

Review of PTSD and Mild Traumatic Brain Injury in Ex-Service personnel



Dominic Murphy* and David Turgoose

Department of Psychological Medicine, UK

Submission: June 28, 2018; **Published:** July 13, 2018

***Corresponding author:** Dominic Murphy, Department of Psychological Medicine, Combat Stress, Leatherhead, Surrey, UK,
Email: dominic.murphy@combatstress.org.uk

Abstract

Despite high prevalence rates of Traumatic Brain Injury (TBI) and Post-Traumatic Stress Disorder (PTSD) in ex-service personnel, little is known about the long-term impact of these conditions on this population. The present review presents the latest understanding and research relating to prevalence rates, challenges in defining TBI, and co-morbidities with PTSD and other mental health difficulties. Based on our current understanding, there is evident need for further research in this area, in order to ensure that ex-service personnel receive the most appropriate diagnoses and treatments.

Keywords: Military, Ex-Service, Veterans, Brain Injury, mTBI, PTSD, Mental Health, Co-Morbidity

Introduction

Discussion in the research literature suggests that there is a lack of clarity about the aetiology and long-term consequences of mild Traumatic Brain Injury (mTBI) in veterans and the interaction between Post-Traumatic Stress Disorder (PTSD) and mTBI. This article will review the data around prevalence rates of PTSD and mTBI in veterans, discuss the current challenges around defining mTBI, then explore the pattern of co-morbidity between these disorders and the overlap between symptoms of mTBI and PTSD.

Prevalence Rates

Service in the military has been associated with an increased risk of physical and mental health problems. High prevalence rates of PTSD and mTBI have been reported in those who have served in the recent conflicts in Iraq and Afghanistan [1]. mTBI has been reported as the 'signature' injury amongst US veterans to Afghanistan. For example, it is estimated that 19% of all casualties from Afghanistan suffered a brain injury [2]. At the same time, high rates of PTSD have been reported. PTSD prevalence rates in US veterans have been reported to be between 12% and 20%, with evidence that rates are increasing over time [3]. However, the interaction between PTSD and mTBI is poorly understood.

Defining MTBI

mTBI has been defined as an acute brain injury from an external force impacting on the head [4]. The presence of an mTBI can be considered if individuals report experiencing one of the following symptoms after the head trauma: loss of consciousness,

disorientation, confusion or post traumatic amnesia. Until recently, the long-lasting physical and psychological impact of mTBI was described by the diagnostic label 'Post Concussional Syndrome' (PCS). Diagnostic criteria for PCS included the loss of consciousness due to a head trauma, with at least three further symptoms believed to be as a result of the trauma, such as headaches, dizziness or irritability. As such, PCS described the long-term effects of mTBI, in particular where they did not resolve naturally within a given time-frame [5]. However, the link between PCS and mTBI has been questioned, with data suggesting that in veterans, PCS is more strongly associated with suffering psychological distress during deployment than TBI [6-8].

The latest versions of PTSD and mTBI in Ex-Service Personnel both the International Classification of Diseases (ICD-11) and Diagnostic and Statistical Manual of Mental Disorders (DSM-5) [9], no longer recognize PCS as a diagnostic label. Despite the confusion surrounding mTBI and PCS, for some the consequences of such injuries can be serious and long-lasting, with a minority going on to develop serious disability such as Chronic Traumatic Encephalopathy (CTE), which is characterized initially as changes in mood and behavior such as irritability, aggression, depression and memory loss, and in some cases, develops into a dementia-like disorder [10]. There is a clear link therefore between mTBI and psychological and behavioral changes. This poses another challenge given the large numbers of military veterans who develop mental health difficulties.

MTBI, PTSD and Co-Morbidities

Studies of US and UK veterans have demonstrated a high degree of overlap between mTBI and symptoms of PTSD and depression [11-13], with US veterans with mTBI being 300 times more likely to receive a PTSD diagnosis [14]. Data has been presented that suggests that after controlling for childhood adversity and pre-deployment mental health, TBIs sustained during deployment were significant predictors of individuals developing symptoms of PTSD [15]. Further research has found that mTBI alone did not predict well-being or functional impairment in military veterans, unless these were co-morbid with PTSD [14]. Whilst mTBI was associated with increased prevalence of a range of psychological problems, when PTSD was not also co-morbid, mTBI was not associated with disability. When mTBI was co-morbid with PTSD, however, there was evidence of significant disability [14]. There are several hypotheses about why such an overlap exists. For example, combat-related mTBI may be associated with physical and psychological trauma, which can make it hard to distinguish the relative contribution of each factor.

Further, symptoms of mTBI experienced at the time of the injury may often overlap with peri-traumatic experiences; for example, confusion or gaps in memory. Evidence has also suggested that mTBI is associated not just with PTSD, but with other mental health difficulties. For example, one study using a sample of UK veterans who were seeking help for their mental health showed that 63% reported exposure to a head injury that met criteria for TBI [16]. Additionally, significant associations were found between reporting a TBI and reporting difficulties with depression and anger. There is also evidence for an association between TBI symptoms and hazardous levels of alcohol misuse in help-seeking veterans, based on data profiling the health needs of this population in the UK [17,18].

Conclusion

Research in the literature suggests that both mTBI and PTSD have high prevalence rates in populations of ex-service personnel. However, there are challenges in accurately defining the long-term impact of mTBI and how this relates to and overlaps with mental health difficulties, particularly PTSD. Overall, there is a compelling case for the need for further research to disentangle the symptoms of mTBI and PTSD, and to investigate the longer-term consequences of these difficulties being co-morbid.

References

1. Sundin J, Herrell R, Hoge C, Fear N, Adler A, et al. (2014) Mental health outcomes in US and UK military personnel returning from Iraq. *Brit J Psychiat* 204(3): 200-207.
2. MacGregor AJ, Shaffer RA, Dougherty AL, Galarneau MR, Raman R, et al. (2010) Prevalence and psychological correlates of traumatic brain injury in Operation Iraqi Freedom. *J Head Trauma Rehab* 25(1): 1-8.
3. Hoge CW, Castro CA, Messer SC, McGurk D, Cotting DI, et al. (2004). Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New Engl J Med* 351(1): 13-22.
4. Holm L, Cassidy J, Carrol L, Borg J (2005) Summary of the WHO collaborating centre for neurotrauma task force on mild traumatic brain injury. *J Rehabil Med* 37(3): 137-141.
5. World Health Organisation (2007) The ICD-10 classification of mental and behavioural disorders: Clinical descriptions and diagnostic guidelines. Geneva, Switzerland.
6. Fear N, Jones E, Groom M, Greenberg N, Hull L, et al. (2009) Symptoms of post-concussional syndrome are non-specifically related to mild traumatic brain injury in UK Armed Forces personnel on return from deployment in Iraq: An analysis of self-reported data. *Psychol Med* 39(8): 1379-1387.
7. Friedland D (2015) Postconcussion syndrome/disorder or mild traumatic brain injury: Diagnostic issues and treatment. *ACNR* 15(1): 24-25.
8. McCrea M (2008) Mild traumatic brain injury and postconcussion syndrome: The evidence for diagnosis and treatment. Oxford University Press, New York, USA.
9. American Psychiatric Association (2013) Diagnostic and statistical manual of mental disorders. (5th edn.) Washington DC, USA.
10. McKee AC, Stein TD, Nowinski CJ, Stern RA, Daneshvar DH, et al. (2013) The spectrum of disease in chronic traumatic encephalopathy. *Brain* 136(1): 43-64.
11. Hoge CW, McGurk D, Thomas JL, Cox AL, Engel CC, et al. (2008) Mild traumatic brain injury in US soldiers returning from Iraq. *N Engl J Med* 358(5): 453-463.
12. Rona RJ, Jones M, Fear NT, Hull L, Murphy D, et al. (2012) Mild traumatic brain injury in UK military personnel returning from Afghanistan and Iraq: Cohort and cross-sectional analyses. *J Head Traum Rehab* 27(1): 33-44.
14. Jones N, Fear NT, Rona R, Fertout M, Thandi G, et al. (2014) Mild traumatic brain injury (mTBI) among UK military personnel whilst deployed in Afghanistan in 2011. *Brain Inj* 28(7): 896-899.
15. Lippa SM, Fonda JR, Fortier CB, Amick MA, Kenna A, et al. (2015) Deployment-related psychiatric and behavioral conditions and their association with functional disability in OEF/OIF/OND veterans. *J Trauma Stress* 28(1): 25-33.
16. Yurgil K, Barkauskas D, Vasterling JJ, Nivergelt C, Larsan G, et al. (2014) Association between traumatic brain injury and risk of posttraumatic stress disorder in active-duty marines. *JAMA J Am Med Assoc* 311(2): 149-157.
17. Murphy D, Palmer E, Wessely S, Oddy MJ, da Silva Ramos S, et al. (2015) Prevalence and associations between traumatic brain injury and mental health difficulties within UK veterans accessing support for mental health difficulties. *Psychol Res* 5(11): 613-623.
18. Murphy D, Ashwick R, Palmer E, Busuttill W (2017) Describing the profile of a population of UK veterans seeking support for mental health difficulties. *J Ment Health* early online p. 1-8.



This work is licensed under Creative Commons Attribution 4.0 License

**Your next submission with Juniper Publishers
will reach you the below assets**

- Quality Editorial service
- Swift Peer Review
- Reprints availability
- E-prints Service
- Manuscript Podcast for convenient understanding
- Global attainment for your research
- Manuscript accessibility in different formats

(Pdf, E-pub, Full Text, Audio)

- Unceasing customer service

Track the below URL for one-step submission

<https://juniperpublishers.com/online-submission.php>