

## A clinical follow-up study of reserve forces personnel treated for mental health problems following demobilisation

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### Abstract

**Background:** The Reserves Mental Health Programme (RMHP) provides a clinical service for members of the United Kingdom's Reserve Forces deployed to combat operations since 2003.

**Aim:** To assess whether mental health and occupational functioning changed after treatment.

**Methods:** We examined a treatment group with operationally attributable mental health problems and a non-intervention group with non-operationally attributable problems. A self-report, repeat measures study design examined post traumatic stress disorder (PTSD), common mental disorders, alcohol use and occupational functioning at follow up delivered by either telephone or post.

**Results:** One hundred three reservists were offered an initial assessment. Adjusted response rates were 66.7% ( $n = 16$ ) for the no treatment group and 62.7% ( $n = 37$ ) for the treatment group. The treatment group were more likely to be cases at baseline on all mental health outcome measures other than PTSD, but at follow up, they were no more likely to be so. A one-way ANCOVA was conducted to evaluate treatment outcome. This was not significant for all measures except for PTSD. On completion of treatment, three quarters of serving personnel returned to full occupational fitness.

**Conclusion:** The RMHP appears to offer a clinically and occupationally effective intervention to recently de-mobilised reservists with operationally attributable mental health problems.

**Keywords:** United Kingdom armed forces, reserve forces, mental health, occupational treatment, clinical

### Introduction

Within the UK Armed Forces, reserve personnel have played an increasingly vital role as part of the deployed force; since 2003 reservists have constituted about 10% of UK troops who have deployed to operations. Although the rates of psychological health problems for UK Armed Forces personnel who have deployed on operations remains low, deployed reserve forces personnel consistently report higher rates of psychological health problems than regular forces and non-deployed reserve personnel (Hotopf et al., 2006). In response to this finding, and to bridge a perceived gap in services for recently de-mobilised reserve personnel, in November 2006 the United Kingdom Ministry of Defence established the

Reserves Mental Health Programme (RMHP). The RMHP was established for a 3-year trial period in order to provide an assessment and treatment service for reservists with mental health problems attributable to a recent deployment. Those eligible to access the RMHP include all current and former members of the UK Volunteer and Regular Reserve Forces who have demobilised since 01 January 2003.

Those who attend the RMHP with concerns about their mental health are provided with a formal assessment by RMHP staff at a central location and, if applicable, treatment is offered by defence mental health service personnel country wide. The referral pathway is shown in Figure 1. Personnel can either self-refer to the RMHP or may access the service through referral from their own civilian general practitioner (GP). Once RMHP personnel have established that an individual is eligible, they are assessed to determine if they have an Operationally Related Mental Health Problem (ORMHP). ORMHPs are mental disorders directly related to operational deployment which can be treated, as an outpatient, by the defence mental health services; the provision of hospital-based treatment remains the responsibility of the UK National Health Service (Surgeon General’s Policy Letter, 2006). Those who do not have an ORMHP are classified as not having a mental health disorder that requires treatment within the RMHP provision. Those who are deemed not to require treatment may, however, require only simple reassurance or have low level symptoms which are not likely to respond to or require formal intervention. Those reservists who are assessed as having a mental health disorder which is not operationally related, or if the illness is severe enough to warrant hospital-based treatment, may be referred on to an appropriate NHS provider usually through their GP.

For each individual who attends for assessment, regardless of whether they are eligible to enter the treatment phase of the programme, a personal management plan is generated on completion of their assessment. This plan details their key problems and how they might be addressed. For those diagnosed as having a mental health problem, military community mental health teams closer to the reservist’s place of residence provide further assessment to refine the diagnosis and provide treatment. For those who are deemed not to have an ORMHP, their problems are discussed in depth and self-management strategies are

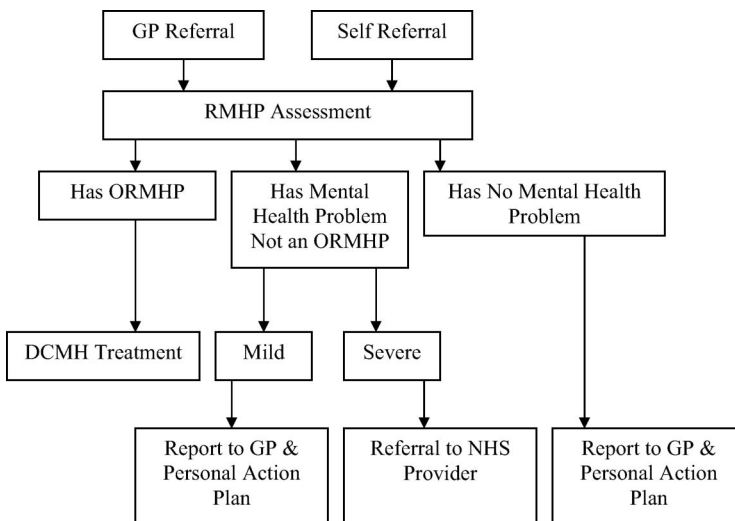


Figure 1. RMHP pathway.

outlined. For all individuals who have attended for an initial assessment, a copy of their mental health and welfare needs assessment is sent to their GP. The Departments of Community Mental Health (DCMH) who provide the treatment component of the RMHP are staffed by multidisciplinary teams comprising a Consultant Psychiatrist, Psychologist, Social Worker and a number of Community Mental Health Nurses, many of whom have training in delivering evidence-based treatments, such as cognitive behaviour therapy and eye movement desensitisation and reprocessing therapy. Robust governance and clinical supervision are in place in the majority of departments. We did not assess the form of treatment given, however, we report an analysis of treatment intensity in the results section of this article.

The assessment process requires all individuals to complete a number of clinical measures and in addition, a comprehensive clinical assessment is carried out and a satisfaction survey is completed which assesses subjective utility, the quality of the service and contains a form which asks for consent to future follow up.

This study aimed to evaluate whether the RMHP was effective in signposting previously deployed reservists to effective treatment by comparing the psychological health of those assessed as having an ORMHP with that of those deemed not to need treatment. We tested the following hypotheses: (1) During follow-up, reservists who have accessed treatment through the RMHP will no longer meet disorder caseness criteria; (2) Reservists who access the RMHP will experience a substantial reduction in occupational and functional impairment.

The proposal for this study was submitted to the Ministry of Defence Research Ethics Committee and was accepted as falling within the scope of audit and service evaluation and as the results were to be reported anonymously it was not deemed to require ethical approval.

## Method

A follow-up study was conducted of reservists who accessed the RMHP during the first 3 years of clinical activity (November 2006 to November 2009). The follow-up assessments were all carried out in late 2009 which led to the period of follow up varying widely, from 36 months for those referred during the early period of RMHP activity to those still receiving treatment.

At baseline and follow up, the following measures were administered; the Alcohol Use Disorders Identification Test (AUDIT) (Saunders et al., 1993), Post traumatic Stress Disorder Checklist Military Version (PCL-M) (Blanchard et al., 1996), Beck Depression and Anxiety Inventories (BDI and BAI) (Beck et al., 1988a,b) and the 12-item version of the General Health Questionnaire (GHQ) (Goldberg et al., 1976). Current occupational functioning was assessed through the reservist's current military medical employment grade (which determines whether their employment is limited for medical reasons) if they were still serving in the volunteer reserves (such as the Territorial Army) or whether they were currently in civilian employment. The survey was initially administered by post, but telephone surveys were used for those who either failed to respond by mail or who rang the RMHP to request a telephone interview in preference to replying by post.

The Ministry of Defence Research Ethics committee approved the study on 7 August 2009 as an audit of existing practice. Written consent to follow up had been obtained from all participants at the time of the initial assessment.

For the purpose of analysis, those personnel assessed as having a mental health condition not attributable to operational deployment ( $n = 5$ ), (of which only one responded to the

follow-up survey) were excluded from the analyses. Thus, the two categories of reserves studied were Group A (no treatment group) and Group B (those with an ORMHP who received treatment through the RMHP).

Subjective improvement in the presenting mental health problem was derived by combining responses to a subjective degrees of improvement Likert measure to produce three outcomes, namely, unimproved or worse, slightly improved and improved or much improved. The modified version of the combat experience scale (Hoge et al., 2004) used by Hotopf et al. (2006) to assess the combat exposure levels of UK Service personnel deployed to the Iraq War was split into tertiles. A binary caseness measure was produced for each of the five psychometric scales used in the study with caseness being assessed as equal to or above the following cut points; GHQ12  $\geq 4$ , PCL-M  $\geq 50$ , AUDIT 10  $\geq 8$ , BDI  $\geq 20$  and BAI  $\geq 16$ .

All armed forces personnel are awarded an occupational employment standard which reflects their medical fitness. Having a potential mental health problem can result in an award of a temporary reduced employment standard to protect the reservist from deployment and which is reviewed upon completion of treatment. The various fitness categories were assessed at follow up. Respondents were classed as militarily occupationally fit if there were no medical restrictions on their military employment on completion of treatment, partially occupation fit if there were limited medical restrictions but they were at work and unfit if not deployable for medical reasons. Reserve personnel also have civilian jobs and so the proportion of those in civilian employment following contact with the RMHP was also assessed. Those personnel who were deployed to Afghanistan at the time of follow up (Group A ( $n = 1$ ), Group B ( $n = 2$ )) were deemed as being fully fit and were therefore assessed as having recovered from the problem for which they were referred to the RMHP. However, as they were deployed to a high intensity operational area, it was not possible to contact them to request that they complete the follow-up survey.

Data analysis was conducted using the statistics package for social sciences (SPSS) version 15. A one-way analysis of covariance was conducted to evaluate the effectiveness of the treatment component of the RMHP. The independent variable was whether the person was referred on for treatment or whether they were given simple advice and were discharged. The covariate was the baseline mental health measure score. The dependent variable was the post treatment mental health measure score. Differences in baseline scores between responders and non-responders were examined using one-way analysis of variance (ANOVA). To validate that the correct allocation to the treatment and non-treatment groups had taken place, independent samples *t*-tests examined the difference in baseline scores between Group A and Group B reservists at assessment. Unadjusted odds ratios (ORs) and 95% Confidence Intervals (CI) examined the association between binary caseness variables. Categorical variables were examined using Pearson's Chi square ( $\chi^2$ ) test or Fisher's exact test. Imputed results were generated for the two Group B reservists who were serving on operations at the time of follow up. Mean change scores were computed for the whole sample and the mean changes were applied to the deployed reservist's initial psychometric scores to generate imputed follow-up scores.

## Results

The potential follow-up sample consisted of 103 reservists who had accessed the service and had been offered an initial appointment for assessment since it was established in November 2006. Two reservists subsequently refused the treatment appointment offered and made no further contact and five reservists were excluded from the sample as their presenting

problems were not attributable to their deployment. Furthermore, 13 reservists (Group A ( $n = 2$ ), Group B ( $n = 11$ )) did not give consent to follow up and therefore the final sample group was 83. The adjusted response rates were therefore 66.7% for Group A ( $n = 16$  out of 24) and 62.7% for Group B ( $n = 37$  out of 59).

The majority of the RMHP attendees were from the Army and the sample demographics and also a comparison with the regular Army, are shown in Table I. These data suggest that the sample included proportionately more combat troops than the Army as a whole, fewer juniors, Senior NCOs and Officers, but a greater proportion of Junior NCOs and Warrant Officers. Over half of the sample reported being in a long-term relationship and the RMHP sample were older than the Army as a whole. The most popular route of access was self-referral (78%,  $n = 78$  out of 100, with three cases where the referral route was unclear).

Examining operational factors revealed that approximately 50% had completed one operational tour, approximately one-third had completed one additional tour and the

Table I. Sample characteristics\*, number ( $n$ ) and percentage (%).

Variable	Characteristic	Number	Percentage (%)	Proportion of regular army (%)
Rank ( $n = 103$ )	Junior	29	28.2	35
	Junior non commissioned officer	37	35.9	25
	Senior non commissioned officer	15	14.6	18
	Warrant officer	9	8.7	5
	Officer	13	12.6	17
Age group (years) ( $n = 102$ )	20–24	10	9.8	23
	25–29	19	18.6	21
	30–34	13	12.7	15
	35–39	21	20.6	17
	> 39 <sup>†</sup>	39	38.2	15
Gender ( $n = 103$ )	Male	96	93.2	91
	Female	7	6.8	9
Relationship status ( $n = 101$ )	Single	40	39.6	
	Short-term relationship	61	60.4	
Combat arm (Army & Royal Marines) ( $n = 93$ )	Combat	40	43.0	33
	Combat support arm	20	21.5	28
	Combat service support	33	35.5	39
Other services ( $n = 7$ )	Royal Air Force	5		NA
	Royal Navy	2		NA
Referral source ( $n = 100$ )	Self	78	78.0	
	General practitioner	22	22.0	
Tour length (months) ( $n = 102$ )	1–3	11	10.8	
	6	87	85.3	
	7–10	4	3.9	
Number of tours ( $n = 97$ )	0	47	48.5	
	1–3	44	45.4	
	4–7	6	6.1	
Operational area ( $n = 102$ )	Iraq	67	65.7	
	Afghanistan	34	33.3	
	Kosovo	1	1.0	

Note: \*Includes those who did not attend the arranged DCMH appointment and also those with a mental health condition not attributable to operational deployment.

<sup>†</sup>40–44 age group  $n = 27$ , 45–50 age group  $n = 7$ , > 50 age  $n = 5$ .

remainder had completed two or more. As with the regular Army, most (~85%) reservists had completed tours of 6 months duration. Two-thirds had completed their last tour in Iraq and one-third in Afghanistan.

The frequency of exposure to the 18 operational/combat items for the sample was examined (Table II). These data suggest that Group B reservists had higher levels of combat exposure than Group A on all items with the exception of exposure to Improvised Explosive Devices (IEDs) where the prevalence of exposure was similar. Twelve per cent ( $n = 3$  out of 25) of Group A reported 4–7 combat exposures whereas 37.1% ( $n = 26$  out of 70) of Group B reported 4–7 exposures (range 0–7 exposures) (Fisher's exact test,  $p = 0.02$ ). Comparison with data from the King's College London military cohort (Hotopf et al., 2006) suggests that reservists attending the RMHP reported overall greater levels of combat experiences than either regular or reserve forces deployed to the war in Iraq in 2003 who took part in the King's College Study.

Examination of the diagnostic categories showed 40% ( $n = 28$ ) of Group B ( $n = 70$ ) suffered from a condition which was related to exposure to a potentially stressful event; 25.7% ( $n = 18$ ) were diagnosed with an adjustment disorder and 14.3% ( $n = 10$ ) with probable post traumatic stress disorder (PTSD). However, the more frequently assigned diagnostic category, 43.3% ( $n = 29$ ) was depressive disorder.

#### Treatment outcomes

Information on the number of treatment sessions received by those who were referred to the DCMH was available for 39 reservists, the number of treatment sessions received in addition to an assessment session ranged from 1 to 22 with a median of 3 and mode of 1.

The ANCOVA was not significant for the BDI, BAI, AUDIT and GHQ12, however, there was a significant difference between the individuals who did and did not receive

Table II. Prevalence (%) of exposure to combat events for non treatment and treatment group reservists.

Combat exposure item	Non treatment group, number (%)	Treatment group, number (%)	King's cohort study
Cleared caves or buildings	0 (0.0)	6 (9.0)	Not measured
Aided the wounded	6 (26.1)	19 (28.8)	18%
Witnessed wounding and killing	12 (48.0)	43 (64.2)	45%
Exposed to small arms fire	14 (60.9)	47 (69.1)	32%
Exposed to mortar or rocket fire	13 (54.2)	43 (66.2)	53%
Exposed to a landmine strike	0 (0.0)	7 (10.8)	4%
Experienced civilian hostility	1 (4.3)	19 (29.2)	42%
Discharge weapon in combat	5 (21.7)	25 (36.8)	17%
Exposed to improvised explosive devices	5 (21.7)	14 (21.2)	Not measured
Handled the dead	7 (30.4)	22 (33.8)	15%
Had a mate injured or killed	6 (25.0)	24 (36.9)	25%
Exposed to sniper fire	0 (0.0)	4 (6.2)	Not measured
Could not respond due to rules of engagement	1 (4.3)	7 (10.8)	Not measured
Engaged in close quarter battle	0 (0.0)	0 (0.0)	Not measured
Got wounded	2 (8.3)	9 (12.9)	Not measured
Spent long periods in a hostile area	9 (42.9)	44 (64.7)	Not measured
Experienced frequent base attacks	10 (41.7)	32 (50.0)	Not measured
Perceived a threat of death or injury	9 (39.1)	40 (58.8)	58%

treatment after covarying the baseline scores on PCL scores,  $F(1,26) = 4.949$ ,  $p = 0.04$  suggesting that PTSD symptoms were significantly improved by treatment (Table III).

There was no significant difference in the baseline psychometric measure scores for those who completed the study, those who could not be contacted at follow up and those who did not consent to follow up (data available from the authors).

Examination of the levels of psychopathology in the two study groups confirmed that they were correctly categorised by the RMHP staff. Independent samples *t*-tests for equality of means indicated a significant difference in all baseline psychometric measures with non treatment group reservists reporting lower scores on the GHQ ( $t = -2.404$ ,  $df 86$ ,  $p = 0.02$ ), BDI ( $t = -4.029$ ,  $df 82$ ,  $p = <0.001$ ), AUDIT 10 ( $t = -3.470$ ,  $df 61$ ,  $p = 0.001$ ), PCL ( $t = -3.380$ ,  $df 55$ ,  $p = 0.001$ ) and BAI ( $t = -4.383$ ,  $df 47.5$ ,  $p = <0.001$ ).

ORs with 95% CI were generated for the difference in caseness on a range of psychometric measures for the non treatment and treatment group reservists at assessment and at follow up. These data suggest that those in Group B were more likely to be a case at assessment on all measures except the PCL-M, which was of borderline significance, than those who do not have an operationally attributable mental health problem. However, at follow up, the treatment group were no more likely to be cases on all of the measures than the non-treatment group. The results are shown in Table IV.

At follow up, 47 reservists completed the subjective degrees of improvement scale with 89% ( $n = 42$ ) reporting a positive subjective improvement in their mental health since their initial assessment. Over half (57%) reported that they had experienced a substantial improvement. Although those in Group A were less likely to report a positive subjective change than those in Group B (86% in the non-treatment group (Group A)

Table III. One-way analysis of covariance – differences in scores between treatment and non treatment group reservists.

Measure	Mean square	df	F	<i>p</i> =
GHQ	12.354	1	0.823	0.37
BDI	54.769	1	0.484	0.49
AUDIT	3.281	1	0.153	0.70
PCL	849.563	1	4.949	0.04
BAI	29.047	1	0.209	0.65

Table IV. Odds ratios (OR) and 95% confidence intervals (95%CI) for caseness on a range of psychometric measures for treatment group compared to non-treatment group reservists.

Psychometric measure	Non treatment group		Treatment group	
	Sample total (category <i>n</i> , % caseness)	OR	Sample total (category <i>n</i> , % caseness)	OR (95% CI) (for caseness at FU)
Initial GHQ case	19 (13–68.4)	1	69 (61–88.4)	3.52 (1.04–11.87)
Follow-up GHQ case	15 (7–46.7)	1	35 (19–54.3)	1.36 (0.40–4.57)
Initial BDI case	17 (5–29.4)	1	67 (42–62.7)	4.03 (1.27–12.80)
Follow-up BDI case	15 (1–6.7)	1	35 (8–22.9)	4.15 (0.47–36.58)
Initial AUDIT case	13 (4–30.8)	1	50 (35–70.0)	5.25 (1.40–19.73)
Follow-up AUDIT case	14 (4–28.6)	1	35 (16–45.7)	2.11 (0.55–8.01)
Initial PCL-M case	13 (3–23.1)	1	44 (24–54.5)	4.00 (0.97–16.55)
Follow-up PCL-M case	14 (3–21.4)	1	35 (9–25.7)	1.27 (0.29–5.60)
Initial BAI case	18 (3–16.7)	1	54 (31–57.4)	6.74 (1.74–26.04)
Follow-up BAI case	13 (2–15.4)	1	34 (8–23.5)	1.69 (0.31–9.29)

and 91% in Group B, the treatment group) the difference in those reporting some vs. no improvement between the two groups was not statistically significant (OR 1.67, 95% CI 0.25–11.26).

Examination of the military occupational grading of Mobilised Reserve Force personnel who were able to continue to serve in the reserves after deployment ( $n = 47$ ), found that overall, 76.5% ( $n = 36$ ) were returned to full fitness, 8.5% ( $n = 4$ ) were returned to fitness with limitations and 14.9% ( $n = 7$ ) were medically discharged from the Armed Forces. In Group A ( $n = 11$ ), 81.8% ( $n = 9$ ) were graded as full fit and in Group B ( $n = 36$ ) 75% ( $n = 27$ ) were graded as fully fit on completion of treatment. We also found that eight reservists were still receiving treatment at the time that the follow up was completed. Examination, at follow up of the 52 reservists for whom civilian employment data were available showed that three who had been unemployed at initial assessment had gained employment at follow up, 32 had remained employed, 7 of those in employment were unemployed at follow up and 10 remained unemployed at both time points.

## Discussion

This study details a number of key findings from a survey of a dedicated mental health assessment and treatment enabling service available to recently deployed reservists in the UK Armed Forces. Around two-thirds of those assessed were found to have operationally attributable mental health problems and a quarter of referred reservists were found to be suffering with non-clinical levels of distress for which advice and self-management were considered appropriate. The remainder were diagnosed with mental health problems deemed as not attributable to operational deployment; these reservists were returned to the care of their GP with management recommendations.

At its launch, there had been concerns that the RMHP might be overloaded by personnel seeking to address non-operationally linked mental health problems; our results do not support this as being an issue. Although only modest numbers of personnel utilised the RMHP, we suggest that the system demonstrated good outcomes from both a medical and occupational viewpoint. Our findings provide good evidence to support both hypotheses. We found that all personnel who had been treated in the DCMH as a result of their RMHP assessment no longer met caseness criteria at follow up, supporting our first hypothesis. Only 15% were medically discharged from the Armed Forces, which supports our second hypothesis that personnel accessing treatment through the RMHP achieve a good occupational outcome.

Although we were unable to conduct an in-depth evaluation of the type of treatment delivered by the DCMH, the treatment capability of the DCMH suggests that some form of short-term psychotherapy or medication will have been delivered. This is reinforced by the examination of the number of treatment sessions delivered, which demonstrates that therapy was in the main brief. This reflects the nature of the mental health problems referred for treatment and the outcome of the short-term interventions were positive despite the overall brevity of interventions.

Previous studies have suggested that reserve forces report high levels of combat exposure (Browne et al., 2007; Fear et al., 2010) and the levels of combat exposure reported by the respondents in our study were substantial. We suggest that given that reservists are less likely to have an in-theatre combat role than regular forces, that the high levels of exposure were perceptive rather than actual. Perhaps unsurprisingly we found that those requiring further treatment were most likely to be suffering from either an adjustment disorder, probable PTSD or a depressive disorder suggesting that the mental health problems experienced by



mobilised reserve forces are similar to those of their regular forces counterparts (Gould et al., 2008).

Given that substantial numbers of the treatment group were suffering from disorders characterised by exposure to an aversive event (PTSD or adjustment disorder) it is gratifying that treatment resulted in a significant reduction in their post trauma symptoms.

The findings of this study suggest that the RMHP in its current form is an effective method of treatment for those who choose to access it. Our finding that the majority of personnel used self-referral rather than entering the system through their GP might be relevant to regular forces personnel who are currently required to access the specialist mental health care through service medical centres. It may be that, as is the case with improving access to psychological therapies (Clark et al., 2009) regular forces should consider a pilot of open access to speciality services which may help overcome the stigma known to be associated with seeking help in service personnel (Gould et al., 2010).

For the sake of brevity and in order to maximise our response rate, we did not collect sufficient data to allow us to be sure that the improvements we found were solely attributable to the effects of the RMHP; this would only be possible through the use of a randomised controlled trial. Comparing non-treatment with treatment group reservists allowed us to assess the change in a treated group of personnel with ORMHPs to those who had deployed and who had distress and concern about their mental health but whose problems did not lead to a mental health diagnosis. Doing so suggested that the RMHP staff can discriminate cases from non-cases using a clinical interview, as the treatment group were more likely to be cases on all the psychometric measures and also the post trauma symptoms in the intervention sample improved to a greater degree than the comparison group. However, for the comparison group, the baseline mental health measures were substantially lower than the treatment group and it is therefore unclear how much improvement they could have experienced.

### *Strengths and limitations*

The major strength of this survey is that the outcome measures were numerous and included both psychometric measures, a direct measure of subjective improvement and also an objective occupational marker. Unfortunately, some of the psychometric measures and satisfaction surveys that could have been routinely collected were not, giving rise to an incomplete dataset. Furthermore, although acceptable, the response rate was lower than we would have hoped. Missing clinical data were problematic in this study and we are seeking to ensure that all psychometric measures are administered routinely to all reservists who access the programme to ensure that the RMHP is evaluated in line with the principles of the improving access to psychological therapies initiatives (Retrieved from [www.iapt.nhs.uk](http://www.iapt.nhs.uk). IAPT Outcomes Toolkit 2008/9. Dated July 2008). Finally, we measured the clinical outcomes only in those who accessed the RMHP and can therefore only suggest that it works well for the small numbers of reservists who were assessed. It may be that there are a number of reservists with operationally attributable mental health problems who do not access the RMHP or other Veteran's projects or who seek treatment by other means, be it NHS or other MoD provision such as the London-based Medical Assessment Programme.

### **Conclusion**

The RMHP appears to function well as a 'triage process' in that reservists who are assessed as having an ORMHP are provided with interventions that significantly reduce the burden of

illness. The service appears to be an effective intervention capable of helping recently demobilised reservists who are suffering mental health problems return to good levels of both health and occupational function. We suggest that, given the positive results reported in this study, the RMHP should be given high visibility in order to improve uptake amongst recently deployed reservists.

## Acknowledgements

Simon Wessely is partially funded by the South London and Maudsley NHS Foundation Trust/Institute of Psychiatry NIHR (National Institute of Health Research) Biomedical Research Centre and is the civilian consultant advisor in psychiatry to the Army. N.J. is a full-time reserve member of the Defence Medical Services and N.G. is a full-time active service medical officer and both are seconded to King's College London; although paid by the Ministry of Defence they were not directed in any way by the Ministry of Defence in relation to this article. P.W., A.B.B., D.B. and J.D. were all MoD employees at the time, when the study took place but were not directed in any way by the MoD in the conduct and reporting of the study.

**Declaration of interest:** The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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