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Non-deployment factors affecting psychological wellbeing in military personnel: literature review

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Abstract

Background: Most military mental health research focuses on the impact of deployment-related stress; less is known about how everyday work-related factors affect wellbeing.

Aims: This systematic narrative literature review aimed to identify non-deployment-related factors contributing to the wellbeing of military personnel.

Method: Electronic literature databases were searched and the findings of relevant studies were used to explore non-deployment-related risk and resilience factors.

Results: Fifty publications met the inclusion criteria. Determinants of non-deployment stress were identified as: relationships with others (including leadership/supervisory support; social support/cohesion; harassment/discrimination) and role-related stressors (role conflict; commitment and effort-reward imbalance; work overload/job demands; family-related issues/work-life balance; and other factors including control/autonomy, physical work environment and financial strain). Factors positively impacting wellbeing (such as exercise) were also identified.

Conclusions: The literature suggests that non-deployment stressors present a significant occupational health hazard in routine military environments and interpersonal relationships at work are of fundamental importance. Findings suggest that in order to protect the wellbeing of personnel and improve performance, military organisations should prioritise strengthening relationships between employees and their supervisors/colleagues. Recommendations for addressing these stressors in British military personnel were developed.

Introduction

Within any workplace there are certain stressors which can affect psychological wellbeing, job satisfaction and job performance. (Bryson et al., 2014)

There has been much research on stress in the military, though generally this tends to focus on stressors relating to combat operations, such as traumatic exposure to death and injuries, exhaustion and deprivation, and being exposed to extreme climates. An international review of occupational stressors in the military (Campbell & Nobel, 2009) identified several categories of stressors. Though much of the review focused on deployment-related stress, results also yielded several categories of stressors applying to non-deployed personnel, including work stressors (e.g. workload, role ambiguity, poor leadership); social-interpersonal stressors (e.g. acceptance, conflict, friendship); and family-related stressors (e.g. separation).

It thus appears that non-deployment stress may be substantial and important to consider. In light of the completion of the withdrawal of forces from Afghanistan in 2014/15, there is a need to identify factors of stress beyond those associated with being in a combat zone. Though non-deployment stressors have received greater attention within military research in recent years, there has to date been no systematic review synthesising the various results.

Throughout this review, we use the term non-deployment stress due to the intent to explore workplace stressors outside of the operational environment. Our definition of non-deployment stress is based on the Health and Safety Executive (HSE, 2007) definition of workplace stress as the adverse reaction which employees experience following excessive pressures or demands at work. The HSE describes six primary sources of work stress: demands (whether employees can cope with the demands of their job), control (the extent to which employees have a say in their work), support (whether adequate support is received from colleagues), relationships (whether employees are subject to negative behaviours e.g. bullying), role (the extent to which employees understand their responsibilities) and change (whether employees feel involved in organisational changes).

This review was exploratory in nature, and therefore although there are several models of job stress we did not aim to test any specific hypothesis, and instead aimed to simply explore any and all non-deployment factors affecting the psychological wellbeing or related organisational outcomes.
(e.g. job satisfaction) of military personnel, with the goal of developing recommendations for reducing non-deployment stress. This paper is the first to our knowledge to systematically review all of the literature in the area of non-deployment stress. By presenting all of the current literature together, we aimed to (1) identify any gaps in the literature or any limitations to the current research and (2) use our identification of non-deployment stressors to make suggestions for how stress can be reduced in routine military environments.

Method

Type of review

This systematic narrative review involved systematic searching of literature followed by narrative analysis. This method was chosen as the review was exploratory in nature (i.e. aiming to explore the number of different factors associated with military stress rather than testing any specific hypothesis). The narrative format of analysis allows us to provide a summarised overview of the broad range of topics covered. Narrative reviews have become increasingly ‘systematic’ in nature and are frequently used to review quantitative data when studies are not similar enough to undergo meta-analysis (Snilstveit et al., 2012). Narrative reviews can be strengthened by incorporating elements of a systematic literature review (Murphy, 2012), which we have done in this study i.e. the search strategy, use of multiple databases, and standardised data extraction process.

Selection of studies

Inclusion criteria were:

- Peer-reviewed primary studies;
- Reporting on non-deployment-related factors associated with any aspect of psychological wellbeing or job satisfaction in military personnel;
- English language;
- Published 2003–2013 (a time period of ten years was chosen due to the volume of studies in this area);
- Quantitative studies (to allow us to identify factors which showed statistically significant associations with outcomes, or report whether there were inconsistencies in the literature if some studies reported significant associations and others showed no associations);
- Scoring at least 75% on all sections of our quality appraisal.

Conducting the review

This review forms part of a wider study on workplace stress in high-risk occupational settings. Though this paper focuses entirely on military literature, one search was undertaken to cover both military and comparable high-risk occupations. Therefore, search terms were separated into three components: military terms (e.g. Army, Navy), other high-risk occupation terms (e.g. police, fire fighter) and wellbeing-related terms (e.g. stress, depression). One search using military “AND” wellbeing-related terms was conducted, and one search using civilian “AND” wellbeing-related terms. Full search terms can be seen in Appendix I. Multiple electronic databases were searched: the British Nursing Index; Cochrane; EMBASE; Health Management Information Consortium; MEDLINE; PsycINFO; Science Direct; and Web of Science. Resulting citations were downloaded to EndNote® software version X7 (Thomson Reuters, New York, NY).

Article screening

Duplicate citations were removed. Titles of citations were assessed and any clearly irrelevant to the study were removed. The abstracts of those remaining were read, evaluated and full texts of papers identified as potentially eligible for inclusion were obtained. The reviewer read these papers in their entirety and assessed eligibility according to inclusion criteria. Reference lists of all included studies were also hand-searched.

Data extraction and quality assessment

Details from relevant studies were extracted into spreadsheets designed specifically for this review, with headings such as “country of study”, “participant demographics”, “measures used” and “outcomes” (full data extraction table available on request). Studies were assessed for quality in three different areas: study design; data collection and methodology; and analysis and interpretation of results. Quality assessment forms were designed for the study, informed by existing tools such as the Effective Public Health Practice Project’s Quality Assessment Tool for Quantitative studies (EPHPP, 2009) and the British Medical Journal’s criteria originally designed for assessing economic studies (Drummond & Jefferson, 1996). This combination of assessment tools was used to ensure a comprehensive quality appraisal; the final appraisal tool can be seen in Appendix II. Each study was given an overall score.

Synthesis of results

Thematic analysis was used to group predictors of wellbeing (both positive and negative) into a typology, and the “themes” which emerged from the literature are presented in this review. To be accepted as a theme, topics needed to be identified by at least two studies. One reviewer (SKB) went through the results of each paper, noting which stressors were explored in each one, and these stressors were then coded into appropriate “themes”. Any uncertainties regarding the definition of themes were discussed with another researcher (NG) until consensus was reached. The coding of results into themes was guided purely by the data itself and not by any of the various categories of workplace stressors already proposed by workplace stress models.

As we were interested in factors affecting both risk and resilience, we included any studies reporting on stressors, risk factors, mediators or moderators of stress, or protective factors. As these terms clearly cannot be used interchangeably, we report on them using the terminology used in the original papers.

Results

As stated earlier, this report forms part of a wider review on workplace stress in high-risk occupations thus the search
strategy encompassed non-military literature also. 11,834 studies were initially found, of which 8295 related to the military. After the various screening processes, 50 papers were retained for data extraction (see Appendix III for details of the full screening process). We note that this is a small retention rate: however, this is a reflection of the very broad search strategy that was used to avoid missing any potentially relevant papers. A summary of the literature reviewed in this study (including year of publication, country, design, number of participants and military service) can be seen in Table 1.

An overview of stressors identified is presented in Table 2.

**Relationships with others**

*Leadership and supervisory support*

Effective leadership was found to be important for wellbeing in military organisations, likely due to the highly structured environment. Aspects of leadership identified as particularly beneficial included trustworthiness (Redman et al., 2011); skills, knowledge and concern for morale and success (Pflanz & Ogle, 2006); being ‘‘involved’’ rather than distant and providing motivation, stimulation, clear expectations and recognition (Bass et al., 2003); and providing regular feedback (Mohd Bokti & Abu Talib, 2009). Perceived supervisory support predicted occupational and psychological outcomes in the US military (Dupre & Day, 2007), and stress and strain in the Royal Navy (UK) (Brasher et al., 2010; Bridger et al., 2007, 2009), with better perceptions of support associated with better outcomes. Leaders with attachment-related anxiety were associated with subordinates’ poor instrumental functioning, socio-emotional functioning and mental health in the Israeli military (Davidovitz et al., 2007).

*Social support and cohesion*

Social support, particularly from colleagues, was found to be important. Unit cohesion (the unity or bonds between employees in a team) was positively associated with overall health in the US military (Mitchell et al., 2011) and job satisfaction and stress in the US Army (Walsh et al., 2010). Several US studies suggested unit cohesion and a strong sense of ‘‘belongingness’’ were significant protective factors against suicidal ideation (Bryan et al., 2013; Langhinrichsen-Rohling et al., 2011; Mitchell et al., 2012).

Increased conflict with co-workers predicted stress and depression in the US Air Force (Pflanz & Ogle, 2006) and stress in Royal Navy submariners (Brasher et al., 2010). Low peer support was associated with strain in the UK Navy (Bridger et al., 2007); depression and post-traumatic stress disorder (PTSD) in US Army personnel (Carter-Visscher et al., 2010); PTSD, depression, stress and suicidal ideation in the Canadian military (Mota et al., 2012; Nelson et al., 2011); psychological distress (Rona et al., 2009) and PTSD, common mental disorders and alcohol misuse (Harvey et al., 2011) in UK personnel; and suicidal ideation in the Canadian military (Nelson et al., 2011) and US Air Force (Langhinrichsen-Rohling et al., 2011). Hatch et al. (2013), comparing UK service personnel and those who left the service, found service leavers reported less social participation outside work and a general disengagement with military social contacts in comparison to serving personnel, and were more likely to report common mental disorders and PTSD. Conversely, high support within the organisation was associated with better job satisfaction and turnover intentions in the Canadian military (Dupre & Day, 2007) and better self-rated health in the Slovenian military (Selic et al., 2012). Social support was a protective factor for psychological distress in US Air Force personnel (Lemaire & Graham, 2011) and Marines (Hourani et al., 2012).

*Harassment and discrimination*

Sexual harassment was associated with higher risk of turnover in the US military personnel (Nye et al., 2010) and lower co-worker satisfaction and more reported role limitations in the US military (Settles et al., 2012). Perceived tokenism (e.g. isolation, stereotyping) was associated with lower levels of organisational commitment in US Army Captains (Karrasch, 2003).

*Role-related stressors*

*Role conflict*

Role conflict and lack of job clarity – i.e. lack of understanding of what is expected of one in their workplace or not understanding one’s responsibilities – also appeared to be predictive of psychological and work-related outcomes. Role conflict predicted strain in the Royal Navy (Bridger et al., 2007); occupational stress in the Indian Navy (Pawar & Rathod, 2007); physical and psychological health symptoms in the Canadian military (Dupre & Day, 2007), and psychological distress in Australian Navy personnel (McDougall & Drummond, 2010).

*Commitment, over-commitment and effort-reward imbalance*

Brasher et al. (2012) found that over-commitment and difficulty disengaging from work predicted stress in Royal Navy submariners. Bridger et al. (2011) found that the biggest stressor for UK Naval personnel was inability to disengage from work, implying over-commitment. Royal Navy personnel with chronic strain were more likely to perceive that reward for high effort was lacking than those without chronic strain, and more likely to be over-committed to their specific work role but lack commitment to the service as a whole (Bridger et al., 2009). Submariners with the highest stress levels tended to be those who were over-committed to their work roles, but lacked commitment to the Royal Navy as a whole (Brasher et al., 2010). There were also positive findings relating to commitment: for example, Meyer et al. (2013) found that commitment mediated the relationship between stress and both psychological and work-related outcomes in the Canadian military.

Effort-reward imbalance was strongly associated with mental disorders in Brazilian Army personnel (Martins & Lopes, 2012, 2013). Conversely, appreciation at work was positively associated with job satisfaction and negatively associated with feelings of resentment in the Swiss military (Stocker et al., 2010).
Table 1. Summary of included literature.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Country</th>
<th>Design</th>
<th>Participants (n)</th>
<th>Service</th>
<th>Themes included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allen et al., 2011</td>
<td>US</td>
<td>Cross-sectional</td>
<td>300 couples</td>
<td>Army</td>
<td>Family issues/work-life balance; Other role-related factors</td>
</tr>
<tr>
<td>Bass et al., 2003</td>
<td>US</td>
<td>Cross-sectional – experimental</td>
<td>1594</td>
<td>Army</td>
<td>Leadership and supervisory support</td>
</tr>
<tr>
<td>Behnke et al., 2010</td>
<td>US</td>
<td>Cross-sectional</td>
<td>33 189</td>
<td>Army, Navy, Air Force, Marines, Coast Guard</td>
<td>Family issues/work-life balance</td>
</tr>
<tr>
<td>Brasher et al., 2010</td>
<td>UK</td>
<td>Cross-sectional (first phase of a cohort study)</td>
<td>105 submariners vs. 105 Royal Navy control group</td>
<td>Submariners, Royal Navy</td>
<td>Leadership and supervisory support; Social support and cohesion; Commitment, over-commitment and effort-reward imbalance</td>
</tr>
<tr>
<td>Brasher et al., 2012</td>
<td>UK</td>
<td>Longitudinal (2-year follow-up of Brasher et al., 2010)</td>
<td>144 submariners vs. 144 Royal Navy control group</td>
<td>Submariners, Royal Navy</td>
<td>Commitment, over-commitment and effort-reward imbalance</td>
</tr>
<tr>
<td>Bray et al., 2010</td>
<td>US</td>
<td>Cross-sectional</td>
<td>28 546</td>
<td>Army, Navy, Air Force, Marine Corps, Coast Guard</td>
<td>Family issues/work-life balance</td>
</tr>
<tr>
<td>Bridger et al., 2007</td>
<td>UK</td>
<td>2 cross-sectional studies</td>
<td>1707 in study 1; 1749 in study 2</td>
<td>Royal Navy</td>
<td>Leadership and supervisory support; Social support and cohesion; Role conflict</td>
</tr>
<tr>
<td>Bridger et al., 2009</td>
<td>UK</td>
<td>Longitudinal</td>
<td>1207 at T1; 1305 at T2</td>
<td>Royal Navy</td>
<td>Commitment, over-commitment and effort-reward imbalance; Work (over)load and job demands; Family issues/work-life balance</td>
</tr>
<tr>
<td>Bridger et al., 2011</td>
<td>UK</td>
<td>Prospective longitudinal</td>
<td>2596 at T1; 1305 at T2</td>
<td>Royal Navy</td>
<td>Commitment, over-commitment and effort-reward imbalance; Other role-related factors</td>
</tr>
<tr>
<td>Britt et al, 2004</td>
<td>US</td>
<td>Cross-sectional</td>
<td>1208</td>
<td>Army Rangers</td>
<td>Positive impact on wellbeing</td>
</tr>
<tr>
<td>Bryan et al., 2013</td>
<td>US</td>
<td>Cross-sectional</td>
<td>273</td>
<td>Air Forces</td>
<td>Social support and cohesion</td>
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<tr>
<td>Carter-Visscher et al., 2010</td>
<td>US</td>
<td>Cross-sectional</td>
<td>522</td>
<td>Army</td>
<td>Social support and cohesion; Family issues/work-life balance</td>
</tr>
<tr>
<td>Davidovitz et al., 2007</td>
<td>Israel</td>
<td>3 cross-sectional studies</td>
<td>84 in study 1; 549 in study 2; 541 in study 3</td>
<td>All Israeli Defense Forces</td>
<td>Leadership and supervisory support</td>
</tr>
<tr>
<td>Demerouti et al., 2004</td>
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<td>Cross-sectional</td>
<td>3122</td>
<td>Military police</td>
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</tr>
<tr>
<td>Dolan et al., 2005</td>
<td>US</td>
<td>Cross-sectional</td>
<td>1422</td>
<td>Army</td>
<td>Positive impact on wellbeing</td>
</tr>
<tr>
<td>Dupre &amp; Day, 2007</td>
<td>Canada</td>
<td>Cross-sectional</td>
<td>450</td>
<td>“Military personnel”</td>
<td>Leadership and supervisory support; Social support and cohesion; Family issues/work-life balance</td>
</tr>
<tr>
<td>Fear et al., 2009</td>
<td>UK</td>
<td>Cross-sectional</td>
<td>7766</td>
<td>Army, Royal Navy, Royal Air Force</td>
<td>Other role-related factors</td>
</tr>
<tr>
<td>França et al., 2011</td>
<td>Brazil</td>
<td>Prospective observational</td>
<td>237</td>
<td>Military police</td>
<td>Work (over)load and job demands</td>
</tr>
<tr>
<td>Goedhard &amp; Goedhard, 2005</td>
<td>Nether-lands</td>
<td>Cross-sectional</td>
<td>126</td>
<td>Army</td>
<td>Work (over)load and job demands</td>
</tr>
<tr>
<td>Harvey et al., 2011</td>
<td>UK</td>
<td>Cross-sectional</td>
<td>4991</td>
<td>Army, Royal Air Force, naval services</td>
<td>Social support and cohesion</td>
</tr>
<tr>
<td>Hatch et al., 2013</td>
<td>UK</td>
<td>Cross-sectional</td>
<td>6511 serving personnel vs. 1753 service leaders</td>
<td>Army, Royal Navy, Royal Marines, Royal Air Force</td>
<td>Social support and cohesion</td>
</tr>
<tr>
<td>Hopkins-Chadwick &amp; Ryan-Wenger, 2009</td>
<td>US</td>
<td>Cross-sectional</td>
<td>50</td>
<td>Air Forces</td>
<td>Work (over)load and job demands</td>
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<tr>
<td>Hourani et al., 2012</td>
<td>US</td>
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<td>475</td>
<td>Marines</td>
<td>Social support and cohesion</td>
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<tr>
<td>Karras, 2003</td>
<td>US</td>
<td>Cross-sectional</td>
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<td>Harassment and discrimination</td>
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<tr>
<td>Langhinrichsen-Rohling et al., 2011</td>
<td>US</td>
<td>Archival</td>
<td>52 780</td>
<td>Air Forces</td>
<td>Social support and cohesion; Work (over)load and job demands; Other role-related factors</td>
</tr>
<tr>
<td>Lemaire &amp; Graham, 2011</td>
<td>US</td>
<td>Cross-sectional</td>
<td>1740</td>
<td>Mixed – not reported</td>
<td>Social support and cohesion</td>
</tr>
</tbody>
</table>
Martins & Lopes, 2012 Brazil Cross-sectional 506 Army Commitment, over-commitment and effort-reward imbalance

Martins & Lopes, 2013 Brazil Cross-sectional 506 Army Commitment, over-commitment and effort-reward imbalance; Positive impact on wellbeing

McDougall & Drummond, 2010 Australia Cross-sectional 75 Navy Role conflict; Work (over)load and job demands; Positive impact on wellbeing

Meyer et al., 2013 Canada Cross-sectional 6501 Mixed – not reported Commitment, over-commitment and effort-reward imbalance

Mitchell et al., 2011 US Cross-sectional 1592 Army Social support and cohesion

Mitchell et al., 2012 US Cross-sectional 1663 Army Social support and cohesion

Mohd Bokti & Abu Talib, 2009 Malaysia Cross-sectional 40 Navy Leadership and supervisory support; Work (over)load and job demands

Mota et al., 2012 Canada Cross-sectional 5155 Regulars vs. 3286 Reservists Mixed – land, air, sea/communications

Nelson et al., 2011 Canada Cross-sectional 8441 Mixed – not reported Social support and cohesion; Social support and cohesion

Nye et al., 2010 US 2 cross-sectional 28 296 in study 1; 19 960 in study 2 Department of Defence and Coast Guard Harassment and discrimination

Odle-Dusseau et al., 2013 US Longitudinal 478 Army Family issues/work-life balance

Pawar & Rathod, 2007 India Cross-sectional 5077 Navy Role conflict

Pflanz & Ogle, 2006 US Cross-sectional 809 Air Force Leadership and supervisory support; Social support and cohesion; Work (over)load and job demands; Family issues/work-life balance

Redman et al., 2011 Oman Cross-sectional 235 Air Force Leadership and supervisory support; Positive impact on wellbeing

Rona et al., 2009 UK Part of a longitudinal study 1885 Royal Navy, Royal Marines, Army, Royal Air Force Social support and cohesion

Sachau et al., 2012 US Cross-sectional 1203 Air Force law enforcement

Sanchez et al., 2004 US Cross-sectional 24 881 Air Force, Army, Marine Corps, Navy Family issues/work-life balance

San et al., 2012 Eastern Europe Cross-sectional 150 Army Positive impact on wellbeing

Sellic et al., 2012 Slovenia Cross-sectional 390 Army Social support and cohesion

Settles et al., 2012 US Cross-sectional 1925 Mixed – not reported Harassment and discrimination

Stocker et al., 2010 Switzerland Cross-sectional 228 Armed Forces Career Officers Commitment, over-commitment and effort-reward imbalance

Thomas et al., 2005 US Cross-sectional 695 Army Work (over)load and job demands

Walsh et al., 2010 US Cross-sectional 1394 Army Social support and cohesion

Wilcove et al., 2009 US Cross-sectional 16 833 Navy Other role-related factors
Increased stress in military police officers in Brazil (França et al., 2004) often involving working throughout the night. Shift work with different employees taking up posts throughout the day, provided 24 hours per day, so days are divided into "shifts", hours worked: military organisations require service to be job-related, rather than non-job-related, issues.

Belief that the biggest problem in one's life was the result of job-related, rather than non-job-related, issues. In one study US military personnel were perception of job pressure and psychological distress in Australian Navy personnel greater the strain in the UK Navy (Bridger et al., 2009) and Malaysia (Mohd Bokti & Abu Talib, 2009). The higher the workload, the greater the strain in the UK Navy (Bridger et al., 2009) and Australia (McDougall & Drummond, 2010). Qualitative overload (that is, pressures of the job related to responsibility and complexity of work rather than amount of work) predicted poor work ability in the Netherlands Army (Goedhard & Goedhard, 2005). Having too heavy a workload and a quantity of work which could interfere with quality predicted occupational stress in the Malaysian Navy (Mohd Bokti & Abu Talib, 2009). The higher the workload, the greater the strain in the UK Navy (Bridger et al., 2009) and psychological distress in Australia (McDougall & Drummond, 2010). Role overload (the perception of individuals that their resources are overwhelmed) was not correlated with performance (Thomas et al., 2005). Sanchez et al. (2004) found the strongest predictors of job satisfaction in US military personnel were perception of job pressure and belief that the biggest problem in one’s life was the result of job-related, rather than non-job-related, issues.

A key demand faced by military personnel is the number of hours worked: military organisations require service to be provided 24 hours per day, so days are divided into "shifts", with different employees taking up posts throughout the day, often involving working throughout the night. Shift work increased stress in military police officers in Brazil (França et al., 2011), while rotating shifts were related to poorer turnover intentions (i.e. intention to leave the service), higher levels of burnout, lower levels of job satisfaction and commitment, and greater absenteeism in Dutch military police (Demerouti et al., 2004). Greater number of weekly hours worked was a predictor of suicide ideation in the US Air Force (Langhinrichsen-Rohling et al., 2011).

Family issues/work-life balance

Due to the nature of the role, military personnel are often away from their families for long periods, and the long hours involved may lead to disruption at home. Several US studies found that being away from family was a stressor (Bray et al., 2010; Pfanz & Ogle, 2006) and predicted both turnover intentions (Behnke et al., 2010) and psychological symptoms (Carter-Visscher et al., 2010). Poor work-life balance significantly predicted health symptoms and turnover intentions in the Canadian military (Dupre & Day, 2007); stress in the US military (Allen et al., 2011; Bray et al., 2010); turnover intentions in US military law enforcement (Sachau et al., 2012); and strain in the Royal Navy (Bridger et al., 2009). Odle-Dusseau et al. (2013) found that poorer perception of the work environment as family-supportive was associated with psychological strain.

Other role-related factors

There were several other stressors identified which have been categorised together as "other" work-related factors due to the small number of studies that discussed their impact, and the fact that they were not the primary focus of any study. These stressors are: control/autonomy; physical work environment; and financial strain.

There was a small amount of literature relating to control; lack of autonomy and control predicted strain in UK Navy personnel (Bridger et al., 2011) and post-traumatic stress and common mental disorders in the UK military (Fear et al., 2009).

The physical work environment could also affect stress: dissatisfaction with the physical conditions they had to work under predicted stress and strain in both UK and US Navy personnel (Bridger et al., 2011; Wilcove et al., 2009).

Finally, Allen et al. (2011) found a negative correlation between stress and income in US Army families, though the psychological sense of financial strain (i.e. worrying about financial situation) was a stronger predictor of stress than actual salary. A study of US Air Force personnel (Langhinrichsen-Rohling et al., 2011) found that financial stress predicted suicidal ideation in female personnel only.

Positive impact on wellbeing

Several factors were identified which were consistently associated with a positive effect on wellbeing or job performance. There was a small amount of literature concerning fitness and exercise: the impact of stressors on psychological wellbeing was mediated by physical fitness in the US military (Dolan et al., 2005) and amount of time spent on leisure-time physical activity in Brazilian Army personnel (Martins & Lopes, 2013). Involvement in recreational

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<table>
<thead>
<tr>
<th>Category</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationships with others: Leadership and Supervisory Support</td>
<td>Support, feedback, leadership style</td>
</tr>
<tr>
<td>Relationships with others: Social Support and Cohesion</td>
<td>Sense of belonging/camaraderie at work, relationships with colleagues/family/friends</td>
</tr>
<tr>
<td>Relationships with others: Harassment and Discrimination</td>
<td>Sexual harassment, perceived tokenism</td>
</tr>
<tr>
<td>Role-related Stressors: Role Conflict</td>
<td>Role clarity, role conflict</td>
</tr>
<tr>
<td>Role-related Stressors: Commitment, Over-commitment and Effort-Reward Imbalance</td>
<td>Over-commitment, effort-reward imbalance, feeling valued</td>
</tr>
<tr>
<td>Role-related Stressors: Work (Over)load and Job Demands</td>
<td>Demands, resources, control, workload, long hours, shift work</td>
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<td>Role-related Stressors: Family Issues/Work-Life Balance</td>
<td>Separation, concerns about family, demands at work/home</td>
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<tr>
<td>Role-related Stressors: Other Role-related Factors</td>
<td>Control/autonomy, ability to participate in decision-making; physical work environment; financial strain</td>
</tr>
<tr>
<td>Positive Impact on Wellbeing</td>
<td>Fitness, exercise, role identification, trust in the organisation</td>
</tr>
</tbody>
</table>

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Table 2. Overview: factors affecting wellbeing.
activities mediated the relationship between work stress and psychological distress in Australian Navy personnel (McDougall & Drummond, 2010).

‘Army identification’ was negatively associated with depression and positively associated with job satisfaction (Sani et al., 2012). Other personal or work-related values which may moderate or mediate the effects of stressors included possessing a strong ‘achievement’ value (Britt et al., 2004) and having trust in the organisation as a whole (Redman et al., 2011).

It should also be noted that many of the factors identified as stressors can also have a positive impact depending on how they are perceived. For example, while perceived poor or lacking social support at work increased stress, perception of support as good may increase job satisfaction and reduce stress.

Discussion

This review highlights the importance of considering non-deployment stressors in military personnel. Military organisations should be able to improve the wellbeing of personnel through addressing exposure to, and mediating the impact of, non-deployment stressors.

Implications

Areas highlighted as worthy of attention are discussed below. As many of the reviewed studies reported correlational findings some caution must be taken before translating these into practical implications. However, this review’s findings provide useful insights into potential levers for intervention which could be tested in future studies.

Relationships with others, particularly supervisors, were particularly important to the psychological wellbeing and occupational functioning of military personnel (Bridger et al., 2007; Dupre & Day, 2007). This is interesting given that such a profession is considered to be characterised more by physical than socially-related risks. We suggest that supervisors should be aware of the need to be supportive and give directions and feedback clearly. Whilst military leadership training for operational duties is well-developed, supervisors may benefit from improved understanding about how best to facilitate teams working on non-deployment tasks. Ensuring that supervisors are trained in management as well as leadership skills should be useful; for example, training to encourage assigning well-defined roles for team members and dealing with problems in a non-confrontational way. Evidence suggests that employees thrive with clear, constructive feedback from leaders (Mohd Bokti & Abu Talib, 2009), and it should be investigated how to best provide this. For the UK military, it may be that the current practice of twice-yearly formal feedback from line managers is insufficient to effectively inform employees of their performance and, if necessary, how they can improve. Current appraisal methods use a traditional top-down approach, where the manager is the only evaluator. Assuming the manager is impartial and fair, this can be useful in evaluating performance and setting goals; however, the singular perspective means that bias from managers could limit the potential for development. It may be helpful to consider a more contemporary 360-degree approach to appraisals, where employees are evaluated from people in all areas within the organisation, providing a more complete picture of how performance is being perceived. This type of appraisal has been explored within civilian organisations with positive findings; employees reported that it promoted reflection on what was going well and what could be improved, and found it a positive learning experience overall (Drew, 2009). Although 360 degree appraisals have not been well-studied in military organisations, this is starting to attract attention (Charbonneau & Machntyre, 2011). Future research may consider trialling both top-down and 360-degree approaches to ascertain which method is most effective.

Cohesive units, good team functioning and peer support were important (Mitchell et al., 2011, 2012). Future studies should investigate how to build and maintain cohesion in units even when not preparing for deployment. Group goals are important in developing and maintaining cohesive units, and leaders could influence this by establishing joint goals and encouraging employees to work together. Many military training courses aim to improve unit cohesion as a primary or secondary objective (e.g. adventurous training), but few training opportunities foster interpersonal skills. One exception to this is Trauma Risk Management (TRiM) training (Greenberg et al., 2008), an intervention delivered by line managers and aimed at improving the way personnel support their colleagues following traumatic events. Although this focuses on traumatic/operational stressors, TRiM may well be useful at improving team relationships outside of the conflict zone, and has been shown to effectively improve cohesion and attitudes towards mental health in others in other organisations such as the police and railway employees (Sage et al., 2016; Whybrow et al., 2015). Studies focusing on workplace discrimination and harassment suggest that strategies to reduce bullying and promote an equal opportunities climate would be beneficial in terms of the wellbeing of employees.

Role clarity should also be considered as a possible target for intervention as this impacted on wellbeing (Bridger et al., 2007). Whilst it may not be practical to actually modify work roles, it may be useful to provide personnel with information focusing on role clarity such as ‘refresher’ skills training courses, and include providing role clarity as part of leadership/management training. Role clarification interventions have been used in the nursing sector with positive results (Smith & Larew, 2013); these could be trialled in military contexts to assess their impact. While it is appreciated that organisations cannot necessarily reduce workloads, it may be useful for personnel in particularly high-pressure roles to be provided with ‘workload management’ training focusing on prioritising work, knowing when to delegate, and coping strategies to mitigate the effects of a heavy workload. Enabling employees to be involved in decision-making processes, where possible, would also be helpful in terms of giving them a sense of autonomy which appeared to be associated with greater wellbeing. Weston (2010) outlines strategies for enhancing autonomy in the nursing sector, such as encouraging nurses to incorporate their knowledge and expertise into clinical practice, encouraging continuous reflection on the degree of autonomy involved in their tasks, and coaching nurses in decision-making. Interventions have provided mixed results in terms of actually enhancing
autonomy (Schalk et al., 2010); further research is needed to establish successful ways of improving autonomy. We do note that as an authoritarian organisation, the ability of the military to allow junior staff to be fully involved with decision making may be limited.

Organisations may be regarded as having some duty of care to the families of personnel; the review showed that family concerns impact upon personnel’s wellbeing (Odle-Dusseau et al., 2013). It might be possible to reduce work–home interference by family-friendly working, e.g. flexible working, where possible outside of deployment periods. For example, it may be helpful to consider how personnel can book annual leave when they want rather than as directed.

Leisure-time physical activity may mitigate the effects of stress (Martins & Lopes, 2013). Agility and physical readiness are obviously fundamental aspects of being in the military or comparable occupations; nevertheless, our review suggests that for some personnel additional physical fitness training could be useful, especially if incorporated into their everyday lives. Since unit cohesion and good relationships with colleagues appeared to be protective while poor relations with co-workers increased stress, we suggest it is important to ensure that cutbacks in expenditure do not remove opportunities for service sports teams and friendly matches or group exercise routines. We further suggest that since military and civilian personnel work together on joint projects within the Ministry of Defence, there should be scope for whole teams, not just uniformed teams, to recreate together to foster cohesion.

These implications are particularly pertinent for those in supervisory roles, who are in a position to improve many of the aspects contributing to stress. These individuals should actively build and maintain good relationships with subordinates and use team-building activities to improve unit cohesion; they can improve engagement by providing encouragement and ensuring that their employees feel pride in their work; and they can reward their personnel – even if only in terms of positive feedback – to reduce any imbalance between effort and reward and to ensure that employees feel valued. Regular work-focused appraisals and provision of feedback (formally and/or informally) with employees may also improve role clarity. During these discussions leaders should also enquire whether employees have the necessary resources for the job; they could ask personnel whether they felt supported by other unit members and also about support networks outside of work to identify those with poor support who might therefore benefit from extra colleague support.

It is perhaps reassuring to note that many of the suggested interventions are similar to those that the British military has been using to develop and support operational capability for many years. However, we suggest that there may be a need for alteration of training styles and processes for use in support of reducing the impact of non-deployment stressors.

Strengths

The main strengths of the review are the extensive list of search terms, the searches of multiple databases, the rigorous screening and data extraction processes and the use of a quality appraisal tool allowing us to assess the quality of each individual paper which was included.

A further strength was that we found our results fit well with other existing models. For example, we found support for the HSE’s (2007) six primary sources of work stress: demands, control, support, negative workplace relationships and role were all identified as key factors influencing the wellbeing of military personnel. While the final source of stress proposed by the HSE, change and whether employees feel involved in organisational changes, was not discussed explicitly in the literature, it could be argued that our findings relating to autonomy and control are related to this. Future research may consider exploring the relationship between wellbeing and aspects of change in military personnel.

The review also provided support for several existing models regarding stress at work: for example, the effort–reward imbalance model (Siegrist, 1996) which suggests that a lack of reciprocity between rewards (e.g. money, esteem, career opportunities, positive feedback, feeling valued) and effort at work can lead to negative emotions. A small amount of the reviewed literature indicated that a lack of reciprocity between rewards and effort appeared to lead to stress. Findings also lent support to Karasek’s (1979) job decision latitude model, which proposes that employees experience adverse health consequences if their work makes high demands while allowing little personal control, and the job demands–control–support model (Johnson & Hall, 1988), with a lack of reciprocity between demands and control also being an important stressor.

Limitations

Studies came mainly from North America or Europe, perhaps due to the choice to limit the search to English-language papers; future reviews might consider translating foreign-language papers. However, we did not limit the review to certain countries and did include several papers from Asia and Australia. It is important to note that there are fundamental differences between military organisations of different nations, and different political systems and circumstances in different countries could impact on results. However, this review highlights that in spite of the major differences, personnel across the world appear to be affected by similar non-deployment stressors in similar ways. Secondly, most papers included were cross-sectional. More prospective and longitudinal studies are needed to clarify the direction of associations. Thirdly, as this review was exploratory in nature, we have not explored the findings further than identifying stressors; that is, we have not examined the interrelatedness of the themes and how certain stressors may influence the impact of other stressors. Future research could consider building on existing models to tie together the various themes found in this review. Fourth, we acknowledge that the review would have benefited from having multiple reviewers assess papers for inclusion: where there was uncertainty about including papers, these were discussed with the second author, but the majority of screening was performed by one reviewer and so there is a possibility for bias. Fifth, though our decision to limit the review to quantitative studies meant that all findings presented here had been subject to statistical
analysis and thus are more easily comparable, it may be useful for future reviews to include qualitative studies. This may support the findings presented here or identify additional stressors. Finally, the meaning of concepts such as ‘stress’ and ‘strain’ were likely to vary between studies; this review has used the terms as they were used in the individual articles. Despite these limitations, this study remains a comprehensive review of non-deployment stressors in the military.

Conclusions

While certain work-related aspects which may cause stress cannot easily be changed (e.g. workload), the Armed Forces can work with employees to ensure that they are supported, their worries are listened to and they are taught mechanisms to cope with their anxieties. Stressors such as lack of support from leaders, poor cohesion and social conflict with colleagues, harassment at work and job-related issues such as role conflict and work overload present a significant occupational health hazard in the routine military work environment. In order to protect the wellbeing of personnel, the military should aim to prioritise strengthening relationships between employees and their supervisors/co-workers, and continue to eliminate sources of job stress such as discrimination and harassment in the workplace.

Declaration of interest

Financial support was received from the Headquarters Land Forces (HQLF). NG runs a psychological health consultancy which provides TriTm training amongst other services.

References

Langhinrichsen-Rohling J, Snarr JD, Slep AM, United States Air Force Family Advocacy Program. (2011). Risk for suicidal ideation in the


Appendix I: Search strategy


Search 1: exp Military Personnel/or exp Military Psychology/or exp Military Deployment/or exp Military Training/or military.mp.

Armed force*.mp

Special force*.mp

Soldier*.mp

Service personnel.mp or exp service personnel

War.mp or mp combat experience/or combat/

Troops.mp

Air force*.mp or air force personnel/

Army.mp or army personnel/

Navy personnel.mp or naval personnel/

Combine all with OR

Search 2: Non-operational stress*.mp or non operational stress.mp

Workplace stress*.mp or job stress/

Work-place stress*.mp

Occupat* stress*.mp or occupational stress/

Burnout.mp

Job strain*.mp or occupational strain*.mp

Work* function*.mp or job performance/

Occupational function*.mp

Team performance.mp

Organisational outcome*.mp or organizational outcome*.mp

Mental health.mp or mental health/

Wellbeing.mp or well-being.mp

Anxiety.mp or anxiety/

Stress.mp not post-traumatic not posttraumatic not PTSD

Work performance.mp

Combine all with OR

Search 1 AND Search 2

(Further search for other occupational populations not included in this paper)

Search 3: High risk work* or high risk job* or high risk occupation*

Police.mp or police personnel/

Aid agencies or aid agency/

Humanitarian aid/

Relief work/

Emergency relief/

Rescue services or rescue workers/

Firefighter*.mp or fire fighters/

Law enforcement.mp or law enforcement/

Emergency response
Appendix II: Quality appraisal

Section 1: Study design
(1) The research question is clearly stated
(2) The sample size is described.
(3) The sampling method is described.
(4) The inclusion criteria are described.

Section 2: Data collection and methodology
(1) Standardised tools are used, or where measures are designed for the study, attempts to ensure reliability and validity have been made.
(2) Number of participants is described at each stage of the study.
(3) Reasons for loss to follow-up are described.
(4) Data on non-participants is provided.

Section 3: Analysis and interpretation of results
(1) Details of statistical tests and confidence intervals where appropriate are described.
(2) The answer to the study question is given.
(3) Conclusions follow from the data reported.
(4) Conclusions are accompanied by the appropriate caveats. All questions answered with YES or NO with the exception of “Reasons for loss to follow-up are described” which was answered with NA if the study took place at only one time-point. In these cases, the percentage was calculated as a sum of 11 responses rather than 12. All items were given equal weight when determining the final score.

Appendix III: Flow diagram of search and screening process