The integrated theory of sexual offending from Ward and Beech (2006) is an example of a framework that could incorporate neuropsychological variables into offending behaviour.


Hughes, N., Williams, W.H., Chitsabesyan, P. et al. (2015). The prevalence of traumatic brain injury among young incarcerated populations (Williams et al., 2015). Research across different cultures and age groups has shown a link between brain injury and offending, with longitudinal studies identifying early life brain injury as a risk factor in offending during later life (Hughes et al., 2015; Leon-Carrion & Ramos, 2003).

Yet with our present state of knowledge we are far from establishing a causal link between brain injury and offending behaviour. At best our current understanding allows us to identify some risk factors for offending behaviour present in individuals living with brain injury. One such factor is cognitive impairment – in the form of impaired executive function, learning, working memory and communication (Cohen et al., 1999; Wood & Liossi, 2006). Another factor is the loss of inhibition and self-regulation arising out of damage to the orbitofrontal and ventromedial areas of the frontal lobes – resulting in impulsivity, lack of interpersonal sensitivity and impulsive reactive aggression (Blair 2001; Blair & Cipolotti, 2000; Brower & Price, 2001; Fuster, 1999). There is also a view that this loss of executive control arising from damage to the anterior brain results in loss of a natural bias away from aggression and towards more appropriate alternative responses (Bertozzi et al., 2002; Blair, 2001). More complex models looking at social competence and social information processing impairments (see Yeates et al., 2007) have been put forward to provide a framework to explore the relationship between aggression and brain injury (Ryan et al., 2015).

**A deficit focus**

I would argue that our view of the brain injury/offending behaviour relationship is far too narrow. This relationship is generally seen as arising out of a ‘deficit or impairment’, either in cognitive abilities, impulsivity controlling behaviour regulation, stimulus response reversal learning, and in affective-empathetic responsivity. The search for that


Meet the author

As a clinical neuropsychologist working in a forensic setting, I am often called on to prepare reports for the courts on criminal matters involving offenders with brain injury. I am struck by how many of my colleagues in the field of neuropsychology, clinical psychology and psychiatry fail to integrate the evidence from neuropsychology and forensic psychology when expressing opinions about the brain-injured offender. As a consequence the offender’s neuropsychological factors are at times overemphasised at the expense of other factors that underpin their offending behaviour. I believe this chasm reflects the lack of convergence in the neuropsychology and forensic psychology literature in the case of brain injured offenders. The need to integrate the two fields is even greater when working clinically with the brain-injured offender.

I would like this article to stimulate more joined-up working between the academic and clinical fields of neuropsychology and forensic psychology. I would like to see more scientific publications and conferences that pull together the psychology of offending behaviour and neuropsychology to advance the field of forensic neuropsychology so that we have a better understanding of risk, offending behaviour and treatment of the offender with brain injury.

Ryan Aguiar is a Consultant Clinical Neuropsychologist and Head of High Secure Psychological Services at Ashworth Hospital, Parkbourn

Ryan.Aguiar@merseycare.nhs.uk

Charles consulted wrote ‘…oozing with hostility…something seemed to be happening to him and that he didn’t seem to be himself’. Dr Heatley, the psychiatrist Charles Whitman consulted, further noted: ‘He readily admits having overwhelming periods of hostility with very minimum provocation. ’ There is little doubt that the astrocytoma impinging on the amygdala was

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significant in these rage attacks. The link between the two is well established (Blair, 2007; Blair, 2010; Pardini et al., 2014). However, was rage alone sufficient to result in the systematically planned violence, first on members of his own family and then random members of the public?

Working from the framework above, one can incorporate a number of factors in his background into a formulation of Charles Whitman’s violence that August day. His life was certainly not an ordinary one: from witnessing severe domestic violence between his parents from a young age, to being subjected to physical and emotional abuse from his authoritarian father and then being financially dependent on him, to having had exposure to guns from a young age and abusing amphetamines and prescribed dextroamphetamine, to being expelled from the Marines, an identity he so cherished. Against this developmental backdrop, in the months leading to his killings, Charles was under quite a lot of stress from the difficult break up of his parents’ marriage, his persistent headaches and bouts of rage (possibly related to the astrocytoma). Charles knew something was wrong with him. He wrote in his suicide note about ‘being a victim of many unusual and irrational thoughts’. He also wrote that he wanted an autopsy to be conducted upon himself if he were to survive the shooting. What is clear is that there is also little doubt that he was suffering. Had he not had the astrocytoma and the accompanying episodes of rage and headaches, would things have turned out differently? This is not to absolve Whitman of responsibility for his actions on that day. However I do believe that in the present day, his defence team would have a strong case to present evidence in mitigation based on what we now know about the relationship between the amygdala and emotional function.

As for Whitman’s sentence, there would be a compelling case for his detention in a secure psychiatric hospital rather than prison. A hospital order would allow for treatment of the tumour and a thorough evaluation of its impact on his behaviour post-treatment, his risk and ultimately the effect it would have on protecting the public. Further his detention in hospital would allow for a full evaluation of the various factors that came together to result in his actions on that fateful day, including the relationship between the neuropsychology of his tumour and the volitional and executive control (Krober, 2009) he might have exerted over his actions. It is here that an integrated model would have maximum impact.

Irrespective of the putative role of neuropsychological factors in criminal offences, psychological intervention must still address the coping and problem-solving skills of the offender, their attitudes to the offence and to violence, build their emotion regulation skills, and increase their understanding of any underlying mental illness. This is an essential part of the forensic risk-reduction intervention. The neuropsychological impairment of offenders with brain injury adds an extra layer of complexity to these cases, which simply cannot be met within the prison service. This is a role for clinical neuropsychologists within specialist secure psychiatric hospitals. Clinical neuropsychology must step assertively into the field of forensic mental health care and claim its rightful expertise in the assessment and management of offenders with brain injury.

Ultimately as psychologists, in cases such as this, we are faced simultaneously with ‘an offender’ ‘the legacy of brain injury’ and ‘risk’. At the heart of all three is an offence or a potential offence, and the need for public protection. If we do not have the appropriate psychological models to address all three, we will find ourselves falling short in our ability to meet the needs of these complex cases.