

The impact of the conflicts of Iraq and Afghanistan: A UK perspective

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Abstract

Concerns about the mental health of military personnel deployed to Iraq and Afghanistan has led to a new generation of research. This review is an examination of the UK literature on the mental health consequences of deployment of armed forces personnel to Iraq and Afghanistan. As yet, deployment to Iraq or Afghanistan has not been associated with a general increase in mental health problems for the UK Armed Forces. However, research has highlighted certain problems that continue to need to be addressed. Whilst, the rate of post-traumatic stress disorder (PTSD) is low in the UK Armed Forces (1.6–6%), deployment to Iraq or Afghanistan is associated with an increased risk of PTSD for reserve personnel. In contrast to PTSD, the rate of alcohol misuse is high in the UK Armed Forces (between 16–20%), and has been associated with deployment to Iraq or Afghanistan for regular personnel. As the UK military engagement in Afghanistan continues and more personnel are deployed, the demand for help from military health services, the NHS and the service charities will increase.

Introduction

Since the beginning of the conflicts in Iraq and Afghanistan there have been concerns that military personnel deployed to these areas would be at greater risk of operational stress injury, resulting in an increase in mental health problems. Combat exposure is among the most commonly associated traumas with posttraumatic stress disorder (PTSD) (Kessler *et al.*, 1995). This puts military personnel in a high-risk group for developing PTSD. As well as being at high risk of PTSD, military personnel are at risk of comorbid mental illness, depression, substance abuse, and poor physical health (Dedert *et al.*, 2009; Kang & Hyams, 2005). Research has shown that there is a direct relation between trauma severity and risk of developing mental health problems; those wounded in action or involved in direct combat are at highest risk of doing so (Grieger *et al.*, 2006).

Following the legacy of the 1991 Gulf War, with 25% of UK personnel reporting severe symptoms of ill-health, in what has been called 'Gulf War Syndrome', there were concerns that similar health problems would be seen among service personnel deployed to Iraq and Afghanistan (Horn *et al.*, 2006; Unwin *et al.*, 1999). Given that both the 1991 Gulf War and the 2003 invasion of Iraq were fought in

similar terrain against largely the same enemy, and that many factors believed to have caused 'Gulf War syndrome' (such as depleted uranium, anthrax vaccine and pesticides) were common to both engagements, there was indeed cause for concern that similar health problems might be found (Horn *et al.*, 2006).

The recent military engagements in Iraq and Afghanistan have led to a new generation of research into the health and well-being of military personnel. Whilst UK research has shown that there was no indication of a repeat of an 'Iraq War syndrome' (Horn *et al.*, 2006); research from the USA indicated that the prevalence of mental disorders following deployment of US forces to Iraq and Afghanistan were high and rising (Hoge *et al.*, 2004; Sundin *et al.*, 2010b). In this paper, we will review the UK literature on the mental health consequences of deployment of armed forces personnel to Iraq and Afghanistan.

Mental health consequences among UK personnel

A large-scale longitudinal study carried out on the UK military have found no increase in mental health problems among regular (i.e. in full-time

military employment) personnel deployed to Iraq or Afghanistan, when compared to non-deployed regular members of the armed forces (Fear *et al.*, 2010; Hotopf *et al.*, 2006). Similar results are also seen in the number of referrals of service personnel to outpatient departments, with similar rates for all mental disorders in 2007–2009 between those who were deployed to Iraq or Afghanistan compared to those not deployed (DASA, 2009a, 2009b, 2010). The only significant consequence of deploying to these conflict zones on the mental health of regular UK military personnel has been an increase in alcohol misuse (Fear *et al.*, 2010). These findings contrast sharply with US data, which show increased prevalence of probable mental disorders, particularly PTSD, in their troops returning from Iraq or Afghanistan.

Furthermore, the rates of mental health problems among those deployed to Iraq or Afghanistan have been stable since 2003 (Fear *et al.*, 2010). Expectations were that the changing character of military operations between 2003 and 2009 would impact upon the mental health of UK troops. Thus, after 2003 Iraq personnel were exposed to increased levels of combat and with the escalation of the UK commitment to Afghanistan since 2006, a substantial number of troops have been deployed to the Helmand Province, where fighting was, and continues to be, intense. Despite this, the rates of mental health problems have remained stable between 2003 and 2009, indicating that the increase in fighting intensity has not affected the mental health of troops deployed to either Iraq or Afghanistan (Fear *et al.*, 2010). Furthermore, the prevalence rates remain lower than in other occupational groups exposed to stressful situations, such as police officers, doctors in emergency departments and disaster workers (Burbeck *et al.*, 2002; Collins & Gibbs, 2003; Perrin *et al.*, 2007).

Post-traumatic stress disorder

The overall prevalence of PTSD among troops deployed to Iraq or Afghanistan remains low (Hotopf *et al.*, 2006; Fear *et al.*, 2009a). Estimates from the initial phase of the Iraq war (18 Jan–28 April 2003) indicated a low prevalence of PTSD among deployed troops of between 1.3% and 4.8% (Hotopf *et al.*, 2006; Iversen *et al.*, 2009; Rona *et al.*, 2006). More recent estimates show a prevalence of 4.2% of PTSD among troops after deployment to Iraq or Afghanistan (Fear *et al.*, 2010). Rates of PTSD among UK personnel whilst on deployment were 3.4% (Mulligan *et al.*, 2010). The rate of outpatient referrals for PTSD in the military as a whole in 2009 (including troops not deployed to Iraq and Afghanistan) was 0.7 per 1000 personnel (DASA, 2010).

There is currently little evidence to suggest that deployment to Iraq or Afghanistan is associated with

greater risk of developing PTSD when analysing the UK Armed Forces as a whole. When looking only at outpatient referrals for mental disorders from UK military personnel, referral rates for PTSD have been higher among those deployed to Iraq and/or Afghanistan between 2007–2009 (DASA, 2009a; DASA, 2009b; DASA, 2010). These findings are based only on outpatient referrals to mental health teams, and considering that stigma attached to mental health problems often prevents help-seeking, this is likely to only represent a small number of personnel with PTSD symptoms (Gould *et al.*, 2010; Langston *et al.*, 2010). Epidemiological studies based on representative samples of the UK military have found no evidence to suggest that deployment to Iraq or Afghanistan increases the risk of PTSD among UK troops (Fear *et al.*, 2010; Hotopf *et al.*, 2006).

Common mental disorders

Common mental disorders are currently the most frequently reported mental health problems among UK military personnel deployed to Iraq or Afghanistan, with between 16.7–19.6% identified as suffering from common mental disorders using the General Health Questionnaire (GHQ-12) (Fear *et al.*, 2010; Hotopf *et al.*, 2006; Rona *et al.*, 2006), and 27.2% when using the Patient Health Questionnaire (PHQ) (Iversen *et al.*, 2009). Similar rates of common mental disorders (20.5%) were found among UK military personnel whilst on deployment in Iraq (Mulligan *et al.*, 2010). However, there is no evidence that deployment to Iraq or Afghanistan increases the risk of common mental disorders among regular personnel, when compared to regular personnel not deployed to Iraq or Afghanistan (Fear *et al.*, 2010; Hotopf *et al.*, 2006).

Alcohol

Alcohol misuse is the second most frequently reported mental health disorder within UK troops deployed to Iraq or Afghanistan; between 16–20% of troops report alcohol misuse (Fear *et al.*, 2010; Rona *et al.*, 2006). It is also the only mental disorder which has shown an increased prevalence among regular military personnel who were deployed to Iraq or Afghanistan (Fear *et al.*, 2010). Other factors associated with alcohol misuse in the UK Armed Forces include childhood adversity and longer tour length (Browne *et al.*, 2008; Rona *et al.*, 2007).

Although rates of alcohol misuse are particularly high among young men, who make up the majority of the UK Armed Forces, this finding alone does not completely account for the high rates of alcohol misuse in service personnel. Comparison of drinking levels, in the same age and gender groups in the UK

general population and the UK Armed Forces, show that both men and women in the UK Armed Forces are more likely to misuse alcohol than their general population counterparts (Fear *et al.*, 2007). Tackling the issue is especially challenging as alcohol use is so entrenched in British military culture; it is often used as a way of aiding social interaction and unit cohesion, a view which has some empirical support (Browne *et al.*, 2008).

Mild traumatic brain injury

The effects of exposures to blasts in Iraq and Afghanistan are of increased interest as better protective equipment has meant personnel are surviving injuries which would once have been fatal (Hoge *et al.*, 2008). Of particular concern are mild traumatic brain injuries (mTBIs), regularly cited as one of the characteristic injuries of the Iraq War (Jones *et al.*, 2007). mTBIs are believed to be the cause of long-term symptomatic ill-health, known as 'post-concussional syndrome' (PCS). An mTBI is defined as 'an acute brain injury resulting from mechanical energy to the head from external physical forces' and its symptoms include: headache, dizziness, fatigue, memory loss, nausea, tinnitus, visual disturbance, loss of concentration and irritability (Holm *et al.*, 2005). A high prevalence of mTBI reported in the USA has resulted in the introduction of post-deployment screening procedures for mTBI for US personnel (Hoge *et al.*, 2008). The exact prevalence of mTBI in UK personnel deployed to Iraq and Afghanistan has not yet been reported, but concerns have prompted researchers to consider introducing a screening tool to detect mTBI among UK personnel returning from deployment.

Developing a screening tool for mTBI, however, is problematic. Research on UK military personnel has suggested that PCS symptoms are not only related to physical brain injuries, such as exposure to a blast, but can also follow other distressing in-theatre exposures, including potential exposure to depleted uranium and aiding the wounded, which have no plausible link to head injury (Fear *et al.*, 2009a). Having PCS symptoms was also associated with other health outcomes, particularly PTSD and common mental disorders, which corroborates findings from US studies (Hoge *et al.*, 2008). Using PCS symptoms to identify mTBI is therefore likely to be inadequate as PCS symptoms appear to be an expression of psychological distress rather than a specific indicator of having had an mTBI. Identifying mTBI retrospectively from self-report is also unreliable due to the effects of recall bias (Fear *et al.*, 2009a), and these issues make post-deployment screening for mTBI problematic. What is clear from this research is the difficulty in distinguishing between the effects

of physical and psychological trauma; even with the advances in neuro-imaging potentially aiding the identification of physical traumas, the symptoms induced by physical and psychological trauma are likely to be similar and non-specific (Fear *et al.*, 2009a; Jones *et al.*, 2007).

Who is affected by mental health problems?

Whilst there is, as of 2009, no overall increase in mental health problems for UK personnel serving in Iraq or Afghanistan, this is not true for all UK Armed Forces personnel (Fear *et al.*, 2010). The impact of deployment experiences on the well-being of service personnel is not universal across occupational groups and specific risk factors of deployment are associated with ill-health. Individual factors such as perceptions of deployment experiences and support from the military are important for examining mental health outcomes in military personnel. These include job strain, leadership concerns, comradeship and family problems which are linked with mental health outcomes in UK Armed Forces personnel (Fear *et al.*, 2009b; Rona *et al.*, 2009; Sundin *et al.*, 2010a). Perceptions of deployment are shaped by service characteristics, but also by mental health problems and the operation deployed to.

The results discussed so far relate to regular personnel or the UK Armed Forces as a whole. Research of UK Armed Forces personnel has identified important subgroups, such as reserve personnel and those in specific combat roles, who are at increased risk of mental health problems (Browne *et al.*, 2007; Iversen *et al.*, 2008).

Reserve personnel

Reserve personnel report more mental health disorders after serving in Iraq and Afghanistan than their non-deployed counterparts. UK reserve personnel who were deployed on the first operations in Iraq were at greater risk of several health outcomes including PTSD and common mental disorders when compared to regulars (Hotopf *et al.*, 2006; Turner *et al.*, 2005).

Browne *et al.* (2007) examined possible explanatory factors for these differences between regular and reserve personnel. The study showed that reserve personnel reported higher levels of exposures to traumatic experiences, greater perceived life threat, lower levels of unit cohesion and more problems adjusting to home coming. Whilst there were several differences in experiences on deployment between regular and reserve personnel, the strongest explanatory factor for the increased risk of PTSD in reserve personnel was problems at home (during and following

deployment). When family and home life differences were controlled for none of the five health outcomes (PTSD, general mental health problems, fatigue, physical symptoms and well-being) differed between regulars and reserve personnel (Browne *et al.*, 2007). Furthermore, it is possible that the difference between regulars and reserve personnel for combat exposures can largely be accounted for by differences in the perception of risk. Reserve personnel may report lower levels of threat as traumatic compared to more experienced regular troops.

A number of policy initiatives have been taken to counteract differences for regular and reserve personnel, and research suggests that issues for UK reserve personnel have improved (Dandeker *et al.*, 2010). Changes include the introduction of a bespoke Reservists Mental Health Assessment Programme (RMHP), a minimum of 21 days notice of mobilization, and support for families (House of Commons Defence Committee, 2004; Directorate of Reserve Forces and Cadets, 2005). There has also been a cultural change among the UK Armed Forces, with an emphasis on regular and reserve forces working together, and, following the initial operation in Iraq, reserve and regular personnel were used in similar ways on deployment. This is exemplified by the change to army recruitment with the 'One Army' recruiting campaign (Sweeney, 2007). The cultural change within the UK Armed Forces has been reinforced by a commitment to a 'whole force' concept, to underpin approaches to reserve personnel as an integral part of the armed forces along with civilian personnel, contractors and regulars (*Defence Policy and Business News*, 2010a). This concept mirrors the 'total force' idea in the US military.

A review of perceptions among UK reserve personnel who deployed to Iraq between May and October 2005 reported fewer problems in their military role in theatre (Dandeker *et al.*, 2010). Recent research on the mental health of UK military personnel has, however, confirmed that deployment to Iraq or Afghanistan was associated with an increased risk of PTSD for reserve personnel when compared to reserve personnel not deployed to Iraq or Afghanistan. However, the absolute rate of PTSD among reserve personnel remained low and was no higher than in regular personnel (Fear *et al.*, 2010).

Combat deployed personnel

War stressors, in terms of both severity and frequency of combat exposure have consistently proven to be important risk factors for PTSD, and studies have shown that severity of trauma has a stronger effect than most pre-trauma factors (Basoglu *et al.*, 2005; Dikel *et al.*, 2005; Dohrenwend *et al.*, 2006;

Hoge *et al.*, 2004; Iversen *et al.*, 2008). Given these results it is hardly surprising that personnel in combat roles should be at an increased risk of PTSD. Research on UK Armed Forces personnel has shown that there is a small but significant increase in rates of PTSD for personnel in specific combat roles (Fear *et al.*, 2010; Hotopf *et al.*, 2006). Similar to PTSD, an increase in rates of alcohol misuse was observed for combat troops deployed to Iraq (Fear *et al.*, 2010; Hotopf *et al.*, 2006).

However, not all UK service personnel in combat roles are at an increased risk of mental health problems. Royal Marines, and to some extent troops belonging to one of the Parachute regiments, tended to report less ill-health compared to other infantry troops (Hacker Hughes *et al.*, 2005; Iversen *et al.*, 2008; Sundin *et al.*, 2010c). Possible explanations include differences in selection and training, as Royal Marines also had fewer pre-deployment risk factors and higher levels of unit cohesion compared to other infantry troops.

Number and length of deployments (operational tempo)

Research in both US and UK military personnel highlight the importance of the pace of operational tempo for mental and physical health (Adler *et al.*, 2005; Rona *et al.*, 2007). Operational tempo is a multi-faceted construct and includes duration, intensity, location, and the type of deployment (Rona *et al.*, 2007). Longer deployments above six months and unexpected extension to the length of deployment have been shown to have deleterious effects on the health and well-being of service personnel as well as on the well-being of their families (Buckman *et al.*, 2010).

Rona *et al.* (2007) examined the length and number of deployments over a three year period and assessed associations with mental health. This study used the UK harmony guidelines to generate a measure of excessive deployments (National Audit Office, 2006). The guidelines state that an army unit cannot be deployed for more than six months on an operational tour, with 24 months interval between tours. In the study by Rona *et al.* (2007) this was translated to a cut-off of 12 months deployed over the three-year period. The results of this study showed that there was a 'threshold' for deployment which marks a decline in mental health, beyond which exhaustion and problems associated with family and home-life and increased distress set in. Longer deployments, and in particular if tour lengths were extended during deployment, were associated with alcohol misuse and PTSD (Rona *et al.*, 2007). This suggested that breaches in expectations regarding the length of

deployments were more important than breaches in threshold (i.e. being deployed for more than 12 months in a three-year period). Thus clear communication regarding guidelines for deployment lengths and managing personnel's expectations can help to reduce the risks of PTSD and alcohol misuse.

Mental health in theatre

Research of UK personnel whilst deployed on operations in Iraq showed that their mental health was similar to rates reported post-deployment (Mulligan *et al.*, 2010). This research also demonstrated protective effects of good cohesion and good leadership, as well-led and close-knit units had substantially better mental health even if they had been exposed to high threat situations. The results also indicated that stigma acted as a powerful deterrent to asking for help. About 10% of the deployed force was interested in some additional support at the time they were surveyed; however, the majority of these were fearful of asking for help because of concerns of the potential effects to their career and reputation. Research into attitudes about mental health problems and stress in the UK Armed Forces has shown that concerns about the impact on one's career, being perceived as weak or being treated differently by peers and leaders may act as a hindrance for personnel seeking support (Langston *et al.*, 2007).

Return from deployment

US studies that have assessed PTSD over time since return from deployment show a steady increase in rates of PTSD (Thomas *et al.*, 2010; Vasterling *et al.*, 2010). These results are particularly marked for reserve personnel (Milliken *et al.*, 2007). There are only limited data on changes in PTSD prevalence over time in UK military personnel. One study has reported rates of PTSD for UK personnel at various times post-deployment (Fear *et al.*, 2010). This study did not report the rates for the same individuals at each time-point, but reported the rates for participants who had joined the study at different times following their return from deployment. This study showed a small albeit significant increase in the rate of PTSD over time, with a peak in the odds ratio at four years post deployment (Fear *et al.*, 2010). This is contrary to our understanding of the psychopathology of PTSD; that symptoms would decrease with time (NCCMH/NICE, 2005). This peak may represent a small group of personnel with delayed onset PTSD who have experienced a gradual accumulation of symptoms having been exposed to multiple traumas over time (Fear *et al.*, 2010).

Conclusion

Despite the prolonged engagements in Iraq and Afghanistan, the prevalence of mental health problems in the UK Armed Forces has remained relatively low (Fear *et al.*, 2010). As the conflict in Iraq changed from war fighting to counter insurgency and with an increase in the intensity with the current operations in Afghanistan, concern for the health of UK service personnel has continued to be a key priority (Fear *et al.*, 2010). However, the rates of mental health problems have remained stable between 2003 and 2009, and there is no suggestion of an increase in ill-health during deployment (Mulligan *et al.*, 2010). Furthermore, there is no evidence to support a decline in morale or well-being among UK personnel after their return home from deployment. Nevertheless, the research into the mental health of UK military personnel deployed to Iraq and Afghanistan has highlighted certain problems that need to be addressed. First, in contrast to PTSD, rates of alcohol misuse are high (Fear *et al.*, 2007). Added concern comes from a recent finding that deployment to Iraq or Afghanistan has resulted in higher levels of alcohol misuse among regular personnel (Fear *et al.*, 2010). Second, there has been an increase in mental health problems in certain sub-groups post-deployment, in particular personnel in combat roles and reserve personnel. Furthermore, as the engagement in Afghanistan continues (probably to 2015) more personnel will deploy and the number of people who require help will increase. This is reflected by an increased demand for help experienced in the military health services, the NHS and the service charities (*Defence Policy and Business News*, 2010b), but does not mean that the true rate of disorders is increasing.

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