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ORIGINAL ARTICLE

# The long term occupational fitness of UK military personnel following community mental health care

Norman Jones<sup>1</sup>, Nicola T. Fear<sup>1</sup>, Simon Wessely<sup>2,3</sup>, Gursimran Thandi<sup>1</sup>, and Neil Greenberg<sup>1,2</sup>

<sup>1</sup>Academic Department of Military Mental Health, <sup>2</sup>Academic Department of Psychological Medicine, Institute of Psychiatry, Weston Education Centre, London, United Kingdom, and <sup>3</sup>King's Centre for Military Health Research, London, United Kingdom

## Abstract

**Background:** Fitness to undertake operational deployment is a key requirement of military service.

**Aim:** To assess individual deployment fitness at a single point from one month to eight years following discharge from mental healthcare.

**Method:** Survival analyses assessed levels of deployability; the predictive effects of key covariates upon time to being classified as non-deployable were examined using univariate and multivariate Cox proportional hazards regression procedures.

**Results:** A total of 1405 individuals provided study data. 437 individuals (31.1%) were non-deployable or discharged from service during follow-up. 17.2% were non-deployable in the first year following mental healthcare; the proportion did not rise above this level until year seven when it was 19.1% and then 30.6% in year eight. Risk factors for being classified as non-deployable were female sex, receipt of intermediate duration therapy, management by the multidisciplinary team and previous referral to mental health services. Previous deployment was significantly associated with reduced risk. Overall, the levels of non-deployability appeared to be no higher than those found among the wider military services.

**Conclusion:** Non-deployable status among mental healthcare recipients was broadly similar to that found among the wider UK military; risk factors for non-deployability could be amenable to targeted relapse prevention measures.

## Keywords

Occupational, military, deployment, mental healthcare

## History

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## Introduction

In order to maintain a physically fit fighting force, the health of United Kingdom Armed Forces (UK AF) personnel is managed within an occupational health framework. All personnel are assigned a medical grading commensurate with any health effects that might limit their ability to undertake operational deployment (Braithwaite et al., 2009). The medical grading dictates whether a person can undertake any operational deployment and indicates whether aspects of health might modify the role that a person can undertake while deployed. Specific aspects of the medical grade are associated with mental health and reflect factors such as attentional/cognitive impairment, risk of harm to self and others and the availability of psychoactive medication during deployment. Through the use of the medical grade, the UK AF aim to retain personnel in appropriate occupational roles wherever possible, albeit in a sometimes modified way.

Occasionally, a health condition is such that there is no prospect that the affected person could perform any appropriate military role in the longer term and, after a careful review by an occupational health panel, with their wishes being taken into account they may be medically discharged from service.

Most UK AF personnel with suspected mental health conditions are initially seen by primary care providers who may refer to military Departments of Community Mental Health (DCMH) when primary care management has not resolved the presenting problem. These departments are similar to civilian community mental health teams (CMHTs), although in the latter, the severity of psychological disorders may be greater, more severe mental disorder may predominate and the mix of mental health practitioners may differ slightly (Evans et al., 2012). DCMH are situated in catchment areas containing significant numbers of personnel, such as major bases or garrisons (McAllister, 2006). In addition to providing an occupational assessment to support any decisions about medical grading, the DCMH provides evidence-based psychological therapies and/or the prescription of psychotropic medication within outpatient and peripatetic clinics. Fast-track hospital admission is also available (Jones et al., 2009);

Correspondence: Norman Jones, Academic Department of Military Mental Health, Academic Department of Psychological Medicine, Institute of Psychiatry, Weston Education Centre, Cutcombe Road, London SE5 9RJ, United Kingdom. Tel: 020 7848 5428. E-mail: [norman.jones@kcl.ac.uk](mailto:norman.jones@kcl.ac.uk)

annually around 5% of DCMH referrals require admission to hospital for further mental healthcare (Defence Statistics (Health), 2014).

Although medical grading on completion of non-deployed mental healthcare has been assessed and reported in the literature (Gould et al., 2008), there are no published studies of longer-term occupational functioning among non-deployed UK AF personnel. The current study assesses the longer-term occupational effects of receiving mental healthcare among non-deployed UK military personnel. Using observational data, two research questions were evaluated: (1) What is the level of residual occupational impairment following mental healthcare? and (2) What are the main socio-demographic, military and clinical risk factors for longer-term occupational impairment?

## Method

### Sample

The sample consisted of 1528 individuals who were referred to the DCMH over an eight-year period between 2002 and September 2010. To ensure that the follow-up period had a clear start date, for personnel with more than one DCMH referral, only the latest referral episode was retained and personnel who failed to attend (FTA) for initial assessment were removed from the dataset ( $n = 123$ ). This generated a sample of 1405 individuals.

### Occupational fitness

In order to assess occupational fitness, the medical grade, incorporating both physical and psychological health conditions of each person, was examined following discharge from mental healthcare. Medical grades are awarded by medical practitioners following a thorough physical and mental examination. Such examinations are conducted at regular periods during a person's military career and upon discharge from the Armed Forces. The medical grade represents the degree of work impairment resulting from any physical or psychological condition; to a lesser degree, it further incorporates the prognosis of any condition. The medical grades were collapsed into a binary variable (deployable vs. non-deployable):

The deployable category consisted of two medical grades and completion of service: (1) medically fully deployable (MFD) grade, (2) medically limited deployable (MLD) grade and (3) completed an elective service career with a medical grading reflecting full fitness on discharge.

The non-deployable category consisted of (1) medically non-deployable (MND) grade, (2) discharge from service on medical grounds (medical discharge) or (3) discharge for occupational inefficiency which is often linked to poorer mental health (referred to within the Armed Forces as services no longer required (SNLR)) (Turner & Neal, 2003).

To obtain medical grade and discharge information, data linkage was performed between the individual's DCMH healthcare record and a corresponding personnel management database entry containing either the individual's current medical fitness grade or the method and date of exit from the UK AF. The linkage procedure used a unique identifier,

the person's service number. The data linkage process was approved by the MoD Research Ethics Committee (Ref 0836/191 dated 30 July 2008) as audit/service evaluation. Following data linkage, the dataset was anonymised.

### Socio-demographic and military covariates

A number of socio-demographic and military covariates were considered: relationship status (either in a short-term relationship, or no current partner, vs. married, in a civil partnership, or in a long-term relationship), parental status (having dependent children or not), operational role (direct combat (combat), providing close support for combat activity (combat support) or providing logistic support for combat operations (combat service support)), and operational deployment was a binary variable consisting of having undertaken any combat or operational deployment(s) rather than routine overseas exercises or non-operational detachments. Proximal deployment (in the year prior to referral) was considered separately.

### Clinical and therapy covariates

For clinical and therapeutic factors, the "intervention type" variable consisted of three categories: (1) assessment and advice only consisting of 1–2 sessions of approximately one-hour duration, (2) psychological therapy and (3) the prescription of psychoactive medication with or without psychological therapy. "Intervention intensity" related to the number of sessions received was categorised within three levels: (1) brief intervention constituted one to six therapy sessions, (2) intermediate intervention equated to seven to 12 sessions and (3) prolonged intervention represented 12 or more sessions. Some patients were managed by a single therapist while others received a more complex package of therapeutic input or advice from the multi-disciplinary team (MDT) (psychiatrist, psychologist or other nurses). A binary variable comprising MDT management vs. individual therapist intervention was explored in the analyses.

Two forms of deliberate self-harm (DSH) were assessed: referral after a confirmed episode of deliberate self-harm recorded in the referral letter and reporting a history of deliberate self-harm, which was assessed by self-report. DSH was assessed as being present or absent. The World Health Organization system was used to classify alcohol consumption stratified by gender into three categories; for men, this was within safe limits utilised prior to 2016 ( $\leq 21$  units per week), hazardous use (22–49 units) and harmful use ( $\geq 50$  units). For women, usage was classified as within safe limits ( $\leq 14$  units per week), hazardous use (15–35 units) and harmful use ( $\geq 35$  units) (Andrews & Jenkins, 1999). Clinical diagnosis was initially coded by the assessing clinician using International Classification of Mental Disorders version 10 criteria (ICD 10) (World Health Organization, 1992); disorders were then grouped into eight broad descriptive categories for further analysis. A further category was generated for personnel who were not assigned a mental health diagnosis following assessment. The alcohol categories were combined with confirmed diagnosis to produce an alcohol comorbidity variable. Past referral to psychiatric services was recorded as being present or absent.

## Analyses

Rates of being classified as non-deployable over time were examined using life tables and the Kaplan–Meier extension of survival analysis. Hazard rates were generated; these quantified the probability per year of follow-up that individuals who entered each year of follow-up without being classified as non-deployable would become medically non-deployable within the subsequent year. The predictive effects of a range of covariates upon non-deployability following receipt of mental healthcare were examined using univariate and multivariate Cox proportional hazards regression procedures. These analyses generated hazard ratios (HR) with 95% confidence intervals (CI). Prior to running the tests, each covariate, representing a binary or categorical risk factor, was assessed for the assumption of proportional hazards by inspecting the log (–log) survival plot. None of the assessed covariates violated the assumption of proportional hazards.

## Results

### Sample characteristics

Table 1 details the characteristics of the DCMH sample at the time of referral. Given that the study DCMH served a largely Royal Air Force (RAF) population, the service background of

attendees was unrepresentative of the UK AF; the majority (78.7%) were serving in the Royal Air Force, whereas only 0.9% were Royal Navy (RN) personnel and the remainder were from the Army. The age distribution of the clinical sample was generally representative of the UK AF where 24.2% were aged 25 years or less compared to an expected rate of around 27.0% in the UK AF; 35.1% ( $n=493$ ) were junior ranks (Private or equivalent) compared with an expected rate of around 42.0% in the UK AF (Defence Statistics (Health), 2013). The minority (7.6%) had combat roles with the majority working in support roles; normally, around 34.0% of a representative UK AF sample would be comprised of combat personnel. The minority (1.4%) were reservists and 27.2% were women; women would usually form around 10.0% of the UK AF. 49.1% were in a long-term relationship and 13.4% were lone parents. Short service lengths predominated; 73.7% had served for less than five years; 14.0% had deployed in the year prior to referral; and 29.5% had undertaken operational deployment at some other point in their military career.

### Clinical and therapeutic intervention characteristics

DSH occurring immediately prior to referral was relatively infrequent, affecting 5.4% of those referred. 47.1% of DSH cases had contact with military psychiatric services previously.

Table 1. Demographic and military factors – deployable and non-deployable status at follow-up.

Characteristic ( <i>n</i> )	<i>n</i> (%)	Non-deployable <i>n</i> (%)	Deployable <i>n</i> (%)	Hazard ratio (HR) (95% confidence interval (CI))	Adjusted HR (95% CI)
Age (1395)					
17–24 Years	338 (24.2)	109 (32.2)	229 (67.8)	1	1
25 Years and over	1057 (75.8)	324 (30.7)	733 (69.3)	0.91 (0.73–1.13)	0.88 (0.57–1.35)
Rank (1404)					
Junior rank	493 (35.1)	158 (32.0)	335 (68.0)	1	1
NCO, SNCO, officer	911 (64.9)	278 (30.5)	633 (69.5)	0.96 (0.79–1.16)	0.86 (0.60–1.24)
Service length (1355)					
<5 Years	999 (73.7)	298 (29.8)	701 (70.2)	1	1
5 Years or more	356 (26.3)	106 (29.8)	250(70.2)	0.82 (0.65–1.02)	0.88 (0.60–1.29)
Service (1405)					
RN	12 (0.9)	6 (50.0)	6 (50.0)	1	1
RAF	1106 (78.7)	339 (30.7)	767 (69.3)	0.49 (0.22–1.10)	*0.20 (0.05–0.85)
Army	287 (20.4)	92 (32.1)	195 (67.9)	0.56 (0.24–1.27)	0.23 (0.05–1.02)
Engagement type (1405)					
Regular	1386 (98.6)	436 (31.3)	950 (68.5)	1	
Reserve	19 (1.4)	1 (5.3)	18 (94.7)	*0.13 (0.18–0.93)	Insufficient numbers
Sex (1405)					
Male	1023 (72.8)	299 (29.2)	724 (70.8)	1	1
Female	382 (27.2)	138 (36.1)	244 (63.9)	**1.30 (1.06–1.59)	**1.48 (1.10–1.97)
Relationship status (1372)					
Married/long-term relationship	674 (49.1)	207 (30.7)	467 (69.3)	1	1
Single	698 (50.9)	217 (31.1)	481 (68.9)	1.03 (0.85–1.24)	0.94 (0.68–1.31)
Parental status (1372)					
Partner and children	1188 (86.6)	363 (30.6)	825 (69.4)	1	1
Single parent	184 (13.4)	61 (33.2)	123 (66.8)	1.15 (0.88–1.51)	1.26 (0.82–1.93)
Combat role (1394)					
Combat service support	1140 (81.8)	356 (31.2)	784 (68.8)	1	1
Combat support	148 (10.6)	38 (25.7)	110 (74.3)	0.89 (0.64–1.24)	0.76 (0.38–1.53)
Combat	106 (7.6)	35 (33.0)	71 (67.0)	0.91 (0.64–1.29)	0.88 (0.52–1.48)
Previous deployment (1405)					
No	794 (56.5)	261 (32.9)	533 (67.1)	1	1
Yes	611 (43.5)	176 (28.8)	435 (71.2)	0.88 (0.73–1.07)	**0.65 (0.46–0.91)
Deployed previous year (1130)					
No	972 (86.0)	330 (34.0)	642 (66.0)	1	1
Yes	158 (14.0)	39 (24.7)	119 (75.3)	**0.69 (0.49–0.96)	*0.63 (0.40–1.00)

\* $p \leq 0.05$  and \*\* $p \leq 0.01$ .

98.2% of the patients were found to suffer from non-psychotic, non-personality disorder conditions. The most commonly diagnosed psychiatric disorder was moderate-to-severe adjustment disorder (38.8%) followed by anxiety or mood disorder (27.0%). Primary alcohol-related conditions affected 4.5% of the patients and 14.3% were classified as having alcohol comorbidity. Psychological interventions rather than medication prescriptions were delivered and overall, therapeutic interventions were brief, with 80.3% of patients receiving between one and six sessions of therapy. 13.5% were prescribed medication. 79.9% of the patients were managed by a single therapist while the remainder received more complex input from the MDT (Table 1).

**Occupational fitness**

Four hundred and thirty-seven of the 1405 people who were referred for mental healthcare (31.1%) were either medically non-deployable or were medically or administratively discharged during the eight-year follow-up period, yielding a crude full or deployable with restriction rate of 68.9% (968 of 1405). Of the total cohort, 174 participants (12.4%) were medically or administratively discharged from service and 263 participants ( $n = 18.7%$ ) were classified as non-deployable during the follow-up period. A further 123 people who were referred for mental healthcare (8.8%) were deployable with restrictions with 845 (60.1%) remaining fully deployable.

**Relative risk of being classified as non-deployable**

Figure 1 graphs the annual proportion of personnel entering each year of follow-up who were classified as non-deployable within that year; 17.2% experienced this outcome in the first year following mental healthcare; thereafter, the proportion fell in the subsequent five years and did not increase from the year one level until year seven when the proportion rose to 19.1% and then to 30.6% in year eight.

Figure 2 graphs the cumulative proportion of the sample remaining operationally deployable as a function of time

since discharge from mental healthcare. The median survival time, the time at which one half of the sample were classified as non-deployable, was 7.0 years (95% CI = 6.4–7.6 years). The cumulative annual hazard rates for being classified as operationally non-deployable are shown in Figure 3. The risk

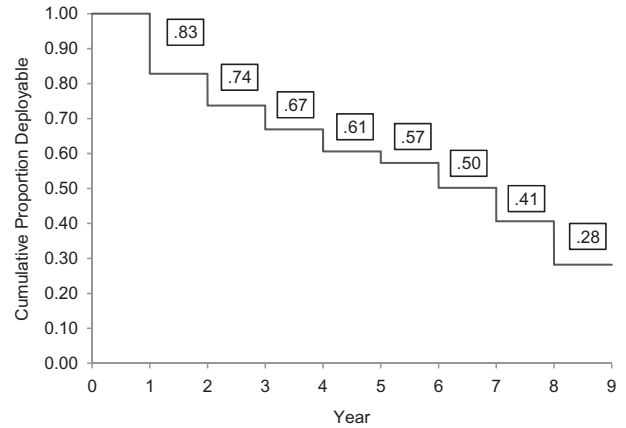


Figure 2. Cumulative proportion remaining deployable as a function of time since discharge from mental healthcare.

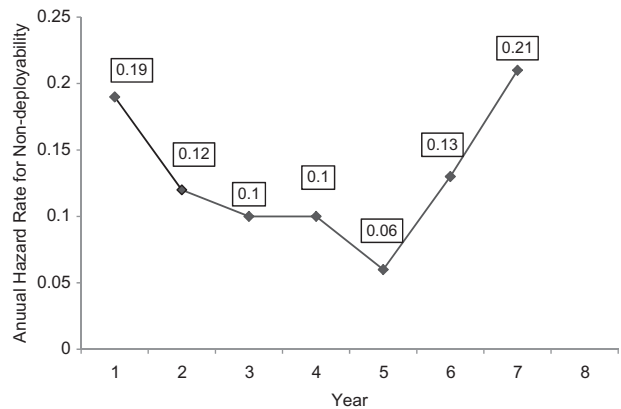
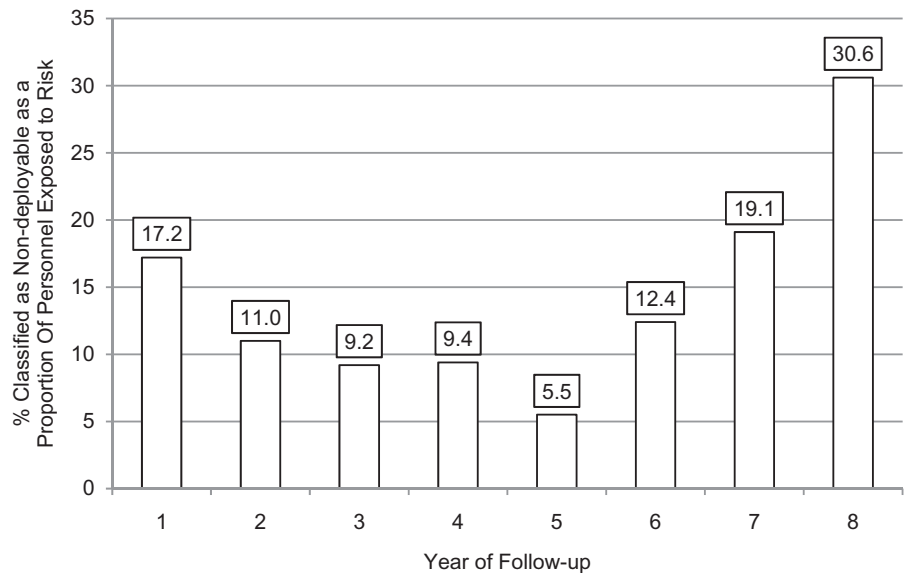


Figure 3. Cumulative annual hazard rates for being classified as non-deployable.

Figure 1. Proportion of personnel entering each year of follow-up who were classified as non-deployable in the current year.





of being classified as non-deployable was high in the first year following receipt of mental healthcare (19.0%) and highest in the final follow-up year (21.0%).

## Predictors of non-deployability

### *Socio-demographic and military factors*

Unadjusted hazard ratios for non-deployability were significantly higher for regulars compared to reserves and female sex, and were lower for having deployed in the previous year. The proportions of men and women experiencing medical discharge for mental health reasons were not significantly different. 50 women experienced medical discharge, of which 27 (54.0%) were on mental health grounds (HR 1.10, 95% CI 0.50–2.42) compared to 111 men who experienced medical discharge, of which 57 (51.4%) were on mental health grounds. When adjusted for all covariates, women remained at increased risk of being classified as non-deployable, whereas those personnel who had deployed were at reduced risk of experiencing this outcome (of the 336 personnel who had deployed previously, 158 (47.0%) had deployed in the last year). Compared with Royal Navy personnel, RAF personnel were at reduced risk of being classified as non-deployable although the proportion of Army and RAF personnel experiencing this outcome was similar. The numbers of RN personnel were too small to allow for adjusted analyses (Table 1).

### *Therapy and clinical factors*

Unadjusted hazard ratios were significantly increased for therapy factors including receiving psychoactive medication, receiving a greater number of therapy sessions, management by the multidisciplinary team, having been referred to mental health services on at least one previous occasion and certain categories of mental illness including psychotic and personality disorders, PTSD and acute stress disorder, neurotic spectrum disorder, mood and anxiety disorder. When adjusted for all covariates, receiving intermediate level psychotherapy, management by the MDT and past referral to mental health services were associated with an increased risk of being classified as non-deployable (Table 2).

## Discussion

### Main findings

This study used observational data to examine the pattern of military occupational functioning following receipt of mental healthcare. The results were derived from a mental health treatment centre which delivered care to a primarily RAF population, which may have accounted for the way in which the socio-demographic profile of the study sample deviated from a representative UK AF population rather than any specific mental health effects. Clinically, the majority of personnel assessed at the DCMH were diagnosed with a mental health condition although there were only a very small

Table 2. Therapy and clinical factors – deployable and non-deployable status at follow-up.

Variables	<i>n</i> (%)	Non-deployable <i>n</i> (%)	Deployable <i>n</i> (%)	Hazard ratio (HR) (95% confidence interval (CI))	Adjusted HR (95% CI)
<b>Therapy factors</b>					
Assessment and advice	502 (38.6)	142 (28.3)	360 (71.7)	1	1
Psychological therapy	624 (47.9)	169 (27.1)	455 (72.9)	0.99 (0.79–1.23)	0.91 (0.64–1.30)
Medication	176 (13.5)	84 (47.7)	92 (52.3)	***2.40 (1.83–3.15)	1.39 (0.85–2.26)
Level 1 – brief (1–6)	1046 (80.3)	142 (28.3)	360 (71.7)	1	1
Level 2 – intermediate (7–11)	149 (11.4)	169 (27.1)	455 (72.9)	***2.10 (1.57–2.81)	*1.57 (1.02–2.41)
Level 3 – prolonged (12+)	107 (8.2)	84 (47.7)	92 (52.3)	***2.22 (1.54–2.92)	1.23 (0.74–2.04)
No MDT referral	1122 (79.9)	316 (28.2)	806 (71.8)	1	1
MDT referral	283 (20.1)	121 (42.8)	162 (57.2)	***2.04 (1.65–2.53)	**1.63 (1.16–2.28)
<b>Current clinical factors</b>					
No psychiatric condition diagnosed	178 (12.7)	46 (25.8)	132 (74.2)	1	1
Mild adjustment disorder	68 (4.9)	20 (29.4)	48 (70.6)	1.05 (0.62–1.78)	1.35 (0.68–2.67)
Moderate-to-severe adjustment disorder	544 (38.8)	141 (25.9)	403 (74.1)	1.18 (0.84–1.64)	1.24 (0.74–2.07)
Alcohol misuse disorder	63 (4.5)	16 (25.4)	47 (74.6)	0.85 (0.48–1.51)	1.07 (0.43–2.69)
Psychotic/personality disorder	17 (1.2)	9 (52.9)	8 (47.1)	***4.51 (2.20–9.26)	1.81 (0.50–6.49)
PTSD/ASD	85 (6.1)	28 (32.9)	57 (67.1)	*1.61 (1.00–2.61)	0.96 (0.39–2.34)
Neurotic spectrum disorder	68 (4.9)	28 (41.2)	40 (58.8)	**1.86 (1.64–2.98)	1.72 (0.86–3.42)
Anxiety/depressive/mood disorder	378 (27.0)	147 (38.9)	231 (61.1)	***1.76 (1.27–2.46)	1.11 (0.64–1.94)
WHO alcohol category – safe	880 (78.7)	275 (31.3)	605 (68.8)	1	1
WHO alcohol category – hazardous	156 (14.0)	42 (26.9)	114 (73.1)	0.85 (0.61–1.17)	0.80 (0.33–1.95)
WHO alcohol category – harmful	82 (7.3)	22 (26.8)	60 (73.2)	0.75 (0.49–1.16)	0.67 (0.26–1.89)
No alcohol comorbidity	1004 (85.7)	301 (30.0)	703 (70.0)	1	1
Alcohol comorbidity	168 (14.3)	51 (30.4)	117 (69.6)	0.99 (0.74–1.33)	1.16 (0.46–2.91)
Not referred after DSH attempt	1329 (94.6)	413 (31.1)	916 (68.9)	1	1
Referred after DSH attempt	76 (5.4)	24 (31.6)	52 (68.4)	0.87 (0.58–1.32)	0.88 (0.46–1.68)
<b>Clinical history</b>					
No past referral to MH services	686 (52.9)	188 (27.4)	498 (72.6)	1	1
Past referral to MH services	612 (47.1)	217 (35.5)	395 (64.5)	***1.85 (1.52–2.26)	*1.32 (1.01–1.74)
No past episode of DSH	1240 (88.3)	376 (30.3)	864 (69.7)	1	1
Past episode of DSH	165 (11.7)	61 (37.0)	104 (63.0)	1.12 (0.85–1.47)	0.98 (0.63–1.51)

\* $p \leq 0.05$ , \*\* $p \leq 0.01$  and \*\*\* $p \leq 0.001$ .

number of psychotic and personality disorder cases. Given that referral was mainly undertaken for common mental disorder, it is perhaps not surprising that therapy was mostly brief, consisting of psychological therapies with a minority receiving psychoactive medication. Deliberate self-harm and referrals for primary alcohol problems were relatively infrequent although half of the referred military personnel were repeat users of mental health services.

Overall, the risk of being classified as non-deployable was second highest in the first year following discharge from mental healthcare and then rose to its highest level in year eight. The annual percentage of personnel classified as non-deployable as a proportion of those surviving into each consecutive year of the study and who were exposed to the non-deployable risk was 17.2% in year one, then remained below this figure until year seven when it rose to 19.1% and 30.6% in year eight. Although unmeasured factors may have influenced outcome, given that re-referral was a predictor of poorer outcome in the current study, worse longer-term occupational outcomes may have been secondary to a number of factors including chronicity (Knudsen et al., 2013).

Women were at significantly increased risk of being non-deployable whereas personnel who had deployed both previously and in the past year were at reduced risk of being classified as non-deployable. Although it appeared that RN personnel were at increased risk of adverse occupational outcome, there were insufficient numbers of RN personnel in the study to adequately assess this outcome. There was some evidence that diagnostic category may have influenced outcome although the small numbers in some categories may have affected the outcomes of the adjusted analyses. Receiving intermediate level psychotherapy, management by the MDT and past referral to mental health services were associated with increased risk for being classified as non-deployable.

### Comparisons with occupational fitness across UK AF

Although one published study assessed occupational mental health among a representative sample of UK AF personnel, the study did not gather objective data; rather, it focused upon the association between PTSD symptoms and self-reported occupational impairment (Rona et al., 2009). Some observational studies have gathered objective measures of occupational impairment following hospitalisation for mental health conditions (Jones et al., 2009), following mental healthcare among UK regular forces during deployment (Jones et al., 2010) and following deployment among UK reserve forces (Jones et al., 2011). The only published occupationally focused UK AF clinical study conducted in a non-deployed setting measured occupational function on discharge from care and did not provide longitudinal data (Gould et al., 2008). It is therefore difficult to compare the present study outcomes with similar UK AF research. Data regarding whole force occupational functioning in relation to health conditions are, however, available. Using open source material, including freedom of information requests (Freedom of information request 11–03-2014-121039–004, 2016) and government documents containing official statistical data (Defence Statistics (Health)), it is possible to calculate proportions for

combined medical downgrading and medical discharges over prolonged periods. Between 2011 and 2014, 25.0% ( $n = 57\,248$ ) of trained UK AF personnel serving during this period ( $n = 228\,880$ ) were either medically non-deployable ( $n = 52\,050$ ) or medically discharged from service ( $n = 5198$ ). The annual proportion of personnel exposed to risk in each year of follow-up who were classified as non-deployable within that year suggested that around 17.2% experienced this outcome in the first year following mental healthcare. The proportion did not rise substantially above the annual non-deployability proportion for the whole force until the last two years of the study. In the short to medium term, we found no evidence that the occupational impact of referral for specialist mental healthcare in terms of subsequent non-deployability was any different to that found among the UK AF as whole. What is unknown is whether the efforts of primary care providers, who manage a proportion of people requiring mental healthcare without recourse to referral for specialist services, might influence the outcomes in the DCMH where secondary mental healthcare takes place. Given that primary care mental health patients also contribute to whole force health outcomes, DCMH attendees may represent a group that could hypothetically have a greater burden of mental health symptoms. Most will have been filtered in primary care, and one might expect a worse occupational outcome; in practice this did not appear to be the case.

### Re-referral for mental healthcare

47.1% of the DCMH attendees had been referred for mental health assessment prior to the current episode of care, although it was not clear whether this related to the pre-enlistment period or to an episode of military mental healthcare. Although it is but one factor among many in a complex causative process (Davydov et al., 2010), psychological vulnerability is known to be a risk factor for poorer mental health (Ryff & Singer, 1996). In the current study, re-referral for mental health assessment was significantly associated with non-deployability. Given the potential personal and occupational burden of recurrent mental disorder in a military context, formal relapse prevention interventions may need to be further developed to maintain psychological health following completion of a mental healthcare episode among repeat service users. “Top-up” sessions such as guided self-help, remote therapy, web-based interventions or self-referral arrangements could potentially help those experiencing early signs of relapse or other health crises. If the re-referral risk factor proves to be robust in further research, when occupational impairment persists, arranging early, managed, compassionate discharge from the services may be in the best interests of both the individual and the Armed Forces.

### Sex

Compared to men, women were at significant risk of being classified as non-deployable during the follow-up period. In a civilian context, women are known to make greater use of mental health services (Freiman & Zuvekas, 2000), but little is known about how women function occupationally following receipt of healthcare in a military context. The reason why

women experienced greater levels of non-deployability than men is unclear. This could be attributable to pregnancy for which military women are medically downgraded for the period of the pregnancy (Army Briefing Note. PAP 10(3), 2010). Although we could not verify the role of pregnancy, female sex appeared to be a robust risk factor and military mental health clinicians should at least be aware that some women, in order to remain operationally effective, may require additional support strategies post-discharge from military mental healthcare.

### Therapy factors

There was some evidence that greater frequency of clinical intervention and management by the multidisciplinary team was significantly associated with greater levels of non-deployability following discharge from care. This probably reflects greater levels of clinical complexity among those in receipt of such therapy and management. It may be that formal relapse prevention strategies should be developed for those in receipt of more prolonged therapy and for personnel whose clinical complexity causes them to be managed by the multidisciplinary team. In addition, efforts should be made to establish whether intermediate level therapy is in fact incomplete therapy, where personnel dropped out of treatment and failed to complete a planned course.

### Operational deployment

Although some studies have suggested that deploying in a combat role can be detrimental to mental health (Fear et al., 2010), deployment *per se* does not appear to be a risk factor for PTSD (Jones et al., 2013); in the current study, any previous deployment and deployment in the last year functioned as a protective factor. Successful completion of a period of operational deployment reflects military hardiness as successful operational deployment is difficult and requires a certain level of robustness from the deploying person. Assessing previous deployment when taking a psychiatric history is of course always warranted; however, it could form part of the clinician's thinking when formulating an occupational risk profile to inform any decision about medical fitness grading. Deployment could theoretically represent an adverse risk factor; however, the current study outcomes suggest quite the opposite.

### Strengths and limitations

The present study findings are limited by the use of observational data which could potentially introduce unknown levels of bias; however, a major strength of this study is that the data were derived from in-depth clinical assessments carried out by mental health professionals routinely working in the UK AF. The latter notwithstanding, data were gathered by self-report, which might have introduced bias, particularly in relation to factors such as deliberate self-harm (DSH). A further limitation related to this form of data gathering is that although the diagnoses were mostly allocated by the multidisciplinary team, we could not account for the level of training, experience and profession of the clinician; therefore, some diagnoses may be less robust than others. Although no

psychometric or mental health outcome measures were examined, medical fitness grading is a rigorously managed and militarily meaningful outcome that provides a clear index of impairment. Non-deployability incorporated both physical and psychological health conditions which allowed for comparisons to be made with whole force medical fitness which similarly encompasses physical and mental health domains. Caution should be exercised when extrapolating the current study results to the whole force as the sample differed substantially to the configuration of the UK Armed Forces. The current study was undertaken in a DCMH which was led by the Royal Air Force and there were subtle differences in the way that the individual service branches approached occupational mental health management. Furthermore, many military community mental health departments have idiosyncratic catchment area compositions related to the types of military unit that they serve; they may provide a service to predominantly one service and may have unusual units in their locality such as training establishments which contain large numbers of very young people. It is therefore suggested that the study should be repeated in DCMHs led by the Army and the Royal Navy. Although previous deployment functioned as a buffer against adverse occupational outcomes, we were unable to account for individual deployment experiences such as the extent of combat exposure. This could have affected the emergence of some exposure-based diagnoses among a substantial number of personnel who had previously deployed and should be taken into account when considering the study outcomes.

### Conclusion

The results of this study suggest that most patients attending military mental healthcare facilities tend to present with non-psychotic mental health disorders and the majority receive brief psychological therapies. However, historical use of mental health services was substantial; 47.1% of DCMH attendees had sought help previously. Although the risk of being classified as non-deployable was highest in the early and later periods post-discharge from care; overall, the level of occupational impairment appeared to be no higher than that found among UK AF personnel when considered as a whole force. Non-deployability was predicted by female sex and receipt of more prolonged therapy, while previous deployment was associated with reduced risk. Patients exhibiting adverse risk factors should be provided with formal relapse prevention strategies to limit the risk of future occupational impairment; whether this is effective will of course need further evaluation.

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### Declaration of interest

Norman Jones is a serving member of the British Army. Nicola Fear, Gursimran Thandi and Neil Greenberg are researchers employed under the terms of a contract by the UK



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