A Neuropsychosocial Investigation of Persistent Post-Concussion Symptoms After Mild Traumatic Brain Injury: Contributions of Cognitive Impairment, Anxiety Susceptibility, and Identity

by

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Abstract

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Objectives: The majority of individuals who sustain a mild traumatic brain injury (mTBI) will experience a full recovery within the first weeks or months post-injury. However, some individuals will experience ongoing difficulties, or persistent post-concussion symptoms (PCS), for years following the injury. To date, most researchers have attributed PCS to either neuropathological factors or to psychogenic factors. Lacking exploration has been the role of psychosocial variables and the consideration of PCS from a more holistic, or 'whole person', perspective. As such, the goal of the current study was to undertake an investigation of persistent PCS using a broad, neuropsychosocial framework. Specifically, this was done by investigating how (a) cognitive functioning, (b) susceptibility to anxiety while in the context of a stressful situation (i.e., anxiety susceptibility), and (c) multiple components of identity (including self-perception, TBI-related self-concept, and TBI-related social identity) influence the severity of persistent PCS. The main underlying assertion to this research is that there are multiple factors that underlie the experience of persistent PCS; a purely neuropathological or psychogenic perspective is not sufficient to understand the complex processes inherent in recovery after mTBI.

Method: The sample consisted of 21 adults, between 20 and 65 years of age, who had sustained an mTBI at least one year earlier. Following a telephone interview to determine eligibility (and a separate telephone interview with a source of collateral information) the participants completed a number of standardized neuropsychological measures and self-report questionnaires during an in-person, one-on-one data collection session.

Results: The only injury-related or demographic variable that had an influence on PCS was injury etiology, whereby individuals with sports related injuries reported significantly less PCS than did those who sustained non-sports related injuries (e.g., motor vehicle accidents).
Cognitive functioning had no influence on PCS severity, nor did anxiety susceptibility. However, one's general propensity to experience anxiety (i.e., trait anxiety) was a significant predictor of PCS. Further, multiple aspects of identity influenced PCS with both current self-perception and TBI-related social identity being significant predictors of self-reported PCS severity.

**Conclusions:** Despite the failure to find any impact of neuropsychological factors on PCS in the current study, other lines of research have demonstrated neuropathological changes associated with mTBI – some of which may be chronic. Therefore, cognitive functioning may not be a sufficiently sensitive indicator of possible neuropathology at more than one year post-injury.

On the other hand, the current study demonstrates that psychological and psychosocial factors are highly relevant to recovery and outcome following mTBI, and are significant predictors of PCS severity. Overall, the results support the assertion that recovery after mTBI is complex and that there are multiple factors that underlie persistent PCS. Further, the study demonstrates the importance of conceptualizing the process of recovery from a broad, neuropsychosocial perspective. Implications for treatment interventions and future research are discussed.