



King's Research Portal

DOI:

<http://dx.doi.org/10.1136/bmjmilitary-2020-001439>

Document Version

Peer reviewed version

[Link to publication record in King's Research Portal](#)

Citation for published version (APA):

Bricknell, M. (2020). PERSONAL VIEW - A MILITARY COMBAT MENTAL HEALTH FRAMEWORK. *BMJ Military Health*. <https://doi.org/10.1136/bmjmilitary-2020-001439>

Citing this paper

Please note that where the full-text provided on King's Research Portal is the Author Accepted Manuscript or Post-Print version this may differ from the final Published version. If citing, it is advised that you check and use the publisher's definitive version for pagination, volume/issue, and date of publication details. And where the final published version is provided on the Research Portal, if citing you are again advised to check the publisher's website for any subsequent corrections.

General rights

Copyright and moral rights for the publications made accessible in the Research Portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognize and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the Research Portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the Research Portal

Take down policy

If you believe that this document breaches copyright please contact librarypure@kcl.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.

PERSONAL VIEW - A MILITARY COMBAT MENTAL HEALTH FRAMEWORK

Accepted 04 Apr 2020

BMJ Military Health

Author:

Lt Gen (Rtd) Professor Martin CM Bricknell CB PhD DM MBA MA MedSci

Professor of Conflict, Health and Military Medicine

Conflict and Health Research Group

School of Security Studies

King's College London

K4L.10 Kings Building

London

WC2R 2LS

E: martin.bricknell@kcl.ac.uk

ORCID: 0000-0002-5080-0095

ABSTRACT

This paper describes a framework for understanding Military Combat Mental Health based on the possible mental ill-health consequences of exposure to 'potential trauma events' for members of the armed forces and after their military service as Veterans. It uses a life-course approach that maps an individual's mental well-being against four 'states': Fit, Reacting, Injured and Ill. It then considers 5 categories of factors that influence the risk of mental illness from this exposure based on research evidence; Pre-joining Vulnerability, Resilience, Precipitating, Treatment, and Recovery. This framework offers a structure to debate current knowledge, inform policy and therapeutic interventions, provide education, and to guide future research into the subject.

Abstract Word Count: 108 (less than 250)

Word Count: 1986 (less than 2000, not including abstract)

Key Words: Mental Health, Psychiatry, Occupational and Industrial Medicine

Key messages:

- Exposure to potential trauma events (PTE) may cause mental ill-health in armed forces personnel and veterans at a later period in their life-course.
- Mental health in this population can be considered to lie on a continuum from Fit (healthy), Reacting, Injured and Ill.
- Risk factors for mental ill-health from a PTE can be grouped into Pre-joining Vulnerability, Resilience, Precipitating, Treatment, and Recovery.
- The Military Combat Mental Health Framework may provide a useful conceptual model to plan mental and social health services, conduct research and collaborate across service providers.

INTRODUCTION

Armed forces and veteran populations may have exposures to combat that cause a severe impact on their physical, mental or social health. The primary UK long-term cohort study of a sample of UK military personnel and veterans from the wars in Iraq and Afghanistan has shown a prevalence of symptoms of 21.9% for common mental disorders, 10.0% for alcohol misuse and 6.2% for probable post-traumatic stress disorder (1). Post-traumatic stress disorder (PTSD) was the most common clinical keyword in the global military medical literature between 1988 and 2017 (2). Whilst there is a substantial body of research on military service and mental health, there are very few models that integrate this evidence to inform policy and practice. The purpose of this paper is to offer an explanatory framework to support further debate on risk, treatment and social interventions for combat-related mental ill-health in armed forces personnel and veterans. However, it should be noted exposure to

combat is not the primary cause of mental ill-health in this population and that the overall incidence of mental ill-health is less than an aged matched group of the overall UK population (3).

THE MILITARY COMBAT MENTAL HEALTH FRAMEWORK

In October 2019, the North Atlantic Treaty Organisation published Standardisation Agreements for military medical services on deployment mental health (4,5). Whilst not all mental illness resulting from combat exposure is PTSD, a meta-analysis of risk factors for combat-related PTSD (6) and a comprehensive review of military-related PTSD are valuable summaries of the research evidence (7). These papers are the basis for the Military Combat Mental Health Framework shown in Figure 1. Exposure to one or more 'potential trauma events' (PTE) is essential for causation. A PTE is an event occurring as a result of combat that involved actual or threatened death or serious injury, or threat to the physical integrity of self or others. The framework extends from before military service through to post-military life as the mental health consequences of exposure to combat-related stress may be delayed and first present in veterans (8).

Figure 1 – Military Combat Mental Health Framework

An individual's mental well-being may fluctuate on a continuum between 'Fit', 'Reacting', 'Injured', and 'Ill' defined by function within their communities. This 'community' context is important because it is family, friends and co-workers who may notice the consequences of mental ill-health before the individual recognises or accepts their condition. The framework uses the following definitions;

Fit (or healthy). Individuals in this zone have a state of balanced 'well-being' across all domains of health and are functional for their role within work, personal life and social environment (communities). This extrapolates the concepts behind physical fitness (trained optimal performance) into mental and social fitness.

Reacting. Individuals within this zone are experiencing mild, transient stress reactions as a result of their combat-related experiences. These are a common human reaction to the realities of combat and are recognisable if explained to third party.

Injured. This state includes more severe, persistent symptoms that result in abnormalities in an individual's behaviour and are not getting better. A third party may notice this change because of changes in the individual's functioning within their communities, but their condition would not meet the criteria for a formal clinical diagnosis.

III. Illness occurs when an individual's combat experience has a significant impact on their function within their communities, indicating a severe disorder that can be clinically diagnosed, such as major depression, anxiety, or PTSD.

The framework shows a hypothetical trajectory of an individual's mental health course through their life after joining the armed forces. The initial trajectory assumes improved mental fitness compared to entry to the armed forces as military training is designed to increase their physical fitness and provide psychological preparation for their military role. This experience and their social community help to develop personal **Resilience Factors**. Until the first PTE, military personnel have no combat-related mental ill-health and have the potential to be mentally Fit. The first PTE may result in a stress reaction (Reacting) but they may be able to return to fitness because of their Resilience factors. They could then experience a second PTE which may compound the effects of the first PTE. After a variable duration, this exposure may cause a progressive deterioration of their mental health

becoming Injured or Ill as a result of **Precipitating Factors**. Successful therapeutic interventions to improve from illness will depend on **Treatment Factors**, though long-term mental health will depend on **Recovery factors**. Unfortunately, a permanent 'cure' may not be possible, and individuals may deteriorate again as a result of the re-emergence of precipitating factors. This is shown as happening in the individual's life course after military service as a veteran.

RISK AND PROTECTIVE FACTORS

There is strong epidemiological evidence that an individual's risk of military combat-related mental illness can be associated with a range of factors that accrue during their life course. These are categorised into the following groups with examples in each.

Pre-joining Vulnerability Factors. Pre-joining vulnerability factors are adverse life experiences that occur prior to military service. The existence of these is fixed but their impact will vary according to subsequent life events. They are common in the population that seek to join the armed forces and include: childhood adversity and childhood anti-social behaviour; low educational attainment (which has an influence in choice of military employment, the likelihood of being employed in a combat role and socio-economic status as a veteran); pre-service mental ill-health (though most militaries exclude applicants with a previous mental health diagnosis). Whilst these risk factors are not suitable as screening criteria for exclusion from military service, there may be value in identifying them in those that seek help after a PTE in order to inform clinical interventions.

Resilience Factors. Resilience factors are those, post entry-training, organisational and personal interventions that reduce (or the absence of which increase) the risk that an individual may experience mental illness as the result of exposure to a PTE. These may include: not being deployed as a reservist; absence of alcohol or substance abuse; being a

non-smoker; absence of previous mental ill-health; not in a combat role (though this may be solely due to reduction in risk of exposure to a PTE); being in a personal relationship; unit cohesion and leadership; rest and recuperation during operational deployment; post-tour third location decompression; higher rank; recipient of Trauma Risk Management support; deployment length less than 6 months, and lower total number of deployments. Many of these factors are amenable to organisational interventions at the group level.

Precipitating Factors. A severe PTE may result in an acute stress disorder (immediate onset of debilitating mental illness). However, there may also be a time lag between exposure, the onset of mental ill-health, and seeking help. Precipitating factors are those that trigger a deterioration to the extent that the individual becomes mentally injured or ill. These may include: concurrent physical illness or injury; severity of PTE; poor sleep; physically aggressive behaviour; and concurrent alcohol mis-use. There may be differences between the factors that precipitate combat-related mental ill-health whilst in military service and those factors that apply to veterans who seek help. Thus, a separate 'Precipitating Factors' box is shown after Transition to Veteran.

Treatment Factors. Although there are clearly established clinical modalities for the treatment of combat mental illness there is variation in the clinical outcomes of these therapies for individual patients. Some of this variation can be explained by adverse clinical and non-clinical treatment factors such as: presence of non-PTE concurrent mental illness; poor outcomes from concurrent physical illness; chronic pain; older age; duration of functional impairment prior to seeking treatment; severity of functional impairment; perception of stigma to seeking help; lack of an internal locus of control.

Recovery Factors. The final group of factors is labelled recovery factors. These are the psychosocial factors that facilitate recovery from the Injured through to the Fit zones and mitigate against the Precipitating Factors causing a recurrence of a deterioration in mental

well-being for the individual. All military personnel will Transition to Veteran at some point in their life and so these factors apply both during and after military service. Positive recovery factors include: not smoking; no substance or alcohol abuse; no risk-taking behaviour; no homelessness; no criminal activity; post-traumatic growth; remaining in military service; being in employment; having a personal relationship; no decline in cognition in later age. Social networks play an important role in personal resilience with an increase in common mental disorders and post-traumatic stress disorder symptoms in service leavers after they have left their social network in the military. This can extend to non-healthcare social interventions such as adventurous activities, surfing, and 'animal therapies'.

INTERPRETATION OF THE FRAMEWORK

This framework adds to those that already exist by illustrating mental health across the life course from before military service to becoming a veteran. It categorises risk factors to inform individual, organisational, and therapeutic interventions to mitigate and manage the risks from exposure to a PTE on an individual's mental health. The actual experience of mental well-being or ill-health for an individual may not exactly follow the trajectory shown. The framework de-emphasises the notion of a permanent 'cure' for mental ill-health and recognises the inter-relationships between physical, mental and social domains of health. This reinforces the importance of the social domain of health and the need to consider 'social illness' and 'social interventions' alongside mental illness and mental interventions. It also highlights the potential for community and social interventions during the 'Reacting' and 'Injured' stage when interventions by clinical professionals may not be required or appropriate.

The framework has created categories for the various factors that influence the risk of combat-related mental ill-health. These categories may need further refinement to develop the best descriptors for each factor and to identify those factors with positive attributes

alongside negative risk factors. The pre-joining vulnerability factors are not sufficiently specific or sensitive for use as screening criteria to exclude individuals from joining the armed forces. There is also evidence that post-deployment screening for mental ill-health in military personnel was not effective reducing the prevalence of mental disorders in the UK population (9). However, this does not remove the need for general awareness of the symptoms and signs of mental ill-health across the military population as demonstrated by the Trauma Risk Management (TRiM) programme and briefings during Third Location Decompression (10,11). Knowledge of these factors can also inform the inter-relationship of the responsibilities between the individual, their social circumstances, the armed forces as an employer, the government for statutory services for veterans, and the contribution of charities and the wider the voluntary sector for mitigating mental ill-health in this population.

The time-course emphasises the importance of maintaining the observational research cohorts from the deployment to Iraq and Afghanistan in order to observe risk factors of combat-related mental ill-health over the long-term. It is also necessary to ensure the replenishment of the cohorts with new entrants to the armed forces so that cohort studies can be rapidly initiated at the beginning of the next combat operation.

Finally, the model could apply to non-military populations with similar exposures such as front-line emergency responders, journalists and humanitarian aid workers. The model does not illustrate the balance of non-PTE exposures (e.g. non-combat deployments, separation from personal relationships, work-related stress) as risk factors nor does it accommodate the emerging concept of 'moral injury' as a source of mental ill-health in military populations (12).

CONCLUSIONS

This paper described a Military Combat Mental Health Framework to aid understanding of combat-related mental illness in armed forces personnel and veterans. It is based on a life-

course approach that maps an individual's mental well-being against four 'states': Fit, Reacting, Injured and Ill. The paper described 5 categories of factors that influence the risk of mental illness from exposure to PTEs; Pre-joining Vulnerability, Resilience, Precipitating, Treatment and Recovery. This framework provides a structure to debate current knowledge, inform policy and therapeutic interventions, and to guide future research into this subject.

MB is partially funded through the UK Research and Innovation GCRF Research for Health in Conflict developing capability, partnerships and research in the Middle and Near East programme (R4HC-MENA) ES/P010962/1.

References

1. Stevelink S, Jones M, Hull L, Pernet D, MacCrimmon S, Goodwin L, et al. Mental health outcomes at the end of the British involvement in the Iraq and Afghanistan conflicts: A cohort study. *British Journal of Psychiatry* 2018; 213: 690-697 doi:10.1192/bjp.2018.175
2. Şenel E. Evolution of military medicine literature: a scientometric study of global publications on military medicine between 1978 and 2017. *BMJ Military Health* Published Online First: 20 April 2019. doi: 10.1136/jramc-2019-001188
3. UK Armed Forces Mental Health: Annual Summary & Trends Over Time, 2007/08 - 2018/19. Ministry of Defence, London. 20 June 2019 Available at: <https://www.gov.uk/government/statistics/uk-armed-forces-mental-health-annual-statistics-financial-year-201819> accessed 14 Jan 2020.
4. North Atlantic Treaty Organisation. A psychological guide for leaders across the deployment cycle. *AMedP* 8.10 Oct 2019. NATO Standardisation Office. Available at https://www.coemed.org/files/stanags/03_AMEDP/AMedP-8.10_EDA_V1_E_2565.pdf accessed 12 Jan 2020.

5. North Atlantic Treaty Organisation. Forward mental healthcare. AMedP 8.6 Oct 2019 NATO Standardisation Office. Available at https://www.coemed.org/files/stanags/03_AMEDP/AMedP-8.6_EDB_V1_E_2564.pdf accessed 12 Jan 2020.
6. Xue C, Ge Y, Tang B, et al. A meta-analysis of risk factors for combat-related PTSD among military personnel and veterans. *PLoS One*. 2015;10(3):e0120270. Published 2015 Mar 20. doi:10.1371/journal.pone.0120270
7. Forbes D, Pedlar D, Adler A, Bennett C, Bryant R, Busuttill W et al. Treatment of military-related post-traumatic stress disorder: challenges, innovations, and the way forward. *International Review of Psychiatry*. 2019; 31:1: 95-110 doi:10.1080/09540261.2019.1595545
8. Goodwin L, Jones M, Rona, RJ, Sundin J, Wessely S, Fear N. Prevalence of Delayed-Onset Posttraumatic Stress Disorder in Military Personnel: Is There Evidence for This Disorder? Results of a Prospective UK Cohort Study. *J Nerv Ment Dis* 2012;200:429-437. doi:10.1097/NMD.0b013e31825322fe
9. Rona RJ, Burdett H, Khondoker M et al. Post-deployment screening for mental disorders and tailored advice about help-seeking in the UK military: a cluster randomised controlled trial. *Lancet*. 2017;389:1410-1423 doi:10.1016/S0140-6736(16)32398-4
10. Jones N, Burdett H, Green K, Greenberg N. Trauma Risk Management (TRiM): Promoting Help Seeking for Mental Health Problems Among Combat-Exposed UK Military Personnel. *Psychiatry*, 2017;80(3):236-251. doi:10.1080/00332747.2017.1286894
11. Jones N, Jones M, Fear NT, Fertout M, Wessel S, Greenberg N. Can mental health and readjustment be improved in UK military personnel by a brief period of structured post-deployment rest (third location decompression) *Occup Environ Med* 2013;70(7):439-45, doi:10.1136/oemed-2012-101229
12. Williamson V, Stevelink SAM, Greenberg N. Occupational moral injury and mental health: systematic review and meta-analysis. *The British Journal of Psychiatry*. Cambridge University Press; 2018;212(6):339–46. doi: 10.1192/bjp.2018.55

