

Pre-deployment stress briefing: does it have an effect?

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Background	The role of giving information about stress and stress reactions to people about to be exposed to hazardous situations remains unclear. Such information might improve coping and hence resilience. Alternatively, it might increase the expectancy of experiencing adverse psychological consequences following exposure to a hazard.
Aim	To determine the effect of a pre-operational stress briefing on health and occupational indices among Naval and Marine personnel who were subsequently deployed to the 2003 Iraq War.
Method	Controlled, non-randomized, parallel group study. Mental health outcomes post-deployment were compared between those who received a pre-operational stress briefing and those who did not receive such a briefing.
Results	Stress briefing attendees were slightly younger, more likely to be marines and to have been exposed to traumatic events than non-attendees. There were no significant differences between the two groups for the health outcomes of common mental health disorders, post-traumatic stress disorder or alcohol misuse. Attendees reported higher morale/cohesion but these differences disappeared following adjustment for demographic and military factors. No differences between the two groups were apparent for experiencing problems during or post-deployment or for marital satisfaction.
Conclusions	We found no evidence that a pre-deployment stress briefing reduced subsequent medium-term psychological distress. On the other hand, we found no evidence of harm either. While only a randomized trial can give genuinely unbiased results, at present stress debriefing must be regarded as an unproven intervention, and it remains a matter of judgement as to whether or not it is indicated.
Key words	Mental fitness; military fitness; military personnel; psychoeducation; psychological briefing; stress briefing.

Introduction

Preventing occupational stress is traditionally grouped into three levels. Primary prevention, which is alteration of the stressors in the workplace; secondary prevention, which aims to improve coping and resilience in individuals, such as stress management training and tertiary prevention, which is provision of mental health interventions such as employee assistance programs [1]. Reviews of this

area show that benefits occur in terms of improved subjective indicators in the short term, such as coping and anxiety levels, but there is little evidence that the interventions lead to improved performance [2,3].

One form of secondary prevention for armed forces personnel is via pre-operational stress briefings. These have been standard practice within the UK armed forces since 1995 [4,5]. These briefs inform personnel on the nature and effects of stress, especially stressors related to operations, on simple methods for managing stress in self and others, on when and how to access further support. The aim of this education is to either prevent stress-related problems from developing into illness or to encourage early presentation. This is particularly problematic in the military setting because of the considerable cultural barriers that exist to presenting with psychological problems [6–8].

There is little evidence regarding the efficacy of pre-operational stress educational briefs in general, and even less concerning the armed forces. Preventive mental

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health interventions in operations have been reported on, but in general and largely qualitative terms (numbers of referrals and briefings being a quantitative aspect) [9]. Multiple-session stress training has been evaluated. A US randomized, controlled study looking at the effect of stress training (two sessions) on graduation rates of military trainees, who had presented for a mental health evaluation, showed that the stress training had no effect on their likelihood of graduation [10]. More recently, a stress management initiative at a US Navy recruit establishment showed that recruits at risk of depression, randomized to either a stress training session each week or a sham session of education on other skills, had an equivalent graduation rate to a well-control group, whereas the non-intervention group of at-risk recruits showed lower graduation rates [11]. To our knowledge, no research on the effect of a single session of stress education prior to potentially traumatic events has been reported.

In the lead up to the 2003 invasion of Iraq, known as Operation TELIC, British amphibious forces deployed by sea to the Northern Arabian Gulf. A naval mental health team deployed with these forces in the Primary Casualty Receiving Facility in the Royal Fleet Auxiliary ship, RFA ARGUS. The mental health team visited as many ships and marine units as possible, providing pre-operational stress briefings. At each briefing, an attendance register was kept, noting name, rank and service number. However, for various operational reasons, coverage was not complete and overall only half of those who should have received a briefing did so.

An opportunity arose to study the effectiveness of these briefings as part of a large epidemiological study of the mental health outcomes among UK Service personnel who took part in the 2003 invasion of Iraq [12]. In this paper, we report the results of a record linkage between those who received or did not receive the stress briefing and outcomes as reported in the main Iraq War study [12].

Methods

Ninety-one stress briefs were given to 4046 military personnel (which included 3160 Royal Navy and Royal Marine personnel). Briefings were given between 26 January and 8 March 2003 during the preparation phase leading up to the commencement of hostilities on 20 March 2003 and were given by either a psychiatrist or a mental health nurse. Personnel attending each brief were asked to sign a register and provide name, rank and service number.

The brief covered a range of topics including the following: the role of the mental health team; an outline of the medical facilities in the Primary Casualty Receiving Facility; definitions of stress, pressure and strain; types of stressors (physical, social, occupational and traumatic); effects of stress on individuals; advice on handling human remains; managing stressful thinking in a chemical or biological environment; simple advice on reducing stress;

the importance of morale; levels of support available and when/where to seek this.

Full details of the Iraq War study can be found elsewhere [12]. In brief, 4722 regular and reserve personnel who were deployed during the first phase of the Iraq War (Operation TELIC 1) and 5550 regular and reserve personnel who were not deployed during Operation TELIC 1 completed a voluntary questionnaire, post-deployment, on their deployment experiences and health outcomes. The overall response rate was 60% for all regulars deployed or not and 62% for those deployed on TELIC 1. Potential participants were approached at least three times to elicit completion of the questionnaire, unless a positive refusal was received. Deploying during the first phase of Iraq War was defined, for the purposes of this study, as deploying between 18 January 2003 and 28 April 2003.

Using service number and surname, the pre-operational stress briefing register was linked to the Iraq War study database. This resulted in 358 matches among the Iraq War study responders. After excluding Army and Royal Air Force personnel ($n = 62$), reservist personnel ($n = 14$) and those not deployed during the Iraq War ($n = 3$), there were 279 matches (attendees).

The remaining Royal Naval and Royal Marine personnel who completed the Iraq War study questionnaire were regular personnel and were deployed during the Iraq War comprised the comparison group ($n = 456$).

Data collected as part of the Iraq War study were used to compare the two groups. Demographic data included gender, age (at completion of questionnaire), branch of service (e.g. Navy or Marines), rank, marital status, serving status, medical downgrading status at the time of deployment (i.e. an individual's fitness to deploy), role in theatre (e.g. combat or non-combat) and exposure to traumatic events. Exposure to traumatic events was a variable derived by the authors based on the number of traumatic events experienced while on deployment. Traumatic events were as follows: discharging your weapon in direct combat, coming under small arms fire, coming under mortar attack, experiencing a landmine strike, experiencing hostility from civilians, seeing personnel wounded or killed, handling bodies and aiding the wounded.

Health outcome data included the following: reporting sick during the Iraq War, spending time in medical care during the Iraq War, being aero-medically evacuated from the operational area, general health status (measured using SF-36 sub-scale), measure of common mental health disorders (measured using the General Health Questionnaire (12 Item)), symptoms of post-traumatic stress disorder (measured using the PTSD Checklist – Civilian version), being defined as multi-symptomatic (having ≥ 18 of the 53 self-reported symptoms) and alcohol consumption (measured using the Alcohol Use Disorders Identification Test with those having a score of ≥ 16 being defined as 'severe'). Details of

each measure are set out [12,13]. Other outcomes compared were morale/cohesion during the operation, problems at home during and post-deployment and marital satisfaction. To measure morale/cohesion during deployment, a composite variable was generated from the following four statements: 'Felt a sense of comradeship with unit', 'Could go to most people in the unit with personal problems', 'My seniors were interested in what I did or thought' and 'I felt well informed about what was going on'. The composite variable was divided into three groups to represent those with the highest, middle and lowest morale/cohesion.

Differences between the stress brief attendees and non-attendees were examined using chi-squared tests. Univariable and multivariable logistic regression analyses were performed to examine the relationships between attending a stress brief and demographic and service characteristics, health outcomes, morale/cohesion and problems during and post-deployment [14]. The multiple logistic regression analyses took account of the possible confounding factors: age at questionnaire completion (as a continuous variable), branch of service (Navy versus Royal Marines), current serving status (serving versus ex-serving) and exposure to traumatic events. Odds ratios, 95% confidence intervals and two-sided *P*-values are presented. All analyses were performed using the statistical software package STATA (version 9.2) and statistical significance was defined as *P* < 0.05.

Results

Table 1 shows the demographic and service profile of each group. Attendees were younger (*P* < 0.05) and more likely to be Marines (*P* < 0.001) than non-attendees. Traumatic experiences in theatre differed between these two groups, with attendees having more traumatic experiences (*P* < 0.001) than non-attendees. There was no association with current serving status, with attendees being no more likely to be still serving (*P* = 0.08) than non-attendees.

The distribution of health outcomes for attendees and non-attendees is shown in Table 2. No statistically significant associations were apparent.

Morale/cohesion during deployment for attendees and non-attendees is shown in Table 3. Before adjustment, attendees appeared to have statistically significantly higher morale than non-attendees; however, after adjustment, no statistically significant associations were apparent.

Table 4 shows the distribution of problems at home during and post-deployment of attendees and non-attendees. No statistically significant associations were apparent.

Examination of the marital satisfaction of those who were married or in long-term relationships revealed no difference between the attendees and non-attendees (Table 5).

Demographic and health outcome analyses were repeated by branch of service. These analyses showed that

Table 1. Demographic and service profile of stress brief attendees and non-attendees, *n* (%)

	Attendees (<i>n</i> = 279) (%)	Non-attendees (<i>n</i> = 456) (%)
Male	258 (92)	431 (95)
Age group (years)*		
<25	65 (23)	89 (20)
25–34	135 (48)	189 (41)
35+	79 (28)	178 (39)
Royal Navy***	163 (58)	324 (71)
Officer	47 (17)	92 (20)
Single	60 (22)	81 (18)
Currently serving	252 (92)	400 (88)
Medically downgraded at time of deployment	17 (6)	39 (9)
Combat role during Operation TELIC		
Traumatic experiences***		
0–1	–	29 (7)
2–3	101 (38)	220 (55)
4+	165 (62)	151 (38)

P* < 0.05; **P* < 0.001.

Navy attendees were more likely to be in a non-combat role (82 versus 69%, *P* < 0.01) than Navy non-attendees. Marine attendees were more likely to be in a combat role (72 versus 55%, *P* < 0.01) than Marine non-attendees. No difference in health outcomes was observed (data available from the authors).

Discussion

We conclude that, at 2–3 years post-operational deployment, there does not appear to be an effect in terms of psychological health associated with having a pre-operational stress brief prior to combat operations. We found no evidence that a pre-deployment stress briefing reduced subsequent medium-term psychological distress. On the other hand, we found no evidence of harm either.

That it was not possible to provide pre-deployment stress briefings to all those about to deploy provided an opportunist natural experiment to examine the effectiveness of briefings. However, because the trial was not randomized trial, there was a possibility of bias. There were differences between those who did or did not receive a brief. First, those who attended a stress brief were younger and of lower rank: senior personnel are likely to be busier during a period of intense preparation for combat operations, as well as having more autonomy about their activities. Second, Royal Marines were more likely to attend, and they were more likely to have combat experience. Some ships and units were not visited by the mental health team due to logistic constraints, and thus, their attendance or not at the stress brief is unlikely to be

Table 2. Health outcomes among stress brief attendees and non-attendees, *n* (%) and odds ratios (ORs) and 95% confidence intervals (CIs) with and without adjustment for age, branch of service, current serving status and exposure to trauma

	Attendees (<i>n</i> = 279) (%)	Non-attendees (<i>n</i> = 456) (%)	OR (95% CI)	Adjusted OR (95% CI)
Reported sick during Iraq War	78 (30)	92 (24)	1.30 (0.92–1.86)	1.14 (0.76–1.67)
Spent time in medical care during Iraq War	11 (4)	20 (5)	0.76 (0.36–1.61)	0.70 (0.32–1.53)
Aero-medically evacuated	4 (1)	6 (2)	0.97 (0.27–3.47)	0.97 (0.25–3.67)
Fair or poor general health	31 (11)	53 (12)	0.94 (0.59–1.51)	0.98 (0.58–1.64)
Common mental disorder (GHQ-12)	43 (16)	82 (18)	0.83 (0.56–1.25)	0.76 (0.49–1.20)
Fatigue case	75 (28)	117 (26)	1.07 (0.76–1.50)	1.00 (0.69–1.45)
PTSD symptoms (PCL-C)	6 (2)	16 (4)	0.60 (0.23–1.56)	0.71 (0.26–1.97)
Multiple physical symptoms	26 (9)	38 (8)	1.13 (0.67–1.91)	1.00 (0.57–1.77)
Severe AUDIT case	63 (23)	91 (20)	1.17 (0.81–1.68)	0.99 (0.66–1.49)

GHQ-12, General Health Questionnaire (12 Item); PTSD, post-traumatic stress disorder; PCL-C, PTSD Checklist – Civilian version; AUDIT, Alcohol Use Disorders Identification Test.

Table 3. Morale/cohesion during deployment among stress brief attendees and non-attendees, *n* (%) and odds ratios (ORs) and 95% confidence intervals (CIs) with and without adjustment for age, branch of service, current serving status and exposure to trauma

Morale/cohesion	Attendees (<i>n</i> = 279) (%)	Non-attendees (<i>n</i> = 456) (%)	OR (95% CI)	Adjusted OR (95% CI)
Highest	85 (30)	88 (19)	1.0	1.0
Middle	179 (64)	306 (67)	0.61 (0.43–0.86)**	0.74 (0.51–1.07)
Lowest	15 (5)	62 (14)	0.25 (0.13–0.47)***	1.65 (0.62–4.37)

P* < 0.01; *P* < 0.0001.

Table 4. Problems at home during and post-deployment among stress brief attendees and non-attendees, *n* (%) and odds ratios (ORs) and 95% confidence intervals (CIs) with and without adjustment for age, branch of service, current serving status and exposure to trauma

Problems at home	Attendees (<i>n</i> = 279) (%)	Non-attendees (<i>n</i> = 456) (%)	OR (95% CI)	Adjusted OR (95% CI)
During deployment	49 (18)	81 (18)	0.98 (0.67–1.45)	0.82 (0.54–1.25)
Post-deployment	56 (21)	81 (21)	1.01 (0.69–1.48)	0.94 (0.62–1.41)

Table 5. Marital satisfaction among those stress brief attendees and non-attendees who were married or in long-term relationships, *n* (%)

	Attendees (<i>n</i> = 205) (%)	Non-attendees (<i>n</i> = 352) (%)
I am satisfied with my spouse/partner	198 (97)	332 (94)
My relationship with my spouse/partner makes me happy	197 (97)	328 (94)
Considered divorce/separation within the last year	33 (16)	67 (19)

subject to bias. Within visited units, however, where 60–70% of personnel attended the briefs, some bias may have occurred related to attitude towards stress briefing. This study could not distinguish between these types of non-attendees. However, there were no differences in the

proportion exposed to combat between attendees and non-attendees overall, but differences were observed when data were examined by branch of service. Nevertheless, when adjustment was made for traumatic experience, there was still no significant difference between attendees and non-attendees on psychological outcome.

We believe that measures of outcome were unlikely to be biased by attending the briefing. Up to 3 years had passed between the stress briefing and the study questionnaire, and there was no mention or cueing of the stress briefing in the questionnaire. Knowledge of participation in the briefing was obtained contemporaneously and not at the same time as measuring the outcome.

The lack of effect of the briefings is perhaps not surprising. First, we know from a separate study of the Royal Navy that the majority of personnel are unable to recall attending stress education, even when documentary evidence exists to the contrary [15].

Second, psychoeducation, of which stress briefing forms a part, is anyway an unvalidated intervention. It forms a large part of the intervention known as psychological debriefing or critical incident stress debriefing, an intervention given after, as opposed to before, exposure to a traumatic incident. The evidence from randomized controlled trials is firmly against there being any benefit to this intervention, and indeed, some evidence exists that it may impair, rather than improve, resilience [16–18]. In a study in which accident victims attending a hospital accident and emergency department were randomly allocated a stress education leaflet, not dissimilar to the content of the briefings used in this study, those who received the leaflet had higher, not lower, levels of psychological distress in a short-term follow-up [19]. In the current study, the intervention at least did no harm.

While only a randomized trial can give genuinely unbiased results, at present stress debriefing must be regarded as an unproven intervention, and it remains a matter of judgement as to whether or not it is indicated.

In 2003, there was a large class action brought by many veterans against the UK Ministry of Defence claiming negligence in the prevention of post-traumatic psychiatric injury. One of the claims made was that the absence of stress briefings had contributed to the psychological problems experienced by some service personnel. In his judgement Mr Justice Owen concluded that there was no evidence to support this claim and that stress education/briefing could not be considered as part of an employer's duty of care [20]. Our study confirms this.

Key points

- Psychoeducation prior to psychologically risky tasks is commonly used in an effort to prevent psychological disorder following these tasks.
- There is no firm evidence that this preventative intervention is effective.
- This study suggests that such a preventative intervention has no effect in preventing psychological disorder after such tasks.

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Conflicts of interest

None declared.

References

1. Cartwright S, Cooper CL. Public policy and occupational health psychology in Europe. *J Occup Health Psychol* 1996;**1**:349–361.
2. Reynolds S. Interventions: what works, what doesn't? *Occup Med (Lond)* 2000;**50**:315–319.
3. Eriksen HR, Ihlebæk C, Mikkelsen A, Grønningsæter H, Sandal GM, Ursin H. Improving subjective health at the worksite: a randomized controlled trial of stress management training, physical exercise and an integrated health programme. *Occup Med (Lond)* 2002;**52**:383–391.
4. Surgeon General's Policy Letter (SGPL) 07/95. *The Prevention and Medical Screening of Stress Related Disorders in the Armed Forces* London: UK Ministry of Defence, 1995.
5. Surgeon General's Policy Letter (SGPL) 03/06. *The Prevention and Management of Traumatic Stress Related Disorders in the Armed Forces* London: UK Ministry of Defence, 2006.
6. Cawkill P. A study into commanders' understanding of, and attitudes to, stress and stress-related problems. *J R Army Med Corps* 2004;**150**:91–96.
7. 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.
8. 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.
9. Hall DP, Cipriano ED, Bicknell G. Preventive mental health interventions in peacekeeping missions to Somalia and Haiti. *Mil Med* 1997;**162**:41–43.
10. Cigrang JA, Todd SL, Carbone EG. Stress management training for military trainees returned to duty after a mental health evaluation: effect on graduation rates. *J Occup Health Psychol* 2000;**5**:48–55.
11. Williams RA, Hagerty BM, Yousha SM, Horrocks J, Hoyle KS, Lui D. Psychosocial effects of the boot strap intervention in Navy recruits. *Mil Med* 2004;**169**:814–820.
12. Hotopf M, Hull L, Fear NT *et al*. The health of UK military personnel who deployed to the 2003 Iraq war: a cohort study. *Lancet* 2006;**367**:1731–1741.
13. Fear N, Iversen A, Meltzer H *et al*. Do the UK Armed Forces drink more than the general population? Patterns of drinking in the military and comparisons with the general population. *Addiction* 2007;**102**:1749–1759.
14. Breslow NE, Day NE. *Statistical Methods in Cancer Research. Volume I—The Analysis of Case-Control Studies*. Scientific Publications No. 32, Lyon: IARC, 1980.
15. Greenberg N, Langston V. *Preliminary Results from the Trauma Risk Management Study*. Presented to the IV World Congress on Traumatic Stress, Argentina, June 2006.
16. van Emmerik A, Kamphuis JH, Hulsbosch AM, Emmelkamp PM. Single session debriefing after psychological trauma: a meta analysis. *Lancet* 2002;**360**:736–741.
17. Rose S, Bisson J, Wessely S. A systematic review of single-session psychological interventions (“de-briefing”) following trauma. *Psychother Psychosom* 2003;**72**:176–184.
18. Sijbrandij M, Olf M, Reitsma JB, Carlier IV, Gersons BP. Emotional or educational debriefing after psychological trauma. Randomised controlled trial. *Br J Psychiatry* 2006;**189**:150–155.
19. 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.
20. McGeorge T, Hacker Hughes J, Wessely S. The MOD PTSD class action—a psychiatric perspective. *Occup Health Rev* 2006;**122**:21–28.