Traumatic brain injury (TBI) is a potential risk factor for mental health issues and criminal behavior. TBI’s are particularly concerning when considering that it is a leading cause of disability in children and adults (Sung, 2010; Williams, Cordan, Mewse, Tonks, & Burgess, 2010a; Williams, Mewse, Tonks, Mills, Burgess, & Cordan, 2010b). Research on TBI’s identifies a connection with criminal behavior, which includes: antisocial thinking, associating with an antisocial peer group, poor self-control, impulsivity, a focus on immediate gratification, and poor problem solving (Langevin & Curnoe, 2011; Ross & Hoaken, 2010; Sung, 2010). For individuals affected by TBI, especially those in forensic settings such as residential sex offending programs, it is necessary to assess cognitive functioning and consider the individual’s strengths and limitations, while providing treatment to reduce their risk for offending (Young, Justice, & Edberg, 2010).

TBI and Sexual Offending

Criminal and forensic populations often present with an elevated prevalence of brain dysfunction, sometimes due to TBI. Resulting impairment in functioning is multifaceted involving areas of cognition, mood, and behavior. Impairment of executive abilities is particularly problematic when it results in difficulty initiating and/or sustaining meaningful activity, impaired organizational and problem solving abilities, and diminished capacity to develop and carry out well-formulated plans (Lezak, Howieson, Bigler, Tranel, 2012). Currently, one area of exploration regarding TBI, particularly on executive functioning, involves sexual behavior. Executive functioning encompasses higher-level cognitive abilities in humans, usually attributed to the frontal lobes. Frontal lobe functions include: thinking and reasoning, problem solving, impulse control, self-monitoring of actions, anticipating consequences of actions, ability to modify or change actions based on feedback or information from the environment, and the capacity to generalize learning and experience from one situation to another (Young et al., 2010).

Social and sexual behaviors rely on highly flexible executive responses that are dependent on contextual cues and are susceptible to disruption by injury to frontal lobe regions (Kolb & Wishaw, 2009). While some of these deficits may appear to present paradoxical effects, they are better understood by examining their origins within smaller regions of the brain’s frontal lobe.
Damage, like lesions to dorsolateral prefrontal regions, have been found to result in decreased initiation and drive, thus a decrease in sexual interest and behavior. In contrast, damage to orbitofrontal regions has been associated with decreased inhibitions that may result in abnormal sexual behaviors such as public masturbation (Kolb & Wishaw, 2009).

Personality changes are often noted by those close to the individual and are often the result of behavioral dysfunction associated with frontal lobe. One type of personality change is sometimes referred to as pseudodepression and is demonstrated when individuals exhibit symptoms of apathy, indifference, loss of initiative, and limited verbal and/or emotional expression. A significant social and behavioral dysfunction noted in individuals with pseudodepression is reduced sexual interest. Although a decrease in sexual interest may be experienced with those experiencing pseudodepression, frontal lobe dysfunction can also result in immature behavior, lack of tact and social restraint, use of coarse language, increased motor activity, and an inability to self-monitor, as well as self-manage social interactions. This is often referred to as pseudopsychopathy. Individuals with pseudopsychopathy have been found at times to display increased and promiscuous sexual behavior (Kolb & Wishaw, 2009). Damage to the temporal lobes, in addition to the frontal lobes, can also lead to aberrant sexual behavior in which the amygdala and inferior temporal cortex are damaged bilaterally. These individuals may display behavioral changes that include increased autoerotic and sexual activity known as Klüver-Bucy syndrome (Kolb & Wishaw, 2009). The constellation of cognitive problems in sexual offending individuals has been associated with violence, aggression, decreased inhibition, poor pro-social behaviors, and apathy, as well as poor motivation. As such, cognitive problems in sexual offending are considered a chronic health concern (Fabian, 2010; Konard et al., 2010; Rist, Blumenroth, Fischer, Husstedt, Arolt, Schiffbauer, & Lohmann, 2010; Ross & Hoaken, 2010; Sung, 2010; Williams et al., 2010a; Williams et al., 2010b).

Although general prison populations and sex offenders in prison have been studied, few studies have focused primarily on characterizing sex offenders receiving psychiatric treatment in prisons, who could be evaluated as potentially violent sexual predators, using empirical psychometric measures. Using computed tomography (CT) scans, assessing blood flow, and neuropsychological testing, identified that 50% of sexual offenders studied showed brain dysfunction (Young et al., 2010). Sexual offenders demonstrated significantly greater impairment in neuropsychological measures of overall brain function when compared to nonsexual offenders. These impairments that primarily impacted the frontal and temporal regions of the brain, support the conclusion that a significant relationship exists between brain impairment and sexual offending (Young et al., 2010).

Moreover, although learning disorders have been found to be strong predictors of sexual recidivism, a history of being rendered unconscious has also been observed to be a predicator of recidivism (Langevin & Curnoe, 2011). Sexual offending behaviors have been linked in some studies to poor self-regulation (Stinson, Robbins, & Crow, 2011) and a TBI can compromise an individual’s ability to manage emotions and control impulses (Fabian, 2010; Konard et al., 2010; Langevin & Curnoe, 2011; Ross & Hoaken, 2010; Stinson et al., 2011; Sung, 2010; Williams et al., 2010a; Williams et al., 2010b). While these associations have been well established, research has not yet explained the nature of this relationship in determining whether a TBI in earlier life is the cause of increased risk of offending, or whether it is a marker for other factors associated with criminal behavior (Williams et al., 2010a). While learning disorders in school were not
found to be unique to sex offenders, learning disorders were common and believed to reflect etiological factors that correlate with the development of sexual disorders or disinhibition seen in the later adult commission of crimes (Ponsetti, Vaih-Koch, & Bosinski, 2001). Another sign of the association of cerebral dysfunction in individuals with sexual offending behavior is the finding that ADHD is over-represented in the criminal population. There is a possible connection between ADHD and impulsivity, as well as disinhibited behavior that contributes significantly to criminal behavior (Ponsetti et al., 2001; Vaih-Koch, Ponsetti, & Bosinski, 2001).

Despite research that identified a high prevalence of TBI in juvenile and adult offender populations, including sex offenders, addressing and managing the impact and prevalence of TBI has been generally neglected (William et al., 2010a). Screening for TBI’s has been identified as a key in the treatment of individuals in psychiatric treatment for sexual offending (Williams et al., 2010a). Screening for TBI’s can increase the effectiveness of treatment, by developing an improved understanding of the history of TBI and its impact on the individual; providing guidance in the use of individual coping strategies; developing environmental accommodations and supports; and specifically tailoring teaching techniques to the person’s preferred learning style. Treatment strategies, based on a thorough understanding of the impacts of the TBI, are likely to be more effective (Young, et al., 2010).

It has been recommended that prisons include thorough TBI assessments in health screenings and evaluations (Williams et al., 2010a). While neuropsychological evaluation is ideal, it relies on extensive and specialized testing that can be difficult and time consuming. A contextual interview that explores all areas of the educational process (i.e. school dropouts, grade failures, placement in special education classes, developmental conditions) could also prove beneficial in developing effective treatment strategies for the offender with sexual offending behaviors. The information provided in this type of interview has been found to be invaluable in the appraisal of sex offender attitude toward school, which may also shed light into attitudes toward learning and implications toward therapy completion and success (Langevin & Curnoe, 2007). When considering the return of the TBI-impacted offender into the community, community support structures, including mental health services, should be included in release plans. Service providers should be specifically trained on the complexities of TBI (Langevin & Curnoe, 2011; Young et al., 2010).

**Conclusion**

In summary, TBI’s have been directly correlated to criminal behavior and criminal attitudes, as well as increased risk of recidivism, including sexual offending. TBI’s have long been known to compromise the ability to manage emotions, control impulses, and engage in effective problem solving in some individuals. Given the disproportionately high prevalence of TBI in the correctional population and association with violence, aggression, and sexual offending tendencies, it is important to understand the potential impact as it relates to each unique individual. If one considers the Risk, Needs, and Responsivity Principle (RNR), TBI is considered a “need,” thus treatment strategies should address this area. Treatment programs working with sexual abusers that adhered to the RNR principles resulted in the largest reductions in both sexual and general recidivism (Hanson, Bourgon, Helmus, & Hodgson, 2009). In general, the RNR (Andrews & Bonita, 2010) suggests that those with the greatest risk of offending should be treated with more intensive treatment strategies, and those with lower risks
of offending should be treated with less intensive strategies. The need portion of this principle considers that the most effective treatment interventions will target the offender’s needs, like TBI (Thorton & D’Orazio, 2013; McQuire, 2013). Finally, the responsivity portion of the RNR principle acknowledges that treatment interventions are most effective when presented in a manner that considers the offender’s learning styles, cognitive limitations, cultural perspectives, and personal situations. In other words, responsivity considers how to ensure effective delivery of treatment in a manner best able to develop a connection with the offender (Hollin, Palmer, & Hatcher, 2013; Marshall, Marshall, Serran, & O’Brien, 2013). As such, a TBI should be addressed in treatment programs, especially treatment-focused environments like sex offender treatment. Furthermore, it would be beneficial to include TBI-specific interventions strategies with any discharge plans and/or community reintegration strategies.

About the Authors:

Sarah Herrick, MA, LP, LPCC, CCFC, has worked with sexual abusers ranging in age from ten to elderly since 1991, in residential, community mental health, and prisons settings. Currently, she is working with civilly committed sex offenders.

Jerrod Brown, MA, MS, MS, MS, is the treatment director for Pathways Counseling Center, Inc. Jerrod is also the founder and CEO of the American Institute for the Advancement of Forensic Studies (AIAFS).

Erwin Concepcion, Ph.D. LP, is a clinical neuropsychology consultant for the Minnesota Brain Injury Alliance and Director of Psychology with the Minnesota Department of Human Services.

References


