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Traumatic Brain Injury and Confabulation: An Introduction for Criminal Justice and Legal Professionals

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Abstract

Traumatic brain injury is a common disorder caused by an outside force impacting or penetrating the head that can result in mild to severe brain dysfunction. A possible resulting symptom of such an injury is confabulation. This unintentional display of dishonesty can jeopardize legal situations requiring truthful compliance and accurate recollection. The following article aims to elucidate the connection between traumatic brain injury and confabulation and the implications for the criminal justice and legal systems.

Keywords: Traumatic-brain injury, confabulation, criminal justice, legal

Traumatic brain injury (TBI) occurs when an external force impacts or penetrates the skull and brain, resulting in cognitive, perceptual, and subsequent behavioral deficits (Santopietro, Yeomans, Niemeier, White, & Coughlin, 2015; Taylor et al., 2015; Thurman, 2016). Traumatic brain injury has been referred to as the "silent epidemic," as society is largely unaware of the high incidence rate and resulting neurocognitive deficits that accompany the disturbance (Langlois & Sattin, 2005). In the United States, approximately 5.3 million people (2% of the population) live with a TBI-related disability, and each year nearly 1.7 million people sustain a TBI (Faul, Xu, Wald, & Coronando, 2010). Traumatic brain injury caused by blunt or penetrating forces to the skull and brain can result in a host of varied and potentially permanent negative side effects, depending on where the damage occurs (Andrew, Stocchetti, & Bullock, 2008; Menon, Schwab, Wright, & Maas, 2010; Zhang, Yang, & King, 2004). These injuries have the potential to impair higher order functions and impact various executive functioning skills, including the ability to plan, organize, remember, multitask, assess behavioral risk, and connect consequences to actions (Ghajar, 2000; Miyake et al., 2000; Schretlen & Shapiro, 2003).

Those interacting with the impacted individual may have difficulty detecting the TBI. Sometimes a diagnosis is missed due to the mild or altogether absent, manifestation of symptoms after the brain trauma has occurred (Bazarian et al., 2005; Head, 1993; National Center for Injury Prevention and Control, 2003; Schnider, 2008). These brain traumas sometimes co-occur with confabulation, which is the recall of inaccurate information believed by the individual to be true (Demery, Hanlon, & Bauer, 2001; Kraepelin, 1910; Piolino et al., 2007; Sahler & Greenwald, 2012; Ward, Shum, Wallace, & Boon, 2002). Confabulation is characterized by the unintentionally inaccurate retrieval and recollection of information, and can be the product of various psychological and neurological causes, including TBI (Berlyne, 1972; Demery, Hanlon, & Bauer, 2001; Moscovitch & Melo, 1997; Pillai & Bonner-Jackson, 2013; Rensen et al., 2015; Schnider, von Däninnen, & Gutbrod, 1996; Shanks, McGeown, Guerrini, & Venneri, 2014; Shapiro, Alexander, Gardner, & Mercer, 1981; Stuss, Alexander, Lieberman, & Levine, 1978; Weinstein, 1996). Confabulation may impact the diagnosis of TBI (Schnider, 2008). Additionally, this misremembering can have adverse effects on a number of situations, particularly those imperative to court procedures, such as truthful compliance and accurate recollection (Gudjonsson & Clare, 1995; Hanba & Zaragoza, 2007; Zaragoza, Payment, Ackil, Drivdahl, & Beck, 2001).

Individuals who engage in criminal behavior, including those with a history of violent misconduct or experiences with violence are at risk for traumatic brain injury (Graves et al., 2015). Estimates of the prevalence of TBI in prison populations is between 48% and 72%, which is significantly higher than the prevalence of the general population (Ferguson, Pickelsimer, Corrigan, Bogner, & Wald, 2012; Shiroma, Ferguson, & Pickelsimer, 2012). Criminal justice and legal professionals should be aware of the possible presence and effects of TBI within correctional settings.

Confabulation often occurs in those with intact language abilities, and consequently can be difficult to detect. A confabulating individual may appear to be accurately remembering information and events, given the degree of confidence and the plausibility of personal memories; however, these accounts may be based on distorted or completely false information (Kerns, 1986; Klein & Kral, 1933). This ultimately makes

it difficult for others (e.g., interviewers, legal professionals, probation officers, police officers, family members, or acquaintances) to recognize the problem, as many who confabulate have the ability to tell elaborate and detailed stories that seem realistic (Campbell & Porter, 2002; Gudjonsson & Clare, 1995; Guerri, Bazinet, & Riley, 2009).

The most challenging aspect of confabulation is that the individual may accurately recollect some information from a true memory, yet unintentionally generate false information to "fill in the gaps" of the story (Brown et al., 2015; Pick, 1905). As this alteration of information is not intentional, the phenomenon of confabulation has been referred to in the literature as "honest lying" (Moscovitch, 1989). One can easily see how this type of misinformation would be immune to traditional methods of lie detection (Simpson, 2008). Family and friends can have difficulty understanding confabulation and could perceive an individual's stories or lies to be a conscious effort to misrepresent the truth. It is challenging for some to grasp that true confabulation requires the individual to believe they are communicating accurate information rather than actively lying. As a result, professionals must become well versed with confabulation and its effects, to better identify and assist those affected by this memory phenomenon.

Professional Considerations

Confabulation is particularly challenging due to the individual's lack of awareness regarding false accounts (Anastasi, 2006; Moscovitch, 1995; Turner, Cipolotti, Yousry, & Shallice, 2008). Even non-impaired individuals engage in the practice of filling in memory gaps, which further exacerbates the difficulty in detecting confabulation (Gilboa & Verfaellie, 2010). To varying degrees, most individuals do not recall all aspects of their interactions with the world (Schacter, 2001), which likely accounts for the occurrence of confabulation in non-clinical populations. For example, one may recall being at home and brewing a cup of coffee and then drinking it, but they may not be able to recollect pouring the coffee into a cup. It would be logical for an individual to presume and even assert that they had been personally responsible for pouring the cup of coffee, even if this task had been done by someone else. Aside from misremembering mundane events, confabulation among those with TBI may increase in frequency and/or involve more unrealistic memories (Flament, 1957). These can include neologisms, which is creating new words for which only the confabulating individual knows the meaning (Hills & Caramazza, 1991), and in rare cases, Fregoli delusions or the misidentification of other people (Feinberg, Eaton, Roane, & Giacino, 1999).

While most individuals who confabulate will misremember facts or events, there are often pieces of information that remain true (Berlyne, 1972). However, an uninformed person may believe the information being recalled to be perfectly logical and factually accurate (Porter & Baker, 2015). Furthermore, confabulating individuals run the risk of having false memories implanted through suggestive questioning or prompting (Berlyne, 1972; Gudjonsson & Clare, 1995; Kessels, Kortrijk, Wester, & Nys, 2008). When confabulating individuals are presented with misleading informationor leading questions during interrogation processes, the risk of implanting false memories is heightened (Gudjonsson & Clare, 1995; Laney & Takarangi, 2013; Ofshe & Leo, 1997). Because these memories may seem real to the individual, it may be difficult to redirect

them in a conversation. Explaining how this seemingly true information is actually inaccurate can be difficult, and may cause a great deal of anxiety for all parties involved.

For individuals who have experienced a TBI, it is important to provide a strong support system that eases the adjustment to the dysfunctions. Given the potentially debilitating effects of TBI, caregivers can play an important role in the lives of individuals with a brain injury (Ergh, Rapport, Coleman, & Hanks, 2002; Manskow et al., 2015). In the instance of confabulation, it is important to have a support system in place to better ensure that important (e.g., health-related) information is accurately communicated. Personal, medical, financial, and other sensitive information should be verified for accuracy and reliability. Fact-checking information provided by individuals with severe TBI, and collaborating with caregivers can minimize errors when making changes to medical care or prescriptions. Those working with individuals with brain injuries must be understanding and supportive to ensure a healthy and safe working environment (Sample & Darragh, 1998; Simpson et al., 2014).

The types of professionals and amount of support needed for an individual with a TBI should be based on the severity of the injury. It should be noted that pathological confabulation (i.e., confabulation resulting from conscious damage to the brain) has often been linked to conspicuous damage to the ventromedial prefrontal cortex (Moscovitch, 1989; Turner et al., 2008), an area frequently lesioned by forceful impacts to the head. However, not all TBIs are this severe; mild TBIs involve a temporary loss of consciousness without explicit brain lesions, but still involve some declines in cognitive function (Brooks et al., 1999). Similarly, confabulation also exists on a continuum ranging from *spontaneous* to *provoked* confabulation. *Spontaneous confabulation* can be described as an unprovoked outpouring of false ideas, while *provoked confabulation* refers to instances where questions elicit false memories (Kopelman, 1987). It remains an open question for researchers as to how and in what circumstances the differing types of TBI result in differing confabulations such as spontaneous and provoked.

When discussing errors in recollected information with someone who has suffered a brain injury, it is important to be respectful of the inability to report information accurately. Professionals such as speech-language pathologists, psychologists, neuropsychologists, neurologists, and other healthcare professionals can be instrumental in helping the individual understand that misremembering is not intentional.

Implications for Forensic Systems

The debilitating effects of a TBI and confabulation have adverse consequences not only for the individual, but also for the criminal justice system in that they provide unique challenges concerning both the commission of a crime and the procedures associated with the legal process. Functional deficits related to brain injury can lead to an increased susceptibility to criminal involvement, and some brain-damaged individuals often have little awareness of this vulnerability (Sarapata, Herrmann, Johnson, & Aycock, 1998). Furthermore, given the obscure nature of confabulation and its symptoms, the integrity of judicial proceedings can become compromised without any professionals detecting the disturbance. Testimonies, interrogations, and legal rights/waivers can all be negatively impacted by TBI and confabulation. The remainder of this article explores each of these various implications.

Confabulation and Courtroom/Eyewitness Testimony

As previously noted, individuals who have experienced a TBI have a significant risk for developing cognitive and memory impairments, including an increased likelihood of confabulation (Demery, Hanlon, & Bauer, 2001; Pillai & Bonner-Jackson, 2013; Rensen et al., 2015; Shanks, McGeown, Guerrini, & Venneri, 2014). This becomes an important factor when individuals with a TBI are asked to testify or recall crucial legal information. Individuals being asked to recall details of an event may or may not be able to accurately recall important information, negatively affecting the outcome of court decisions. Memory deficiencies may occur as a result of the physical trauma to the brain (simply not remembering the event in question), as well as a greater likelihood that they may confabulate (giving false information that they believe to be true). In addition, human memory is generally influenced and modified on a continual basis. The literature on memory recall reveals that memories are often reconstructed based on suggestions, incoming information, and additional knowledge about the self (Kessels, 2003; Schacter, 2001; Schwarz & Sudman, 2012; Tourangeau, 1999). For example, the memory of witnessing a car accident might be influenced by a suggestion from an officer that the car was speeding, recent news coverage of the high rates of distracted drivers, or the belief that your reaction indicates how serious the situation must have been. As noted by Porter, Campbell, Birt, and Woodworth (2003), it is very difficult to assess the accuracy of memories because of such factors.

If others are present for an incident, the ability to corroborate events can be useful. However, it is important to focus on the salient aspects of an event rather than the peripheral details. Research has shown that peripheral details are more difficult to remember, and may not help when attempting to assess the accuracy of a report (Porter, Campbell, Birt, & Woodworth, 2003). This could be seen while recalling details of a car accident. The eyewitness may be more likely to accurately recall the number of people in the car but not the conditions of the road.

Another contributing factor to the level of memory recall is confidence. In general, there is a very poor correlation between memory accuracy and confidence (Busey, Tunnicliff, Loftus, & Loftus, 2000). Indeed, even in cases of no brain trauma, people tend to be prone to false memories in the right circumstances (Loftus & Pickrell, 1995). However, jurors and members of the justice system are likely to believe that the more confidence a witness has in a memory, the more likely that memory is to be accurate. Confabulation challenges that assumption.

Strategies for reducing inaccurate recall. Porter et al. (2003) provided the following guidelines for reducing the risk of inaccurate memories: **(1)** suggestive questioning is more likely to lead to false memories; spontaneous memories recalled without any secondary gain are more likely to be accurate, so it is helpful to find out under what circumstances was the information given; **(2)** peripheral details often become distorted with time, but central details tend to be more accurate, especially if they were meaningful and emotional; **(3)** some individuals, especially those with neurological impairment or brain injuries such as TBI are more susceptible to false memories than others; **(4)** those conducting the questioning should strive to seek corroboration from others.

TBI and understanding legal rights. Traumatic brain injury can lead to consequences including physical, cognitive, and social deficits; the more severe or frequent the physical trauma to the brain, the more likely these problems are to surface (Kushner, 1998). Regarding forensic implications, cognitive deficits that occur in response to TBIs include difficulties with concentration, attention, memory, information processing, and executive functioning (Kushner, 1998). Spikman, Timmerman, Milders, Veenstra, and van der Naalt (2012) noted the most frequent cognitive consequences of TBI include slower information processing speed, deficits in attention and memory and impairments in executive functioning. However, they added that social cognition could also be compromised in individuals with TBIs. Social cognition problems manifest in a diminished ability to understand others, demonstrate empathy, and recognize emotional expressions. When individuals with TBIs come to the attention of the criminal justice and legal systems, these social-cognition problems may present an added difficulty in understanding legal rights, the consequences of their actions, or what is being asked of them. Difficulty paying attention, increased time needed to process information, and trouble connecting events to consequences are all factors which complicate involvement in the legal system for those with a TBI.

TBI and Interrogation

In addition to the previously discussed deficits that occur with TBIs, another area of concern for those in the legal system is interrogation. Individuals with TBIs may have trouble understanding what a question is asking. Additional time may be needed to think about how to respond due to slowed information processing speed. It may be more useful to ask shorter questions that are presented more slowly with ample time to respond and provide frequent breaks or opportunities for the individual to get up and move around. Deficits in memory, as well as difficulties in reading the expressions of others may prevent the individual with TBI from giving an accurate response. Individuals with TBIs may not recognize when the interviewer is getting angry or frustrated.

Conclusion

Confabulation is the unintentional misremembering of information and can be the direct result of or exacerbated by a TBI. In some instances, confabulated information can be partially true, but misplaced in time (e.g., believing something took place yesterday when in fact the event occurred over ten years ago). In other cases, confabulated statements may present as bizarre, disorganized, unbelievable, or fantastical accounts of events that are factually incorrect. Compounded with the individual's genuine lack of self-awareness regarding this deficit, confabulation is a phenomenon that can detract from the credibility of the individual and the integrity of certain processes and proceedings where honest, and accurate information is needed. Closer examination of this disturbance is needed by criminal justice and legal professionals to better understand its development and how its effects can be addressed.

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