Long-Term Military Work Outcomes in Soldiers Who Become Mental Health Casualties When Deployed on Operations

Norman Jones, Nicola T Fear, Margaret Jones, Simon Wessely, and Neil Greenberg

Background: Little is known about longer term military work outcomes in UK military personnel who develop mental health problems when operationally deployed. Deployed Field Mental Health Teams (FMHTs) who support them follow the principles of "Forward Psychiatry," aiming to treat psychiatric casualties close to the front line to maximize operational effectiveness and occupational retention. Aim: To examine the short- and long-term military work outcomes in soldiers deployed to Iraq between 2003 and 2007 who were referred to the FMHT. Method: FMHT clinical records were linked to occupational records with 825 resulting matches. Results: 71.6% of the referred soldiers with a documented short-term military work outcome returned to their operational unit, and 73.5 % of those who had a documented long-term military work outcome served on for a period in excess of two years. Adjusting for potential confounders, a shorter service length and removal from the operational theatre were both strongly associated with premature discharge; however, it was not possible to determine the severity of the presenting mental health problem and assess whether this impacted outcome. Conclusions: The results of this study support the use of the Forward Psychiatry principles in achieving good short-term military work outcomes. Utilizing these principles, three-quarters of those referred to the FMHT were returned to their deployed unit and approximately three-quarters of those assessed by the FMHT remained in service two years after referral. We suggest that these are positive work outcomes; however, being evacuated out of the operational environment and having a short service length were both associated with premature discharge, though we were unable to examine the role of illness severity.

The United Kingdom Armed Forces (UK AF) currently provide immediate operational mental health support to deployed troops through Field Mental Health Teams (FMHTs). The role of the military mental health practitioners who work in FMHTs is to provide clinical, educational, and advisory support to operational commanders. In discharging their clinical function, the FMHT makes use of "Forward Psychiatry," a term

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which refers to a set of treatment principles that were first articulated in 1916 (Jones, 2006). These principles are described using the acronym "PIE," which refers to treatment delivery being *proximal* to the combat zone, being delivered *immediately to those that need it*, and delivered with the *expectation* of occupational recovery. Although PIE principles form the basis for deployed mental healthcare decisions, a recent reexamination of the historical evidence suggests that the claims that PIE is effective in treating psychological injury and preventing chronicity lack empirical support and also that PIE may not have helped retain service personnel in the longer term (Jones & Wessely, 2003). More recent studies have indicated that PIE may be effective in returning soldiers to combat duties while in theatre (Scott, 2005; Solomon & Benbenishty, 1986). This is of relevance as longitudinal studies suggest that the long-term mental health effects for those who experience battlefield psychological injury, such as combat stress reaction, are substantial (Solomon & Mikulincer, 2003; Levav, Greenfield & Baruch, 1979).

The psychological impact of deployment has been subject to a good deal of research, and certain deployment activities and roles have been linked to the development of mental health problems both during and post deployment. Having a combat role and engaging in combat operations have both been associated with the development of PTSD (Cabrera, Hoge, Bliess, Castro & Messer, 2007; Iversen, Fear, Ehlers, Hacker, Hull, Earnshaw, et al., 2008). Our study makes reference to combat, combat support arm, and combat service support arm troops. The latter two categories are comprised of those who support combat troops when they are engaged in combat operations. For example, combat support troops include engineers and signallers and combat service support troops might include medical personnel and logisticians. This does not mean, however, that troops such as recovery mechanics and medical personnel closely supporting combat units are not exposed to considerable danger. Given that many military risk factors for mental health breakdown are known, it is vital that those who are exposed to them are fully supported by deployed military mental health practitioners. In this study, we sought to establish whether this support was effective both in theatre and in preventing longer term adverse military work outcomes.

Given that one of the key measures of the FMHT's effectiveness is its ability to return soldiers to operational and, hopefully, long-term duty, this study examines two objective markers of both short- and long-term outcome: first, evacuation out of the operational theatre or return to the deployed unit, and second, the long-term military work effects of becoming a mental health casualty on operations. We hypothesize that, using the PIE principles, those personnel treated by the FMHT in theatre would have a positive occupational outcome in that they would continue to function in their unit with support and that those who required evacuation out of the operational theatre back to their home base would be more likely to experience poorer outcomes.

The expected rate of outflow of trained soldiers and officers from the regular Army varies between 10% and 11% annually (DASA, 2010). However, this figure includes soldiers who leave after having completed their elective service term plus those who would be labelled as prematurely discharged using the categorization method described in this study. As this study utilizes a convenience "illness" sample, it was not possible to generate a variable from the study dataset to allow for a robust comparison with the normal outflow rate from the regular Army. This study instead restricts the analysis to an examination of factors associated with adverse military occupational events and premature termination of military service.

METHOD

FMHT personnel who provided care to deployed troops in Iraq from 2003 to the end

of the operation in 2009 (known as Operation TELIC) collected data on all personnel that they assessed. In addition to a comprehensive clinical assessment, the FMHT completed an electronic database that recorded basic demographic data, unit function, clinical data, and final in-theatre outcome (evacuation out of theatre or return to unit); these records were made available to the research team. Data on current occupational status was obtained in September 2008 from a centralized military personnel record system called Joint Personnel Administration (JPA). Crucially, the JPA record included projected discharges up to December 2009 and therefore captured those who had tendered their resignation but had not left the Army at the time of data capture. JPA contains a wide range of personal data, including fields detailing the date and circumstances of discharge from the Army. All 825 Army personnel who had been referred to the deployed FMHT between January 2003 and April 2007 were included in the followup. Where the JPA record did not contain an entry, this was treated as missing data and dropped from the analysis ($n = 24$). Soldiers assessed by the FMHT after April 2007 were not included in the followup as insufficient time had elapsed for a definitive occupational outcome to be recorded at the time of the study. To ensure accurate identification, data linkage between JPA and the FMHT audit database was performed on a combination of identifiers, including service number, name, rank, and date of birth.

The association between being assessed by the FMHT whilst deployed and long-term military occupational outcome was examined by identifying overtly negative occupational events occurring after the completion of the deployment, including premature discharge from the Army. Premature discharges were categorized as follows:

Category 1 discharges included overtly negative outcomes that occurred within 24 months or less of becoming a mental health casualty. These included long-term sickness absence and subsequent discharge, medical discharges, compulsory termination of service, administrative discharge (usually for disciplinary breaches or sustained inefficiency), desertion, death, and other serious disciplinary breaches resulting in discharge. Also included were all discharges that occurred within the first four years of service, the minimum term of service for all UK Army personnel; therefore, any discharge occurring before the completion of this period is by definition premature.

Category 2 discharges were composed of those personnel who exercised the right to be discharged within one year of becoming an FMHT casualty. The rationale for this categorization was that operational experiences resulting in referral to the FMHT were likely to have influenced the decision to leave, as notice to leave the Army would have to be tendered soon after returning from operations to achieve discharge within one year.

The discharge categories described above were compared with any form of retention in Service or completion of the individual's elective service term (classified as continued or completed service) and also overtly positive outcomes including reemployment in another trade or role and promotion.

Being in a confiding relationship and benefiting from the resulting social support can help to offset mental health problems (Brown & Harris, 1978). The distribution of marital and long-term relationships in the study group (where it was recorded) and the association with short- and long-term occupational outcomes was therefore examined.

Finally, deliberate self-harm (DSH) is a potential risk in those with easy access to lethal means, including weapons (Wintemute, Parham, Beaumont, Wright & Drake, 1999). Having a history of DSH is also a risk factor for further episodes of self-harm (Owens, Horrocks & House, 2002). We therefore examined the association of a documented history of DSH, evacuation out of the operational theatre, and occupational outcome.

ANALYSIS

Statistical analysis was performed using SPSS v15 for Windows. Categorical variables were described and associations between demographic, illness, management/treatment variables, and military work outcomes were assessed with unadjusted and adjusted odds ratios (OR), with 95% confidence intervals (CI) calculated with binary logistic regression. Linear associations were examined with univariable linear regression, and continuous data were examined with the t-test for equality of means.

RESULTS

Sample Characteristics

The sample characteristics shown in Table 1 differed from the general Army population in that the mean age was lower (66% under 30 years of age compared with 53% in the Army); females, junior ranks and junior non-commissioned officers (JNCOs) were over-represented. The proportion of Combat soldiers was representative (approximately 33% in the sample and 36% in the Army). Comparative data were not available regarding mean service length for the Army. Published figures suggest that mobilized reserve forces were over-represented in the sample where they constituted 28% of the FMHT casualties and between 4 and 11% of the deployed force.

The FMHT successfully maintained three-quarters of the referred soldiers in their deployed unit. A total of 71.6% (n = 509) of the sample, where evacuation status was recorded (n = 711), returned to their operational unit and 28.5% (n = 202) were evacuated out of the operational theatre. Of these, 24.2% (172) were evacuated by air on mental health grounds, 3.7% (n = 26) on welfare grounds and 0.6% (n = 4) as a result of combined physical and mental health problems. Examining long-term military work outcomes, overall, 26.5% (n = 212) of the whole sample (n = 801) were discharged within two years of being assessed by the FMHT (no outcome was recorded for 24 subjects). Of the 212 discharges with a recorded occupational outcome, 75.5% (n = 160) were category 1 discharges, of which 10% (n = 21) were medical discharges, whereas 24.5% (n = 52) were category 2 discharges. A total of 589 soldiers went on to serve out their elective service term, and 5.8% (n = 34) were either promoted or reengaged in a new contract. Seven percent (n = 41) subsequently experienced an overtly negative occupational event, such as discharge following a disciplinary breach; however this was judged to be too remote from the FMHT contact to be strongly associated with it. Younger soldiers had higher rates of premature discharge (35.4% in those ≤ 24 years of age and 13.7% in those ≥ 35 years of age), and the rates of premature discharge were higher among combat soldiers (approximately 31% in combat and 24% in non-combat soldiers). A total of 168 (32.2%) of the junior ranks (n = 522) were married or in a long-term relationship compared with 41 (50.6%) of the seniors and officers (n = 81). Where an occupational outcome and relationship status were both recorded it appears that those in a long-term relationship were less likely to experience premature discharge than those who were single at the point of referral to the FMHT with 19.1% (n = 39 out of 165) of those in a long-term relationship being prematurely discharged versus 32.6% (n = 126) of those who were single. The distribution of deliberate self-harm (DSH) in junior and senior ranks was examined. Of the juniors (n = 401), 91 (22.7%) had a documented history of DSH compared with 5 (8.3%) of the senior ranks and officers (n = 60). A total of 50.5% (n = 46) of those with a history of deliberate self-harm where an outcome was documented (n = 91) were evacuated out of theatre compared with 85 (24.5%) of those without (n = 347) (OR 3.15 95%; CI 1.95-5.08). Evacuation outcome was not recorded in 5 cases. Before

TABLE 1. Sample Characteristics (N = 825) with Comparisons to the Demographic Composition of the Army as at 2009

Characteristic*	*n* (%)	Army (%) (25)
Sex		
Male	726 (88.1)	(92)
Female	98 (11.9)	(8)
Rank		
Junior Rank	429 (52.0)	(35)
Junior Non-commissioned Officer	281 (34.1)	(25)
Senior Non-commissioned Officer	67 (8.1)	(18)
Warrant Officer	11 (1.3)	(5)
Commissioned Officer	37 (4.5)	(17)
Age at time of attendance at the FMHT (in years)		
< 20	94 (11.8)	(9)
20-24	271 (34.0)	(23)
25-29	161 (20.2)	(21)
30-34	129 (16.2)	(15)
> 35	142 (17.8)	(32)
Arm		
Combat Arm	295 (35.9)	(33)
Combat Support Arm	137 (16.7)	(28)
Combat Service Support Arm	389 (47.4)	(39)
Service length		
< 1 to 4 Years	136 (17.2)	
5 to 9 Years	411 (51.9)	
10 to 14 Years	119 (15.0)	
15 to 19 Years	60 (7.6)	
More Than 19 Years	66 (8.3)	
Engagement type		
Regular Forces	595 (72.1)	
Mobilized Reserve Forces	230 (27.9)	(Estimates vary between 4 and 11% of the deployed force) (26, 27)

*Numbers do not add to totals due to missing data.

adjusting for potential confounders, soldiers were statistically significantly more likely to experience premature discharge if they were evacuated out of theatre (OR 2.17 95%; CI 1.52-3.10), were single (OR 2.04; 95%; CI 1.36-3.07), held a junior rank (private soldier rank or junior non-commissioned officer) (OR 2.30 95%; CI 1.32-4.00), had completed four or less years of active service (OR 34.38 95% CI 20.37-58.01), had a history of self-harm (OR 1.66 95%; CI 1.02-2.70), were from the combat arms (OR 1.41, 95%; CI 1.02-1.94) and were ≤ 24 years of age (1.86 95%; CI 1.43-2.42). Table 2 shows the characteristics of discharged and serving personnel at followup.

DIAGNOSIS

The most frequently occurring diagnoses among FMHT attendees were adjustment and mood disorders. Few psychotic episodes and substance and alcohol-related disorders were present. Disorders characterized by exposure to a stressor (adjustment disorder, acute stress disorder, and PTSD) constituted 53.5% (*n* = 293) of the referrals diagnosed with a mental health problem (*n* = 548). A total of 167 records did not contain a description of the referred problem; 86 (13.6%) of all referrals where a diagnosis was recorded (*n* = 634) were assessed as having no psy-

chiatric condition by the FMHT. Of these, 9.5% (n = 8) were evacuated out of theatre and 90.5% (76) were returned to their unit. No evacuation outcome was recorded in 2 cases. Of those with a diagnosed disorder where evacuation outcome was recorded (n = 469), 34.3% (n = 161) were evacuated, while the remainder 65.7% (n = 308) were returned to their unit.

Psychiatric Casualty Status and Occupational Outcome – General Model

A logistic regression model was constructed with occupational outcome as the dependent variable, and two blocks of potential confounders were entered to test the effect upon a range of independent variables. Block one adjusted for demographic variables and block two for demographic variables plus illness variables and evacuation status. The results of these analyses (shown in Table 2) suggest that after adjusting for potential confounders, premature discharge was associated with having a service length of less than four years and being evacuated out of the operational theatre.

Age and Reserve Forces

The mean age of the reservists and regulars in the sample differed significantly (reservists mean age = 31.6 years (S.D. 7.944) and regulars = 25.4 years (S.D. 6.067) (t = -11.827 P = <0.001 d.f. 795). In regulars, the likelihood of becoming an FMHT casualty reduced with age, but for reserves the likelihood increased until the age of 50 years where the rate in regulars increased and in reserves it reduced. The linear regression of age on regular or reserve force status was significant (r2 = 0.150, P = <0.001), with age in whole years entered as a continuous variable, suggesting a significant linear trend.

Period of Followup

Thirty-seven personnel out of 801 (4.6%) had not completed the full 24-month followup period at the point of the outcome data collection. Three (< 1%) had completed followup periods of just five and six months; 24 (3%) were within 3 months of completing the 24-month followup, nine (1%) were within four months and one (<1%) was within five months of completing the followup period. These personnel could theoretically have developed an overtly negative outcome before completing the 24 month followup period; however, as 14 were within two months of completing it, it is unlikely that the inclusion of this group in the analyses would have altered the results significantly. A total of 67% (142) of the adverse outcomes (n = 211) occurred in the first year following contact with the FMHT, 30% (63) in the second year, and only 3% (6) after two years.

DISCUSSION

Main Findings

This study found that about three-quarters of those who had consulted the FMHT while in an operational theatre were still serving two years after having done so. Also, by using the PIE treatment principles, the FMHT were able to return to their deployed units in the region of 90% of those assessed as having no psychiatric disorder and about two-thirds of those with mental health problems while they were still in theatre. This is reassuring since the FMHT act not only to assess and treat casualties but also to assist the chain of command in making informed decisions on maintaining the operational capability of the deployed force. However, the outcomes for those who were evacuated from theatre were considerably less favourable, with only 60% of this group remaining in service two years after an FMHT assessment. We were not able to ascertain whether this

TABLE 2. Unadjusted and Adjusted ORs and 95% CI for Premature Discharge, Demographic, Clinical, and Evacuation Variables

Variable (n)	Discharge *n* (%)	Serving *n* (%)	OR (95% CI)	Adj. ORa (95% CI)	Adj. ORb (95% CI)
Age Groups					
Age When Assessed < 20 Years (92)	42 (45.7)	50 (54.3)	1	1	1
Age When Assessed 20-24 Years (267)	85 (31.8)	182 (68.2)	0.56 (0.34-0.90)	1.46 (0.70-3.04)	1.16 (0.51-2.63)
Age When Assessed 25-29 Years (155)	46 (29.7)	109 (70.3)	0.50 (0.91-0.86)	1.96 (0.85-4.52)	1.88 (0.72-4.88)
Age When Assessed 30-34 Years (128)	16 (12.5)	112 (87.5)	0.17 (0.09-0.33)	1.12 (0.39-3.18)	0.55-(0.14-2.08)
Age When Assessed ≥ 35 Years (139)	19 (13.7)	120 (86.3)	0.19 (0.10-0.36)	0.89 (0.28-2.77)	0.43 (0.11-1.75)
Rank Groups					
Junior and Junior NCO Rank (692)	196 (28.3)	496 (71.7)	2.30 (1.32-4.00)	1.16 (0.50-2.68)	1.03 (0.39-2.74)
Senior and Officer Rank (109) 1	16 (14.7)	93 (85.3)	1	1	
Engagement Type					
Regular (577)	149 (25.8)	428 (74.2)	0.89 (0.63-1.26)	0.78 (0.44-1.37)	0.77 (0.37-1.61)
Reserve (224)	63 (28.1)	161 (71.9)	1	1	1
Combat Arm					
Combat Arm (288)	89 (30.9)	199 (69.1)	1.41 (1.02-1.94)	0.87 (0.53-1.40)	0.88 (0.50-1.54)
Non-Combat Arm (510)	123 (24.1)	387 (75.9)	1	1	1
Gender					
Men (705)	189 (26.8)	516 (73.2)	1.22 (0.73-2.01)	1.01 (0.48-2.09)	0.69 (0.29-1.68)
Women (95)	22 (23.2)	73 (76.8)	1	1	1
Service Length Group					
Service Length 1-4 (135)	115 (85.2)	20 (14.8)	1	1	1
Service Length 5-9 Years (406)	76 (18.7)	330 (81.3)	0.40 (0.23-0.68)	0.41 (0.22-0.78)	0.06 (0.03-0.12)
Service Length 10-15 Years (119)	5 (4.2)	114 (95.8)	0.01 (0.01-0.02)	0.01 (0.002-0.03)	0.11 (0.003-0.05)
Service Length > 15 Years (124)	12 (9.7)	112 (90.3)	0.02 (0.01-0.04)	0.04 (0.01-0.10)	0.08 (0.02-0.31)
Relationship Status					
Single (387)	126 (32.6)	261 (67.4)	2.04 (1.36-3.07)	1.01 (0.58-1.76)	0.96 (0.48-1.92)

Married/Long-Term Relationship (204)	39 (19.1)	165 (80.9)	1	1	1
Mental Illness Status					
Diagnosed Illness Present (529)	136 (25.7)	393 (74.3)	0.72 (0.44-1.18)	1.00 (0.46-2.18)	0.71 (0.26-1.93)
Diagnosed Illness Absent (83)	27 (32.5)	56 (67.5)	1	1	1
Previous Mental Health Service Contact					
Previous Mental Health Contact Present (158)	40 (25.3)	118 (74.7)	1	1	1
Previous Mental Health Contact Absent (281)	82 (24.9)	199 (75.1)	0.82 (0.53-1.28)	1.02 (0.57-1.82)	0.89 (0.48-1.64)
Deliberate Self-Harm History					
History of DSH Present (90)	34 (37.8)	56 (62.2)	1.66 (1.02-2.70).	1.78 (0.93-3.43)	1.45 (0.72-2.89)
History of DSH Absent (359)	96 (26.7)	263 (73.3)	1	1	1
Evacuation Status					
Evacuated (190)	75 (39.5)	115 (60.5)	1	1	1
Returned to Unit (497)	115 (23.1)	382 (76.9)	0.46 (0.32-0.66)	0.42 (0.25-0.70)	0.36 (0.20-0.65)

a. Block 1 adjusted for the following demographic confounders: Rank, Combat Arm, Service Length, Relationship Status and Age. b. Block 2 adjusted for Model 1 confounders plus illness confounders including: History of Deliberate Self-Harm and Evacuation Status

Table 3. Assessed Illness Categories

Assessed Illness	n (%)
Adjustment Disorder	201 (31.7)
Mood Disorder	132 (20.8)
No Psychiatric Disorder	86 (13.6)
**Acute Stress Disorder	81 (12.8)
Anxiety Disorders	61 (9.6)
Episode of DSH	17 (2.7)
Somatoform Disorders	13 (2.1)
PTSD	11 (1.7)
Other Illness	32 (5.1)

No Diagnosis Recorded = 167. *Other illnesses, such as neurotic and sleep disorders, were classified as Treatment Sensitive, *n* = 10 and those such as psychotic and substance use related disorders as Treatment Resistant *n* = 22. **Anxiety disorders were comprised of panic disorder, generalized anxiety disorder, and specific phobia.

was a consequence of more severe illness, as severity markers were not recorded. Similarly, lower levels of long-term retention in service were also seen in those who were referred to the FMHT having only been in service for a short period of time.

Returning mental health casualties to their units in a modern, high tempo war zone may cause operational commanders to be concerned about the potential impact of dealing with soldiers with easy access to weapons and are experiencing psychological problems. However, the close working relationship that has been developed between the military FMHT, unit primary care services, and operational commanders appears to support a high rate of return to unit and continued functioning both in the operational theatre and post-deployment, in that there was a higher rate of premature discharge in those evacuated out of theatre in this study. Commanders should be reassured that those who are returned to their unit are not only likely to serve out their operational tour of duty, but are also likely to serve out their elective period of military service, suggesting that FMHT intervention in conjunction with unit support has been highly effective. PIE is much more a group of managerial principles than a therapeutic tool, and it is unrealistic to assume that everyone will benefit from this simple intervention, especially those at the more severe end of the distress scale. However, it may be that some of those who were evacuated would have been better served by being managed in theatre, perhaps in a less stressful role or location where they might have benefited from the support of their peers. This approach is limited by the severity of the clinical presentation, which we were not able to ascertain in this study. This poses a difficult dilemma for the FMHT in that they must continually balance the potential benefit of returning the individual to their operational unit with the possibility that they may be at risk of further psychological injury.

Deployed reserve forces have reported worse mental health than regular forces in other studies (Browne, Hull, Horn, Jones, Murphy, Fear, Greenberg, et al., 2007; Hotopf, Hull, Fear, Browne, Horn, Iversen, et al., 2006), and our sample contained a greater than expected number of reserve forces when compared to the proportion in the deployed force (28 vs. 4-11%); however, there was no significant difference in the overall long-term occupational outcome between regular and reserve forces.

Those with a short length of service were at substantial risk of premature discharge in this study, and it would not be unreasonable to assume that this group would contain more young Service personnel who have been shown to be at particular risk for developing mental health problems and early

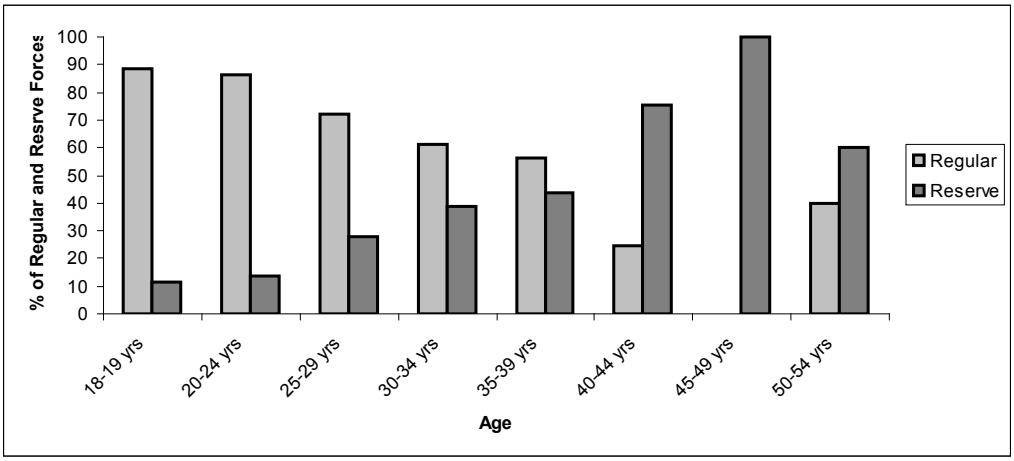

FIGURE 1. Age, Reserve or Regular Status, and Rate of Mental Health Casualty Status

discharge (Iversen, Nikolaou, Greenberg, Unwin, Hull, Hotopf, et al., 2005; Kapur, While, Blatchley, Bray & Harrison, 2008). Although age was not associated with premature discharge, age was associated with referral to the FMHT, with younger regular soldiers and older reserves being referred. Fewer young soldiers were in a long-term relationship or marriage, and it might be that they were not able to benefit from the social support effects that this might confer (Cohen & Wills, 1985). Shorter length of service seems to function as an independent risk factor; this may be explained by such issues as reduced integration into the unit and consequent lack of peer support (Siebold, 2007); unfortunately this study is not able to answer this, as these variables were not measured. What is clear is that FMHT personnel must be alert to the possibility of a sub-optimal occupational outcome should those with a short length of service enter the casualty evacuation chain.

A fifth of referred personnel in this study had a history of deliberate self-harm (DSH), and evacuation out of the operational theatre was more likely in those with a history of DSH than in those without such a history. However, after adjusting for demographic and illness confounders, they were no more likely to be prematurely discharged than those without such a history. This seems to suggest that the FMHT is carrying out its primary task effectively by recognizing the potential risk associated with a history of self-harm and arranging for evacuation when appropriate following careful assessment. It is notable that half of those with a DSH history were returned to their unit and served out both the current tour and also the remainder of their Army service. Having a history of DSH is not always associated with a poor outcome in an operational setting. Careful assessment within the context of the overall clinical presentation is required when deciding on a management plan; based on the results of this study, it certainly should not result in immediate evacuation out of theatre.

The finding that the premature discharge rate for women was no worse than that for men is of interest. Previous studies suggest that women are more likely to be mental health casualties in the non-deployed setting, and in a study of UK military community mental health department referrals, women constituted 18% of the referred military personnel when a rate of about 8% was expected (Gould, Sharpley & Greenberg, 2008). In the current study, women constituted 11.9% of the total referrals, but although they were over-represented, this study suggests that women have marginally better long-term occupational outcomes than men. In a study by Jones and colleagues (Jones, Fear, Greenberg, Hull & Wessely, 2009), women had better

occupational outcomes than men following hospitalisation for a mental health problem. The results of this study are encouraging and add to the literature that demonstrates that deployment should not necessarily have a lasting detrimental impact on the mental health of women (Rona, Fear, Hull & Wessely, 2007).

Though combat troops were marginally over-represented in the sample, being from the combat arms was not a risk factor for premature discharge, which is somewhat surprising given that combat exposure has been suggested as a risk factor for PTSD and other mental health problems. Given that there were low levels of PTSD in this sample (1.7%) and higher levels of adjustment and other neurotic disorders, it may be that the deployed force was either resilient to the negative effects of combat exposure or had experienced low levels of combat. The latter explanation is unlikely as the sampling frame includes operational phases where the British Army engaged in the fiercest combat engagements since the Korean War and numerous decorations for acts of bravery were awarded. It is not possible to draw firm conclusions about combat stress casualties from this "illness" sample as UK Armed Forces doctrine is to manage combat stress reactions within the unit rather than evacuate for specialist mental health treatment. There may have been numerous acute combat stress reactions that were managed without formal FMHT intervention. It may also be that those with mental health problems were prevented from seeking help as a result of stigma (Hoge, Castro, Messer, McGurk, Cotting & Koffman, 2004; Greenberg, Langston, Everitt, Iversen, Fear, Jones & Wessley, 2010), which is known to be a barrier to care in Service personnel.

Study Limitations

One major limitation of this study is that it used a dataset that was compiled in adverse circumstances on operations. This sometimes resulted in partial reporting of the variables of interest. While the delivery of Forward Psychiatry and PIE has been assumed with confidence, we can say little about the clinical intervention that was delivered in theatre, and this is clearly an important mediating variable. Furthermore, we are unable to comment on the severity of the problem which the soldier was referred, and it could be that those with more severe clinical presentations were more likely to be evacuated and also to have adverse occupational outcomes. The ICD 10 classification system (WHO, 1993) was used to establish diagnosis; however, it was frequently not possible to identify the severity of the presenting illness. For some disorders, for instance depressive illness, diagnostic codes were recorded to one decimal place, indicating severity. However, in the most common illnesses, such as adjustment disorder and acute stress disorder, a severity marker was not recorded, which precluded adjusting for this important variable in our analysis. Category 1 occupational outcomes in this study were those discharges, including overtly negative outcomes, that occurred within 24 months or less of becoming a mental health casualty. A small proportion of the soldiers were followed up at 18 months following referral to the FMHT, and it is therefore possible that if a further 6 months had elapsed to allow for a full two-year followup, an additional number of overtly negative occupational events might have been identified. Unfortunately, the timing of the followup was beyond the control of the researchers. The figure for category 1 discharges stated in this paper may therefore be marginally conservative. The strength of this study is that we utilized already existing datasets to derive the data, and the main outcomes were whether or not personnel had stayed in service after becoming mental health casualties on operations. While many mental health studies use psychological rating scales to measure psychological health, the use of retention in Service is a real world outcome of importance to military commanders and unlikely to be subject to individual bias. However, the use of

other outcomes which looked more specifically at mental health status would also have been interesting, although it would have required the administration of a questionnaire or interview and in doing so non-response bias may have affected results.

Implications

The findings of this study support the use of Forward Psychiatry principles in that those entering the casualty evacuation chain had worse long-term occupational outcomes than those who did not. Furthermore, substantial numbers of those who returned to their units served out the rest of their operational tour and also their military career. FMHT personnel should therefore continue to utilize Forward Psychiatry principles with confidence for those who present with no psychiatric disorder and to support military commanders and primary care staff in reintegrating soldiers into their deployed unit following assessment and treatment. However, FMHT staff remain aware that the severity of illness and the limited capacity to deliver more complex treatments in the operational environment may by a limiting factor in utilizing the PIE principles.

CONCLUSION

This study suggests that, as we hypothesized, deployed FMHTs perform efficiently in returning soldiers who are assessed as having non-mental health related problems to their unit following referral. In addition, they also return a substantial number of those with mental health problems to their units, where they continue to serve in their deployed role. The results of the analyses presented in this paper suggest that, in line with our second hypothesis, soldiers who are evacuated out of the operational theatre are at risk of premature discharge from the Army. However, we were unable to clarify whether this was a consequence of greater symptom severity. Those with a shorter length of service at the time of FMHT assessment were also at risk in this regard. Although reserve forces soldiers were over-represented in the referral numbers and have been shown to be more susceptible to poor mental health, they fared no worse than their regular forces counterparts in military work terms. Further prospective research is required to establish whether PIE principles work as well in primary care settings on operations and to examine whether casualty evacuation contributes independently to lower long-term military retention and adverse military work consequences or whether this is a function of illness severity.

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