase 2 study. Participants will range in age from 13-21 years and will be fluent in English.

**PROCEDURE:** Participants will be purposefully sampled to maximise participant variation and to avoid redundancy. Extreme or deviant case sampling will also be employed to target serious repeat offenders. Sampling will take place among all nine Juvenile Justice Custodial Centres and 36 Juvenile Justice Community Centres in NSW. Invitations will be issued in these centres for those willing to take part in the interview. Young people will be approached at their centre by the researchers and centre clinical staff. If they agree to participate after the research purposes and conditions have been explained to them, formal written consent will be obtained. A movie voucher will be given to each community participant and "privilege points" will be given to those in custody for their participation. The rationale for this is to increase the incentive to participate and to increase the response rate of the survey. It is a well established method that has been used in studies of juvenile offenders in the USA and for which Ethics approval from The University of Sydney HEC has already been obtained.

Participants will be interviewed individually by fully qualified psychologists (PhD APAI Scholar and Chief Investigator). Semi-structured interviews will be used. A number of standardised questions will also be used to ensure the collection of comparable data across individuals. After the semi-structured interview is complete, participants will be asked to complete a short pencil and paper questionnaire regarding their personal relationship style. Each interview session will take between one and two hours to complete. All interviews will be recorded on audio cassette. The interviewers will take detailed notes about their observations, thoughts, and insights as these emerge during the course of the interview in order to supplement the electronically recorded data. Participants will be debriefed at the completion of each interview and given the opportunity to ask questions. Interviews will be transcribed verbatim for data analysis.

**INSTRUMENTS:** Interview schedule: The interview schedule will be semi-structured, outlining the issues to be explored and providing a framework within which the interviewer will develop questions, sequence those questions and make decisions about what information to pursue in greater depth (see attached interview proforma).

Questionnaire: The Millon Adolescent Inventory (MAPI) (Millon, 1993) will be used to assess participants' personality and self-reported concerns. It is intended for use with adolescents aged 13-19 years. Items are written at a sixth grade reading level and test administration takes approximately 30 minutes. The MAPI consists of 160 items which are scored to yield 12 personality scales (Introversive, Inhibited, Doleful, Submissive, Dramatizing, Egotistic, Unruly, Forceful, Conforming, Oppositional, Self-Demeaning, Borderline Tendency), 8 expressed concerns scales (Identify Diffusion, Self-Devaluation, Body Disapproval, Sexual Discomfort, Peer Insecurity, Social Insensitivity, Family Discord, Childhood Abuse), 7 clinical syndrome scales (Eating Dysfunctions, Substance Abuse Proneness, Delinquent Predisposition, Impulsive Propensity, Anxious Feelings, Depressive Affect, Suicidal Tendency), and 4 modifying indices (Disclosure, Desirability, Debasement, and Reliability). Internal consistency of the subscales is excellent (Chronbach alphas .73-.91) and test-retest reliabilities have been found to range between .57 and .92 over three to seven day intervals.

**ANALYSIS:** A phenomenological framework will be used to inform data analysis. Phenomenology is systematic in that it involves specific modes of questioning, reflecting, focusing, and intuiting. The goal of phenomenology is to understand the nature of a phenomenon as it occurs across individuals. Whereas each individual will have their own unique experience, phenomenology captures the shared themes across individuals. Each theme, if it is essential to a phenomenon, should be found within each individual's experience or within the majority of informants. In this way a qualitative-phenomenological approach allows for the delineation of factors that are salient and subjectively meaningful across the population of juvenile offenders studied. Analysis of the data will involve two distinct phases. During the first phase (epoche) the researcher will actively consider their biases, stereotypes, and assumptions related to the topic of juvenile offending as completely as possible in order to gain clarity about their own preconceptions. This process enables the researcher to investigate the phenomenon from a fresh and open viewpoint without prejudgement or imposing meaning too soon (Katz, 1987). The second stage of analysis will involve identifying significant statements and themes in the transcripts. A combination of three approaches will be used: (1) The holistic or sententious approach where one attends to the whole text and asks "What sententious phrase may capture the fundamental meaning or main significance of the text as a whole?"; (2) The selective or highlighting approach where one listens to or reads a text several times and asks "What statements or phrases seem particularly essential or revealing about the phenomenon or experience being described?"; and (3) The line by line approach where one looks at every single sentence or sentence cluster and asks "What does this sentence or cluster reveal about the phenomenon or experience being described?"

Significant statements will then be coded by identifying keywords. Keywords will then be compared across transcripts and used to generate themes and to formulate meanings. This process of the analysis will involve extensive collaboration with co-researchers to clarify and deepen the interpretation of the interviews. Themes will then be written into a phenomenologically oriented text. During this phase of the analysis the researcher will systematically develop a narrative that explicates themes, while remaining true to the universal quality or essence of the juvenile offenders' experiences. Here, the true meanings of the juvenile offenders' experiences will be described, revealing the essence of the phenomenon. Results of the MAPI will be also be interpreted and compared with the qualitative data. The reliability and validity of the data will be checked by: (a) comparing observational data with interview data; (b) using multiple analysts to review the findings; (c) asking blinded reviewers expert in juvenile justice issues to identify major themes in a random selection of transcripts and comparing these with those evaluated by the researchers; and (d) by evaluating the consistency of different data sources (e.g., comparing deposition data with interview data; comparing phase 1 data with phase 2 data).

**REFERENCES:** See Appendix.

**Proceed to section 9.**

**SECTION 9: FIELD BASED RESEARCH OR RESEARCH CONDUCTED OUTSIDE AUSTRALIA**  
(refer to the National Statement on Ethical Conduct in Research Involving Humans, p.14, p.31-32)

This section must be completed for all applications involving EITHER field-based research OR research to be carried out in countries outside Australia (eg. in an Aboriginal and Torres Strait Islander community or research in a developing country).

N/A ☒ N  
Go to Section 10

- 9.1 Have you obtained formal permission from relevant authorities for entry to the area to carry out research (e. g., National government, National Research Council, and/or local government bodies, organisations of local communities)?**

☐ N ☒ Y

If you answered YES, name the relevant authorities and attach the relevant correspondence.

NSW Department of Juvenile Justice is an industry partner in the ARC Linkage Grant of which this research is part. Juvenile Justice ethics has been obtained for phase 1 and is under consideration for phase 2.

If you answered NO, give reasons.

Enter data here

- 9.2 If research is proposed among members of specific organisations, have you sought approval from those organisations (e. g., church groups, national associations, etc)?**

☐ N ☐ Y

If you answered YES, attach copies of relevant correspondence.

If you answered NO, give reasons.

See 9.1

- 9.3 Does the research involve individuals or groups of people who are not formally organised (e.g., people living in a village or town, etc)?**

☐ Y ☒ N

If you answered YES, indicate the context of the research. How will you obtain access to participants? Indicate any ethical issues that you can foresee in this approach.

Enter data here

- 9.4 Will your research necessarily involve the acquisition of objects of valuable cultural property (e. g., carvings, paintings, etc)?**

☐ Y ☒ N

If you answered YES, give details of arrangements with owners of the property with regard to access to/acquisition of these items, where appropriate.



**9.5 Will your research necessarily involve any activities that are likely to be seen by research participants and/or members of their local communities as in conflict with local practices and customs (e.g. regarding religious or ritual participation)?**

☐ N  
N

☐ Y  
Y

If you answered YES, provide details.

Enter data here

***Proceed to Section 10.***

**SECTION 10: RESEARCH INVOLVING BLOOD, TISSUE, ETC.**  
(refer to the National Statement on Ethical Conduct in Research Involving Humans, p. 33 and p. 43-50)

*This section must be completed for all research involving blood or tissue samples, or involving physical hazards*  
N/A ☒ N  
*Go to Section 11*

**10.1 Will human blood or tissue be used in the research?**

☐ N ☐ Y

If you answered YES, what procedures are in place to minimise the infectious and other risks to participants and researchers?

Enter data here

**10.2 Will human embryos, fetal tissue, or placental tissue be involved?**

☐ N ☐ Y

If you answered YES, provide details.

Enter data here

**10.3 Has this blood or tissue already been collected and stored?**

☐ N ☐ Y

If you answered YES, what was the original purpose of collection for the stored blood or tissue you seek to use?

Enter data here

**10.4 Describe the proposed storage arrangements of the blood and/or tissue samples collected.**  
**Indicate how long the blood or tissue will be kept.**  
**Indicate how the samples will be disposed of upon the completion of the research.**

Enter data here

**10.5 Will genetically modified organisms or other gene modification techniques be used in the research?**

☐ N ☐ Y

If you answered YES, provide details. Describe the procedures, which are in place to minimise the risks to participants and researchers.

Enter data here

**10.6 Will toxins, mutagens, teratogens or carcinogens be used?**

☐ N ☐ Y



If you answered YES, provide details. Describe the procedures, which are in place to minimise the risks to participants and researchers.

Enter data here

**10.7 Will biohazardous material be used?**

☐  
N☐  
Y

If you answered YES, provide details. Describe the procedures, which are in place to minimise the risks to participants and researchers.

Enter data here

**10.8 Will participants or researchers be exposed to ionising radiation?**

☐  
N☐  
Y

If you answered YES, provide details of the radiation exposure, including a quantitative assessment of the absorbed dose, supported either by dosimetric calculations or by other information. Describe the procedures, which are in place to minimise the risks to participants and researchers.

Enter data here

**Proceed to Section 11.**

**SECTION 11: CLINICAL TRIALS****(refer to the National Statement on Ethical Conduct in Research Involving Humans, p. 35-38)**

*This section must be completed for all applications involving clinical trial(s).*

NA

☒ N*Go to the Next Section*

- 11.1 (a) Will this research be undertaken on behalf of (or at the request of) a pharmaceutical company, or other commercial entity, or any other sponsor?**

☐  
N☐  
Y

If you answered YES, will the sponsor provide any support in money or kind?  
Provide details.

Enter data here

- (c) If you answered YES to (a) and the research is a clinical trial, will that entity undertake in writing to abide by either the ABPI Clinical Trial Compensation Guidelines or the APMA Guidelines for Injury from Resulting Participation in an Industry-Sponsored Clinical Trial?**

☐  
Y☐  
N

If you answered NO to this question, provide details.

Enter data here

- (c) If you answered YES to (a), will that entity undertake in writing to indemnify the institution, the HREC(s) and the researchers? (If you answered YES, a copy of the appropriate deed or letter of indemnity should be included with the application).**

☐  
Y☐  
N

If you answered NO to this question, provide details.

Enter data here

- (d) If you answered YES to (a), (b) or (c), does the sponsor hold a current insurance policy to cover this project? (If you answered YES, provide a certificate of currency).**

☐  
Y☐  
N

If you answered NO to this question, provide details.

Enter data here

- 11.2 List any drugs/devices to be used, and their TGA approval status both in Australia and overseas**

☐  
NA

Enter data here

*For instructions on how to obtain TGA approval, please refer to <http://www.health.gov.au/tga/>.*

**Proceed to the Next Section.**

82

## DECLARATION OF RESEARCHERS

*I/we apply for approval to conduct the research. If approval is granted, it will be undertaken in accordance with this application and other relevant laws, regulations and guidelines.*

### Signature of Chief Investigator or Supervisor

Name Dianna Kenny  
(print)

Date: 6.6.03

### Signature of Associate Researcher(s) or Student(s)

Name Peter Ashkar  
(print) Signature: .....

Date: 6/6/03

Name TONY BUTLER  
(print) Signature .....

Date: 10/6/03

Name CHRIS LENNINGS  
(print)

Date: 10.6.03

Name MARK ALLENBY  
(print) Signature: .....

Date: 10.6.3

*After careful consideration and appropriate consultation, I have reviewed the attached HREC application, including the Participant Information Statement and Consent Form. I am satisfied that the scientific merit of this work justifies its being performed and that the information which will be obtained justifies the inconvenience and risks to participants.*

### Signature of appropriate senior officer NOT ASSOCIATED with the research (e.g. Head of School/ Department/Unit/Dean of Faculty).

Name: Ross Menzies  
(print)

Title: A/Professor  
(print)

Position: Head of School  
(print)

Signature: .....

Date: 6/6/03



## CHECKLIST

The following documents are to be attached as indicated in the Guide to Applicants. Type N/A if not applicable.

Have you included the **original copies** of the following:

- ☐ Original application
- ☐ Consent Form(s)
- ☐ Participant Information Statement
- ☐ Recruitment advertisement/circular
- ☐ Evidence of permission to conduct research in locations not associated with the University
- ☐ Evidence of approval/rejection by other HREC(s), including comments and requested alterations to the protocol
- ☐ Copy of questionnaire(s), survey questions, interview topics to be covered etc.
  
- ☐ Statement from a medical/paramedical practitioner accepting responsibility for specific procedures.
- ☐ Radiation Safety Report.
- ☐ Relevant references or reference list.
- ☐ One copy of the grant application with appropriate clearance forms as requested by the Research Office.
  
- ☐ Any form requiring signature by the HREC (one copy).



**The University of Sydney**

**School of Behavioural and Community Health Sciences**  
Faculty of Health Sciences  
College of Health Sciences

**RESEARCH STUDY INTO THE SUBJECTIVE EXPERIENCE OF JUVENILE OFFENDING**

**SUBJECT INFORMATION SHEET FOR PARENTS/GUARDIANS/CAREGIVERS**

Your child is invited to take part in a research study about young people's progression towards criminal offending. The object is to understand the meaning that young offenders attach to their life experiences and to gain an improved understanding of the way in which these life experiences contribute towards the development of offending behaviour. The results of this study will be used to inform the development of treatment programs targeted to address the particular needs of young offenders. The study is being conducted by PhD student Peter Ashkar, and will form the basis for the degree of Doctor of Philosophy at the University of Sydney.

If you agree to allow your child to participate in this study, they will be asked to attend a one to two hour interview at their Juvenile Justice Community Centre or Custodial Centre (as appropriate), where they will be asked questions about their childhood, family, schooling, friends, relationships, and offending behaviours. The interview will be recorded on audiocassette. Some of the questions will be sensitive in nature and may cause them mild temporary distress. Experienced psychologists will be available for debriefing if required. They will also be asked to complete a short questionnaire regarding their personal relationship style. To compensate them for their time, they will receive a movie voucher (if they are on a community service order) or privilege points (if they are in custody).

All aspects of the study, including results, will be strictly confidential and only the researcher, and his supervisor (A/Professor Dianna Kenny) will have access to information on participants, except as required by law. This involves the researchers reporting to the appropriate authorities any disclosure of an imminent threat of harm to self or others. If this is necessary, it will be discussed fully with you before it happens. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

While we intend that the results of this study be used to inform the development of future treatment programs for young offenders, it is possible that your child will not directly benefit from these programs.

Participation in this study is entirely voluntary: your child is not obliged to participate and - if they do participate - they may withdraw at any time. Whatever yours and their decision, it will not affect them financially or personally, and it will not affect the services they receive from the Department of Juvenile Justice.

When you have read this information, Peter Ashkar will discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact Peter Ashkar (0425-328733) or his supervisor, A/Professor Dianna Kenny (9351-9644). This information sheet is for you to keep.

**Any person with concerns or complaints about the conduct of a research study can contact the Manager for Ethics Administration, University of Sydney on (02) 9351 4811**

58

**APPENDIX FIVE:**

**SUBJECTIVE EXPERIENCE OF JUVENILE OFFENDING**

**INTERVIEW PROFORMA**

**Self concept**

Please describe yourself in as much detail as you can. Please include, in detail, the things you like most and least about yourself. Please also describe in as much detail as you can, the way you believe important people in your life would describe you. For example, how do you think your mother would describe you? Does this fit with your own description of yourself or is it different?

**Family**

Please describe your family in as much detail as you can. Please include, in detail, the nature of your relationships with each family member. For example, in what ways did your mother/father show they were accepting of you? Were your parents ever violent or abusive towards you?

**Childhood**

Please describe your childhood in as much detail as you can. Please include, in detail, your most important childhood experiences. For example, what were the best parts of your childhood? What were the worst parts of your childhood?

**School**

Please describe your school experiences in as much detail as you can. Please include, in detail, the things you did at school, both inside the classroom and outside the classroom. For example, what did you like most about school? What sorts of things would you do at lunchtime?

**Friendships**

Please describe your friends in as much detail as you can. Please include, in detail, the reasons why these people are your friends. For example, how did you become friends with these people?

**Sexual relationships**

Please describe your sexual relationships with other people in as much detail as you can. Please describe, in detail, the types of people you like to have sexual relationships with, and the way you treat these people. For example, what can you tell me about your first sexual experience? Were you in love with this person?

**Offending behaviour**

Please describe in as much detail as possible the events that led up to your incarceration. Please include, in detail, your reaction to these events and how they have influenced your understanding of yourself and your relationship to others. For example, have the difficulties you have had with the law influenced or changed your relationship with your parents or friends?

## **APPENDIX SIX:**

### **SUBJECTIVE EXPERIENCE OF JUVENILE OFFENDING**

#### **References**

Carhart, A. (1999). The incarcerated male adolescent's view of the meaning of his experience: A phenomenological study. Dissertation Abstracts International: Section B: the Sciences & Engineering, 59 (7-B), 3731. (University Microfilms International).

Clark, D.A. (1988). The validity of measures of cognition: A review of the literature. Cognitive Therapy and Research, 12, 1-20.

Dishion, T., French, D., & Patterson, G. (1995). The development and ecology of antisocial behavior. In D. Cicchetti, & D. Cohen, (Eds.), Developmental psychopathology, Vol. 2: Risk, disorder, and adaptation (pp. 421-471). NY: Wiley.

Kanter, T.D. (2000). A phenomenological study of adult attachment in adult male sexual offenders. Dissertation Abstracts International: Section B: the Sciences & Engineering, 61 (6-B), 3322. (University Microfilms International).

Katz, L. (1987). The experience of personal change. Unpublished doctoral dissertation, Union Graduate School, Union Institute, Cincinnati, OH.

McDonald, L.D. (2002). The dynamics of denial: A hermeneutic-phenomenological exploration of sexual offenders' coming to terms with their offences. Dissertation Abstracts International: Section B: the Sciences & Engineering, 62 (11-B), 5383. (University Microfilms International).

Patton, M.Q. (1990). Qualitative evaluation and research methods (2<sup>nd</sup> ed.). London: Sage.

Scharfe, E., & Bartholomew, K. (1994). Reliability and stability of adult attachment patterns. Personal relationships, 1, 23-43.

## Appendix D – Response to examiners comments

### Responses to Examiner 1 (Dr Wendy Kelso)'s Suggested Changes

1. *“The method section should include the inclusion and exclusion criteria for study participation (offender age, English proficiency, education etc). This could be addressed in Appendix A.”*

I have added the inclusion and exclusion criteria for study participation, I have included this in Appendix A. (pg 63). I have also added a section about education level which I have included in the manuscript (p 44).

2. *“As IQ measures are often insensitive to the effects of TBI, it would have been appropriate to include measures of impulsivity, inhibition, decision-making and risk-taking in the study design.”*

I note the comment about recommending the inclusion of measures of impulsivity, inhibition, decision-making and risk-taking in the study design. As the current study used existing data, it was not possible to include these measures, however it would be beneficial in future studies to include these measures. I have noted this issue in the manuscript in the limitations and future research section (p 53-54).

3. *“An analysis of the relationship between TBI severity and violent offending (rather than TBI frequency or recency) may reveal interesting results.”*

I acknowledge that this would be an interesting analysis, and have done this. The results were not significant. I have added a section about this in the manuscript (see pg 47).

4. *“Future studies could examine the relationship between verified moderate to severe TBI, violent offending, neuropsychological impairment and structural and functional neuroimaging changes.”*

I acknowledge the comment about incorporating structural and functional neuroimaging changes in subsequent studies, and this will be a potential future research topic. I have added a section in the manuscript for future research (p 53-54).

## Structured abstract

5. *"The age range of participants was not included in the Methodology. There was no mention in the Abstract on page 8 detailing exactly how many of the 802 juvenile offenders had reported a TBI?"*

I have added the age range in the structured abstract, as well as the exact number of juvenile offenders who reported a TBI (see pg 8).

## Critical literature review

6. *"Although there are many definitions of what constitutes a traumatic brain injury, it would be informative to report on the standard TBI severity definitions as reported in DSM-V (neurocognitive disorder due to TBI) and/or the American Congress of Rehabilitation Medicine."*

I have added a section in which I outline the standard TBI severity definitions as reported in DSM 5 (neuro-cognitive disorder due to TBI) (see pg 10). The new reference for this is-

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th Edition)*, Washington DC.

7. *"As the author aims to report on the relationship between offending, TBI and intellectual functioning, it would be sensible to include a brief overview on the neurocognitive profiles of both juvenile offenders and individuals with a traumatic brain injury."*

I have added a section on neuro-cognitive profiles of juvenile offenders and individuals with a TBI. (pg 12) The new references are-

Hoofien, D., Gilboa, A., Vakil, E., & Donovan, P. J. (2001). Traumatic brain injury (TBI) 10-20 years later: a comprehensive outcome study of psychiatric symptomatology, cognitive abilities and psychosocial functioning. *Brain Injury* **15**(3): 189-209.

Nicholl, J., & LaFrance, W. C. (2009). Neuropsychiatric sequelae of traumatic brain injury. *Seminars in Neurology* **29**(3). 247-255.

Rao, V. & C. Lyketsos (2000). Neuropsychiatric sequelae of traumatic brain injury. *Psychosomatics* **41**(2): 95-103.

## References

8. *"All references in the reference list on p 29-32 were cited in the critical literature review. However there were two references in the text of the literature review not listed on the reference list."*

I have added the two noted references that were missing – (pg 30, 34 and 61)

Fazel, S., Lichtenstein, P., Grann, M., & Långström, N. (2011). Risk of violent crime in individuals with epilepsy and traumatic brain injury: a 35-year Swedish population study. *PLoS Medicine* **8**(12): e1001150.

Schofield, P. W., Malacova, E., Preen, D. B., D'Este, C., Tate, R., Reekie, J., & Butler, T. (2015). Does traumatic brain injury lead to criminality? A whole-population retrospective cohort study using linked data. *PloS One* **10**(7): e0132558.

## Journal Manuscript

### Introduction

9. *"While the validity of TBI self-report has been verified in an adult offending population, there does not seem to have been a similar verification completed in a juvenile population. This should be mentioned in the introduction and raised in the discussion as a potential limitation of the study."*

I have noted the limitation regarding verification of self-reported TBI in the juvenile population, and have mentioned it in the discussion as a limitation (see pg 38 and 53).

10. *"What is the definition of a juvenile or young offender? Age range?"*

I have noted the age range of the current study as between 12 to 21 years. (pg 40)

11. *"On page 26, the author hypothesized an association between past TBI and increased rates of violent offending, substance use and mental illness. However the direction of the association is not mentioned between TBI and physical abuse, neglect, intellectual functioning and cultural status."*

In the aims and hypotheses I have made more explicit and noted the direction of the association between TBI and the following – higher levels of physical abuse and neglect, lower levels of intellectual functioning, and greater diversity of culture status (see pg 40).

## Methods

12. *"The study would have been greatly strengthened by including measures of executive functioning in the assessment battery, intelligence measures are often insensitive to the common cognitive sequelae of TBI."*

I acknowledge that the current study did not include measures of executive functioning in the assessment battery. This is a good suggestion for future studies, and because the current study used existing data we did not have control over what measures were used. I have included this in the limitations section of the manuscript (p 53-54).

13. *"Was the population able to read and write? To what level? What was their educational level? Were the population screened for the presence of longstanding neurodevelopmental disorders which may have had neuropsychiatric sequelae, such as seizure disorders or ADHD?"*

The level of school attendance and the WIAT II A results have been added to the manuscript (p 44). The population was not screened for the presence of neurodevelopmental disorders such as seizure disorders or ADHD; I note that this would be beneficial to add this to any future studies (see pg 54).

## Results

14. *"The results section would be strengthened by analyzing TBI severity (length of LOC or PTA), rather than focusing on frequency or recency. If TBI severity was determined, then an analysis could be undertaken to determine the relationship of moderate to severe TBI with anger proneness and violent offending."*

I acknowledge that it would be interesting to do this analysis, and have done so. The results were not significant, I have added a section about this in the manuscript (see pg 47).

15. *"Reference 22 (Kenny and Lennings, 2007, The relationship between head injury and violent offending in juvenile detainees. NSW Bureau of Crime Statistics and Research) has some very nice examples of how to represent the data to make it easier to understand and more clinically meaningful."*

I acknowledge that the representation of data in the reference Kenny and Lennings (2007) is well thought out and assists with the ease of understanding,



and this will be considered in subsequent papers when setting out the reporting of the data. I have added this to the limitations section of the manuscript (p 53-54).

16. *“A correlation matrix in the appendices between variables would have been informative.”*

I acknowledge that this would have been informative, however, we have decided to not do this as we are satisfied with the analyses that are within the manuscript at present.

17. Pg 4 *“There is no mention of level of education, which can influence performance on IQ measures. Was this data collected? If so, it should be put in Table 1 and considered as a co-variate in the analyses.”*

I have added details about education level in the manuscript (p 44).

18. *“While there was a statistically significant difference indicating higher rates of verbal intelligence in juvenile offenders with a TBI (due to high power), the difference was clinically insignificant.”*

I acknowledge the comment about the IQ scales not being clinically significant due to high power. I note that it supports past research but is not clinically significant.

19. *“As the WIAT-II was used as an assessment measure, why was it not reported in the Results section? What was the rate of literacy and numeracy difficulties in the sample?”*

I have added a section in the manuscript (p 44) regarding the WIAT-II results.

20. *“Page 42 line 9 typo.”*

I have corrected this (see pg 46).

## **Discussion**

21. *“This section could be strengthened by discussing the common neuropsychiatric sequelae of TBI and how these relate to offending (poor*

*impulse control, reduced social problem solving, inflexible thinking, reduced reasoning ability, poor judgement, reduced social cognition etc).*

I have added extra references discussing the common neuropsychiatric sequelae of TBI, as well as a section about the effects of alcohol and drug abuse combined with the TBI (see pg 52, 53) The new references are –

Hoofien, D., Gilboa, A., Vakil, E., & Donovan, P. J. (2001). Traumatic brain injury (TBI) 10-20 years later: a comprehensive outcome study of psychiatric symptomatology, cognitive abilities and psychosocial functioning. *Brain Injury* **15**(3): 189-209.

Nicholl, J., & LaFrance, W. C. (2009). Neuropsychiatric sequelae of traumatic brain injury. *Seminars in Neurology* **29**(3). 247-255.

Rao, V. & C. Lyketsos (2000). Neuropsychiatric sequelae of traumatic brain injury. *Psychosomatics* **41**(2): 95-103.

Davies, R. C., Williams, W., Hinder, D., Burgess, C. N., & Mounce, L. T. (2012). Self-reported traumatic brain injury and postconcussion symptoms in incarcerated youth. *The Journal of head trauma rehabilitation* **27**(3): E21-E27.

22. *“Considering the current study found very high rates of moderate to severe childhood trauma in those that had reported multiple TBI’s (60%), it would be worth addressing this in the discussion.”*

I acknowledge the comment about childhood trauma, and I have added extra references regarding this in the discussion (see pg 51). The new references are –

Heim, C. & C. B. Nemeroff (2001). The role of childhood trauma in the neurobiology of mood and anxiety disorders: preclinical and clinical studies. *Biological Psychiatry* **49**(12): 1023-1039.

Anda, R. F., Felitti, V. J., Bremner, J. D., Walker, J. D., Whitfield, C., Perry, B. D., & Giles, W. H. (2006). The enduring effects of abuse and related adverse experiences in childhood. *European Archives of Psychiatry and Clinical Neuroscience* **256**(3): 174-186.

Teicher, M. H., Andersen, S. L., Polcari, A., Anderson, C. M., Navalta, C. P., & Kim, D. M. (2003). The neurobiological consequences of early stress and childhood maltreatment. *Neuroscience & Biobehavioral Reviews* **27**(1): 33-44.

23. *“There is a literature regarding the known disparity between verbal and non-verbal intellectual functioning in juvenile offenders. This could be mentioned here.”*

I have added further sections regarding the disparity between verbal and non-verbal intellectual functioning in juvenile offenders (see pg 52). The new references are –

Manninen, M., Lindgren, M., Huttunen, M., Ebeling, H., Moilanen, I., Kalska, H., & Therman, (2013). Low verbal ability predicts later violence in adolescent boys with serious conduct problems. *Nordic Journal of Psychiatry* **67**(5): 289-297.

Chitsabesan, P., Bailey, S., Williams, R., Kroll, L., Kenning, C., & Talbot, L. (2007). Learning disabilities and educational needs of juvenile offenders. *Journal of Children's Services* **2**(4): 4-17.

24. Pg 5 *“As mentioned previously, while the sample with TBI had statistically higher verbal IQs due to the analyses being high powered, clinically an increase of three IQ points is not meaningful. Essentially the data is saying that IQ did not differ between people with and without a past TBI. This makes sense, as IQ is an insensitive TBI measure. To see a difference between TBI and non-TBI populations, the study would have needed to include measures of attention, speed, working memory and executive functioning (sensitive to the neurocognitive sequelae of paediatric/young adult TBI).”*

The inclusion of measures of attention, speed, working memory and executive functioning would have been beneficial in the current study, and will be incorporated into any future studies. I have added this to the limitations and future research section of the manuscript (p 53-54).

25. *“Something to consider for future studies is that sustaining a moderate to severe TBI can affect an individual’s ability to recognize changes in one’s function (reduced insight), therefore impacting on the validity of self-report of residual problems post TBI.”*

I acknowledge that the validity of self-report of residual problems after a TBI could be an issue that may affect the results, and this would be something to consider in subsequent studies. I have added this to the limitations and future research section of the manuscript (p 53-54).

26. *“Limitations of the study include:*

*Lack of independent verification of TBI, Severity of TBI not reported, No assessment of pre-existing neurodevelopmental conditions, such as seizure disorder, foetal alcohol syndrome or ADHD, No control group (although TBI/non-TBI control).”*

I acknowledge the limitations that have been noted, and it would be beneficial to address these in any future studies. I have added a section in the manuscript regarding limitations and future studies (p 53-54).

27. *“The authors discussed the necessity of detection of TBI in juvenile offenders to divert them to appropriate treatment programs. Is there good evidence in the literature for the rehabilitation and treatment of juvenile offenders with TBI?”*

I have added a section regarding the rehabilitation and treatment of juvenile offenders with TBI (see pg 56) the new reference for this is-

Horn, M. L. & D. J. Lutz (2016). Traumatic brain injury in the criminal justice system: identification and response to neurological trauma. *Applied Psychology in Criminal Justice* **12**(2).

I thank you for your time in reviewing my thesis, and your comments have been very helpful.

## Responses to Examiner 1 (Dr Sally Hunt)'s Suggested Changes

1. *There is repetition however, towards the end of the literature review, with the sections on "Correlates of TBI in Juvenile Offenders" and "TBI and Criminological Associations in Juvenile Offenders" covering similar research. Perhaps these sections could be combined and streamlined to avoid repetition."*

I deleted the heading "TBI and criminological associations in juvenile offenders", and combined this section with the previous section, with some deletion within the section to avoid repetition. I acknowledge that this does make this section easier to read (see pg 26).

2. *"What appears to be less clearly articulated is the evidence which would build towards the aims and hypotheses of the study."*

I have restructured the second half of the literature review – with more separation between areas including disadvantage and mental illness. I have added sections about Aboriginal and Torres Strait Islanders (ATSI), Culturally and Linguistically Diverse (CALD), and childhood trauma. I have included an aim about exploring the history of TBI.

The new references for ATSI and CALD are- (pg 24, 25)

Saltapidas, H. & J. Ponsford (2008). The influence of cultural background on experiences and beliefs about traumatic brain injury and their association with outcome. *Brain Impairment* **9**(1): 1-13.

Jamieson, L. M., Harrison, J. E., & Berry, J. G. (2008). Hospitalisation for head injury due to assault among Indigenous and non-Indigenous Australians, July 1999-June 2005. *Medical Journal of Australia* **188**(10): 576-579.

The new references for childhood trauma are- (pg 15)

Heim, C. & C. B. Nemeroff (2001). The role of childhood trauma in the neurobiology of mood and anxiety disorders: preclinical and clinical studies. *Biological Psychiatry* **49**(12): 1023-1039.

Anda, R. F., Felitti, V. J., Bremner, J. D., Walker, J. D., Whitfield, C., Perry, B. D., & Giles, W. H. (2006). The enduring effects of abuse and related adverse experiences in childhood. *European Archives of Psychiatry and Clinical Neuroscience* **256**(3): 174-186.

Teicher, M. H., Andersen, S. L., Polcari, A., Anderson, C. M., Navalta, C. P., & Kim, D. M. (2003). The neurobiological consequences of early stress and childhood maltreatment. *Neuroscience & Biobehavioral Reviews* **27**(1): 33-44.

3. *“Similarly, the hypotheses are somewhat disjointed from the stated aims and the literature review which preceded them. The hypotheses (stated on pp.28) are an anticipated association between TBI and increased rates of violent offending, substance abuse and mental illness, as well as with physical abuse, neglect, intellectual functioning, culture and Aboriginality. The literature review describes a wealth of knowledge about some of these factors (eg violent offending) but only mentions others (eg substance abuse and neglect) in passing. The evidence which has led you to make each of these hypotheses needs to be clearly presented in the literature review, and the hypotheses need to clearly map onto each of your aims so that the aims and hypotheses feel like a natural conclusion of the literature review.”*

I have added extra sections about physical abuse and neglect, intellectual functioning, culture and Aboriginality. (Please see the new references mentioned above).

#### 4. “Style

*The literature review has inconsistent referencing and frequent errors in formatting references. It is important to refer back to the APA Style Guide and ensure that all references, general formatting, and use of italics (eg on pp.18) are consistent with the guide.”*

I have noted these points, and have made the necessary changes. I have made sure that the references in the reference list for the Critical Literature review are correctly in the latest APA style. I have made sure that the reference list in the manuscript follows the Council of Science Editors (CSE) Citation & Sequence format as required by the Brain Injury Journal. (See Appendix B)

#### 5. “Introduction

*This introduction is clear and concise, and adequately presents the rationale for exploring the relationship between TBI, violent offending, substance use and mental illness. However, the hypotheses regarding physical abuse, neglect, intellectual functioning and cultural status are not supported by the preceding introduction. To improve the paper, include one or two paragraphs describing why you think these variables are relevant with supporting literature.”*

I have added sections in the introduction referring to childhood trauma, cognitive deficits, Aboriginality and CALD. I believe this will assist in linking and adding support to the hypotheses. The references for these are mentioned above.

## 6. "Methods

*It is essential that details of ethical approval are reported as well as the method used to gain informed consent from the participants. This is important for any study, and especially so for a population such as this group of juvenile offenders where there is a high risk of coercion."*

I have added a section in Appendix A regarding the method used to gain informed consent from the participants (pg 63). I have added a section in Appendix C regarding ethics approval (pg 73).

## 7. "Given the age of participants I would refer to them as males and females rather than men and women."

I have changed the terms women and men to females and males (see pg 43).

## 8. "Results

*Typo on pp 42."*

I have noted this error and have corrected it (pg 46).

## 9. "Discussion

*Overall, the discussion does a good job of linking the results with the aims. To improve the discussion you could link the results more specifically to the hypotheses as stated in the introduction."*

I have added sections in the discussion referring to childhood trauma, cognitive deficits, Aboriginality and CALD. I believe this will assist in linking the results with the hypotheses. The references for these are mentioned above.

## 10. "Overall impressions and recommendations

*My recommendation is a restructuring of the literature review to enhance clarity and more consistent flow throughout. The paper itself is well written and only requires minor additions and edits as suggested above."*

I thank you for your time in reviewing my thesis, and your comments have been very helpful and have been addressed as noted above.