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Traumatic Brain Injury (TBI) and Theory of Mind (TOM) Deficits: A Review for Caregivers and Professionals

Jerrod Brown, Ph.D.

Approximately 2.8 million Americans suffer a traumatic brain injury (TBI) every year (Taylor, Bell, Breiding, & Xu, 2017). Common causes of TBIs include vehicular accidents, sports collisions (e.g., football and rugby), physical assault (e.g., domestic violence and robbery), and slip and falls in inclement weather. Regardless of the cause, TBIs can be defined as a head wound that seriously alters brain function. The consequences of TBIs can be short-term, like a concussion, or life-changing, such as a permanent disability or death (Biederman et al., 2015; Corps, Roth, & McGavern, 2015). When present, structural brain damage (e.g., lesions, vessels, or tissue damage) is usually concentrated in the frontal and temporal regions of the brain (Griffin, 2011; Tasker et al., 2005).

Symptoms of TBIs can result in a wide range of consequences. First, common cognitive impairments observed include diminished executive function, information processing speed, attentional control, and short- and long-term memory. Second, several psychological changes may be observed in emotions, personality (e.g., anger), and psychopathology (e.g., depression and anxiety). Third, abrupt changes in behavior can occur, including increases in impulsive and aggressive actions. Fourth, social functioning can be typified by verbal and non-verbal communication struggles and difficulty interacting with others (Genova, Haight, Natsheh, DeLuca, & Lengenfelder, 2019; Lavoie et al., 2017; Rakers et al., 2017).

Consistent with these impairments in social functioning, TBIs may also have a negative influence on theory of mind (ToM; Geraci, Surian, Ferraro, & Cantagallo, 2010; Milders, Ietswaart, Crawford, & Currie, 2006; Spikman, Timmerman, Milders, Veenstra, & van der Naalt, 2012; Turkstra, Norman, Mutlu, & Duff, 2018). Forming the basis of social cognitive competence (Caillies & Le Sourn-Bissaoui, 2008), ToM is an essential element of social and emotional development (Hatkevich, Venta, & Sharp, 2019; Mukerji, Lincoln, Dodell-Feder, Nelson, & Hooker, 2019) that is sometimes referred to as “perspective-taking” or “meta-cognition.” ToM is a nuanced construct defined as the capacity to recognize and understand the mental states (i.e., perceptions, feelings, and desires) of one’s self and others (Bosco, Gabbatore, Angeleri, Zettin, & Parola, 2018; Premack & Woodruff, 1978) and, in turn, use this information to predict future actions and reactions (Balaban, Biran, & Sacher, 2019; Martín-Rodríguez & León-Carrión, 2010). There are cognitive (i.e., identifying and comprehending thoughts), affective (i.e., recognizing and understanding emotions and moods), and conative (i.e., altering the thoughts and feelings of others via communication) subtypes of ToM. ToM typically develops intensely

from the ages of 2 to 6 and is widely considered a developmental milestone (Fink, Begeer, Peterson, Slaughter, & de Rosnay, 2015).

Like TBIs, deficits in ToM have been linked to several social and communication issues. For example, individuals with ToM deficits often struggle with social norms, including the recognition of social cues and the use of inappropriate non-verbal gestures (Rowe, Bullock, Polkey, & Morris, 2001). Further, individuals with ToM deficits also demonstrate egocentricity, a lack of restraint, and sometimes indifference to the thoughts and feelings of others (Rowe, Bullock, Polkey, & Morris, 2001). Other difficulties include struggling to understand different forms of non-literal speech like jokes, sarcasm, and irony (Channon & Crawford, 2000).

Such deficits in social and communication skills can complicate the processes of screening, assessment, treatment, and case management. Beginning with screening and assessment, professionals must contend with the potential that clients with TBIs and ToM deficits may provide inaccurate information or omit important details. This can be explained in part by predispositions to memory deficits, suggestibility, and confabulation (Bajo, Fleminger, Metcalfe, & Kopelman, 2017; Brown et al., 2016; Demery, Hanlon, & Bauer, 2001; Johnson, 1991; Larson & Perlstein, 2009; Mathias & Mansfield, 2005; Williams, Wszalek, & Turkstra, 2015). Further, professionals must be skeptical of the client's diagnostic history, as TBIs and ToM deficits frequently go misidentified or unidentified. Overcoming these issues will require labor-intensive efforts on the part of the professional such as eliciting information from collateral sources (e.g., family members and friends) and official file information to ensure an accurate diagnosis.

The presence of misdiagnosis or missed diagnoses undermines any therapeutic efforts. Specifically, the failure to account for TBIs and/or ToM deficits can dramatically decrease the efficacy of any treatment or intervention. As such, professionals should focus their efforts on providing services that are both evidence-based and tailored to the client's personal needs. Professionals should also adjust the behavioral expectations of the client during sessions based on their strengths and weaknesses. Clients with TBIs and ToM deficits may struggle with inattentiveness, forgetfulness, and communication difficulties, all of which should not be misinterpreted as an unwillingness to participate in treatment.

This article highlights the devastating consequences of TBIs and ToM deficits on the individual as well as the complications presented by these conditions in clinical settings. To help ameliorate the current situation, we recommend four crucial steps. First, professionals are encouraged to become more knowledgeable about TBIs and ToM deficits. This includes regularly reading recent peer-reviewed research articles and attending advanced education and training opportunities in these areas. Second, screening for TBIs and ToM deficits should be a fundamental component of any assessment battery, and this information should be accounted for in the provision of any treatments or interventions. Third, professionals should not hesitate to consult with experts in the areas of TBIs or ToM deficits when uncertain how to proceed in the assessment or treatment of a specific client. Fourth, professionals should make it a point of emphasis to help inform the client's family and support system about TBIs and ToM deficits.

Together, these steps can help improve the short- and long-term outcomes of clients with TBIs and ToM deficits.

KEY TAKEAWAYS

This article presents several important points about TBI and ToM deficits that caregivers and professionals need to know. Below are some of the key tips and takeaways from the article:

- TBI can cause a host of cognitive, social, and adaptive impairments.
- TBI cognitive impairments can impact executive functioning, attentional control, affective regulation, and memory.
- TBI social impairments can include verbal and non-verbal abilities, recognition of social cues, and interpersonal skills.
- TBI adaptive impairments may be observed in learning disabilities, decision-making, and understanding the consequences of actions.
- Theory of mind is the capacity to recognize and comprehend the mental states (i.e., thoughts, feelings, and desires) of one's self and others.
- Theory of mind is essential in predicting the future actions and reactions of people.
- Theory of mind typically emerges during early childhood between the ages of 2 and 6 years old.
- Theory of mind is critical in social information processing, communication, and social behavior.
- TBI could inhibit the development of theory of mind skills.
- Executive functioning impairment could be the common thread between TBI and theory of mind deficits
- Interventions should try to enhance the ability to recognize and understand how different people can possess contradictory perspectives.

There are wide-ranging opportunities for research to better understand the relations between TBI and theory of mind.

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