

# An evaluation of stress education in the Royal Navy

N. Greenberg<sup>1</sup>, V. Langston<sup>2</sup>, N. T. Fear<sup>1</sup>, M. Jones<sup>2</sup> and S. Wessely<sup>2</sup>

---

<b>Background</b>	Psychoeducational programmes aim to reduce the morbidity associated with exposure to stressful events. Although they are widely used, there are conflicting views as to how or why they might be effective.
<b>Aim</b>	To examine exposure to 'stress' education within the Royal Navy (RN) and ascertain any links between stress education and mental health status.
<b>Methods</b>	In all, 1559 RN personnel were surveyed using a study questionnaire which asked about exposure to and quality of any stress education provided during service. Participants also completed two measures of psychological health, the General Health Questionnaire (GHQ)-12 item and the Post-Traumatic Stress Disorder Checklist. Odds ratios (ORs) were calculated and 95% confidence intervals were computed using multivariable logistic regression adjusting for socio-demographic variables.
<b>Results</b>	The response rate was 70%; 47% of the sample reported having received a stress brief during service. Those who reported having received a brief had better general mental health (measured by the GHQ) than those who had not [adjusted, OR = 0.76 (0.59–0.98)]. When brief quality was taken into account, only those who received a brief and considered it 'useful' were significantly less distressed [adjusted, OR = 0.65 (0.49–0.86)]. Poor-quality briefs were no better than having had no brief at all [adjusted, OR = 1.04 (0.74–1.47)].
<b>Conclusions</b>	Our data indicate that only educational stress briefs which are relevant for the target audience may be beneficial. Simply providing stress briefings, without thought to their quality, may constitute a waste of resources.
<b>Key words</b>	Mental health; military; psychoeducation; stress.

---

## Introduction

Factors which deter people from presenting with mental health problems to professionals have been termed as barriers to health [1,2]. In environments such as the military where physical and psychological hardiness are considered valuable, it is important to tackle mental health problems early on in order to preserve an individual's dignity and career [3]. A popular secondary prevention approach to this issue is the provision of 'psychoeducation' or stress education. This aims either to prevent or to mitigate the effects of exposure to potentially traumatic situations by improving an individual's resilience [4] and within the UK Armed Forces such an approach is current policy at both the pre- and post-deployment stages [5].

The potential for psychoeducation to benefit mental health awareness has been highlighted on a national scale, examples being 'Mindout' [6] and the Royal College of Psychiatrists' 'Changing Minds' campaign [7]. Psychoeducation is also being advocated on an international scale by the World Health Organization [8]. However, despite the apparent enthusiasm for psychoeducation, it remains an intervention of relatively unproven value [9].

As a result of growing concern that critical incident stress debriefing (CISD) [10] might cause harm, the UK senior military doctor, the Surgeon General, banned its routine use in 2000 [11]. Research into CISD has shown that an individual's appreciation of an intervention is not necessarily linked to a beneficial psychological outcome [10]. For financial reasons, and because of concern for individuals' health, organizations that use psychoeducation need to understand what is, and what is not, effective. Robust empirical testing has not yet been undertaken and opinion in the current literature is mixed. For example in a non-military study, Turpin *et al.* [12] found that individuals who received stress education leaflets were more distressed than those who did not, although the result did not quite reach significance. Furthermore, a recent UK military study [9] found that there was no

<sup>1</sup>Academic Centre for Defence Mental Health, King's College London, London, UK.

<sup>2</sup>King's Centre for Military Health Research, King's College London, London, UK.

Correspondence to: N. Greenberg, Academic Centre for Defence Mental Health, King's College London, Weston Education Centre, Cutcombe Road, London SE5 9RJ, UK. Tel: +44 0207 848 5351; fax: +44 207 848 5397; e-mail sososanta@aol.com

evidence that a pre-deployment stress briefing reduced subsequent psychological distress. However, the latter was neither a randomized nor controlled trial and there are a variety of biases that may have influenced the outcome. In contrast, Iversen *et al.* [13] found a weak association between receiving no homecoming brief and developing post-traumatic stress disorder (PTSD); those who did not receive a brief reported more PTSD symptoms.

The aim of this study was to examine the receipt of psychoeducational briefings during service in a cross-sectional sample of Royal Navy (RN) personnel. In particular, the study aimed to examine what effect, if any, the quality of a briefing has on individuals' mental health.

## Methods

This quantitative study involved a cross-sectional self-report survey of RN personnel serving in 12 operational warships. All personnel were fit enough to serve at sea and participation in the survey was voluntary. Ethical approval for the study was obtained from the Ministry of Defence (Navy) Research Ethics Committee. The survey questionnaire was distributed by the research team who visited the ships and the intended sample size was 2236, i.e. all personnel on all the vessels during the visit. The research team visited each vessel for 4 days and encouraged personnel to complete the surveys during the working day. The survey itself was the baseline for a randomized controlled trial to examine the efficacy of Trauma Risk Management (TRiM), a traumatic stress management peer support programme in the RN. All data presented here were obtained before any implementation of the TRiM programme. The details of the study have been reported elsewhere [14].

The questionnaires enquired into respondents' opinions of stress and stress-related problems in the Armed Forces and included the General Health Questionnaire (GHQ)-12 item [15] and the Post-Traumatic Stress Disorder Checklist (PCL-C) [16]. GHQ-12 cases were defined as individuals with a score of  $\geq 4$  and PCL-C cases were defined as individuals with a total score of  $\geq 50$ .

Individuals were also asked to report whether or not they had received any in-service stress education. Those who had received stress education were asked when this had happened and whether the briefings had been really useful, of some use or of no use. For the purposes of analysis, the 'really' and 'some' categories were grouped together and described as 'useful'.

The statistical software package STATA, version 8, was used for statistical analysis. Statistically significant differences between the proportions were identified using Pearson's  $\chi^2$  statistic, with  $P$  values of  $< 0.05$  taken to indicate statistical significance. Odds ratios (ORs) and 95% confidence intervals (CIs) were computed using multivariable logistic regression. All analyses were conducted with

and without adjustment for age, rank, marital status, gender and ship.

## Results

The final sample comprised 1559 personnel, representing a 70% response rate. Those who did not participate most often reported, when encouraged to participate while the study team were onboard, that they were too busy during their working day to complete the forms or were not free to speak to the research team during the time they were onboard.

The demographic characteristics of responders are described in Table 1. The median age of the study group was 26 years with an interquartile range of 22–33 years. Forty-eight per cent were single and 45% cohabiting. Ninety per cent were males and the rank categories within the RN population were proportional to the range of ranks within any particular vessel. Sixty-seven per cent reported having been deployed on previous operations ( $n = 1043$ ). The sample was broadly comparable to the RN population as a whole but was somewhat younger and of lower rank most probably representing an excess of older, higher ranked personnel in shore-based headquarters posts.

Forty-seven per cent ( $n = 714$ ) did not recollect any formal stress education during their military career

**Table 1.** Sample demographics; number ( $n$ ) and percentage (%)

Variable	Study sample ( $n = 1559$ ) $n$ (%)	Naval Services 2006 <sup>a</sup> ( $n =$ 38940) $n$ (%)
Age (years)		
<20	169 (11)	
20–24	496 (32)	11735 (30) <sup>b</sup>
25–29	296 (19)	7340 (19)
30–34	262 (17)	5880 (15)
$\geq 35$	321 (21)	13985 (36)
Missing data	15 (1)	
Gender		
Male	1392 (89)	35310 (91)
Female	159 (10)	3630 (9)
Missing data	8 (1)	
Marital status		
Married/cohabiting	706 (45)	16580 (43) <sup>c</sup>
Divorced/separated/widowed	102 (7)	
Single	730 (47)	22360 (57) <sup>c</sup>
Missing data	21 (1)	
Rank		
Officer	187 (12)	7630 (19)
Senior non-commissioned officer	338 (22)	10860 (28)
Junior rank	1027 (66)	20450 (53)
Missing data	7 (1)	

<sup>a</sup>Taken from Defence Analytical Services Agency National Statistics TSP 09 & TSP 11 2006.

<sup>b</sup>Data available combines the categories <20 and 20–24.

<sup>c</sup>Data available married/unmarried.

**Table 2.** Receipt of stress education and quality ( $n = 1559$ )

Stress education category	$n^a$ (%)
'I have not been taught about stress education'	714 (47)
'I have been taught about stress education and it was of no use'	243 (16)
'I have been taught about stress education and it was of some use'	496 (32)
'I have been taught about stress education and it was really useful'	79 (5)

<sup>a</sup>Categories do not add up to denominators because of missing data ( $n = 27$ ).

(Table 2). Not receiving a stress briefing was more commonly associated with low rank ( $P < 0.001$ ,  $\chi^2 = 94.13$ ,  $df = 2$ ), younger age ( $P < 0.001$ ,  $t = -4.43$ ,  $df = 1520$ ) and which ship individuals were posted to ( $P < 0.001$ ,  $\chi^2 = 26.37$ ,  $df = 11$ ).

Of the participants who stated that they had received stress education, 70% ( $n = 575$ ) reported that it had been useful, the rest reported it as being of no use. Individuals reported having received training at a variety of times during service. The most frequent occasions included during basic training (42%,  $n = 346$ ) and during continuation training (44%,  $n = 356$ ) such as leadership or promotion courses (Table 3).

Twenty-six per cent ( $n = 406$ ) of individuals scored above the threshold on either the GHQ-12 or PCL-C and were defined as 'stress cases'. Seventy-seven individuals scored above the threshold on both measures.

Individuals who had received stress education were statistically significantly less likely to be a GHQ 'case' before adjustment [OR = 0.69 (95% CI 0.56–0.88)] compared to those who had not received a stress brief (Table 4). After adjusting for age, gender and rank, the association remained significant [OR = 0.76 (0.59–0.98)].

When respondents were categorized as to whether they thought the stress education was useful to individuals who reported it as useful were statistically significantly less likely to be a GHQ case both before [OR = 0.58 (0.45–0.76)] and after adjustment [OR = 0.65 (0.49–0.86)] compared to individuals who had not received any stress education. They were also significantly less likely to be a PCL case before adjustment for demographic variables [OR = 0.45 (0.27–0.76)] although not after [OR = 0.64 (0.37–1.13)]. Those who received stress education and believed it to be of 'no use' were no more or less likely to be a PCL or GHQ case than individuals who had not received any stress education (Table 4).

## Discussion

This study has three major findings. Firstly, only half of the sample remembered having a psychoeducational brief during service. Secondly, we found that service personnel

**Table 3.** Timing of stress education ( $n = 818$ )

When did the stress education happen?	$n^a$ (%)
During basic training	346 (42)
During continuation training	356 (44)
In preparation for deployment	167 (20)
On return for deployment	110 (13)
Specialist course (i.e. preparation for Op Fresco <sup>b</sup> or seeking help for a problem)	111 (14)

<sup>a</sup>Individuals were allowed to tick multiple categories.

<sup>b</sup>Military personnel's fire-fighting duties covering fire-fighters strike action.

who reported having received a psychoeducational brief at some point throughout their career had better mental health than those who had not. Lastly, when the quality of the brief was examined, it was found that only briefs which were perceived as being useful were associated with better mental health.

Our study had a number of limitations. Because the study utilized a self-report methodology, we cannot verify how many of the subjects had ever received a brief. Recall bias is known significantly to affect the results of self-report studies [17] and it is possible that distressed people may have been less likely to have viewed the briefings they received as being useful i.e. reverse causality. Although the response rate of 70% is relatively high, it is impossible to know whether or not non-responders held different views to responders. However, the main reason given for non-participation in the survey, during the research team's 4-day visit, was being busy at work rather than reluctance to do so. Furthermore, although our sample was representative of the whole RN population in terms of rank, it contained a slightly higher percentage of females and a lower percentage of single respondents than in the serving RN population [18]. However, there is no reason why any of these factors should have influenced receipt of a psychoeducational brief.

Additionally, these findings may have limited applicability to other services (e.g. Army) who work in units that are structured differently, although all UK service personnel operate under the same joint service policy which dictates when briefings should occur [5].

Our finding that only half of the sample remembered ever having any stress education is somewhat surprising. One of the aims of the Defence Mental Health Services is to provide psychoeducational briefings at appropriate times [19] and current military policy directs that all personnel should receive briefings in relation to operations [5]. Given that 67% of the sample reported having been deployed on operations, it seems unlikely that half of the sample would never have received a psychoeducational brief and therefore the reasons for this finding are unclear. It may be that mental health briefings, given as part of a series of lectures, were not recognized as being

**Table 4.** Receipt of stress education compared to no stress education

	Post-traumatic stress disorder checklist		GHQ	
	Unadjusted OR (95% CI)	Adjusted OR (95% CI) <sup>a</sup>	Unadjusted OR (95% CI)	Adjusted OR (95% CI) <sup>a</sup>
Received stress education (all)	0.66 (0.43–1.00)	0.89 (0.57–1.40)	0.69 (0.56–0.88)	0.76 (0.59–0.98)
Received stress education (no use)	1.18 (0.70–2.01)	1.38 (0.78–2.44)	1.02 (0.74–1.41)	1.04 (0.74–1.47)
Received stress education (of use)	0.45 (0.27–0.76)	0.64 (0.37–1.13)	0.58 (0.45–0.76)	0.65 (0.49–0.86)

ORs versus personnel who had not received any stress education.

<sup>a</sup>Adjusted for age, sex, rank, marital status and ship.

psychoeducational in nature or were not seen as relevant and therefore unlikely to be remembered.

A relationship between mental health, as measured by the PCL and the GHQ, and the receipt and utility of stress education adds to the continuing debate on the effectiveness of stress education. Many studies have found it to be of little, if any, benefit [9,12], although one study among military personnel found that not receiving stress education on homecoming was associated with higher levels of distress [19]. What the present study has revealed is that the brief itself may be of less importance to mental health than its perceived quality. We suggest it is important that those who deliver stress education are able to do so in a way that ensures it is well received by the audience. A well-delivered brief may not just increase the likelihood that important information will be remembered but may also have a beneficial effect on the mental health of the recipients. Furthermore, if the brief is delivered badly, our findings suggest that recipients may be worse off than if they had never received it. The CISD literature [10] should act as a reminder that psychological interventions may not be universally benign and they do have the potential to cause harm [20].

We suggest that our findings are of importance to all organizations which provide their employees with stress education. Until recently, there has, with a few exceptions, been no standardization of briefings within the RN, although this issue has recently been addressed [21].

As importantly, the military has generally assumed that being a mental health professional intrinsically implies an ability to deliver effective briefings. The results of this study suggest that in order to improve the effectiveness of the briefing process, it may be necessary to reconsider how psychoeducational briefings are delivered and who is chosen to present them. We suggest that the briefing process needs to be robust enough to be memorable and of a consistently high standard in order to maximize its effectiveness. If a high-quality delivery cannot be assured, then it may be better not to deliver any intervention at all.

We conclude that there is a clear need to ensure that stress briefing, whether provided for military personnel or within other organizations, is capable of mitigating

the psychological risks of working in dangerous environments. Although our results indicate that psychoeducation may be beneficial for psychological health, this is only true if the brief is seen as relevant by the audience and delivered by an appropriately skilled presenter. If these conditions are not met, then such briefings may fail to justify the time and resource devoted to them.

### Key points

- Psychoeducational briefs may be of benefit to psychological health but only if perceived as being useful by those receiving them.
- Delivering psychoeducational briefings which are perceived as not useful is no better than not briefing at all and is therefore likely to be a waste of time and resource.
- Many military personnel do not remember having had a psychoeducational brief throughout their career even though it is highly likely that the vast majority will have had one or more.

### Funding

UK Ministry of Defence.

### Conflicts of interest

N.G. is a full-time active member of the RN. S.W. is partially funded by the South London and Maudsley NHS Foundation Trust/Institute of Psychiatry National Institute of Health Research Biomedical Research Centre. The authors' work was independent of the funders, and we disclosed the paper to the Ministry of Defence at the point we submitted it for publication.

### References

1. French C, Rona RJ, Jones M, Wessely S. Screening for physical and psychological illness in the British Armed Forces: II:

- barriers to screening—learning from the opinions of Service personnel. *J Med Screen* 2004;**11**:153–157.
2. Hoge CW, Castro CA, Messer SC, McGurk D, Cotting DI, Koffman RL. Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *N Engl J Med* 2004;**351**:13–22.
  3. Rona RJ, Jones M, French C, Hooper R, Wessely S. Screening for physical and psychological illness in the British Armed forces: I the acceptability of the programme. *J Med Screen* 2004;**11**:148–153.
  4. Cartwright S, Cooper CL. Public policy and occupational health psychology in Europe. *J Occup Health Psychol* 1996;**1**: 349–361.
  5. SGPL 03/06. *The Prevention and Management of Traumatic Stress Related Disorders in AFs Personnel on Operations*. London: MOD, 2006.
  6. Pinfold V, Huxley P, Thornicroft G, Farmer P, Toulmin H, Graham T. Reducing psychiatric stigma and discrimination. Evaluating an educational intervention with the police force in England. *Soc Psychiatry Psychiatr Epidemiol* 2003;**38**: 337–344.
  7. Crisp AH. *Every Family in the Land. Understanding Prejudice and Discrimination against People with Mental Illness (Revised Edition)*. London: The Royal Society of Medicine Press, 2004.
  8. World Health Organization. *The World Health Report 2001. Mental Health: New Understanding, New Hope*. Geneva: World Health Organization, 2001.
  9. Sharpley JG, Fear NT, Greenberg N, Jones M, Wessely S. Pre-deployment stress briefing: does it have an effect? *Occup Med (Lond)* 2008;**58**:30–34.
  10. Rose S, Bisson J, Wessely S. *Psychological Debriefing for Preventing Posttraumatic Stress Disorder (PTSD)*. *Cochrane Review in the Cochrane Library* 2003(1). Oxford: Update Software, 2001.
  11. Revision of SGPL 07/95—Stress-Related Disorders. D/SG(MedPol)/M0/6/2/2. 2000. MoD. London.
  12. Turpin G, Downs M, Mason S. Effectiveness of providing self-help information following acute traumatic injury: randomised controlled trial. *Br J Psychiatry* 2005;**187**:76–82.
  13. Iversen AC, Fear NT, Ehlers A *et al*. Risk factors for post-traumatic stress disorder among UK Armed Forces personnel. *Psychol Med* 2008;**29**:1–12.
  14. Greenberg N, Henderson A, Langston V, Iversen A, Wessely S. Peer responses to perceived stress in the Royal Navy. *Occup Med (Lond)* 2007;**57**:424–429.
  15. Goldberg DP, Gater R, Sartorius N *et al*. The validity of two versions of the GHQ in the WHO study of mental illness in general health care. *Psychol Med* 1997;**27**:191–197.
  16. Blanchard EB, Jones-Alexander J, Buckley TC, Forneris CA. Psychometric properties of the PTSD checklist (PCL). *Behav Res Ther* 1996;**34**:669–673.
  17. Wessely S, Unwin C, Hotopf M *et al*. Stability recall of military hazards over time? Evidence from the Gulf War. *Br J Psychol* 2003;**183**:314–322.
  18. Defence Analytical Services Agency (Dasa). *TSP11-UK Regular Forces Marital Status*. <http://www.dasa.mod.uk/natstats/tsp11/tsp11tab1.html> (15 January 2008, date last accessed).
  19. Gould M, Sharpley J, Greenberg N. Patient characteristics and clinical activities at a British military department of community mental health. *Psychol Bull* 2008;**32**:99–102.
  20. Van Emmerik AA, Kamphuis JH, Hulsbosch AM, Emmelkamp PM. Single session debriefing after psychological trauma: a meta-analysis. *Lancet* 2002;**360**:766–771.
  21. Personal communication: Greenberg N, Hargreaves S. *Operational Mental Health Briefing Conference*. London: Permanent Joint Headquarters, MOD, 345, 2008.