The impact of deployment to Iraq or Afghanistan on partners and wives of military personnel

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Abstract
Deployment has well documented psychological consequences for military personnel. To fully understand the human cost of war, the psychosocial impact of separation and homecoming of military personnel on their families must also be considered. Recent arduous conflicts in Iraq and Afghanistan make understanding the impact of war on spouses topical and pertinent. Widespread psychological morbidity and social dysfunction have been reported in spouses of military personnel who have been deployed to combat zones such as Vietnam, with difficulties most acute for spouses of military personnel with post-traumatic stress disorder (PTSD). A review of the literature published between 2001 and 2010 assessing the impact of deployments to Iraq and Afghanistan on spouses of military personnel was conducted. A total of 14 US-based studies were identified which examined psychological morbidity, help seeking, marital dysfunction and stress in spouses. Longer deployments, deployment extensions and PTSD in military personnel were found to be associated with psychological problems for the spouse. Methodological differences in the studies limit direct comparisons. Recommendations for future research are outlined. The needs of spouses of military personnel remain an important issue with implications for service provision and occupational capability of both partners.

Introduction
More than two million US military personnel have been deployed to Iraq and Afghanistan since 2001 (Manos et al., 2010). While the health and well-being of military personnel has received much attention (e.g. Fear et al., 2010; Hoge et al., 2004; Hosek et al., 2006), less is known about the impact of deployment on military families, especially spouses who have been described as the ‘overlooked casualties of war’ (RNRMC, 2009). However, previous work has shown that deployment has psychosocial consequences for the spouses of military personnel (Levy & Sidel, 2009) and past research has shown increased levels of anxiety, stress, depression, marital maladjustment and an increase in inter-partner violence (Angrist & Johnson 2000; Jensen et al., 1996; Jordan et al., 1992; Riggs et al., 1998; Rosen et al., 1993, 1995). Spouses of those who have deployed for longer periods or who return with post-traumatic stress disorder (PTSD) (Manguno-Mire et al., 2007) may be particularly at risk. The aim of this review is to evaluate the literature on the health and well-being of spouses of military personnel who have deployed to the recent conflicts in Iraq and Afghanistan.

Method
Throughout this article, we use ‘military personnel’ to refer to enlisted members of all ranks and all service branches, and spouses to refer to their married or unmarried cohabiting partners.

Articles were retrieved by performing a literature search of Google Scholar, PsycINFO, MEDLINE, PubMed and Web of Science from 2001 to 2010. Searches included the key words: (‘military’ or ‘armed forces’ or ‘soldier’ or ‘army’ or ‘combat’) and (‘Iraq’ or ‘Afghanistan’ or ‘Telic’ or ‘Herrick’ or ‘Enduring Freedom’ or ‘Iraqi Freedom’ or ‘deployment’”) and (‘partners’ or ‘wives’ or ‘spouses’). Hand-searching was then conducted by scanning the bibliographies of selected papers for other relevant articles.
Inclusion criteria

Papers were included if they were based on quantitative studies of civilian female spouses of male military personnel who had served or were serving in Iraq or Afghanistan. Only peer-reviewed studies which were reported in English were included. As the aim of this review was to assess the impact on spouses directly, studies which assessed outcomes by asking only military personnel themselves were excluded. Another aim of the review was to compare research findings on the nature and extent of the impact of deployment directly, which led to the exclusion of qualitative studies. Although female military personnel do deploy, these represent a small minority of the military population, and a decision was made to exclude studies based on the partners of female military personnel.

A total of 26 studies were identified from the searches, of which 14 were included in the current review (Table I). The excluded studies included ten which questioned only the service person themselves (Fonseca et al., 2006; Gerwitz et al., 2010; McLeland et al., 2008; Meis et al., 2010a, 2010b; Renshaw et al., 2009; Sayers et al., 2009; Teten et al., 2009, 2010; Forgey & Badger, 2006) and two qualitative studies (Lapp et al., 2010; Goff et al., 2006).

Results and discussion

The studies were grouped into three main themes according to the main outcomes measured: studies of the prevalence of psychiatric disorders and help seeking in spouses, studies which assessed aspects of marital health, and those looking at perceived stress. A summary is provided in Table I, key results are summarized in Table II and then discussed in further detail.

Prevalence of psychiatric disorders and help seeking in spouses

Mansfield et al. (2010) examined outpatient attendance, and reported that spouses of deployed military personnel had significantly increased rates of psychiatric diagnoses compared to spouses of those who had not deployed. Increased prevalence rates were reported for depression, anxiety disorders, sleep disorders, acute stress reaction and adjustment disorders. A total of 39.3 excess cases per 1000 of depression were reported in the spouses of the group deployed for longer than 11 months and nearly 30% higher rates of service use are seen in this group.

The prevalence of major depression in spouses in primary care is almost 20% (Eaton et al., 2008). The authors draw parallels with the similar rates of depression reported in a study of military personnel (Hoge et al., 2004). As a large proportion (78%) of military personnel were deployed at the time of data collection, the findings of Eaton et al. (2008) may not hold true for times beyond deployment. The cross-sectional nature of the data prohibits conclusions being drawn about the temporal association between deployment and poor mental health.

As well as deployment itself, extensions to deployment may have a negative effect on mental health of spouses. SteelFisher et al. (2008) reported increased feelings of loneliness, anxiety and depression in those who had experienced separations longer than anticipated. The importance of deployment length is known for the health and well-being of military personnel (Rona et al., 2007; Buckman et al., 2010), but also appears to be of importance to spouses.

A further risk factor for mental health problems in spouses may be the absence of military partners during critical periods such as pregnancy. Deployment during pregnancy correlates with an almost three-fold increased risk of postpartum depression in partners (Robrecht et al., 2008).

There may be a disparity between those in need of help and those seeking help. For instance, Warner et al. (2009), examined depression, stress and help-seeking behaviour in a pre-deployment sample. They reported that 88.5% of spouses from family readiness groups (FRG), US Army sponsored groups supporting military families through deployment, reported being willing to seek help. However, another study showed a smaller proportion (68%) actually seek help for mental health concerns in primary care (Eaton et al., 2008). Multiple reasons for this disparity have been suggested. For example, Eaton et al. (2008) reported that spouses have difficulty getting time off work (41.3%), or getting an appointment (26%) or find the cost of assessment and treatment prohibitive (26%). Stigma of mental health treatment in military personnel is well documented (Hoge et al., 2004; Greene-Shortridge et al., 2007) and it may also affect the behaviour of spouses. For example, 20% of the Eaton et al. (2008) sample stated that seeking help for mental health problems would be embarrassing and a further fifth regarded it as being ‘weak’. Another reason these populations may be reluctant to seek help is the fear of negative impact on the career of their military partner (Warner et al., 2009), and thus although intention to seek help is high pre-deployment, this may not translate into help-seeking post-deployment.

Marital health

Research on the effect of deployment on marital health is conflicting and the interaction between deployment, combat exposure, and homecoming and marital health is complex.
Table I. Summary of included studies (n = 14).

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Impact of deployment on military spouses

Marital health scales
1. KMSS
2. CS
3. PB
4. PAI
5. Dedication
6. Satisfaction with sacrifice
7. CDSS

Couple: Asked to rate 'family problem' as mild/moderate/severe

Stress No Spouse: PSS
Couple: Asked to rate 'stress' at mild/moderate/severe

No Spouse: PSS
Couple: MEASURE of stress

No Spouse: PSEQ
Couple: Measure of stress

No Spouse: SSI
Couple: Measure of stress

N: number of participants; Deployment status: post, post-deployment, Outcome measures: CES, Centre for epidemiological studies. PTSDC-C, PTSD Checklist- Civilian; PHQ, Patient Health Questionnaire; TSC, Trauma Symptom Checklist; PPTSDS-R, Purdue PTSD Scale Revised; PPTSDC-M, PTSD Checklist- Military; EPDS, Edinburgh Postnatal Depression Scale; SSI, Social Support Index; KMSS, Kansas Marital Satisfaction Scale; CS, Confidence Scale; PB, Positive Bonding; PAI, Parenting Alliance Inventory; CDSS, Communication Danger Signs Scale; DAS, Dyadic Adjustment Scale; RAS, Relationship Assessment Scale; PSS, Perceived Stress Scale; PSEQ, Prenatal Self Evaluation Questionnaire; TEQ, Traumatic Events Questionnaire; SP, Spousal Perception; CES, Combat Exposure Scale.

Allen et al. (2010) reported that levels of marital satisfaction are not affected by deployment alone; yet other surveys of recently deployed military personnel show that deployment does negatively affect marital satisfaction (McLeland et al., 2008). However, the comparison group in this study (SteelFisher et al., 2008) consisted of a small sample of non-deployed military personnel. As well as deployment itself, the unexpected extension of deployments may carry an increased risk to marital relationships.
<table>
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<th>Reference</th>
<th>Results</th>
<th>Limitations</th>
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| Allen et al., 2010 | Deployment within the preceding year was not associated with differences in any aspect of relationship functioning. Current PTSD symptoms in military personnel were associated with lower rates of marital satisfaction, decreased confidence in and dedication to the relationship, reduced intimacy and effective parenting. Spouses were controlled for, PTSD symptoms in military personnel no longer predicted lower marital satisfaction reported by spouses. | 1. Couples were from a marriage education workshop possibly representing those with particular desire to salvage marriage or couples who had significant problems.  
2. The location and type of deployment is unknown. |
| Burton et al., 2009 | Significantly increased scores were reported on Perceived Stress Scale (PSS) and Patient Health Questionnaire (PHQ) (14 ± 4) in spouses of deployed versus non-deployed military personnel (4 ± 3). Both PHQ and PSS scores were significantly correlated. The most common statements were ‘feeling stressed’ and ‘feeling tired’ in the qualitative analysis. | 1. Convenience sample from military support groups on 2 bases (FRG).  
2. Does not establish a causal link between stress and higher PHQ score.  
3. Length of deployment, previous deployments, or home characteristics, such as support or having other children at home, are not controlled for. |
| Eaton et al., 2008 | 17% of spouses experienced emotional, alcohol or family problems, 7% met the criteria for major depression and 7% for generalized anxiety disorder.  
68% of spouses screening positive for a mental health problem had sought help. 41% had sought help from mental health services, 19% from a primary care physician, and 8% from pastoral care, e.g. chaplain. | 1. 51% response rate.  
2. The primary care convenience sample may have a higher prevalence of mental health problems than a general population sample. |
| Geff et al., 2007 | Mean scores of PTSD and trauma symptoms such as anxiety, dissociation, sexual problems and sleep were comparable in military personnel and spouses. Increased depression and PTSD in military personnel predicted their poor relationship satisfaction. More trauma symptoms in military personnel had a negative impact on relationship satisfaction reported by spouses. | 1. Participants were recruited by advertisement and remunerated.  
2. The military personnel were mainly from Iraq deployments, and either young and healthy or older officers.  
3. Small sample.  
4. Non-diagnostic tools used. |
| Haas et al., 2005 | Having two or more children at home, perceiving a greater impact of deployment, being the spouse of active-duty military personnel, having been in a relationship for a shorter period, and having a higher systolic blood pressure were associated with higher reported stress levels in spouses during pregnancy. | 1. Clinical population.  
2. Non-validated measures used.  
3. Other children (a potential stressor) are not controlled for.  
4. High casualty rate at this base (28 dead and 158 wounded by the end of the study) but optimistic media coverage in period may have influenced stress levels. |
| Haas et al., 2006 | A significant increase in birth weights was seen in the children of deployed military personnel. Spouses reporting higher stress did not have higher birth weight babies. Stress was not found to be correlated with deployment. | 1. A non-validated measure of stress was used.  
2. The results were not linked to objective neonatal measurements of infant birth weight. |
| Haas & Pazdernik, 2007 | Spouses of deployed military personnel reported higher stress levels than those of non-deployed counterparts (40% vs 24%). The following factors were associated with higher stress reporting: spouse being active duty, being closer to term in pregnancy, having more than one child at home, exposure to media coverage of the war. A supporting person was protective. | 1. Only 16% of the sample was deployed to a combat zone.  
2. Confounders such as psychological morbidity in military personnel were not investigated. |
| Hamilton et al., 2009 | Examined the impact of a history of trauma and trauma symptoms such as anxiety, dissociation, sexual problems and sleep in spouses on relationship satisfaction. More severe trauma symptoms in the spouse but not trauma history significantly predicted lower relationship satisfaction reported by military personnel and spouses. Particularly significant in determining poorer relationship satisfaction were spousal re-experiencing and arousal PTSD symptoms but not avoidance symptoms. | 1. Older soldiers with mean age of 31 ± 7 years.  
2. The sample was small and taken from one geographical area.  
3. All participants had some trauma history so no comparison was possible with spouses without a history of trauma.  
4. Specific spousal trauma not documented. |
Mansfield et al., 2010 When military personnel were deployed for 1-11 months, spouses received 41 excess ICD-9 diagnoses per 1000. Deployment of more than 11 months was associated with 61 excess cases per 1000. Rates of mental health service use were 27% higher for spouses in the group who were deployed for longer.

Renshaw et al., 2008 Spouses of recently returned military personnel exhibited nearly double the rate of depression reported in general population samples elsewhere. Spouse symptoms are worse when there is a mismatch between their perception of the severity of symptoms of military personnel and what the military personnel report. High levels of PTSD symptoms reported by military personnel did not correlate with lower spouse-reported marital satisfaction unless spouses thought military personnel had experienced low levels of combat. Overall marital satisfaction rates in this sample were equivalent to non-military community samples.

Robrecht et al., 2008 Spouses of deployed military personnel were more likely to have postpartum depression (odds ratio = 3). The deployment of military personnel during pregnancy was an independent predictor of higher Edinburgh Postnatal Depression Scores (EDPS).

SteelFisher et al., 2008 Feelings of loneliness (78%), anxiety (52%) and depression (43%) were widespread in spouses of military personnel post-deployment. Nearly 20% of the sample reported problems with their overall health and an impact on their jobs. Those whose spouse’s deployed for longer had significantly higher rates of feelings of loneliness, anxiety, depression.

Warner et al., 2009 Before deployment, 33% of spouses reported they had received mental health treatment, 44% met the criteria for depression, and their Perceived Stress Score (PSS) was reported to be significantly higher than general population mean scores. 86% of spouses would seek help if they thought it necessary or were encouraged to do so by family or friends but nearly one third expressed concern about the effect this would have on their spouse’s career. The non-depressed group endorsed fewer perceived barriers to care than the depressed group.

Weis et al., 2008 Deployment of military personnel in the first trimester significantly increased spousal feelings of anxiety and conflict regarding the pregnancy in each trimester. Spouses who had more support available, especially on-base rather than off-base, felt more comfortable with being pregnant.

1. No deployment data available so not possible to assess temporal relationship between deployment and diagnosis.
2. No data about physical health of spouses.
3. No data about mental or physical health of military personnel.
4. Analysing records is dependent on accurate and complete coding of disorders.

1. Mean age of military personnel is greater than most combat samples (34 ± 9 years).
2. This national guard sample may not be representative.
3. These results obtained soon after return from deployment may not represent long term perceptions of spouses.

1. Length of deployment was not examined.
2. EDPS, although a good screening tool, does not provide a postpartum depression diagnosis.
3. 20-30% of sample deployed to a conflict other than Iraq or Afghanistan.
4. Reasons for extension (and so possible selection bias) were unexplored.
5. Clinical measures were not used to assess the rates of anxiety and depression.

This sample may not be representative of the military population as only 20% were deployed and these personnel were primarily from a training unit and may not have been deployed to combat operations.
marital health. Spouses were more likely to report having symptoms when they perceived their military partner to have PTSD symptoms which the military partner did not themselves acknowledge (Renshaw et al., 2008). Also, high levels of PTSD symptoms reported by military personnel did not correlate with lower spousal-reported marital satisfaction unless spouses perceived military personnel to have experienced low levels of combat, perhaps because spouses could identify no understandable cause for their partner’s PTSD.

One consequence of marital dysfunction, divorce, has not been discussed here. Research in this area is sparse and contradictory (Karney & Crown, 2007). However, there is no evidence that marriage dissolution rates are associated with deployment in an examination of over half a million US personnel records (Karney & Crown, 2007).

**Stress: pre-deployment, during deployment and in pregnancy**

Perceived stress scores before deployment are elevated compared to an established general population mean value (Warner et al., 2009). However, one third of this sample of spouses reported receiving mental health treatment, nearly half meet depression criteria and 70% of the sample have children at home, all of which may increase stress and therefore be confounding factors (Rosen, 1995; Haas et al., 2005). Furthermore, the low response rate (33%) and exclusively FRG sample, which tend to be underutilized by the most psychologically at-risk spouses (Rosen & Moghadam, 1989), impair the generalizability of these findings.

Stress has been shown to be almost twice as high in spouses of deployed military personnel when compared to a non-deployed group (Burton et al., 2009). Perceived stress is also significantly correlated with somatisation symptoms but this is not evidence of lasting psychological morbidity in spouses of deploying military personnel.

Certain factors about the spouses themselves, such as being pregnant during the deployment of their military partner, positively correlate with higher levels of stress, according to self-report (Haas & Pazdernik, 2007). This finding was not replicated in another study by the same team (Haas et al., 2006). In fact, in one study only 27% of participants rated the impact of deployment as moderate or significant (Haas et al., 2007). Already having children at home was another greater predictor of increased stress than deployment itself in all three pregnancy studies and pre-deployment (Haas et al., 2005; Haas & Pazdernik, 2006, 2007; Warner et al., 2009). A further possible risk factor for stress in pregnancy may be the representation of the conflict in the media which has been reported as increasing stress in spouses in some but not all studies (Haas et al., 2006, 2007). As well as a potential cause of stress in the pregnant spouse, deployment may influence the way in which the pregnancy is viewed by the spouse. In fact, feelings of anxiety and conflict regarding the pregnancy and impending birth in each trimester were significantly increased if military personnel had deployed in the first trimester (Weis et al., 2008).

Stress will affect spouses of military personnel before, during and after deployment in different ways. The use of non-validated outcome measures makes conclusions difficult and a further limitation, applicable to most of the studies reviewed, is the use of cross-sectional survey techniques. Also in the studies described, participants are usually drawn from defined groups, i.e. presenting for antenatal screening, or on only one military base.

**Limitations and recommendations for future research**

The picture provided by the existing research is incomplete, conflicting and suggests the need for further research. Often deployment data are not collected, such as duration (expected and actual), number of past deployments, type (combat or support role) and exposure to trauma making temporal and causal associations difficult to make. Most of the studies examined deal with military personnel from the Army or Marines, who typically have higher rates of combat exposure, limiting their generalizability. Choice of the outcome measures used has also limited the utility of the studies to date, as they have typically used brief screening instruments rather than validated clinical measures to estimate prevalence. Although excluded from this review, a number of studies attempt to assess family functioning by asking only military personnel themselves and not their spouses. The chance of reporter bias in such studies is high and multi-informant data (e.g. from child, mother, father, and teacher) is preferable to assess family functioning. The effect of media coverage, having multiple children at home and the length and number of deployments of military personnel are all variables which warrant further study.

Future research should aim to sample all service branches, collecting objective data on deployment characteristics and using validated clinical instruments for assessment of mental health in military personnel and their spouses. Also important would be the assessment of marital satisfaction using well validated measures, alcohol use and misuse, and inter-partner violence. To achieve sufficient power, studies would need to be large and ideally longitudinal (conducting assessment before, during, and immediately post-deployment and again longer term).
Conclusion

The reviewed research suggests that military spouses face challenges during periods of deployment and that some groups are particularly at risk of mental health problems. Specific factors identified by the research are the length of deployments of military personnel (i.e., longer deployments and deployment extensions are associated with increased risk of psychiatric morbidity), the mental health of returning military personnel, especially those suffering from PTSD, and the circumstances of the spouses themselves during periods of deployment, such as pregnancy, and having other children to care for, both of which increase the risk of stress and depression. In view of the ongoing military operations, addressing the effects of deployment on spouses is important. The mental well-being of spouses impacts not only on the individuals themselves, but also on their military partners and the wider family.

Declaration of interest: H. Thomas de Burgh is employed by the UK Armed Forces. The views expressed in this article are those of the authors and do not represent the official position of any UK government organization.

References


