

Considering the Role of Somatization in Persistent Post-Concussive Symptoms

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Abstract

A substantial number of patients who sustain concussions develop persistent symptoms which last for months to years after their injury, leading to functional disability and reduced quality of life. Emotional distress may play a role in the persistence and severity of these symptoms through a process known as somatization. Identifying and treating somatization may help reduce the suffering and disability associated with persistent post-concussive symptoms. In order to do this, clinicians must be aware of the possible effects of somatization on physical symptoms and consider the role it may be playing in a patient's recovery.

Concussion, a form of mild traumatic brain injury, is a prevalent health concern, affecting roughly 42 million people worldwide each year.¹ Although concussion is usually considered to be an acute medical problem, between 10% and 50% of concussion patients develop persistent post-concussive symptoms, such as headache, fatigue, and dizziness, which last for months to years after the injury.²⁻⁴ These symptoms can become chronic and debilitating, leading to high levels of functional disability and reduced quality of life.^{5,6}

Despite extensive research into many physical, environmental, and injury-related factors, it is still unclear why certain patients develop chronic post-concussive symptoms while others do not. Factors one might intuitively expect to affect length of recovery, such as injury severity, are not good predictors of symptom persistence after the first few months.⁷ Other factors, such as post-concussive amnesia, prior concussions, and initial post-concussive symptoms, predict symptom persistence inconsistently, with different authors reporting conflicting findings.⁸ However, mental health concerns have been consistently associated with the development of persistent symptoms after concussion. Pre-injury mental health diagnoses and immediate post-injury measures of anxiety are some of the most robust predictors of persistent symptoms after a concussion.⁸ While past research has focused on depression, anxiety, and post-traumatic stress disorder, recent evidence has suggested that another mental health concern known as somatization may also play a role in the course and severity of physical symptoms after a concussion.

Somatization is the process whereby emotional distress is manifested as unintentionally produced physical symptoms.⁹ The physical symptoms of somatization are real and distressing and can occur either in the absence of organic pathology or as a component of a medical condition, prolonging and exacerbating pre-existing symptoms.¹⁰ If somatization is affecting the symptoms of a medical condition, it can be identified clinically by symptom severity, distress, and functional impairment that are in excess of what would be expected based on that organic condition.¹⁰ Somatization can result in high levels of functional disability,¹¹ and can lead patients to seek treatment for the exacerbated physical symptoms of their condition, instead of for the underlying emotional distress. This places a heavy burden on the healthcare system.^{12,13} Somatization is associated with higher rates of other mental health concerns, such as anxiety and depression,¹⁴ and

is known to affect a myriad of medical conditions, including irritable bowel syndrome, chronic fatigue syndrome, fibromyalgia, and chronic pain.¹⁵⁻¹⁷ Recently, it has also been suggested as a possible modifiable factor contributing to persistent post-concussive symptoms.

In a prospective study of high school athletes, pre-injury scores on somatization inventories were the strongest pre-morbid predictor of length of concussion recovery time.¹⁸ Similarly, in military personnel with combat-related concussions, pre-injury scores on somatization inventories predicted the development of persistent post-concussive symptoms.¹⁹ In addition, soldiers with concussions had higher post-injury somatization scores than those with other non-concussive injuries.²⁰ These findings are not unique to adults. In pediatric populations, immediate post-injury scores on somatization inventories (taken within the first three days after injury) are related to delayed symptom resolution and concussion symptom severity over time.^{21,22} The measures of somatization used in these studies are physical symptom inventories, which correlate well with physician diagnosis of somatization based on DSM-5 diagnostic criteria.²³ This evidence suggests that somatization may play a role in the experience of physical symptoms after concussion for some individuals.

How somatization might be interacting with physical symptoms after concussion has not been thoroughly investigated, as research in this field is still in its preliminary stages. However, the findings of prospective studies described above suggest that individuals predisposed to experiencing emotional distress as physical symptoms (i.e., those with higher pre-injury somatization scores) might be at a greater risk for experiencing exacerbated and prolonged concussion symptoms due to emotional distress via somatization.^{18,19} If this is the case, symptoms would be produced by the injury and sustained by a combination of organic pathology and somatization. Stress surrounding recovery from a concussion could also be playing a role in somatization and physical symptoms. Concerns over recovery and beliefs about the long-term effects of a concussion could affect the amount of attention and worry patients give to their symptoms, which could, in turn, produce more emotional distress and amplify those symptoms.²⁴ These hypotheses provide preliminary insight into how somatization might contribute to persistent symptoms after a concussion. However, more research is needed on the interactions between injury, somatization, and persistent post-concussive symptoms in order to better understand and identify somatization after concussion.

Identifying somatization in patients with persistent post-concussive symptoms is instrumental to providing effective concussion care, as understanding the etiology of symptoms can help clinicians

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determine appropriate care trajectories. Although interventions for somatization have yet to be evaluated in populations with persistent post-concussive symptoms, mental health therapies, such as cognitive behavioural therapy, short-term psychodynamic therapy, and psychoeducational approaches, have been effective in reducing symptoms and improving functioning in other populations affected by somatization.²⁵⁻²⁷ Clinicians must, therefore, understand and identify somatization (if present) in patients with persistent post-concussive symptoms in order to connect affected patients to such interventions and minimize suffering and functional impairment. Somatization inventories, such as the Patient Health Questionnaire somatization inventory (PHQ-15), may be effective tools to aid clinicians with this identification.²⁸ Such measures correlate well with the DSM-5 psychiatric diagnosis of somatic symptom disorder.²³ Unlike a clinician's assessment, however, they do not take into account emotional distress and functional impairment. Alternatively, screening for distress, functional impairment, and symptomology in excess of what would be expected from a concussion could also help clinicians in identifying somatization.¹⁰ Ultimately, the most useful clinical tool for identifying somatization in this population would be a thorough understanding of the differences in clinical characteristics between patients with persistent post-concussive symptoms affected and unaffected by somatization. This has yet to be evaluated in the literature; therefore, in-depth empirical research evaluating these characteristics is needed to aid clinicians in effectively identifying somatization in patients with persistent post-concussive symptoms.

Evidence suggests that somatization plays a role in the persistence and severity of symptoms after a concussion for some patients. Identifying and treating somatization could help reduce the suffering and disability associated with persistent post-concussive symptoms. It is therefore imperative that healthcare professionals are aware of the possible contributions of somatization to post-concussive symptoms, so that they can take steps to identify and connect affected patients with suitable treatments for somatization in order to reduce symptoms and improve functioning in this population.

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