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Traumatic Brain Injury and an investigation of Antisocial Traits among South African male Young Offenders and Non-Offenders

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Abstract

There is an emerging body of research which investigates the associations between traumatic brain injury (TBI) and antisocial traits in young male offenders. However, existing literature on the topic is mainly produced in the global north, with little knowledge being produced in other parts of the world, such as South Africa. The dearth of literature looking at a South African context, where youth offending, crime, and TBI are rife, is surprising. This presents an area for urgent research inquiry, as the behavioural consequences associated with TBI appear to overlap with the behaviours expressed by young offenders with antisocial traits. This study investigated antisocial traits in young South African male offenders with and without TBI, and in matched non-offenders. We hypothesized that the prevalence of antisocial traits would be higher in the young offender sample than in the non-offender sample and among young offenders with TBI as compared to young offenders without TBI. A sample of 40 non-offender participants were recruited using purposive sampling and were matched to 40 young offender participants. Participants were invited to complete a variety of neuropsychological tests, such as the CHAT and ICU. Our results indicated that although young offenders and non-offenders may differ on TBI and antisocial traits descriptively, however, when we controlled for confounding variables these differences were not significant. Thus, this study builds on existing literature and provides insight into the relations that exist between TBI, young male offenders and antisocial traits.

Keywords: traumatic brain injury, antisocial traits, young male offenders, South Africa, callous-unemotional traits, non-offenders

In South Africa (SA), crime is widespread and has been dominant in the country's transition to democracy (Breetzke, 2012; Schönteich & Louw, 2001). SA has one of the highest crime rates in the world. In the 2016/17 period, there were 34.1 murders and 280.2 assaults per 100 000 population (Africa Check, 2017). This high rate of crime is often attributed to the legacy of violence and oppression that characterized the era of apartheid in the country, resulting in many resorting to a life of crime (Notshulwana, 2012). This is especially true for the youth who are experiencing the brunt of this legacy (Notshulwana, 2012). For the period 2002-2016, in SA, a total of 11 657 youth under the age of 15 years had committed a crime and were identified as young offenders (Statistics SA, 2018). Although current rates are unavailable, researchers propose that SA has high rates of traumatic brain injuries (TBI), consistent with other low- to middle-income countries. These injuries are often associated with the country's high rates of violence and motor vehicle accidents, which are common mechanisms of TBI (Dewan et al., 2018; Hyder, Wunderlich, Puvanachandra, Gururaj, & Kobusingye, 2007). As a result, there has been a growing body of research linking TBI to young offenders, especially in high-income countries (Farrer, Frost, & Hedges, 2013; Williams et al., 2018). However, there has been minimal research on this link in SA, and the consequences of TBI, such as behavioural impairments, in relation to young offenders. Consequently, such research is pertinent given the high rates of crime and TBI in this context.

Traumatic Brain Injury

Definition of TBI. TBI is defined as a disruption to normal functioning that impacts activities of daily living (Hughes et al., 2015; Langlois, Rutland-Brown, & Wald, 2006). It involves damage to the brain or disruption of normal brain functioning caused by a closed or open trauma to an individual's head (Hughes et al., 2015; Morrell, Merbitz, Jain, & Jain, 1998).

As a result, TBIs can occur in one of two ways. The first is caused by a direct blow to the head or the head that is in motion coming to an abrupt stop, that causes the brain to shift in its cavity with associated acceleration, deceleration, and rotational forces, termed closed TBIs (Bruns & Hauser, 2003; Hughes et al., 2015). The second way through which a TBI may occur is through direct penetration of the skull, termed open TBIs. In both cases, injury to the brain results in the alteration of brain functioning and is often viewed as an epidemic (Bruns & Hauser, 2003; Hughes et al., 2015).

Epidemiology. Globally, TBI has become an epidemic as it is one of the leading causes of neuropsychological impairments and in some cases, death (Dewan et al., 2018). In the United States, the annual reported TBI incidence rate is approximately 691 per 100 000 people and in Australia, it is approximately 618 per 100 000 for the period July 2000 to June 2006 (Thurman, 2016). These rates, however, represent high-income countries and are not representative of the global epidemiology of TBI. Incidence rates for low- to middle-income countries, such as SA, are proposed to be higher (Dewan et al., 2018; Hyder et al., 2007). In a prospective sampling survey carried out in Johannesburg, which looked at all head trauma cases at hospitals for adolescents and young adults (15-25 years), incidence rates of 360 per 100 000 people were found (Bruns & Hauser, 2003; Nell & Brown, 1991). Furthermore, the vulnerability to sustaining a TBI increases from early childhood to early adulthood (Bruns & Hauser, 2003; Farrer et al., 2013; Hughes et al., 2015; Langlois et al., 2006). Moreover, numerous studies have demonstrated that there are sex differences in the incidence of TBI, with males being more prone to TBIs than females (Bruns & Hauser, 2003; Hughes et al., 2015; Hyder et al., 2007). Additionally, based on research that has been conducted both internationally and nationally, it is suggested that TBI commonly occurs because of car accidents, falls, and physical assault (Bruns

& Hauser, 2003; Hughes et al., 2015; Hyder et al., 2007). Thus, TBI often results in neuropsychological impairments, because of injury to one's head and brain (Bruns & Hauser, 2003; Hughes et al., 2015)

Consequences of TBI. One of the consequences of TBI is neuropsychological impairment. These impairments largely result from focal cortical or diffuse axonal damage. Damage to the frontal regions of the brain occurs frequently in TBIs. The pre-frontal cortex is associated with executive functions, such as planning, goal-setting, reasoning, and understanding consequence (Hancock, Tapscott, & Hoaken, 2010; Rakers et al., 2018). Furthermore, executive functions are believed to play a role in self-regulatory processes, thus executive dysfunction may result in expressing socially inappropriate behaviour. Moreover, impairments in cognitive and socioemotional skills are associated with difficulties with problem-solving, aggression, impulsivity, empathy, and behavioural regulation, which are all regulated by the frontal lobes (Hughes et al., 2015; Ogilvie, Stewart, Chan, & Shum, 2011). Given that these disruptive behaviours are also associated with developing youth without TBI, it is suggestive that these behaviours may be exacerbated with the presence of a TBI in this population. Additionally, behavioural sequelae for TBI often overlap with behavioural traits described for young male offenders (McKinlay, Grace, Horwood, Fergusson, & MacFarlane, 2009; Slaughter, Fann, & Ehde, 2003).

Young Offenders

A young offender is an individual who is younger than 18 years who has been charged with and/or found guilty of committing a crime (Farrington, 2003). Adolescent offenders are described as either adolescent-limited offenders, where offending behaviour ceases with maturity, or as a life-course persistent offender, where adolescents engage in persistent offending

behaviours, determined by the interaction between early childhood causal factors and the individual's environment (Souverein, Ward, Visser, & Burton, 2016). For example, these causal factors may include a biological risk to an under-controlled temperament interacting with a volatile family environment (Souverein et al., 2016). Thus, these causal factors may not act in isolation as there may be further external factors that increase predisposition to offending behaviour.

Young offenders and TBI. Adolescence is a period when there is increased risk for both TBI and offending behaviour, especially among males (Williams, Cordan, Mewse, Tonks, & Burgess, 2010; Williams et al., 2018). As adolescence is a stage in life where individuals engage in risky behaviours, these behaviours may result in sustaining a TBI or participating in criminal activities (Williams et al., 2010). Individuals with TBI experience behavioural, emotional, or cognitive deficits, and this may result in problems with controlling aggression, disinhibition, and rule violation (Davies, Williams, Hinder, Burgess, & Mounce, 2012; Hughes et al., 2015; Williams et al., 2010). Hence, youth with a TBI experience altered emotional and behavioural regulation, which is often associated with antisocial behaviour and traits. Consequently, these behaviours may lead to engaging in activities that result in criminal charges and in some cases, incarceration (Hughes et al., 2015; Williams et al., 2010). TBI may, therefore, contribute to criminal behaviours in young offenders, given the overlap in behavioural presentations (Davies et al., 2012). Furthermore, TBIs among young offenders may result in earlier entry of youth into legal systems and/or may contribute to recidivism, even if occurring after incarceration (Davies et al., 2012; Farrer et al., 2013). Moreover, research shows that TBI is more prevalent in the young offender population than in the general population, with prevalence rates of TBI ranging from 60% to 90% (Davies et al., 2012; Williams et al., 2010). Thus, there seems to be a link

between TBI and criminal behaviours in youth which may be associated with post-TBI changes, such as antisocial traits, in an individual.

Antisocial Traits

Antisocial traits include disruptive behaviours, dishonesty, and aggression (Farrington, 2003; Moffitt, 1993). Moffitt (1993) argued that the biological risk factors that may predict antisocial traits begin during neural development, with post-natal development potentially predicting antisocial traits through head and brain injury during delivery. Additionally, exposure to toxic substances during early development may play a contributory role in the development of antisocial traits (Moffitt, 1993). Farrington (2003) and Pelser (2008) found that environmental factors, such as conflict between parents or having a convicted family member, may influence the development of antisocial traits, and this is likely due to an interaction with other environmental and/or developmental factors. Antisocial traits manifest in many ways with the most common being criminal acts, such as theft and vandalism, which stems, at least in part, from an underdeveloped impulse control (Hart & Mueller, 2013). Moreover, antisocial traits are typically associated with delinquent behaviours (Farrington, 2003; Besemer & Farrington, 2012).

TBI, Young Offenders and Antisocial Traits

When investigating the relationship between TBI and antisocial traits in offending youth, Kenny and Lennings (2007) suggest that TBI exacerbates the likelihood of poor impulse control, and this increases the risk of violent offending. Perron and Howard (2008) and Williams et al. (2010) suggest that having experienced a TBI often predicts substance abuse and exacerbates current mental problems, which may contribute to re-offending amongst young offenders. Often these antisocial behaviours have already existed before the TBI, with some research arguing that these behaviours are risk factors for TBI (Williams et al., 2010). Thus, research has emerged

which attempts to link TBI to antisocial behaviours especially in young offenders, but the causal directions are complex and unclear.

Slaughter et al. (2003) suggest that young offenders with a TBI display more aggression and anger in comparison to young offenders with no TBI. In a meta-analysis conducted by Farrer et al. (2013), it was found that incarcerated youth who had sustained a TBI expressed more aggression, impulsivity, violence, and antisocial traits, as compared to young offenders without TBI. This is further supported by Farrington (2003) and Perron and Howard (2008), whose findings are both consistent with this view.

In summary, although there is an emerging body of literature suggesting an association between TBI, young offenders and antisocial traits, research on this topic is limited in low- to middle-income countries, and much of this limited literature comes from high-income countries. Hence, there is a dearth of related literature for SA, where youth offending, crime, and TBI are rife, and this presents an area for urgent research inquiry. It is important to engage in such research to better inform interventions addressing the potential for recidivism in the young offender population in SA.

Aims and Hypothesis

The current research aimed to build on literature looking at TBI, young offenders, and antisocial traits in a SA context, by investigating the prevalence of antisocial traits among male SA non-offenders and young offenders, with and without TBI. We hypothesised that:

(i) The prevalence of antisocial traits would be higher in the young offender group than in the non-offender group, and among young offenders with TBI as compared to young offenders without TBI.

Methods

Design and Setting

The current study was part of a larger study which 1) aimed to investigate the prevalence of self-reported TBI, and 2) investigated emotional, behavioural, and executive functioning outcomes, in male young offenders and non-offenders. We employed a quantitative and cross-sectional research design.

Data for the young offender's group was sourced from a previous related study (Ockhuizen, 2014). In that study, the young offender data was collected from a youth development centre in Cape Town. We collected data for the non-offender controls at two high schools in Cape Town. The data for both groups was collected using the Inventory of Callous Unemotional Traits (ICU) to assess the prevalence of antisocial traits amongst young offenders and non-offenders with and without TBI.

This study had two independent variables, namely, TBI (yes/no) and offender status (young offender/non-offender). The dependent variable in our study was antisocial traits. Multiple hierarchical regression was run to assess whether the IV's (TBI and offender status) were significant predictors of antisocial traits.

Participants

We used purposive sampling in this study, which is the recruitment of specific individuals from the general population (Terre Blanche, Durrheim, & Painter, 2006). Participants in the study were either male young offenders or non-offenders. Young offenders may be described as individuals under the age of 18, who have violated the law and are awaiting trial for a crime or crimes committed (Farrington, 2003). Non-offenders can be defined as individuals under the age of 18 who have not come into conflict with the law and are not awaiting trial.

Participants were males, aged 13 to 18 years, from low socio-economic status (SES) backgrounds and who were Afrikaans- and/or English-speaking. The non-offender group was matched to the young offender group in terms of age, language and SES. Participants were excluded from this study if they did not match the demographic specifications. Using these methods for recruitment and strictly applying the eligibility criteria, a sample of 40 non-offenders and 40 young offenders was obtained.

Power analysis. A priori power analysis specified that the sample size be $N = 48$, for a hierarchical multiple regression analysis to have a statistical power of .95, with a large effect size (Cohen's $f = .35$), with alpha set at .05 (Faul, Erdfelder, Buchner, & Lang, 2009).

Measures

Measures used in the current study are described below. The young offender data from Ockhuizen (2014) were collected using all the same measures, except for the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST); the Maudsley Addiction Profile (MAP) was used in that study. In the current study, we sourced information on the use of illegal substances from these measures (ASSIST and MAP).

Demographic information and socioeconomic status. Originally, we distributed a demographic questionnaire and asset index (see Appendix G). However, there was a poor response and return rate from non-offender participants at both high schools. As a result, we used a set of specific questions (e.g., age, the area of residence, the total number of residents in the household and the type of structure participants lived in) to enquire about non-offender participants (see Appendix F). Regarding non-offender participants' area of residence, responses here suggested that they mainly resided in low-SES areas, such as Phillipe, Khayelitsha, Athlone, Hanover Park and Gugulethu.

Alcohol Use Disorders Identification Test (AUDIT). The AUDIT is a self-report measure which comprises of 10 items (see Appendix H). This measure was used to detect alcohol use patterns which are dangerous and screened for lifetime and current alcohol usage, which is problematic (Saunders, Aasland, Babor, De La Fuente, & Grant, 1993). The AUDIT has a 5-point Likert-scale with higher scores indicative of hazardous alcohol usage. When using test-retest analyses, the AUDIT has high internal consistency (.86) (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). The measure has been used in SA in a study conducted by Babor et al. (2001), which suggested that the AUDIT can be used when testing adolescents and is culturally appropriate. The AUDIT has been used in other studies which focused on a South African context (Adams, Savahl, Isaacs, & Zeta Carels, 2013).

Beck's Depression Inventory – Second Edition (BDI- II). The BDI-II is a self-report measure and was used to screen for depressive symptoms in participants (Beck, Steer, & Brown, 1996). The questionnaire comprises of 4 statements for each item and participants are then asked to circle the statement which applies most accurately to them (see Appendix I). The BDI-II has high internal consistency as it has excellent validity (Cronbach's alpha = .96) and reliability (Cronbach's alpha= .93) (Beck et al., 1996; Dozois, Dobson, & Ahnberg, 1998). Additionally, as the BDI-II is sensitive across cultures and has been used in SA samples (Ghassemzadeh, Mojtabai, Karamghadiri, & Ebrahimkhani, 2005; Joe, Woolley, Brown, Ghahramanlou-Holloway, & Beck, 2008; Steele & Edwards, 2008). Moreover, it is an appropriate measure to use with adolescents and to use when testing offender and non-offender populations (Ward, Flisher, Zissis, Muller, & Lombard, 2003).

Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST). This measure was developed by the World Health Organization (see Appendix J) and was used as a

brief screening tool to assess for harmful, dependent, and hazardous use of tobacco, alcohol, and psychoactive substances, such as cocaine and hallucinogens (World Health Organization [WHO], 2003). This measure can be administered by variety of professionals, such as social workers, nurses, and psychologists (WHO, 2003). The ASSIST was tested in a variety of contexts, such as, Australia, India, and Zimbabwe and as a result, has been tested in an African population, however, the ASSIST has not been used in a published South African study (WHO, 2003).

Maudsley Addiction Profile (MAP). This questionnaire is a brief self-report measure which assesses behavioural outcomes, including substance use, and can be used with adolescents (see Appendix K). This measure takes up to 15 minutes to administer. The MAP is targeted for use with individuals with alcohol and drug addiction as it provides an indication of the frequency of substance misuse (Marsden et al., 1998). This measure can be viewed as culturally appropriate, as it has been used across a variety of cultures and in different social contexts, such as Portugal, Italy, and Spain (Marsden et al., 2000). The measure has good face validity and excellent reliability, with reliability coefficients varying between .81 to .94 (Marsden et al., 1998). Previously, the MAP has been successfully used in young offender samples, however, this measure has yet to be used in a published SA study (Greaves, Best, Day, & Foster, 2009). However, the MAP has been used in an unpublished South African study (Ockhuizen, 2014).

Inventory of Callous-Unemotional traits (ICU). The ICU is a self-report measure which consists of a 24-item scale (see Appendix L) and was used to assess the presence of both antisocial and callous-unemotional traits in participants (Essau, Sasagawa, & Frick, 2006; Frick, 2004; Kimonis et al., 2008). The measure comprises three subscales: Uncaring, Unemotional, and Callousness Traits. Each of the items on the measure is scored using a four-point Likert scale

of 0 (*Not at all true*), 1 (*Somewhat true*), 2(*Very true*) and 3 (*Definitely true*) (Kimonis et al., 2008), with some items on the ICU scale requiring reverse scoring (Essau et al., 2006). The items in the ICU have its foundations in the Antisocial Process Screening Device (APSD; Frick & Hare, 2001), and this measure can be completed by adolescents, parents/caregivers and/or teachers (Roose, Bijttebier, Decoene, Claes, & Frick, 2010). The ICU has established internal consistency which ranges from .74 to .85, based on its use in international studies (Kimonis et al., 2008). Moreover, in study by Mooney (2010) which discussed predicting offending behaviour, the ICU had high internal consistency and predictive validity (Cronbach's alpha = .77). Feilhauer, Cima and Arntz (2012) suggest that the ICU is a moderately satisfactory tool for screening of antisocial traits and behaviour amongst non-offender and offender adolescents. It was found to be both reliable and valid in detecting violent tendencies in a sample of adolescent offenders (Kimonis et al., 2008). The ICU is yet to be used in a published SA study but has been successfully used in an unpublished South African study (Ockhuizen, 2014).

Comprehensive Health Assessment Tool (CHAT). The CHAT is a standardized health screening tool (Offender Health Research Network [OHRN], 2012). This measure was used to identify participants who have sustained a TBI (see Appendix M). It is a semi-structured assessment tool involving self-report measures and was created to be used with adolescent offender groups in England's correctional institutions and system (OHRN, 2012). The CHAT is a combination of open-ended, Likert-type scales and closed-ended questions assessing presence, frequency, and severity of TBI, as well as, subsequent symptoms of TBI, such as speech impairment (Williams et al., 2010). The CHAT has only been used in one unpublished SA study (see, e.g., Ockhuizen, 2014). It has been reported to have good psychometric properties with high validity and reliability (Williams et al., 2010).

Procedure

Once we received ethical clearance from the necessary bodies for the current study, we contacted the respective high schools where we recruited non-offender control participants. We approached the principals and requested access to the high school's class lists. The principals of the respective high schools provided us with class lists of names, ages, and date of births of individuals from grade 8 to 12. From these class lists, potential participants were matched to the general demographics of the young offender group for the larger study, and lists were compiled. From these lists, a third party (an individual independent of this study), then randomly selected half of the potential non-offender participants in each class.

Thereafter, the measures described above were administered to non-offender participants in an interview-style by my co-researcher and myself, along with other researchers. This was done to ensure that participants understood what was being asked and were able to respond appropriately. Furthermore, the completion of the questionnaires took place in quiet area within both the high schools. An area such as this was chosen to minimize the possibility of participants getting distracted and to ensure that information received from participants remained confidential.

As previously mentioned, the data for the young offender's group was sourced from a previous related study, which was collected from a youth development centre (Ockhuizen, 2014), given delays in the collection of young offender data for the larger study. From that data set we identified all young offender participants by language and age, who had completed the relevant measures for the current study, that matched our control group.

Data management and statistical analysis

Questionnaires were administered and scored in accordance with associated guidelines

for each measure. We used the Statistical Package for Social Sciences (SPPS) version 25.0 and Excel to store and analyse the data. Significance was set at $p < .05$ following convention.

Descriptive statistics. We calculated descriptive statistics for: (a) average age of participants, (b) the frequency of illegal substance use as reported by participants, and (c) the frequency of TBI as reported by participants. We used t-tests to assess whether there were significant differences in the continuous variables between the young offender and non-offender groups. Moreover, chi-square tests were used to investigate differences between the categorical variables.

Multiple hierarchical regression analysis. We used a multiple hierarchical regression as we wanted to control for our screening measures (BDI-II, AUDIT, ASSIST, MAP) to investigate whether TBI (yes/no) and the grouping variable (non-offender or young offender) are significant predictors of antisocial traits (measured using the ICU).

Ethical Considerations

We followed UCT's Ethics Code for Research Involving Human Subjects in conducting this research. Ethical approval was obtained from UCT's Department of Psychology's Research Ethics Committee (reference number: PSY2018-041; see Appendix B) and the Western Cape Education Department (see Appendix A). The previous study from which the young offender data was recruited was also approved by UCT's Department of Psychology's Research Ethics Committee (see Appendix C).

After ethical approval from the aforementioned bodies was obtained, consent from parents or legal guardians of control participants was sought (see Appendix D). Information about this study and what it entailed was given to parents or legal guardians of participants. As participants in this study are under the age of 18, assent was obtained from every participant

before data collection commenced (see Appendix E). We explained to participants that information obtained was confidential and anonymous and that the information would be used for this study only. Additionally, we explained that non-participation had no negative consequences.

There were no harmful risks associated with participating in this study for participants. Participants were likely to experience fatigue during the testing procedure and could take breaks, hence setting the pace of the interview. Participants were tested individually, and upon completion of the interview received a snack pack (juice, chips, and a fizzer). Participants were debriefed (see Appendix M) and were provided with our supervisor's contact details, if they had any questions about the study or concerns regarding their participation. If participants scored in the clinical range on the BDI-II, they were referred to the school's psychologist or social worker.

After the interviews were completed, the data collected was electronically captured on a password protected computer and hard copies of the data was placed in a locked cabinet.

Results

Sample Characteristics

There were 80 participants in the sample, of which 40 were young offenders and 40 were non-offenders. Table 1 shows the descriptive statistics for age for the two groups and for the BDI-II, AUDIT, and ICU results. Results show that there were no significant between-group differences for the mean ages for the two groups (non-offenders or young offenders) and for the AUDIT (which is a measure of alcohol use). However, the ICU (which measures antisocial traits) and BDI-II (which measures depression) results were significantly higher in the young offenders group as compared to the non-offenders group.

Table 1

Descriptive statistics of Non-Offenders vs. Young Offenders for age, depression, alcohol use and antisocial traits

	Group						
	Non-Offender	Young Offender				95% CI	
Variable	(*n* = 40)	(*n* = 40)	*t*	*p*	ESE	*LL*	*UL*
Age (Years)	15.50 (1.38)	15.40 (1.15)	.35	.73	0.08	-.47	.67
BDI-II	**14.40 (8.46)**	**28.30 (12.99)**	-5.67	<.001*	1.38	-18.79	-9.01
AUDIT	5.08 (5.81)	5.90 (7.34)	-.56	.58	0.13	-3.77	2.12
ICU	**21.90 (8.39)**	**25.63 (8.53)**	-1.97	.05	0.47	-7.49	.04

Note. Means with standard deviations in parentheses are presented. ESE = effect size estimate (*Cohen's d in this case*). *p <.05, CI = Confidence Intervals, *LL* = Lower Levels, *UL* = Upper Levels.

Table 2 shows the results on the frequencies of illegal substance use as collected using the ASSIST and MAP for the non-offender and young offender groups, respectively. As can be noted from the table, reports of illegal substance use are significantly higher in the young offender group as compared to the non-offender group.

Table 2

Frequencies of illegal substance (ASSIST/MAP): Non-Offenders vs. Young Offenders

	Group						
	Non-offender		Young Offender				
Reported	(*n* = 40)		(*n* = 40)		χ^2	*p*	ESE
No illegal substance use	23	(57.5)	11	(27.5)	9.89	.003	0.35
Illegal substance use	**17**	**(42.5)**	**29**	**(72.5)**			

Note. Percentages reported in parentheses. For variables ASSIST/MAP: Chi-square analysis based on Fisher's exact test. ESE = effect size estimate (*Cramer's V in this case*).

Table 3 shows the descriptive statistics for the prevalence of reported TBI among non-offender and young offender groups. As shown in the table, significantly more young offenders than non-offenders reported having sustained a TBI.

Table 3

Frequencies of TBI: Non-Offenders vs. Young Offenders (n = 80)

	Group						
	Non-offender		Young Offender				
Reported TBI	(*n* = 40)		(*n* = 40)		χ^2	*p*	ESE
YesTBI	**12**	**(30.0)**	**20**	**(50.0)**	7.82	.007	0.31
NoTBI	28	(70.0)	20	(50.0)			

Note. Percentages are reported in parentheses. For variable TBI: Chi-square based on Fisher's exact test. ESE = effect size estimate *(Cramer's V in this case).*

Table 4 shows the descriptive statistics for ICU, BDI-II and AUDIT for young offenders with and without TBI. As shown by the table, descriptively, young offenders with TBI presented with higher scores for ICU, BDI-II and AUDIT. However, results show that there were no significant within-group differences for the means of these measures.

Table 4

Descriptive statistics for Young Offenders: With vs. Without TBI, for antisocial traits, depression and alcohol use

	Group						
	Young Offender with TBI	Young Offender without TBI				95% CI	
Variable	(*n* = 20)	(*n* = 20)	*t*	*p*	ESE	*LL*	*UL*
BDI-II	30.60 (12.61)	26.00 (13.27)	-1.13	.27	.37	-12.62	3.42
AUDIT	6.50 (7.32)	5.30 (7.49)	-.51	.61	.16	-5.99	3.39
ICU	27.15 (9.66)	24.10 (7.15)	-1.13	.26	.38	-8.51	2.41

Note. Means with standard deviations in parentheses are presented. ESE = effect size estimate (*Cohen's d in this case*). CI = Confidence Intervals, *LL* = Lower Levels, *UL* = Upper Levels.

Table 5 shows the frequencies for ASSIST/MAP for young offenders with and without TBI. The results show that the young offenders with TBI reported higher rates of substance use as compared to young offenders without TBI.

Table 5

Frequency of ASSIST/MAP for Young Offenders: With vs. Without TBI

	Frequency						
Group	No		Yes		χ^2	*p*	ESE
Young offenders with TBI	4	(20.00)	16	(80.00)	1.13	.48	0.17
Young offenders without TBI	7	(35.00)	13	(65.00)			

Note. Percentages are reported in parentheses. For the variable ASSISST/MAP: Chi-square based on Fisher's exact test. ESE = effect size estimate *(Phi coefficient in this case).*

Prevalence of antisocial traits among young offenders and non-offenders

Multiple hierarchal regression analysis. Variables were added to the model based on

theoretical assumptions regarding their supposed strength in relation to antisocial and callous-unemotional traits.

Given that participants were matched on age, it was not included in the model. The following variables were entered: grouping variable (non-offender vs. young offender), TBI, BDI-II, AUDIT and ASSIST/MAP. The ICU, which measures antisocial and callous-unemotional traits, was our dependent variable.

Our control variables, namely BDI-II, AUDIT and ASSIST/MAP, were added to the first block of the model. A vast amount of literature indicates that adolescence is a period in which youth are more likely to engage in risky behaviours, such as problematic alcohol and substance use. Consequently, these variables may act as confounds. For example, engaging in risky behaviours such as alcohol and substance use may diminish inhibition resulting in heightened vulnerability to offending behaviours. Furthermore, there is a considerable overlap between behavioural outcomes of depression and antisocial behaviours such as diminished stimulation and lack of motivation. Our grouping variable was then added to the second block and TBI was added to the third block. This order of entry for variables into the model were informed by research that suggests that antisocial traits are more prevalent in the young offender population and TBI plays a contributory role to the presence of antisocial traits in the young offender and non-offender groups.

We investigated whether multicollinearity was present in the regression model. It was found that the grouping variable and BDI-II had the strongest correlation (r = 0.5). However, these correlations are not indicative of multicollinearity as it requires that correlations be above 0.7 (Field, 2013).

Table 6 show the results for the regression analyses. Our results indicate that the controls

(ASSIST, AUDIT and BDI-II) account for 13% of the variance. However, when the grouping variable (non-offender or young offender) was added, there was not much change in the variance as it only accounts for .001%. Our initial between-groups analyses results indicate that there was a significantly higher rate of TBI among the young offenders than non-offenders. However, when TBI was added to the regression model, TBI only accounts for .14% of the variance, when potential confounding variables to the model were controlled for. Despite this, the addition of the TBI to the entire model was statistically significant, $R^2 = .15$, F (5, 74) = 2.54, $p = .03$. However, the grouping variable was associated with a higher score of antisocial traits ($\beta = .05$).

Table 6

Hierarchical Multiple Regression Analysis

Variable	Significant predictor(s)	R^2	R^2 *change*	F	*df*	p	β
ICU	ASSIST,	.13	.13	3.87	3, 76	.01	-.08
	AUDIT,						.12
	BDI-II						.30
	+ Grouping Variable (non-offenders vs. young offenders)	.13	.001	2.91	4, 75	.02	.04
	+ TBI	.15	.014	2.54	5, 74	.03	.13

Note. The first row represents the model in which the controls were added. Each row after that represents each outcome variable in addition to the controls for the final model statistics.

Discussion

This research set out to investigate the relationship between antisocial traits and TBI in a sample of young offender and non-offender groups. The purpose was to determine whether antisocial traits were more prevalent in the young offender group than in the non-offender group and higher in the young offender group with TBI than in the young offender group without TBI.

Although it is known that crime committed by youth, and TBIs, are frequent occurrences in SA, research on the prevalence of antisocial traits in the SA male young offender population with and without TBI is lacking.

Summary of Results

The results of between-groups analyses of the control variables, namely BDI-II (which measures depression), AUDIT (which measures hazardous patterns of alcohol use) and ASSIST/MAP (which measures hazardous patterns of substance use other than alcohol) suggest that the young offenders are significantly more depressed and use significantly more illegal substances than the non-offenders; however, the groups appear to have similar alcohol usage. Within the young offender group, the same analyses suggest that the young offenders with TBI score higher than the young offenders without TBI on all measures, descriptively. However, these differences are not statistically significant. Furthermore, the results of between-groups analyses for the frequency of TBI for the young offender and non-offender groups show that reports of sustained TBI was significantly higher among the young offenders as compared to the non-offenders.

The regression analysis, however, indicated that the control variables (BDI-II, AUDIT and ASSIST) accounted for majority of the variance in terms of explaining antisocial outcomes among the young offenders and non-offenders, rather than the grouping variable or TBI which contributed negligible and minimal change in R^2 in the model, respectively. Hence, we could not reject the null hypothesis for the grouping variable and only partially rejected it for the role of TBI.

Our results were contrary to existing literature which suggests that being a young offender and sustaining a TBI correlates highly with antisocial traits (Vaughn, Salas-Wright,

Delisi, & Perron, 2014). In the current study, we found that depression and substance use accounted for most of the explained variance in antisocial traits in our model (as alcohol use between the two groups did not differ significantly). Our descriptive statistics showed that there were significantly higher scores for depression and substance use amongst the young offender group as compared to the non-offender group.

Regarding depression, this finding is in line with existing international literature in which reports of high rates of co-morbidity between antisocial traits and depression are evident (Ritakallio, Luukkaala, Marttunen, Pelkonen & Kaltiala-Heino, 2010). Moreover, Overbeek et al. (2006) found that in a sample of adolescents, the co-occurrence of depression and antisocial behaviours are associated with delinquency in this age group. Furthermore, depression and antisocial behaviours often occur because of high failure expectations, which develop from a belief of inadequacy, in terms of not being able to perform tasks. Further, research indicates that antisocial behaviors are implicated in the risk of attempting suicide in male offenders suggesting a co-morbidity in mental health issues and adult prison samples (Javdani, Sadeh, & Verona, 2011; Moore, Indig, & Haysom, 2014; Vaughn et al., 2014). However, in a longitudinal study conducted by Vieno, Kiesner, Pastore and Santinello (2008), it was found that while depressive symptoms may predict antisocial behaviour, the latter does not appear to influence the former.

Regarding substance use, Brennan, Stuppy-Sullivan, Brazil, and Baskin-Sommers (2017) report that individuals who engage in risky behaviours, such as substance use, may do so as a function of emotional dysregulation and impaired executive functioning. These impairments have been found to be associated with antisocial behaviour. As a result, this may inhibit the ability to adequately evaluate the reward gained by using the substance (Brennan et al., 2017).

Regarding TBI, research shows that the prevalence of behavioural impairments, such as antisocial traits, amongst young offenders are high, especially amongst those with TBI (Souverein et al., 2016; Vaughn et al., 2014). The findings for this research did not support this notion, as TBI accounted for a minimal amount of the variance in the reported antisocial behaviours, and the grouping variable did not account for almost any variance. However, existing literature also suggests that sustaining a childhood TBI may increase an individual's vulnerability to antisocial traits and criminal behaviours, independently of a young offender status (Hughes et al., 2015). Our results, however minimally, rather, supports this idea. In line with this idea, research by Perron and Howard (2008) indicates that antisocial behaviours and traits as well as engaging in risky behaviours, such as hazardous patterns of substance use, may be influenced by sustaining a TBI.

Regarding group status, the fact that being a young offender or a non-offender did not explain any real variance in the antisocial outcome scores for this study was surprising. Interestingly, but not reported in the formal results, in their interviews, some non-offenders reported having committed petty crimes, which suggests that some behaviours among non-offenders may be closer to that of some young offenders than true non-offenders, however, this conjecture requires further research and inquiry. In SA, current conditions provide the opportunity for youth to learn violent or criminal behaviours and, as mentioned before, adolescence is a period in which youth increasingly engage in risky behaviours such as engaging in offending behaviour (Kennedy, Cohen, & Munafó, 2017; Souverein et al., 2016). One contributory factor (amongst a host of others) that play a role in youth committing crimes is the consistent exposure to violent and/or criminal behaviours often creating society in which crime is acceptable (Leoschut, 2009). The use of violence as a conflict resolution technique may lead to

youth being arrested for assault and thus, becoming a young offender. SA youth may be exposed to violence and crime in their school, home or social environment, and some youth emulate these behaviours due to exposure, modelling and internalizing these behaviours (Pelser, 2008). Moreover, research indicates that there are links between exposure to violence, crime and experiencing abuse within the home, and this can be further linked to aggressive and depressive symptoms exhibited by youth (Souverein et al., 2016).

In our data, however, whether TBI influences antisocial behaviour or whether antisocial behaviour results in TBI is not clear, as we only investigated TBI as a predictor of antisocial behaviour and not the converse relationship. It is argued in the literature that the presence of antisocial behaviours is often present before the experience of a TBI, and that sustaining a TBI may then lower the threshold for the manifestation of violent and criminal behaviours, which may be further exacerbated by factors, such as drug and alcohol use (Kenny & Lennings, 2007; Leon-Carrion & Ramos, 2003). Further the higher rates of both TBI and depression and substance use among the young offenders could suggest that having sustained a TBI may impact existing mental health issues and behavioural impairments (Chitsabesan, Lennox, Williams, Tariq, & Shaw, 2015).

Despite the findings from existing literature as well as the findings from this study, which suggest that TBI is a contributory factor in the development of antisocial behavioural problems, it appears that the prevalence of TBI is high amongst both young offender and non-offender groups in the current study. The results of the current study show that the non-offender group have sustained TBI at just over half the rate of the young offender group, which was still for 30% of the non-offender group. This is contradictory to existing international literature which indicates that a young offender who have sustained a TBI are at a much higher rate as compared

to a non-offender population (Perron & Howard, 2008). These results are however consistent with the high rates of TBI conjecture for countries like SA which are considered part of the developing world (Kalyan, Nadasan, & Puckree, 2007).

Given the urgency for research of this kind to be carried out in contexts such as SA, this research provides a stepping stone for future research in this area. This study found that while TBI is a significant predictor of antisocial traits, it may be useful to account for the prevalence of depression and substance use.

Limitations and Future Directions

There are several limitations in this study which may limit the generalizability of the research findings of this study to the wider SA young offender population. One of the limitations of this study was the use of self-report measures to establish the prevalence of TBI. The use of a self-report measure can be viewed as problematic as issues such as lack of information, incorrect information and social desirability bias arise. Moreover, we did not have access to the medical records of participants to get an accurate determination of the severity or frequency of their TBI. As a result, frequency and severity of TBI analyses were not reported. Lastly, as our sample consisted of only 80 participants. Consequently, our sample is rather small and indicative that our results may not be generalizable to young offenders with antisocial traits in other contexts or in the wider population.

Future research in this field on TBI, offender status and antisocial traits should be carried in low- to middle-income countries like SA, where research of this nature is pertinent, but limited. Future research should use a longitudinal design to assess and follow adolescents from childhood. Furthermore, future research should incorporate more nuanced analyses on the frequency and severity of TBI. Moreover, using a longitudinal design will allow researchers to

gain more insight into understanding the effects of TBI and the development of antisocial traits. Moreover, this study can be used to inform the development of a larger study, which can then be used to inform interventions aimed at reducing rates of recidivism amongst SA young male offenders.

Conclusion

There has been a vast amount of literature suggesting that offending behaviour and antisocial traits are often exacerbated by the presence of TBI. However, there is a dearth in the literature for the SA context addressing the relationship between TBI and antisocial traits in young male offenders and therefore studies, such as the current one, are important in terms of initiating this kind of research in this context. This study found that TBI may contribute to the affects the prevalence of antisocial traits, but that TBI rates appear to be high among both young offenders and non-offenders. Further, higher mental health and substance use issues appear to contribute significantly to higher anti-social traits among young offenders as compared to non-offenders in this sample. Screening and intervention for such challenges, in addition to TBI, among young offenders may be necessary.

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Appendix A

Ethical approval for larger study from Western Cape Department of Education

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ENQUIRIES: Dr A T Wyngaard

Ms Nina Steenkamp
18 Vissershof Road
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7441

Dear Ms Nina Steenkamp

RESEARCH PROPOSAL: **THE PREVALENCE OF TRAUMATIC BRAIN INJURY AND AN INVESTIGATION OF BEHAVIOURAL, EMOTIONAL AND EXECUTIVE FUNCTIONING IN A SAMPLE OF MALE YOUNG OFFENDERS**

Your application to conduct the above-mentioned research in schools in the Western Cape has been approved subject to the following conditions:

1. Principals, educators and learners are under no obligation to assist you in your investigation.
2. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
3. You make all the arrangements concerning your investigation.
4. Educators' programmes are not to be interrupted.

5. The Study is to be conducted from **02 April 2018 till 28 September 2018**

6. No research can be conducted during the fourth term as schools are preparing and finalizing syllabi for examinations (October to December).
7. Should you wish to extend the period of your survey, please contact Dr A.T Wyngaard at the contact numbers above quoting the reference number?
8. A photocopy of this letter is submitted to the principal where the intended research is to be conducted.
9. Your research will be limited to the list of schools as forwarded to the Western Cape Education Department.
10. A brief summary of the content, findings and recommendations is provided to the Director: Research Services.
11. The Department receives a copy of the completed report/dissertation/thesis addressed to:

The Director: Research Services

Western Cape Education Department

Private Bag X9114

CAPE TOWN

8000

We wish you success in your research.

Kind regards.

Signed: Dr Audrey T Wyngaard

Directorate: Research

DATE: 09 March 2018

Appendix B

Ethical approval from UCT for the current study

UNIVERSITY OF CAPE TOWN

Department of Psychology

University of Cape Town Rondebosch 7701 South Africa
Telephone (021) 650 3417
Fax No. (021) 650 4104

13 June 2018

Asheeqa Petersen and Zayaan Goolam Nabi
Department of Psychology
University of Cape Town
Rondebosch 7701

Dear Asheeqa and Zayaan

I am pleased to inform you that ethical clearance has been given by an Ethics Review Committee of the Faculty of Humanities for your study, *Traumatic brain injury and an investigation of antisocial traits of young offenders*. The reference number is PSY2018-041.

I wish you all the best for your study.

Yours sincerely

Lauren Wild (PhD)
Associate Professor
Chair: Ethics Review Committee

Appendix C

The previous study from which the young offender data was recruited was also approved by UCT Department of Psychology's REC

University of Cape Town, Psychology Department Research Ethics Committee Approval

DEPARTMENT OF PSYCHOLOGY

REPORT OF THESIS COMMITTEE

Student Name: (HELEN) JU-RGYN OCKHUIZEN

Student #: OCKHEL001

Degree: MA NEUROPSYCHOLOGY

Title (as proposed): THE PREVALENCE OF TBI AND AN INVESTIGATION OF EXECUTIVE FUNCTIONING AMONG THOSE THAT HAVE SUSTAINED A TBI IN A SAMPLE OF JUVENILE DELINQUENT BOYS

Supervisor: LEIGH SCHRIEFF

Co-supervisor: –

Committee members: PROF. MARK SOLMS

DR. LAUREN WILD

DR. SUSAN MALCOLM-SMITH

WE:

1. Approve the proposal, and recommend that the student continue with the research.

(2.) Approve the proposal, and recommend that the student may continue with the research. However, we recommend that change(s), as noted below, be incorporated in the research, to the satisfaction of the supervisor.
Assent form adapted ;

(3.) Approve the proposal in terms of its ethical implications. If necessary, explanatory notes appear below.

4. Find the proposal unsatisfactory, for the reason(s) listed below. The student is hereby requested to re-present the proposal to a departmental thesis committee by _____.

NOTES:

Appendix D

Parent Consent Form – Non-offenders

UCT Department of Psychology

Parent Consent Form – Non-offenders

Informed Consent to Participate in Research and Authorization for Collection, Use, and Disclosure of Questionnaire and Other Personal Data

Your son is being asked to take part in a research study. This form provides you with information about the study and asks for your permission for your son to part take in the research study. Consent is also asked for the collection of questionnaire data, as well as other information (demographics and information about income) necessary from you. Signing this will also give the researcher permission to access medical records of your son in order to confirm any head injuries. The Principal Investigator (the person in charge of this research) or a representative of the Principal Investigator will describe this study to you and answer all of your questions before you sign this consent form. Your son's participation is entirely voluntary. Before you decide whether or not he may take part, read the information below and ask questions about anything you do not understand. You and/or your son will not be disadvantaged in any way by not participating in this study.

1. Name of Participant ("Study Subject")

_____

2. Title of Research Study

The prevalence of traumatic brain injury and an investigation of behavioural, emotional and executive functioning in a sample of male young offenders.

3. Principal Investigators and Telephone Numbers

Jamie Lee Adams
Kimberly Blake
Melissa Gouws
Zayaan Goolam Nabi
Asheeqa Petersen
Honours in Psychology (students)
Department of Psychology
University of Cape Town
021 650 3417

Nina Steenkamp
MA in Neuropsychology (student)
Department of Psychology
University of Cape Town
021 650 3417

Dr Leigh Schrieff-Elson
Supervisor
Department of Psychology
University of Cape Town
021 650 3708

4. Source of Funding or Other Material Support

National Research Foundation.

5. What is the purpose of this research study?

The purpose of this research is to investigate the prevalence of traumatic brain injury (TBI) among young offenders and non-offenders in the Western Cape; and to investigate their behaviour (e.g., aggression and anti-social traits), emotional outcomes (e.g., feeling happy or angry), and executive functioning (e.g., thinking, planning, and flexibility) by administering neuropsychological pen and paper measures and questionnaires.

6. What will be done if you take part in this research study?

You will be asked to complete a parent/caregiver information and socio-economic status questionnaire, a questionnaire about your son's developmental history, and you will be asked questions regarding your son's behaviour.

7. If you choose to participate in this study, how long will you be expected to participate in the research?

Completing the questionnaires will take place during one session, which should not last longer than one hour. If at any time during the session you wish to stop your participation, you are free to do so without penalty.

8. How many people are expected to participate in the research?

200, 100 non-offenders and 100 young offenders

9. What are the possible discomforts and risks?

There are no known risks associated with participation in this study. Should you or your son get tired during the study, you will be allowed to rest. If you wish to discuss the information above or any discomforts you may experience, you may ask questions now or call the Principal Investigators listed in #3 of this form.

10a. What are the possible benefits to you?

You or your son may or may not personally benefit from participating in this study but the findings may help in our understanding of the cognitive, behavioural and emotional outcomes of young offenders with and without TBI. Should behavioural problems be identified during the process of this study, your son will be referred to the school counsellor or to the nearest Western Cape Education department school clinic if there is no counsellor at

your son's school.

10b. What are the possible benefits to others?

The information gained from this research study will help improve our understanding of the offending behaviour of young offenders with TBI.

11. If you choose to take part in this research study, will it cost you anything?

Participating in this study will not cost you anything.

12. Will you receive compensation for taking part in this research study?

Your son will receive a R50 Checkers shopping voucher.

13a. Can you withdraw from this research study?

You and your son are free to withdraw your consent and to stop participating in this research study at any time. If you do withdraw your consent, there will be no penalty.

If you have any questions regarding your rights in this research, you may phone the Psychology Department office and get in touch with Rosalind Adams.

Her email address is rosalind.adams@uct.ac.za or you may contact her via telephone – 021 650 3417.

13b. If you withdraw, can information about you still be used and/or collected?

Information already collected may be used.

14. Once personal and performance information is collected, how will it be kept secret (confidential) in order to protect your privacy?

Only certain people have the right to review these research records. These people include the researchers for this study and certain University of Cape Town officials. Your research records will not be released without your permission unless required by law or a court order. Your son's identity will not be revealed and all the information you give will be strictly confidential. Any information collected will have your name removed so that it is anonymous.

15. What information about you may be collected, used and shared with others?

This information gathered from you will be demographic information, information on your son's developmental history, and records of your responses to questionnaires regarding your son's behaviour. If you agree to be in this research study, it is possible that some of the information collected might be copied into a "limited data set" to be used for other research purposes. If so, the limited data set may only include information that does not directly identify you. For example, the limited data set cannot include your name, address, telephone number, ID number, or any other numbers or codes that link you to the information in the limited data set.

16. Signatures

As a representative of this study, I have explained to the participant the purpose, the procedures, the possible benefits, and the risks of this research study; and how the participant's performance and other data will be collected, used, and shared with others:

_____ _____

Signature of Person Obtaining Consent and Authorization **Date**

You have been informed about this study's purpose, procedures, possible benefits, and risks; and how your performance and other data will be collected, used and shared with others. You have received a copy of this form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time.

You voluntarily agree to participate in this study. You hereby authorize the collection, use and sharing of your performance and other data. By signing this form, you are not giving away any of your legal rights.

_____ _____

Signature of Person Consenting and Authorizing **Date**

Please indicate below if you would like to be notified of future research projects conducted by our research group:

_____ (initial) Yes, I would like to be added to your research participation pool and be notified of research projects in which I might participate in the future.

Method of contact:

Phone number: _____

E-mail address: _____

Mailing address: _____

_____

Appendix E

Participant Assent Form

UCT Department of Psychology

Participant Assent Form

PERMISSION TO PARTICIPATE IN RESEARCH

We are inviting you to be in our research study. We would like to learn more about traumatic brain injuries and associated behaviours of young people. In order to do this, we are talking to young people who have had such an injury and also to those who have never had such an injury.

If you agree to be in this study, we will ask you to meet with us twice. During the first session, we will ask you to answer some questions about your life. These may be very personal questions about your behaviour. This session will last approximately 1 hour. During the second session, we will ask you to do pen and paper tasks with us that will help us to understand your thinking and behaviour better. This session will be approximately 2 hours long.

Taking part in this study will not place you at risk in any way. These activities will not harm you, but some of them may be long and you may feel tired at times. If you do, you can stop and rest at any time. There will be no penalty if you choose not to be part of this study or if you choose to stop being part of it. Other than receiving refreshments during the sessions and being compensated with a R50 checkers voucher at the end of the second session for your participation, there are no known personal benefits to taking part in this study. You will, however, be helping us to better understand behaviours associated with having a traumatic brain injury.

Your identity will not be revealed and all the information you give will be strictly confidential. Any information collected will have your name removed so that it is anonymous, and only certain people will have access to the data.

It will only be used for academic research purposes; such as in a research report.

If you sign this paper it means that you would like to take part in this study. If you would not like to take part in this study, you do not have to sign this form. It is up to you. Before you say whether you want to be part of this study or not, I will answer any questions that you may have. If you have a question later that you didn't think of now, you can ask me next time.

You are free to withdraw your permission and to stop participating in this research study at any time. If you do withdraw your consent, there will be no penalty.

If you have any questions regarding your rights in this research, you may phone the Psychology Department office and get in touch with Rosalind Adams.

Her email address is rosalind.adams@uct.ac.za or you may contact her via telephone – 021 650 3417.

I would like to take part in this study:

Signature of Participant _____ Date _____

Signature of Investigator _____ Date _____

Appendix F

Short Questionnaire

1. What area do you in live?

2. What material is your house made of? (E.g. bricks, wood, metal)

3. Who lives with you?

4. How many rooms does your house have?

Appendix G

Demographic questionnaire and Asset index

DEMOGRAPHIC QUESTIONNAIRE AND ASSET INDEX

GENERAL INFORMATION

Full name (Parent):	
Telephone:	Work: ( ) Home: ( ) Cell:
How would you describe your ethnicity / race?	1. Black 2. Coloured 3. White 4. Asian 5. Other(specify):
Home Language:	
Full name (Child):	
Gender:	M F
Date of Birth:	
Grade:	

HOUSEHOLD INCOME: (Please circle appropriate number)

Household income per year:	1. R0 2. R1 – R5 000 3. R5001 – R25 000 4. R25 000 – R100 000 5. R100 001+

PARENTAL EDUCATION: (Please circle appropriate number)

	Biological mother	Biological father	Guardian
Highest level of education reached? Mark one response for each person as follows:			
1. 0 years (No Grades / Standards) = No formal education (never went to school)	1.	1.	1.
2. 1-6 years (Grades 1-6 / Sub A-Std 4) = Less than primary education (didn't complete primary school)	2.	2.	2.
3. 7 years (Grade 7 / Std 5) = Primary education (completed primary school)	3.	3.	3.
4. 8-11 years (Grades 8-11 / Stds 6-9) = Some secondary education (didn't complete high school)	4.	4.	4.
5. 12 years (Grade 12 / Std 10) = Secondary education (completed senior school)	5.	5.	5.
6. 13+ years = Tertiary education (completed university / technikon / college)	6.	6.	6.
7. Don't know	7.	7.	7.

PARENTAL EMPLOYMENT: (Please circle appropriate number)

Hollingstead categories:	Biological mother	Biological father	Guardian
1. Higher executives, major professionals, owners of large businesses)	1.	1.	1.
2. Business managers of medium sized businesses, lesser professions (e.g. nurses, opticians, pharmacists, social workers, teachers)	2.	2.	2.
3. Administrative personnel, managers, minor professionals, owners / proprietors of small businesses (e.g. bakery, car dealership, engraving business, plumbing business, florist, decorator, actor, reporter, travel agent)	3.	3.	3.
4. Clerical and sales, technicians, small businesses (e.g. bank teller, bookkeeper, clerk, draftsperson, timekeeper, secretary)	4.	4.	4.
5. Skilled manual – usually having had training (e.g. baker, barber, chef, electrician, fireman, machinist, mechanic, painter, welder, police, plumber, electrician)	5.	5.	5.
6. Semi-skilled (e.g. hospital aide, painter, bartender, bus driver, cook, garage guard, checker, waiter, machine operator)	6.	6.	6.
7. Unskilled (e.g. attendant, janitor, construction helper, unspedified labour, porter, unemployed)	7.	7.	7.
8. Homemaker	8.	8.	8.
9. Student, disabled, no occupation	9.	9.	9.

MATERIAL AND FINANCIAL RESOURCES (ASSET INDEX): (Please circle appropriate number)

Which of the following items, in working order, does your household have?

Items	Yes	No
1. A refrigerator or freezer	1.	1.
2. A vacuum cleaner or polisher	2.	2.
3. A television	3.	3.
4. A hi-fi or music center (radio excluded)	4.	4.
5. A microwave oven	5.	5.
6. A washing machine	6.	6.
7. A video cassette recorder or dvd player	7.	7.

Which of the following do you have in your home?

Items	Yes	No
1. Running water	1.	1.
2. A domestic servant	2.	2.
3. At least one car	3.	3.
4. A flush toilet	4.	4.
5. A built-in kitchen sink	5.	5.
6. An electric stove or hotplate	6.	6.
7. A working telephone	7.	7.

Do you personally do any of the following?

Items	Yes	No
1. Shop at supermarkets	1.	1.
2. Use any financial services such as a bank account, ATM card or credit card	2.	2.
3. Have an account or credit card at a retail store	3.	3.

Appendix H

AUDIT Questionnaire

AUDIT questionnaire

Please circle the answer that is correct for you

1. How often do you have a drink containing alcohol?

· Never
· Monthly or less
· 2-4 times a month
· 2-3 times a week
· 4 or more times a week

2. How many standard drinks containing alcohol do you have on a typical day when drinking?

· 1 or 2
· 3 or 4
· 5 or 6
· 7 to 9
· 10 or more

3. How often do you have six or more drinks on one occasion?

· Never
· Less than monthly
· Monthly
· Weekly
· Daily or almost daily

4. During the past year, how often have you found that you were not able to stop drinking once you had started?

· Never
· Less than monthly
· Monthly
· Weekly
· Daily or almost daily

5. During the past year, how often have you failed to do what was normally expected of you because of drinking?

· Never
· Less than monthly
· Monthly
· Weekly
· Daily or almost daily

6. During the past year, how often have you needed a drink in the morning to get yourself going after a heavy drinking session?

· Never
· Less than monthly
· Monthly
· Weekly
· Daily or almost daily

7. During the past year, how often have you had a feeling of guilt or remorse after drinking?

· Never
· Less than monthly
· Monthly
· Weekly
· Daily or almost daily

8. During the past year, have you been unable to remember what happened the night before because you had been drinking?

· Never
· Less than monthly
· Monthly
· Weekly
· Daily or almost daily

9. Have you or someone else been injured as a result of your drinking?

· No
· Yes, but not in the past year
· Yes, during the past year

10. Has a relative or friend, doctor or other health worker been concerned about your drinking or suggested you cut down?

· No
· Yes, but not in the past year
· Yes, during the past year

Scoring the AUDIT

Scores for each question range from 0 to 4, with the first response for each question (eg never) scoring 0, the second (eg less than monthly) scoring 1, the third (eg monthly) scoring 2, the fourth (eg weekly) scoring 3, and the last response (eg. daily or almost daily) scoring 4. For questions 9 and 10, which only have three responses, the scoring is 0, 2 and 4 (from left to right).

A score of 8 or more is associated with harmful or hazardous drinking, a score of 13 or more in women, and 15 or more in men, is likely to indicate alcohol dependence.

Saunders JB, Aasland OG, Babor TF et al. Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption — II. Addiction 1993, 88: 791–803.

Appendix I

Beck Depression Inventory

Beck's Depression Inventory

This depression inventory can be self-scored. The scoring scale is at the end of the questionnaire.

1.
- 0 I do not feel sad.
- 1 I feel sad
- 2 I am sad all the time and I can't snap out of it.
- 3 I am so sad and unhappy that I can't stand it.

2.
- 0 I am not particularly discouraged about the future.
- 1 I feel discouraged about the future.
- 2 I feel I have nothing to look forward to.
- 3 I feel the future is hopeless and that things cannot improve.

3.
- 0 I do not feel like a failure.
- 1 I feel I have failed more than the average person.
- 2 As I look back on my life, all I can see is a lot of failures.
- 3 I feel I am a complete failure as a person.

4.
- 0 I get as much satisfaction out of things as I used to.
- 1 I don't enjoy things the way I used to.
- 2 I don't get real satisfaction out of anything anymore.
- 3 I am dissatisfied or bored with everything.

5.
- 0 I don't feel particularly guilty
- 1 I feel guilty a good part of the time.
- 2 I feel quite guilty most of the time.
- 3 I feel guilty all of the time.

6.
- 0 I don't feel I am being punished.
- 1 I feel I may be punished.
- 2 I expect to be punished.
- 3 I feel I am being punished.

7.
- 0 I don't feel disappointed in myself.
- 1 I am disappointed in myself.
- 2 I am disgusted with myself.
- 3 I hate myself.

8.
- 0 I don't feel I am any worse than anybody else.
- 1 I am critical of myself for my weaknesses or mistakes.
- 2 I blame myself all the time for my faults.
- 3 I blame myself for everything bad that happens.

9.
- 0 I don't have any thoughts of killing myself.
- 1 I have thoughts of killing myself, but I would not carry them out.
- 2 I would like to kill myself.
- 3 I would kill myself if I had the chance.

10.
- 0 I don't cry any more than usual.
- 1 I cry more now than I used to.
- 2 I cry all the time now.
- 3 I used to be able to cry, but now I can't cry even though I want to.

11.

0	I am no more irritated by things than I ever was.
1	I am slightly more irritated now than usual.
2	I am quite annoyed or irritated a good deal of the time.
3	I feel irritated all the time.

12.

0	I have not lost interest in other people.
1	I am less interested in other people than I used to be.
2	I have lost most of my interest in other people.
3	I have lost all of my interest in other people.

13.

0	I make decisions about as well as I ever could.
1	I put off making decisions more than I used to.
2	I have greater difficulty in making decisions more than I used to.
3	I can't make decisions at all anymore.

14.

0	I don't feel that I look any worse than I used to.
1	I am worried that I am looking old or unattractive.
2	I feel there are permanent changes in my appearance that make me look unattractive
3	I believe that I look ugly.

15.

0	I can work about as well as before.
1	It takes an extra effort to get started at doing something.
2	I have to push myself very hard to do anything.
3	I can't do any work at all.

16.

0	I can sleep as well as usual.
1	I don't sleep as well as I used to.
2	I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3	I wake up several hours earlier than I used to and cannot get back to sleep.

17.

0	I don't get more tired than usual.
1	I get tired more easily than I used to.
2	I get tired from doing almost anything.
3	I am too tired to do anything.

18.

0	My appetite is no worse than usual.
1	My appetite is not as good as it used to be.
2	My appetite is much worse now.
3	I have no appetite at all anymore.

19.

0	I haven't lost much weight, if any, lately.
1	I have lost more than five pounds.
2	I have lost more than ten pounds.
3	I have lost more than fifteen pounds.

20.

0 I am no more worried about my health than usual.
1 I am worried about physical problems like aches, pains, upset stomach, or constipation.
2 I am very worried about physical problems and it's hard to think of much else.
3 I am so worried about my physical problems that I cannot think of anything else.

21.

0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to be.
2 I have almost no interest in sex.
3 I have lost interest in sex completely.

INTERPRETING THE BECK DEPRESSION INVENTORY

Now that you have completed the questionnaire, add up the score for each of the twenty-one questions by counting the number to the right of each question you marked. The highest possible total for the whole test would be sixty-three. This would mean you circled number three on all twenty-one questions. Since the lowest possible score for each question is zero, the lowest possible score for the test would be zero. This would mean you circles zero on each question. You can evaluate your depression according to the Table below.

Total Score	Levels of Depression
1-10	These ups and downs are considered normal
11-16	Mild mood disturbance
17-20	Borderline clinical depression
21-30	Moderate depression
31-40	Severe depression
over 40	Extreme depression

Appendix J

ASSIST Questionnaire

A. WHO - ASSIST V3.0

INTERVIEWER ID		COUNTRY		CLINIC	
PATIENT ID			DATE		

INTRODUCTION ***(Please read to patient)***

Thank you for agreeing to take part in this brief interview about alcohol, tobacco products and other drugs. I am going to ask you some questions about your experience of using these substances across your lifetime and in the past three months. These substances can be smoked, swallowed, snorted, inhaled, injected or taken in the form of pills (show drug card).

Some of the substances listed may be prescribed by a doctor (like amphetamines, sedatives, pain medications). For this interview, we will not record medications that are used as prescribed by your doctor. However, if you have taken such medications for reasons other than prescription, or taken them more frequently or at higher doses than prescribed, please let me know. While we are also interested in knowing about your use of various illicit drugs, please be assured that information on such use will be treated as strictly confidential.

NOTE: BEFORE ASKING QUESTIONS, GIVE ASSIST RESPONSE CARD TO PATIENT

Question 1
(if completing follow-up please cross check the patient's answers with the answers given for Q1 at baseline. Any differences on this question should be queried)

In your life, which of the following substances have you ever used? *(NON-MEDICAL USE ONLY)*	**No**	**Yes**
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	3
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	3
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	3
d. Cocaine (coke, crack, etc.)	0	3
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	3
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	3
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	3
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	3
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	3
j. Other - specify:	0	3

Probe if all answers are negative:
"Not even when you were in school?"

If "No" to all items, stop interview.

If "Yes" to any of these items, ask Question 2 for each substance ever used.

Question 2

In the past three months, how often have you used the substances you mentioned *(FIRST DRUG, SECOND DRUG, ETC)*?	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	2	3	4	6
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	2	3	4	6
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	2	3	4	6
d. Cocaine (coke, crack, etc.)	0	2	3	4	6
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	2	3	4	6
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	2	3	4	6
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	2	3	4	6
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	2	3	4	6
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	2	3	4	6
j. Other - specify:	0	2	3	4	6

If "Never" to all items in Question 2, skip to Question 6.

If any substances in Question 2 were used in the previous three months, continue with Questions 3, 4 & 5 for each substance used.

Question 3

During the past three months, how often have you had a strong desire or urge to use *(FIRST DRUG, SECOND DRUG, ETC)*?	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	3	4	5	6
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	3	4	5	6
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	3	4	5	6
d. Cocaine (coke, crack, etc.)	0	3	4	5	6
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	3	4	5	6
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	3	4	5	6
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	3	4	5	6
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	3	4	5	6
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	3	4	5	6
j. Other - specify:	0	3	4	5	6

Question 4

During the past three months, how often has your use of *(FIRST DRUG, SECOND DRUG, ETC)* led to health, social, legal or financial problems?	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	4	5	6	7
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	4	5	6	7
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	4	5	6	7
d. Cocaine (coke, crack, etc.)	0	4	5	6	7
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	4	5	6	7
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	4	5	6	7
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	4	5	6	7
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	4	5	6	7
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	4	5	6	7
j. Other - specify:	0	4	5	6	7

Question 5

During the past three months, how often have you failed to do what was normally expected of you because of your use of *(FIRST DRUG, SECOND DRUG, ETC)*?	Never	Once or Twice	Monthly	Weekly	Daily or Almost Daily
a. Tobacco products					
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	5	6	7	8
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	5	6	7	8
d. Cocaine (coke, crack, etc.)	0	5	6	7	8
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	5	6	7	8
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	5	6	7	8
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	5	6	7	8
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	5	6	7	8
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	5	6	7	8
j. Other - specify:	0	5	6	7	8

Ask Questions 6 & 7 for all substances ever used (i.e. those endorsed in Question 1)

Question 6

Has a friend or relative or anyone else ever expressed concern about your use of *(FIRST DRUG, SECOND DRUG, ETC.)?*	No, Never	Yes, in the past 3 months	Yes, but not in the past 3 months
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	6	3
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	6	3
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	6	3
d. Cocaine (coke, crack, etc.)	0	6	3
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	6	3
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	6	3
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	6	3
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	6	3
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	6	3
j. Other – specify:	0	6	3

Question 7

Have you ever tried and failed to control, cut down or stop using *(FIRST DRUG, SECOND DRUG, ETC.)?*	No, Never	Yes, in the past 3 months	Yes, but not in the past 3 months
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	6	3
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	6	3
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	6	3
d. Cocaine (coke, crack, etc.)	0	6	3
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	6	3
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	6	3
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	6	3
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	6	3
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	6	3
j. Other – specify:	0	6	3

Question 8

	No, Never	Yes, in the past 3 months	Yes, but not in the past 3 months
Have you <u>ever</u> used any drug by injection? ***(NON-MEDICAL USE ONLY)***	0	2	1

IMPORTANT NOTE:

Patients who have injected drugs in the last 3 months should be asked about their pattern of injecting during this period, to determine their risk levels and the best course of intervention.

PATTERN OF INJECTING		INTERVENTION GUIDELINES
Once weekly or less **Fewer than 3 days in a row**	or	→ **Brief Intervention including "risks associated with injecting" card**
More than once per week **3 or more days in a row**	or	→ **Further assessment and more intensive treatment***

HOW TO CALCULATE A SPECIFIC SUBSTANCE INVOLVEMENT SCORE.

For each substance (labelled a. to j.) add up the scores received for questions 2 through 7 inclusive. Do not include the results from either Q1 or Q8 in this score. For example, a score for cannabis would be calculated as: **Q2c + Q3c + Q4c + Q5c + Q6c + Q7c**

Note that Q5 for tobacco is not coded, and is calculated as: **Q2a + Q3a + Q4a + Q6a + Q7a**

THE TYPE OF INTERVENTION IS DETERMINED BY THE PATIENT'S SPECIFIC SUBSTANCE INVOLVEMENT SCORE

	Record specific substance score	no intervention	receive brief intervention	more intensive treatment *
a. tobacco		0 - 3	4 - 26	27+
b. alcohol		0 - 10	11 - 26	27+
c. cannabis		0 - 3	4 - 26	27+
d. cocaine		0 - 3	4 - 26	27+
e. amphetamine		0 - 3	4 - 26	27+
f. inhalants		0 - 3	4 - 26	27+
g. sedatives		0 - 3	4 - 26	27+
h. hallucinogens		0 - 3	4 - 26	27+
i. opioids		0 - 3	4 - 26	27+
j. other drugs		0 - 3	4 - 26	27+

NOTE: *FURTHER ASSESSMENT AND MORE INTENSIVE TREATMENT may be provided by the health professional(s) within your primary care setting, or, by a specialist drug and alcohol treatment service when available.

Appendix K

Maudsely Addiction Profile (MAP)

Maudsley Addiction Profile

Client details

Initial of first name: ☐ *initial of family name:* ☐

Sex: M/F ☐ *Age:* ☐

Interviewer - complete if appropriate for country or skip

Observe and code ethnic group White ☐ Black ☐ Asian ☐ Other ☐

Ask client: "How would you describe your ethnic group?"

record verbatim ☐

Ask client: "What was your *country of birth*? ☐

Interviewer details

Name ☐ *Team/clinic* ☐

Date

Day ☐☐ Month ☐☐ Year 19 ☐☐ Time commenced ☐☐

Record interviewer type

Clinician ☐ *Researcher* ☐

Case ☐☐☐

 MAP v1.0 (12/96)

Illegal activities

D11. ***Interviewer -*** "This section concerns things that you may have done in the past month which are illegal" ***Show Card 4***

Remind client of confidentiality

[Card 4]	In past month? [or]		Days committed [1-30] [Card 1]		Number of times on typical day
Selling drugs		*if yes ...*		*and...*	
Fraud/forgery		*if yes ...*		*and...*	
Theft from a property		*if yes ...*		*and...*	
Theft from a person		*if yes ...*		*and...*	
Shoplifting		*if yes ...*		*and...*	
Theft from a vehicle		*if yes ...*		*and...*	
Theft of a vehicle		*if yes ...*		*and...*	
Other theft (specify)		*if yes ...*		*and...*	
Criminal damage		*if yes ...*		*and...*	
Public order offence		*if yes ...*		*and...*	
Soliciting		*if yes ...*		*and...*	

END OF MAP INTERVIEW

Interviewer enter time completed | | |

Appendix L

Inventory of Callous Unemotional Traits (ICU)

ICU
(Youth Version)

Name: _____

Date Completed: _____

Instructions: Please read each statement and decide how well it describes you. Mark your answer by circling the appropriate number (0-3) for each statement. Do not leave any statement unrated.

	Not at all true	Somewhat true	Very true	Definitely True
1. I express my feelings openly.	0	1	2	3
2. What I think is "right" and "wrong" is different from what other people think.	0	1	2	3
3. I care about how well I do at school or work.	0	1	2	3
4. I do not care who I hurt to get what I want.	0	1	2	3
5. I feel bad or guilty when I do something wrong.	0	1	2	3
6. I do not show my emotions to others.	0	1	2	3
7. I do not care about being on time.	0	1	2	3
8. I am concerned about the feelings of others.	0	1	2	3
9. I do not care if I get into trouble.	0	1	2	3
10. I do not let my feelings control me.	0	1	2	3
11. I do not care about doing things well.	0	1	2	3
12. I seem very cold and uncaring to others.	0	1	2	3
13. I easily admit to being wrong.	0	1	2	3
14. It is easy for others to tell how I am feeling.	0	1	2	3
15. I always try my best.	0	1	2	3
16. I apologize ("say I am sorry") to persons I hurt.	0	1	2	3
17. I try not to hurt others' feelings.	0	1	2	3
18. I do not feel remorseful when I do something wrong.	0	1	2	3
19. I am very expressive and emotional.	0	1	2	3
20. I do not like to put the time into doing things well.	0	1	2	3

21. The feelings of others are unimportant to me.	0	1	2	3
22. I hide my feelings from others.	0	1	2	3
23. I work hard on everything I do.	0	1	2	3
24. I do things to make others feel good.	0	1	2	3

Appendix M

Comprehensive Health Assessment Tool (CHAT)

Comprehensive Health Assessment Tool (CHAT): Young People in the Secure Estate

December 2016 (Version 6)

Title: CHAT: Young People in the Secure Estate. First published: June 2013

CHAT ASSESSMENT OF CAPACITY AND CONSENT FORM

Surname:	**Forenames:**	
NHS Number:	**Admission Number:**	**DOB:**

Assessment of Capacity

Young people aged 16-17 are presumed in law to have capacity to give consent for themselves.

Young people under 16 can give consent, **but only** if they are able to fully understand what is proposed.

An assessment of capacity **must** be undertaken when a young person is under the age of 16 and does not want to involve parents/guardian.

Young people aged 16-17 with learning difficulties or mental health issues **must** also be assessed.

If a young person has been assessed as having capacity to consent, capacity should be **re-assessed** each time an assessment is completed.

Reception Screen	**No**	**Yes**
Is the young person currently impaired? e.g. intoxication/injury/disability	☐	☐
Does the young person have capacity to give consent for assessment?	☐	☐
Does consent need to be obtained by parent/legal guardian/person holding parental responsibility?	☐	☐

Name of professional completing capacity assessment:

Signature: Date:

Physical Health Assessment	**No**	**Yes**
Is the young person currently impaired? e.g. intoxication/injury/disability	☐	☐
Does the young person have capacity to give consent for assessment?	☐	☐

Name of professional completing capacity assessment:

Signature: Date:

Substance Misuse Assessment	**No**	**Yes**
Is the young person currently impaired? e.g. intoxication/injury/disability	☐	☐
Does the young person have capacity to give consent for assessment?	☐	☐

Name of professional completing capacity assessment:

Signature: Date:

Mental Health Assessment	No	Yes
Is the young person currently impaired? e.g. intoxication/injury/disability	☐	☐
Does the young person have capacity to give consent for assessment?	☐	☐

Name of professional completing capacity assessment:

Signature: Date:

Neurodisability Assessment	No	Yes
Is the young person currently impaired? e.g. intoxication/injury/disability	☐	☐
Does the young person have capacity to give consent for assessment?	☐	☐

Name of professional completing capacity assessment:

Signature: Date:

Consent Process

Who is providing consent? Young person ☐ Parent/legal guardian/person holding parental responsibility ☐

Consent for Assessment

We need to collect the information in this CHAT assessment so that we can understand what help you may need. I understand that the information I provide as part of the CHAT assessment will remain confidential to those staff involved in my care and treatment unless someone identifies that there is, or is likely to be, a risk of significant harm to myself or others.

NB: *'Significant' means major and 'harm' includes impairment of health and development as well as ill-treatment or self-harm.*

I understand that information is stored about me/my child. I have had the opportunity to discuss what this means and consider the information held about me (local site policy and procedure)

☐ I agree to the CHAT Assessment

Please indicate any exceptions

Consent for Information Sharing

I understand that information may be requested from outside agencies in order to ensure that the assessment of my health is accurate and comprehensive.
I understand that in order to gain appropriate information from outside agencies, it may be necessary to share information about my current health issues.
I understand that wherever possible, permission will be sought from me to approach outside agencies for information but where delays may compromise my health, staff may approach outside agencies without my permission.

☐ I agree that personal information about me may be shared with other agencies and professionals

Please indicate any exceptions

Surname: Forenames:
DOB: NHS Number:

☐ I agree that personal information about my child may be shared with other agencies and professionals

Please indicate any exceptions

☐ I agree that you can contact other agencies and professionals who are or have been involved with me/us and my/our child/children and seek relevant information from them to decide what help my child needs.

Please indicate any exceptions

Consent for Parent/Guardian/Person holding parental responsibility

I understand that information may be requested from my parents/carers in order to ensure that the assessment of my health is accurate and as comprehensive as possible.

I understand that my parents/carers may be informed of my current health care issues in order to support my care.

☐ I agree that you can contact my parents/carers

Please indicate any exceptions

Parent/Carer Signature(s)

Signed	Name	Date
Signed	Name	Date

Signature of any other person with parental responsibility

Signed	Name	Date

Signature of young person

Signed	Name	Date

CHAT RECEPTION SCREEN

- Every young person admitted should be seen by a member of health care staff using the CHAT Reception Screen **before the first night of arrival, ideally within 2 hours.** This should be used instead of the First Reception Health Screen (Revised F2169).

- The CHAT Reception Screen can be completed by a Registered General Nurse (RGN), Registered Nurse (specialising in children; RNC) or Registered Mental Health Nurse (RMN).

- Seek information from other assessments previously completed e.g. Looked After Children assessments, Youth Offending Service documents and insist on seeing accompanying medication and documentation. Request specialist additional information if required. Link with establishment's suicide and self-harm and restraint procedures as necessary.

- Young people with detoxification and clinical management requirements in relation to substance misuse must be seen by a Doctor prior to prescribing. Refer to *'Guidance for the pharmacological management of substance misuse among young people in secure environments'* (DH 2009). www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_106433

- If you identify any **YES** (**questions 3-16 physical health; questions 5-10 in substance misuse; any in mental health/immediate safety)** complete the **relevant sections** (i.e. asthma; self-harm) of comprehensive assessment sections of the CHAT within the timeframe and complete the Immediate Care Plan to initiate urgent actions e.g. further assessment, referral to doctor, referral to substance misuse staff or heightened observations, and complete relevant Parts before the first night.

- If you identify all **NO** complete the comprehensive assessments (physical health, substance misuse and mental health) within **3 to 5 days** and the neurodisability assessment **within 10 days**. **See CHAT Manual for the CHAT Pathway flow diagram.**

Young Person Details

Surname:	**Forenames:**	
NHS Number:	**Admission Number:**	
Gender:	**DOB:**	**Age:**
Date & time of Admission:	**Date & time of Reception Screening:**	
Completed by (print your name):	**Your signature:**	
Address: **Who does the young person live with?**		

First Language:			**Interpreter Required:**				
Religion:							
Ethnic Origin	White, British White, Irish White, Other Black, African Black, Caribbean Black, Other	☐ ☐ ☐ ☐ ☐ ☐	Asian, Bangladeshi Asian, Indian Asian, Pakistani Chinese Asian, Other Mixed, White & Black	☐ ☐ ☐ ☐ ☐ ☐	Mixed, White &Asian Mixed, Other Other Ethnic Group Not Available	☐ ☐ ☐ ☐	
G.P.	Name: Address: Telephone:						
Legal Status	Is the young person a looked after child? (tick) **Yes** ☐ **No** ☐ Legal status: Please see the CHAT manual for further information about how to proceed if a young person is looked after under s31 or s.20 of the Children Act 1989. Children and young people remanded to custody will now all be looked after children for the period of the remand s.104 Legal Aid, Sentencing and Punishment of Offenders Act (LASPOA) 2012						
Next of Kin	Relationship (tick) Mother ☐ Father ☐ Other ☐ describe:						
	Name: Address: Telephone: Mobile: First Langauge: Interpreter Required: Person/s with Parental Responsibility:						
Dependants	List dependant children, siblings, parents. Include name and age/care needs. Also include any dependent pets: **Have arrangements been made for their care?** No ☐ Yes ☐ If **NO** add to Immediate Care Plan and refer to Social Services						

CHAT NEURODISABILITY ASSESSMENT

- Every young person admitted will be seen by a member of health care staff and receive a neurodisability assessment using this tool within **10 DAYS** of arrival.
- This will be completed by a Registered Mental Health Nurse (RMN), Child and Adolescent Mental Health (CAMHS) Practitioner or a Registered Learning Disability Nurse.
- Prior to interview with the young person, review their notes and discuss their presentation/functioning with a staff member who knows them well to obtain any relevant information. Look for any evidence of special schooling, school difficulties/exclusions, early developmental problems, injuries, reports that may indicate learning disability, speech and language or social communication difficulties (autistic spectrum disorders).
- Refer to other parts of the CHAT to inform the **care plan**.

Neurodisability Assessment: Young Persons Details

Surname:	**Forenames:**	
NHS Number:	**Admission Number:**	
Gender:	**DOB:**	
Date & time of Reception Health Screening:	**Date & time of this Assessment:**	
Completed by (print your name):	**Your designation:**	**Your signature:**

Are there any neurodisability issues arising from other information? Check other CHAT parts for potential risk factors and other pertinent information. Consider any previous assessment findings and any reported speech and language and/or learning difficulties. Summarise here:-

Traumatic Brain Injury

This section focuses specifically on Traumatic Brain Injury. Traumatic Brain Injury – is when the head receives a severe blow or jolt, for example in an accident, fall or assault, the brain can be damaged. There are other forms of Acquired Brain Injury which may have been caused by a stroke, haemorrhage, infection, hypoxic/anoxic brain injury and medical accidents. These are not included here, but check whether the young person has experienced any of these as they may influence their presentation.

Any loss of consciousness (LoC) over 30 minutes **OR** repeated loss of consciousness on more than three occasions (any length of time) where the young person has experienced symptoms following the injury:-

- **Review physical health/medical records and CHAT assessment (contact GP if necessary).**
- **Discuss with health worker need for further assessment of acquired brain injury (persistent symptoms for 3 months following a head injury requires further assessment and investigation while recent head injury also requires medical advice)**
- **For all young people who have experienced traumatic head injuries and have ongoing symptoms (those with and without LoC) take account of their symptoms within the care plan e.g. daily living skills and occupational functioning**

Tick **No** or **Yes** as appropriate for each question and include additional notes	**No**	**Yes**
Have you ever had an injury to the head that caused you to be knocked out and/or dazed and confused? E.g. from a fall, blow to the head (including boxing or fighting) or road traffic accident. If **Yes**, please explain: If **No**: move onto Learning Disability and Educational Needs	☐	☐

Surname: Forenames:
DOB: NHS Number:

Tick **No** or **Yes** as appropriate for each question and include additional notes	**No**	**Yes**
How many times have you been knocked out and/or dazed and confused? For each occasion ask how it happened. **When was the last occasion?**		
Did you seek any medical attention after being knocked out and/or dazed and confused? If **Yes**, what treatment did you receive? Did you have to stay in hospital?	☐	☐

Surname: Forenames:
DOB: NHS Number:

Describe the worst time s/he has been knocked out and/or dazed and confused					
	Dazed or confused	**Unconscious for < 30 min**	**Unconscious for > 30 but < 60 min**	**Unconscious for > 60 min but < 24hrs**	**Unconscious > 24hrs**
Road accident (as a pedestrian, cyclist or by car)					
Fall when sober					
Fall when under the influence of drink/drugs					
Sports injury e.g. boxing					
Fight					
Other					

Surname: Forenames:
DOB: NHS Number:

After a head injury or accident some people experience symptoms. We would like to know if you now suffer from any of the symptoms below. As many of these symptoms can occur normally, we would like to compare yourself now with before the accident. For each one please check the box that best describes your experiences.

Compared with before the accident, do you **NOW** suffer from:-

	Not experienced at all	**No more of a problem**	**A mild problem**	**A moderate problem**	**A severe problem**
Headaches					
Feelings of dizziness					
Nausea and/or vomiting					
Forgetfulness, poor memory					
Poor concentration					
Confusion					
Fogginess					
Difficulties recalling everyday events					

Is there a need in this area (Traumatic Brain Injury)? **If YES include need for further assessment**	**NO** ☐	**YES** ☐

Surname: Forenames:
DOB: NHS Number:

ACTION FOR CARE PLAN

Learning Disability and Educational Needs

Initially obtain information from other staff working with the young person currently (both education staff and key worker/personal officer) and information from records including ASSET prior to the assessment. When interviewing the young person have access to a magazine and non-digital clock (wrist watch or wall clock in room) and use your observational skills

- **If diagnosis of learning disability already made include in the care plan.**
- **If not diagnosed but presents with possible learning disability or educational needs discuss with education team or Mental Health team (psychologist/psychiatrist or senior nurse) if further specialist assessment required (all young people with functional impairment should be considered)**

INFORMATION FROM INFORMANTS AND RECORDS Tick **No** or **Yes** as appropriate for each question and include additional notes	**No**	**Yes**
Does the young person have a statement of special educational needs? If **Yes** please provide details below:	☐	☐
Has the young person attended a specialist school (non-mainstream)? If **Yes** please provide details below:	☐	☐
Has the young person ever been in contact with specialist learning disability services? If **Yes** please provide details below:	☐	☐
Are there concerns from education staff that the young person has any learning needs? If **Yes** please provide details below:	☐	☐

Surname: Forenames:
DOB: NHS Number:

Tick **No** or **Yes** as appropriate for each question and include additional notes	**No**	**Yes**
Does the young person need significant coaching in order to complete tasks e.g. making beans on toast or washing laundry? If **Yes** please provide details below:	☐	☐
Can the young person only maintain their daily routine (e.g. washing/getting to school or work) with imposed structure or prompting? If **Yes** please provide details below:	☐	☐
Does the young person have problems attending to personal hygiene independently? If **Yes** please provide details below:	☐	☐
Is the young person excessively vulnerable within their peer group? If **Yes** please provide details below:	☐	☐
Are there any accompanying records that indicate that the young person has an IQ<70 (learning disability) or learning needs (generalised or specific)?	☐	☐

Surname: Forenames:
DOB: NHS Number:

INFORMATION FROM THE YOUNG PERSON Tick **No** or **Yes** as appropriate for each question and include additional notes	**No**	**Yes**
Have you struggled with schoolwork? If **Yes** please provide details below: (clarify whether in primary, secondary school or both)	☐	☐
Did you have any additional support in lessons? If **Yes** please provide details below:	☐	☐
Has anyone told you that you have a learning disability or learning needs? If **Yes** please provide details below:	☐	☐
Do you struggle with reading or writing? (show them a story in a magazine and discuss it with them) If **Yes** please provide details below:	☐	☐
Do you struggle telling the time? (check using non digital clock) If **Yes** please provide details below:	☐	☐

Surname: Forenames:
DOB: NHS Number:

ADDITIONAL INFORMATION Tick **No** or **Yes** as appropriate for each question and include additional notes	**No**	**Yes**
Does the young person have difficulties following the conversation? If **Yes** please provide details below:	☐	☐
Did you have to rephrase the questions to clarify? (always check whether the young person has understood the information - use your observational skills) If **Yes** please provide details below:	☐	☐
Does the young person have difficulties expressing themselves? (use your observational skills) If **Yes** please provide details below:	☐	☐
Information Confirm information with parent/carer or other professional (provide details below)		
Is there a need in this area? **If YES include need for further assessment**	☐	☐

ACTION FOR CARE PLAN

Appendix N

Participant Debriefing Letter

Debriefing Letter

Thank you for partaking in the study titled: The prevalence of traumatic brain injury and an investigation of behavioural, emotional and executive functioning in a sample of male young offenders. Your participation and answers to questionnaires and interviews are appreciated.

Should you have any worries or concerns regarding your participation in this study or feel anxious or unsettled in relation to your participation, you may contact the researchers or their supervisor involved in this study: Dr. Leigh Schrieff-Elson (leigh.schrieff-elson@uct.ac.za; Tel: 021 650 3708); Researcher: Nina Steenkamp (ninasteenkamp1@gmail.com).

This current study is being conducted at UCT by a Psychology Masters and 5 Honours students. This study aims to investigate the prevalence of traumatic brain injury among young offenders as compared to non-offenders in the Western Cape; and to investigate their emotional outcomes, behavioural outcomes, and executive functioning (e.g., thinking, planning and flexibility). Thus, the information gathered from this research will enable greater understanding of offending behaviour of young offenders with TBI in a South African context, and can play a role in informing interventions which aim to prevent offending from occurring in the first place