

Psychology, risk, health and deployed military operations

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ABSTRACT

This article will focus on a study by the UK Defence Science and Technology Laboratory (Dstl) which investigated the risk propensity and health behaviours of UK army personnel deployed to Irag in 2007 as part of Op TELIC. The study addressed the concept of impulsive sensation seeking and how this interacted with health behaviours associated with alcohol, smoking, driving and sex at predeployment, during deployment and postdeployment, as well as perceptions of risk and psychological wellbeing. There is also a description of other deployment-related risk and health research and analysis undertaken by Dstl as part of a wider discussion on the nature of both risk and health on deployed operations.

INTRODUCTION

The Defence Science and Technology Laboratory (Dstl) was formed in 2001, and the first formal request for human science knowledge and operational health was as part of a study addressing the initial warfighting phase of the UK's military contribution to the coalition operation in Iraq (Op TELIC) in 2003,¹ which included addressing both nutrition and fatigue. As the war in Iraq intensified and pertinent lessons were being identified, psychology-based support to operations was required from within the Dstl human capability domain; this included aspects related to risk as well as health. Risk is a natural, and expected, part of war. The word 'risk' is mentioned 22 times within various parts of the UK's current Defence Doctrine (JDP 0-01),² and historically it was discussed in Von Clausewitz's seminal treatise On War³ through his concept of Boldness:

But this noble impulse, with which the human soul raises itself above the most formidable dangers, is to be regarded as an active principle peculiarly belonging to war. In fact, in what branch of human activity should boldness have a right of citizenship if not in war? From the transport-driver and the drummer up to the general, it is the noblest of virtues, the true steel which gives the weapon its edge and brilliancy.

Sensation seeking and health

Sensation seeking is a personality trait that can best be described as a biopsychosocial-biochemical model of how people seek or avoid physiological and psychological sensation, which can broadly be called risk-taking or risk avoidance (ie, those wanting more sensation take more risks).⁴ Half a century of research on civilian samples has consistently demonstrated differences in a range of behaviours (including health behaviours) between

Key messages

- Not all military personnel are high sensationseeking risk-takers. There are variations in risk propensity, perceptions of risk and types of behaviours than many would assume.
- ► The topic of sensation-seeking and risk-taking can be applied to many areas of military behaviour and performance, not just the health domain
- ► The numerous contextual factors that affect the perception and behaviour of military personnel across the deployment cycle require deeper consideration.
- There is a need for more (and better) longitudinal studies that capture and understand behaviour at pre-, during and post-deployment.
- Mixed methods studies that gather quantitative and gualitative data provide greater insight and understanding; especially in complex areas such as deployed military operations.

high and low sensation seekers; however, impulsive sensation seeking (ImpSS),⁵ which was the latest theoretical development in the study of sensation seeking, had not previously been reported within a military population. This is important because the military personnel are our greatest asset in terms of military capability, and approaches to risk-taking can affect that capability in terms of preventable health-compromising behaviours that contribute to disease and non-battle injuries, as well as direct battle casualties.⁶⁷ Therefore, it is necessary to care for and protect our human capability up to the operational point of absolute necessity.

METHODS

A longitudinal, repeated-measures study collected questionnaire data (quantitative and qualitative) among a brigade of UK army personnel across the phases of Op TELIC 10.8 A sample within one Mechanised Brigade returned questionnaires at predeployment (n=1374), mid-deployment (n=889) and postdeployment (n=537). Using tertile ratios established at predeployment, the participants were categorised into either high ImpSS (H-ImpSS) or low ImpSS (L-ImpSS) groups. Due to the complicated nature of risk and behaviour, a number of other variables were addressed, which included perceptions of operational risk, risky health behaviours (alcohol, smoking, driving and sex) and psychological well-being (PWB). The sensitive nature of

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Figure 1 Comparison of mean ImpSS by age groups. *Denotes no female data for the 35–44 age group. ImpSS, impulsive sensation seeking.

disclosing risky health behaviours was carefully considered at the design phase of the study, and appropriate moral and ethical considerations were resolved via the army's scientific advisory committee, which led to approval from the Ministry of Defence (MOD) Research Ethics Committee. A range of inferential statistics and modelling statistics were conducted on the quantitative data, while content analysis and thematic analysis were conducted on the qualitative data.^{9 10}

RESULTS

Levels of ImpSS were statistically higher in the study's UK army sample than in reported civilian data from previous research¹¹ (Figure 1). Levels of ImpSS were significantly higher for combat arms as opposed to combat service and combat service support arms, even after controlling for age and gender, suggesting that the nature of combat arms attracted those higher in sensation seeking (Figure 2). Consistent with

previously published literature, the H-ImpSS group tended to smoke (and smoke more), drink more alcohol, drive faster, wear seat belts less and engage in risky sexual behaviour more than those in the L-ImpSS group (Table 1). Additionally, the H-ImpSS group consistently displayed lower risk perceptions of the operational context across all phases of the deployment compared with the L-ImpSS group, while no clear pattern emerged for PWB.

The research also collected a large amount of qualitative data (ie, 4326 responses categorised into various themes across alcohol, smoking and sex for predeployment, during deployment and postdeployment). Further indepth analysis of these findings would provide insights into the numerous and complicated reasons that military personnel give for their health-related behavioural decisions related to the deployment cycle, which include positive changes, negative changes or no changes. As an example, Table 2 presents the top 10 reasons for perceived



Figure 2 Mean ImpSS by army unit. ImpSS, impulsive sensationseeking. Household Cavalry (HCav), Royal Armoured Corps (RAC), Royal Engineers (RE), Royal Signals (RSigs), Royal Logistical Corps (RLC), Royal Electrical and Mechanical Engineers (REME), Adjutant's General Corps (AGC), Royal Artillery (RA).

Health behaviours (T1)Mean (SD) H-ImpSSMean (SD) L-ImpSStdfSignificance (p)Effect size (r)AlcoholArequency of alcohol3.16 (1.3)2.73 (1.3)-5.491050<0.0010.17Amount of alcohol3.97 (2.1)3.02 (1.9)-7.691035<0.0010.23Frequency of HED (binge)2.49 (0.85)2.08 (0.96)-7.1791013<0.0010.22Current perception of intake0.16 (1.0)0.01 (0.88)-2.591030<0.010.08SmokingUrrent perception of behaviour0.24 (0.75)0.19 (0.78)-7.69649<0.010.11Current perception of behaviour0.24 (0.75)0.19 (0.78)-7.69649<0.010.11Current perception of behaviour0.24 (0.75)0.19 (0.78)-7.69649<0.010.11Current perception of behaviour0.24 (0.75)0.19 (0.78)-7.699.57NS0.03DrivingUrrent perception of behaviour0.24 (0.75)1.47 (0.58)-5.879.31<0.0010.19Speed in built-up area1.71 (0.65)1.47 (0.58)-5.969.25<0.0010.220.17Speed in built-up area0.63 (1.0)0.33 (0.78)-5.471015<0.0010.13Speed in series in front as passenger0.63 (1.0)0.33 (0.78)-5.471015<0.0010.13SexUrrent perception poly)1.96 (1.2)1.58 (2.3)6.1902<0.0010.20
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One-night stands 1.53 (1.2) 0.80 (1.0) -10.41 1052 <0.001 0.31
Pay for sex 0.38 (0.74) 0.22 (0.63) -3.76 1051 <0.001 0.12
Contracted an STI 0.39 (0.71) 0.24 (0.59) -3.87 1043 <0.001 0.12
Current perception of behaviour 0.57 (1.1) 0.32 (1.0) -3.95 1061 <0.001 0.12
Amount of sex in the last 2 months 22.3 (24.8) 18.9 (20.4) -2.26 877 <0.05 0.08

HED, Heavy Episodic Drinking; H-ImpSS, high ImpSS; ImpSS, impulsive sensation seeking; L-ImpSS, low ImpSS; STI, Sexually Transmitted Infection.

Table 2 The top 10 reasons for perceived behaviour change for alcohol consumption					
		Top 10 qualitative reasons for perceived change in alcohol use			
		Increase	Decrease	No change	
Predeployment	1 2 3 4 5 6 7 8 9 10	Socialising with friends/family. No alcohol on ops/will miss it. Last chance for fun before tour. Might die/might be last chance. Worries about the tour. Stress. Enjoy life while you can. Worried about leaving family. Cohesion with colleagues. To relax/calm nerves.	Improve/maintain fitness/health. Not enough (less) time/too busy. Quality time with family. To wean off (cut down) alcohol intake. Don't drink much anyway. To keep mind clear and focused. Job-related need to cut down. To prepare for deployment. Gone off drinking/lost interest in alcohol. Saving money.	Enjoy self/social reasons. Normal life/no need to change. Good time before we deploy. Don't drink much anyway. Am not worried about the deployment. To relax. To moderate (control) behaviour. Job-related workload and stress. Lost interest/not concerned about intake. Too busy to drink more.	
During deployment	1 2 3 4 5 6 7 8 9 10	Not had it in a while, miss it. Stress. Depressed. Drank on Rest and Recuperation (R&R). Work pressures. Didn't drink much at home. Boredom.	Not allowed (policy). Affects professionalism and job performance. Dehydration and hot environment. Can live without it. Am missing it. Long work hours, lack of time. Can't get hold of it (access). I don't drink on tour. Positive health reasons. Don't drink much anyway.	Rarely drink at home. Work hard, play hard. Access to alcohol in theatre. Because I can. To avoid boredom. Social aspects. Being on tour hasn't affected me. I know my limits.	
Postdeployment	1 2 3 4 5 6 7 8 9 10	Stress (general). Socialising more. Missed it/enjoy it. Boredom. To aid sleep. Fragile life, live to the max. To relax. I feel happier, fewer worries. To avoid thinking and feelings. Stress (work).	Don't need it, don't want it. For fitness and health. Family reasons (marries, new baby and so on). Lost the taste on tour. Cost (saving money, too expensive). In a new unit, current workload. Drank too much before tour. Have other activities. Personal issues (control stress). Not a big drinker.	Socialising. Back to normal, no change. Enjoy it. No need to drink more. Not a big drinker. Family reasons. To relax. Back to normal after initial binge. Because I can. Don't think about how much I drink.	

behaviour change in alcohol consumption across the deployment cycle.

DISCUSSION

This study was the first of its type, both nationally and internationally, not just for looking at the ImpSS personality in a military population but because it also collected data *during* an operation as well as the traditional predeployment and postdeployment studies. The research not only highlighted the complexity and range of behaviours across the deployment cycle but can help to predict the behavioural patterns of sensation seekers, who are often referred to as *'risk takers'* and who may account for disproportionate ratios in terms of disease and non-battle injuries. This study led to a number of exploitation opportunities, for example, the UK contribution to a North Atlantic Treaty Organisation (NATO) research group,¹² published papers and conference^{13–15} and a PhD in health psychology.¹⁶ The findings also helped to inform Defence policy groups such as the Defence Road Safety Committee and the Defence Health Strategy Working Group.

Other related research

There have also been a range of other Dstl projects and activities that either concurrently or subsequently addressed operational health and behaviour; for example, measures of ImpSS were also collected as part of a study addressing operational rations in Afghanistan (Op HERRICK)¹⁷; risky behaviour associated with the Indirect Fire drill was analysed by operational analysts deployed to Iraq; and risk was discussed in relation to countering improvised explosive devices during Op HERRICK.^{18–20} In terms of health and behaviour, collaborative research was conducted between Dstl and the Institute of Naval Medicine on Op HERRICK,^{21 22} which included focus groups on eating behaviour and health issues. Finally, as part of operational analysis on Op HERRICK, drinking behaviour associated with potable water was investigated, as was the use of dining facilities.²³

CONCLUSION

Psychology-based advice, support and research have made a significant contribution to worldwide operations in the last 15 years. This is likely to continue in the future, especially if the military find themselves operating in environments that have been described as congested, cluttered, contested, connected and constrained,²⁴ and where appreciating psychology and behaviour will be as important to the deployed force as a whole as it will for specific medical mitigation and intervention.

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