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The impact of fathers' military deployment on child adjustment. The support needs of primary school children and their families separated during active military service: A pilot study

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Abstract

Background: Although direct exposure to war-related trauma negatively impacts children's psychological well-being, little is known about this impact within the context of parental military deployment to a combat zone and 'indirect' experience of the effects of armed conflict. This study investigates the impact of father's military deployment to Afghanistan on child well-being in primary schoolchildren and compares measures of adjustment with a matched group of children with fathers deployed on military training (non-combat) deployment.

Method: Data were collected within primary schools in 2011–2012 from 52 children aged 8–11 years with fathers deploying to Afghanistan ($n=26$) and fathers deploying on military training ($n=26$) via self-completion of questionnaires assessing symptoms of anxiety, depression, stress and levels of self-esteem. Data were collected in both groups, at pre-, mid- and post-parental deployment. Class teachers and parents (non-deployed) completed a measure of child behaviour and parents completed a measure of parenting stress and general health.

Results: Unexpectedly child adjustment difficulties were not significantly raised in children whose parents deployed to Afghanistan. Ratings of behavioural difficulties and depression were low in both groups. However, clinically elevated levels of anxiety and stress symptoms were reported by both groups of children at each stage of deployment. No associations between parental stress, parental mental health and child adjustment were found.

Conclusion: High levels of children's anxiety and stress reported during fathers' active military service warrant further investigation. Implications for school and health monitoring and CAMHS community liaison work are discussed.

Keywords

Anxiety, depression, child behaviour, emotional well-being, military deployment

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Introduction

Children of serving personnel generally show low risk of mental health problems, despite the many challenges besetting service family life (Jensen et al., 1995; Jensen, Xenakis, Wolf, & Bain, 1991; Morrison, 1981). These include frequency of moves of home (high mobility) which can impact on children's schooling, friendships and scholastic attainments (Weber & Weber, 2005) and periods of family separation (deployments) which incur the temporary loss and nurture of a close parental relationship, often paternal absence, with resultant changes in family routines and increased at-home parental burden (Jensen, Grogan, Xenakis, & Bain, 1989).

Parental deployment to a conflict zone often increases the stress experienced by children and families due to the build-up of shorter intermittent periods of parental absence (training deployments) in preparation for a longer period of military deployment to a conflict zone (this can last up to 6 months, depending on the service and specialist role). The considerable worries associated with the risks of serious injury, trauma and death in combat add to the family strain (Cozza, Chun, & Polo, 2005; McFarlane, 2009).

Between 2001 and 2014, the United Kingdom deployed more than 22,0550 Armed Forces Personnel to the conflicts, just under 40% were deployed more than once.¹ In total, 632 personnel died and 838 were seriously injured.² Approximately a quarter of regular service personnel on average has at least one child under 18.³ A substantial number of children growing up in service families in the community may, therefore, have experienced more than one period when their parent deployed to a conflict zone.

While children indirectly affected by armed conflict encounter very different conditions from those of children directly exposed to war-related trauma, constant uncertainty about the risk of threat and harm to their deployed parent, incessant vigilance for news of critical incidents, high and sustained level of worry at home, direct experiences of the effects of death and serious injury and frequent trauma reminders may take on similar characteristics in children's experience. Traumatic experiences involving actual or threatened death or serious injury to the physical or psychological integrity of self or close others can negatively impact children's psychological health (Yule, 2001).

Children of deployed personnel may be exposed to the impacts of serious life-threatening injuries in returning personnel, including multiple limb loss, sensory loss and traumatic brain injury. They may be made aware of death of an adult known to them in the military community, or a friend's parent at school or parent of a fellow pupil and may witness the effects of critical incidents, those who are in shock, grieving and bereaved. These factors may add to the stressors experienced during combat deployment (Cozza et al., 2005; McFarlane, 2009; Paley, Lester, & Mogil, 2013).

The proliferation of daily media reports during the conflicts sometimes graphic in nature, including imagery of violent events in combat, shootings, bombardments and the aftermath of explosions, may also serve to increase children's fears (Comer, Furr, Beidas, Weiner, & Kendall, 2008). Evidence suggests that media viewing following a traumatic incident may make a small contribution to subsequent stress symptomatology in children or that increased media viewing may be a sign of current distress (Holmes, Creswell, & O'Connor, 2007; Pfefferbaum et al., 2001, 2003).

Additionally, stress can develop into academic, social, emotional and behavioural difficulties at school. These include attentional difficulties, separation difficulties, somatic complaints, peer-related difficulties and extreme agitation about deployed parent's safety (Chandra, Lara-Cinisomo, Jaycox, Tanielian, Burns, Ruder, . . . Han, 2010). Primary schoolchildren are in the process of developing greater individual autonomy, by decreasing their dependence on their parents and increasing their activities and friendships outside the home. Equally, they are expected to develop greater self-regulation of their emotions and behaviour. Indirect exposure to combat-related trauma and the presence of persistent worries concerning parental separation in this age group may interfere with these important developmental milestones (Lincoln et al., 2008).

Physical injuries and combat stress-related difficulties in returning personnel post-deployment may provide additional family challenges. While the risks of developing mental health difficulties post-combat in UK personnel are reported as very low (Hotopf et al., 2006), those in a direct combat role report a higher prevalence of probable post-traumatic stress disorder (PTSD; Iversen et al., 2009) and higher levels of alcohol misuse (Fear et al., 2010) and are twice as likely to report violence (MacManus et al., 2012).

Detachment from others if stressed could inhibit the reconnection of family relationships, bonds and attachments with children and partners (Monson, Taft, & Fredman, 2009). Sleeping difficulties, mood disturbances, impaired levels of concentration and high levels of irritability may negatively impact parenting and child well-being. Physical injuries such as muscular-skeletal difficulties, limb loss and traumatic brain injury (TBI) may also result in comorbid psychological difficulties (Zatzick et al., 2007). TBI may affect changes in cognitive ability and personality that can be distressing for children (Butera-Prinzi & Perlesz, 2004).

While recent psychological investigations have focussed on the mental health needs of serving personnel returning from Iraq and Afghanistan, the wider psychological impact on partners and children has received much less attention. There is a paucity of psychological literature in this field. The findings from a small number of cross-sectional studies conducted in the United States report increases in parent ratings of emotional and behavioural difficulties in children (Chartrand, Frank, White, & Shope, 2008; Flake, Davis, Johnson, & Middleton, 2009) and clinically elevated anxiety symptoms in just over a third of children (Chandra et al., 2010; Lester et al., 2010) associated with parental combat deployment to Iraq and Afghanistan, compared to national samples and same-aged peers in non-deployed military samples. High levels of parenting stress, poorer parental mental health and the total number of parent combat-related deployment months in a child's lifetime or within a 3-year period increased risk of parent-reported child externalising and internalising behaviours (Chandra et al., 2010; Flake et al., 2009; Lester et al., 2010) and child-reported depression (Lester et al., 2010).

Analyses of US military health data of more than 300,000 children aged 5–17 years between 2005 and 2006 identified an association between parental combat deployment and an increase in the number of paediatric outpatient visits, with the largest effects noted in acute stress, adjustment, behavioural difficulties and depression (Mansfield, Kaufman, Engel, & Gaynes, 2011). Children whose parents had deployed for longer than 11 months had a higher number of visits. Psychiatric hospitalisation was also found to increase by 10% after controlling for parents and child's previous psychiatric history (Millegan, Engel, Liu, & Dinneen, 2013). The rate of child abuse in military families with at least one substantiated report of child abuse was found to be 42% greater during periods of parental combat deployment in the period 2001–2004 (Gibbs, Martin, Kupper, & Johnson, 2007).

The results of a recent meta-analytic review of 16 studies (Card et al., 2011), reporting on the associations between combat deployment and internalising, externalising behavioural difficulties and academic adjustment among children, found a small association between deployment and poorer adjustment, which was moderated by parent report, age and strongest in middle childhood. However, several methodological concerns were raised. Child-based measures were often reliant on parent report only, which could provide a bias as typically there are high correlations between parents' self-reported level of stress and reported level of child difficulties. Equally, the coding for child outpatient visits may be influenced by parent report and coping levels. Some reports of child well-being are based on data collected retrospectively, and importantly, a lack of pre-existing measures of child and parent well-being make it difficult to infer causality (White et al., 2011). The generalisability of findings is also limited by length of US deployments which are longer than the UK deployments (12 months).

The aim of this study was, therefore, to extend the literature by assessing child mental health at pre-, mid- and post-deployment, thus establishing a baseline measure and follow-up. Measures of parental mental health and parenting stress were also identified at the same time periods to control for confounding effects. All children (aged 8–11 years) were attending primary school, and therefore, measures were not affected by the transition to secondary school. Preliminary findings have indicated raised anxieties and stress levels in this age group (Chandra et al., 2010; Lester et al., 2010). Few studies to date have engaged school staff to examine the impact of deployment on child well-being, despite the potential impacts in schools. This study includes a measure of child behaviour at school. A measure of child self-esteem is included to broaden the assessment of child adjustment.

Children and families of serving personnel in the Army preparing for a mass unit deployment were invited to take part where exposure to combat and trauma was likely to be significant. To control for the effects of parental absence, a matched group of children whose parents were away on a mass unit training deployment abroad (non-combat) were employed. We hypothesised significantly higher stress and adjustment difficulties in children whose parents deployed to Afghanistan in comparison to children whose parents deployed on military training.

Method

Participants

A total of 52 children aged 8–11 years with fathers deploying to Afghanistan ($n=26$) and fathers deploying on training ($n=26$) were recruited from six primary schools connected to an Army Garrison in the United Kingdom and Germany. All families were living in military accommodation. Recruitment commenced in January 2011 by linking primary schools with units (Army) about to undertake training deployment abroad or about to leave for deployment in Afghanistan. Each primary school had over 50% and up to 100% children of serving personnel on roll and well-established links with the military. Information leaflets about the study were distributed by Head Teachers from each school. Families were invited to take part where one parent was deploying in 2011. Both deployments involved mass unit Army deployments. Of the families initially contacted, 39% (combat group) and 54% (training group) consented to take part.

Ethics

City, University of London, granted ethics release in 2010, and the MoD Research Ethics Committee (MODREC) granted approval in January 2011.

Measures

Socio-demographic information. Items included age, gender, length of time at current school, housing, maternal age and employment, numbers of previous combat deployments and child exposure to loss or serious injury (previous 5 years). Parents were asked to record whether a relative or friend of the family known to their child, or a parent of a fellow pupil at their school, had been seriously injured or killed while deployed to Iraq/Afghanistan in the previous 5 years.

Child outcome measures

Anxiety was measured utilising The Screen for Child Anxiety-Related Disorders (SCARED; Birmaher et al., 1997; child version, 41 items), a reliable and valid self-report questionnaire

completed by the child. The SCARED has good internal consistency ($\alpha = .74-.93$), test-retest reliability (correlation coefficients = $.70-.90$) and discriminative validity, both between anxiety and other disorders and within anxiety disorders. Scores of 25 and greater indicate the presence of an anxiety disorder. Sub-scores can also be used to identify five factors, panic disorder/significant somatic, generalised anxiety disorder, separation anxiety disorder, social anxiety disorder and significant school avoidance.

Depression. The Depression Self-Rating Scale (DSRS; Birlleson, 1981) is a widely used self-report scale which assesses the extent of depressive feelings in children. The scale has good internal consistency and correlates highly with other measures of depression. A cut-off score of 15 discriminates clinically depressed children (Birlleson, Hudson, Buchanan, & Wolff, 1987).

Stress. The Children's Revised Impact of Event Scale (CRIES-8; Dyregrov, Kuterovac, & Barath, 1996) is an eight-item child self-report scale and is adapted from the Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979), a reliable and valid measure of post-traumatic stress symptoms. The CRIES-8 measures post-traumatic stress symptoms of intrusion (4 items) and avoidance (4 items) and correlates highly with the total score on the 15-item version of which it is part ($r = +.95$; $p < .001$). A cut-off score of 17 has been found to correctly identify more than 80% of children with a diagnosis of PTSD (Perrin, Meiser-Stedman, & Smith, 2005).

Self-esteem. The Self-Concept Inventory forms one of the five self-report scales in The Beck Youth Inventories for Children and Adolescents (second edition; BYI-II; Beck, Beck, Jolly, & Steer, 2005) and measures perceptions of competency and self-worth. The BYI-II has been used in a variety of clinical and non-clinical settings and its reliability and validity is reasonably robust. The internal reliability of each of the BYI-II is high, ranging from $.86$ to $.91$, and the Self-Concept Inventory has strong convergent validity. Each inventory yields a raw score that can be transformed into a T score ($M = 50$, standard deviation (SD) = 10) and a percentile rank based on a comparison to gender and age.

Parent outcome measures

Behavioural screening. The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) is a brief behavioural screening questionnaire for children aged 4–16 years. The SDQ is reliable in identifying psychiatric disorders in community samples (Goodman, 1999) and behavioural problems in children. The SDQ demonstrates good internal consistency (mean Cronbach's α : $.73$) or retest stability after 4–6 months (mean: 0.62) and demonstrates good criterion validity for predicting psychological disorders (Goodman, 1997). The SDQ comprises of four problem-orientated subscales, conduct difficulties, emotional difficulties, hyperactivity, peer problems and a pro-social behaviour subscale. SDQ scores above the 90th percentile predict a substantially raised probability of meeting criteria for a psychiatric diagnosis.

Parenting stress. The Parenting Stress Index/Short Form (PSI/SF; Abidin, 1995) is designed as a screening instrument that measures parent's perceived stress related to child behaviours and parenting. The PSI/SF is a direct derivative of the full-length test and consists of a 36-item questionnaire. Validity of the PSI/SF was obtained using 530 participants and demonstrated a high correlation (0.94) with the full-length PSI and comparable to the 2-week retest reliability of the full-length PSI which is 0.95 . The PSI/SF consists of three subscales, parental distress, parent child dysfunction and dealing with a difficult child. A total stress score ranges from 36 to 180. Responses

higher than the 85th percentile (1 *SD* above the mean) are interpreted to be clinically significant for high levels of family stress.

Screen for parental mental health and well-being. The General Health Questionnaire 12 (GHQ-12; Goldberg & Williams, 1988) is a widely used self-report screening tool used for the assessment of emotional well-being that is comparable to longer versions of the GHQ. It is a measure of common mental health problems/domains of depression, anxiety, somatic symptoms and social withdrawal. It has well-established reliability and validity and has been shown to have internal consistency reliability coefficients of .82–.86.

Teacher outcome measure

Behavioural screening. The child's class teacher also completed the SDQ (Goodman, 1997).

Procedure

Children completed three brief questionnaires screening for child-related anxiety, depression and self-esteem in supported groups at school on three occasions, 2–3 weeks before their father had left for training or combat deployment, 10–14 weeks into deployment and 4–6 weeks after their father had returned home. The Child Impact of Event Scale was completed at mid-deployment only as this questionnaire specifically asks the child about the impact of their parent being away. The questionnaires were presented in the same order on each occasion and took 15–20 minutes to complete. Parents (non-deployed) completed three short questionnaires (screening for their child's behaviour at home, their general health and parenting stress) on receipt at home and the child's class teacher completed the behavioural screening questionnaire at school on the same day. All 52 children completed the child measures at each stage of deployment together with teacher data. Just fewer than 80% of mothers returned the parents questionnaires at mid- and post-deployment. A comparison at baseline of parent response and non-response at mid- and post-deployment revealed no significant differences between the two groups on parent outcome measures and socio-demographic variables. Parent outcomes are, therefore, included and are conducted on the full set of parent responders across pre-, mid- and post-deployment.

Analysis strategy

The data were analysed first by conducting a series of mixed-design analyses of variance (ANOVAs) for each child psychological outcome to examine potential changes in child mental health across each stage of deployment, for each of the two groups. Second, a mixed-design ANOVA was employed, as two independent groups (combat and training) were subjected to repeated measures across three time points, pre-, mid- and post-deployment, to examine potential interaction effects of child group and stage of deployment. Common indicators of psychological distress in children throughout deployment are highlighted with prevalence of caseness. Positive and negative relationships were analysed using the Pearson correlation coefficient. All assumptions were met for the statistical tests used.

Results

Demographics

No significant group differences were observed at baseline (see Table 1) on demographics, time at current school, numbers of fathers' previous combat deployments and exposure to loss of life or serious injury in combat in the 5 years prior to assessment. In total, 70% of children had attended

Table 1. Participant characteristics.

	Fathers' deployment to Afghanistan (<i>n</i> = 26)	Fathers' training deployment (<i>n</i> = 26)	<i>p</i> -value
Gender: male	62%	69%	NS
Age (years)			
8–9	61%	58%	
10–11	39%	42%	
<i>M</i>	8.6	9.3	NS
<i>SD</i>	1.1	1.1	
Duration at current school			
3 months–1 year	54%	35%	
1–2 years	31%	30%	
2–6 years	15%	35%	
<i>M</i>	17	26	NS
<i>SD</i>	12.1	22.0	
Mother's age (years)			
<i>M</i>	35	31	NS
<i>SD</i>	4.5	7.8	
No. of previous combat deployments since 2006			
0	11.5%	8%	
1	27%	58%	
2	50%	23%	
3	11.5%	11%	
<i>M</i>	1.6	1.3	NS
<i>SD</i>	0.8	0.8	
Experience of death or serious injury in combat since 2006 (known directly to child)	23%	19%	NS

NS: non-significant; *SD*: standard deviation.
p-value associated with *t*-test and chi-square test.

their primary school for less than 2 years and 90% had experienced at least two previous parental deployments to Iraq or Afghanistan since 2006. In total, 11 children had prior experience of death or serious injury in combat to someone known to them, since 2006.

Mental health outcomes

During the units' deployment to Afghanistan in 2011–2012, fatalities and casualties occurred. However, all fathers in the combat group returned home safely without injury. There were no injuries/incidents in the training group.

Contrary to predictions, anxiety levels were not significantly higher in the combat group, $F(1, 50) = 0.01$, $p = .89$. The lack of a significant interaction effect, $F(1.5, 78.6) = 1.8$, $p = .17$, also revealed no differences between stage of deployment and group status. A within subject's main effect in anxiety scores, $F(1.5, 78.6) = 3.9$, $p = .03$, demonstrated a significant fall in anxiety ratings from pre- to post-deployment, $p = .02$ (comparisons using Bonferroni corrections). Due to the lack of significant interaction between time and group status, the decrease in anxiety scores is, therefore, of a similar magnitude in both groups. Despite the significant fall in anxiety at fathers' return, both group means were above the clinical threshold at post-deployment.

Table 2. Mean scores of child, teacher and parent outcomes, by group, at pre-, mid- and post-deployment, and ANOVA results.

		Fathers' deployment to Afghanistan (<i>n</i> = 26)			Fathers' training deployment (<i>n</i> = 26)			ANOVA		
		Pre	Mid	Post	Pre	Mid	Post	Group × time <i>F</i>	Time <i>F</i>	Group <i>F</i>
Anxiety (SCARED)	<i>M</i>	34.6	29.1	26.3	30.8	32.6	28.1	1.82	3.99*	0.01
	<i>SD</i>	16.2	14.1	13.7	5.3	16.8	19.1			
Depression (DSRS)	<i>M</i>	9.5	9.2	10.3	9.6	10.6	10.3	0.69	0.65	0.17
	<i>SD</i>	4.4	5.7	6.0	4.5	4.3	6.3			
Impact of event (CRIES-8)	<i>M</i>		21.6			21.7				<i>t</i> = 0.23
	<i>SD</i>		7.3			7.9				
Self-concept (BYI-II)	<i>M</i>	47.7	48.6	47.9	48.6	48.1	48.2	0.20	0.04	0.01
	<i>SD</i>	6.1	7.8	7.7	7.6	7.7	8.2			
Behaviour (SDQ) Teacher	<i>M</i>	5.6	5.7	5.7	7.4	9.1	8.2	0.97	1.17	2.38
	<i>SD</i>	5.3	6.4	6.0	5.8	7.4	6.6			
Parent	<i>M</i>	7.7	9.5	9.0	8.4	10.6	8.0	1.0	2.9	0.05
	<i>SD</i>	4.2	5.0	5.9	4.3	5.5	4.4			
Parenting stress (PSI-SF)	<i>M</i>	63.8	63.3	66.0	67.9	67.6	66.0	0.44	0.01	0.26
	<i>SD</i>	23.5	17.9	15.7	18.8	15.3	16.9			
Parent health (GHQ-12)	<i>M</i>	1.7	2.1	1.6	1.1	1.7	0.8	0.32	1.15	2.38
	<i>SD</i>	2.6	3.0	3.2	2.1	3.4	1.5			

ANOVA: analysis of variance; *SD*: standard deviation; SCARED: The Screen for Anxiety-Related Disorders; DSRS: Depression Self-Rating Scale; CRIES-8: The Children's Revised Impact of Event Scale; BYI-II: Beck Youth Inventories for Children and Adolescents (second edition), The Self-Concept Inventory; SDQ: Strengths and Difficulties Questionnaire; PSI-SF: Parenting Stress Index-Short Form; GHQ-12: General Health Questionnaire 12 (total scores).

* $p < .05$.

In total, 76% of children with fathers deploying to Afghanistan and 43% of children with fathers on training deployment reported anxiety symptoms above the clinical cut-off at pre-deployment; 69% and 65%, respectively, at mid-deployment; and 50% across groups at post-deployment. High levels of anxiety were primarily accounted for by ratings of separation anxiety and somatic symptoms (in both groups) at each stage of deployment. The results indicate that children's total ratings of anxiety symptoms are much higher than the percentage typically found in community samples. Estimates of just over 10% of children meet criteria for anxiety disorder in the general population (Essau et al., 2000).

Item endorsement was also high on the Impact of Event Scale, and the mean total scores in both groups are above the clinical threshold. In total, 70% of the children in each group rated clinically high stress levels at mid-deployment. Again, unexpectedly, there were no significant differences between the two groups, $t = .23$, $p = .81$ (total mean score); intrusion $t = .63$, $p = .52$; and avoidance $t = 0.28$, $p = .77$.

Despite high levels of stress and anxiety reported by children, ratings of depression were low at each stage of deployment, in both groups (see Table 2). Over 60% of children in each group had levels of self-esteem in the high average/average range at every stage of assessment (see Table 2). Overall rates of behavioural difficulties in each group were also low. Total SDQs (parent and teacher) and sub-score means across groups and at each stage of deployment were well below the

borderline cut-off (12 and above) and in the normal range. Parents and teachers did not rate significantly higher levels of behavioural difficulties in children whose fathers were deployed to Afghanistan (see Table 2). Parents with partners deployed to Afghanistan, however, rated marginally higher levels of child difficulties than teachers at mid-deployment, $t=3.4$, $p=.003$, and post-deployment, $t=3.7$, $p=.001$ (post hoc analysis, adjusted $\alpha=.025$ for pairwise comparison), though the levels of behavioural difficulties reported by parents remain in the normal range.

While parent report of general well-being is included here as putative moderating factors for child outcomes rather than indicators of psychological morbidity in adults, the findings indicated considerable parental adjustment in both groups (see Table 2). The group mean scores for parents' reports of emotional well-being (GHQ) and parenting stress (PSI) at each stage of deployment were below the clinical threshold and are not differentially affected by time or type of deployment. No other significant main effects were found with the lowest $p=.36$, and no associations between parental mental health and child adjustment were found.

All other findings showed no significant socio-demographic covariates apart from gender and age. Girls' self-ratings of anxiety symptoms were significantly higher than boys at pre-deployment $t=3.18$, $p=.03$, and mid-deployment, $t=2.46$, $p=.01$, and girls rated higher avoidance scores than boys at mid-deployment (post hoc analysis, adjusted $\alpha=.025$ for pairwise comparison). Younger children (aged 8–9 years) rated higher levels of separation anxiety than older children (10–11 years), $F(1, 48)=6.3$, $p=.01$, throughout deployment. These findings are, however, consistent with previous research in the community where girls are more likely to rate higher symptoms of anxiety than boys (Hale et al., 2005) and where there is a decrease in rates of separation anxiety as children become older and increasingly independent (Essau et al., 2002).

Discussion

Our aim in this study was to investigate the impact of fathers' deployment on child adjustment and assess whether there are additional stresses for children associated with parental deployment to a combat zone. The findings did not unexpectedly provide evidence for significantly higher levels of psychological difficulties in children whose fathers deployed to Afghanistan in comparison to children with fathers deployed on military training. The findings showed evidence of reasonable coping and resiliency across several measures, including low levels of behavioural difficulties, low levels of depression and high ratings of self-esteem.

However, children in both groups appear to be more anxious than children in the general population. In total, three-quarters of children with fathers preparing to deploy to Afghanistan and just under half of children with fathers about to leave for training reported anxiety symptoms above the clinical threshold. While anxiety fell significantly when fathers returned home, nearly half of the children in each group continued to report clinically elevated anxiety.

Furthermore, children in both groups reported clinically high levels of intrusive and avoidance thoughts about their fathers being away at mid-deployment. These included worries about significant harm, a fear that their father could be captured, attacked or killed. These worries were associated with separation difficulties, for example, sleeping independently and feeling apprehensive when away from their parent at home. Despite knowing that fathers on training deployment were objectively safe, children in this group continued to worry about potential harm.

Several factors may explain these findings. In the context of multiple deployments and a high media presence, children were likely exposed to information concerning the risks soldiers faced while away on combat deployment. This may have served to increase anxieties generally in children about the safety of their fathers when separated from them, regardless of whether their fathers were in immediate danger or not. Hearing about soldiers who had been badly injured or killed,

while at school or in the military community, witnessing the reactions of those affected may have further compounded beliefs and worries about the relative safety of their father. Children may have become apprehensive about trauma irrespective of where their father was.

Excessive worry about safety and being alert to the possibility of a critical incident could be identified as a form of cognitive avoidance in which children experience repetitive thoughts, which serve to maintain anxiety (Parkinson & Creswell, 2011). Children may have become reticent to share concerns, sensing that this could cause increasing upset and tension (Jensen, Martin, & Watanabe, 1996), and in turn, this could unwittingly serve to maintain negative worries and heightened anxiety (Meiser-Stedman et al., 2014). This may also account for the discordance between adult and child report of internalising emotional difficulties apparent in this study (Hodges, Gordon, & Lennon, 1990).

While the research design had attempted to control for parental absence and combat deployment, it became evident that children were aware that their fathers' training deployment abroad was in preparation for a future longer and more dangerous deployment to Afghanistan. Indirect exposure to trauma-related events may have triggered worries early on during their fathers' training about the risks associated with future combat. This may account for the unexpectedly high ratings of anxiety and stress in children whose fathers deployed on training.

The gaps between deployments were also shorter, such that children could have become sensitised to the post-deployment phase leading into preparation for the next deployment (Lester et al., 2010), which may explain why when fathers returned home, over half of the children in the sample continued to remain anxious about separation.

Finally, the lack of effects between groups may, in part, reflect the differences in the types of measures employed in this study. For example, whereas there is a robust predictive effect of a time limited stressor on depression (Hammen, 2005), there is less evidence that stressful events predict changes in levels of self-esteem, a more stable trait construct (Orth, Robins, & Meier, 2009). Further a growing body of evidence suggest that self-esteem prospectively predicts depression and may operate as a protective mediator on depression (Orth et al., 2009), but this pathway may not function in the same way on anxiety (Sowislo & Orth, 2013).

Conclusion

This, to our knowledge, is one of the first UK psychological studies reporting on preliminary data and the support needs of children through parents' active military service. Other than raised levels of anxiety in both groups, there did not appear to be a marked effect of parental deployment on child adjustment. However, for most children in this study, this was not their first experience of their father deploying. They had previous experience of their father deploying and returning home safely. Parenting stress levels and parental mental health difficulties were also low in this study.

Indications of clinically raised levels of anxiety and stress reported by children in military families raises concerns about potential vulnerability and warrants further investigation. Awareness of the forces context and stressors maybe helpful to community and child mental health services working with children of serving personnel. Working in partnership with parents, schools, military welfare and community support will enable a collaborative and effective approach.

Several concerns were raised by teaching staff about the impacts of critical incidents at school. How to respond when children expressed fears concerning their parents' safety became tearful and asked whether their parent could be killed or injured while deployed. Parents also raised similar concerns about how to communicate sensitively with young children about their fears of death and injury. There was also an acknowledgement that dealing with children's heightened fears and critical incidents could evoke intense personal feelings about loss and bereavement. Increased joint

working between community liaison CAMHS and schools appears essential in supporting staff especially at times of increased child and family vulnerability and in helping to implement evidence-based practice in schools (Gold & Yule, 2001). Developing skills that enable children to reduce anxiety and supporting parents and teachers in this process may help to greatly reduce levels of internal distress.

Future large-scale studies need to address families across all sectors of the armed forces, reservists' families, paternal and maternal deployment and children through the age span and in a range of educational settings. Longitudinal studies will also help to establish long-term child outcomes, whether, for example, following critical incidents, child responses to their parent's experience of near death (e.g. surviving a bomb explosion without injury) or the death of a close friend's parent or the effect of life-changing injuries are temporary or persist. This is in order that when required, the most appropriate and effective evidence-based support services can be provided to children and families at home and school during their parents' active military service. The development of effective and empirically based support services which target child responses as well as family support will, in turn, have real benefits for children and families faced with challenging and sensitive periods of family separation and reunion.

Study limitations

The training group intended to control for parental absence and combat deployment, in fact, signalled to children the beginning of preparation for deployment to a conflict zone. Hence, different results may have been found with a true contrast group (non-combat parental deployment). While data were collected through the deployment cycle, a measure taken well before notification of training or combat deployment may have provided a pre-deployment measure which is not impacted by father's imminent departure. The DSRS selected to screen for depression has been used in several recent UK trauma youth studies and, therefore, helps to add to a body of knowledge in this area. It is possible, however, that other youth measures may have provided a more sensitive measure of depression. Measures of fathers' mental health could have been usefully incorporated in this study. The generalizability of findings is limited by a small convenience sample, age of child, the school setting and a mass unit Army deployment. The power to reliably detect child and family socio-demographic factors is also limited by sample size.

Key Messages

Future research is essential for policy makers in the planning and provision of health and educational monitoring and evidence-based support intervention services in the community for forces children and families.

- This study highlights the challenges facing children and their families through periods of multiple active military deployments.
- The results of this study revealed that children with parents about to undergo training and combat deployments demonstrated clinically higher levels of anxiety and stress than typically found in the general population.
- Monitoring of and attention to children through periods of active military service by community health services in liaison with education and military welfare is recommended.
- Further research into the support needs of children of deploying personnel across the age range, tri-service and in reservist's families is recommended.

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Notes

1. Ministry of Defence. Defence Statistics (Tri-Service), 2014.
2. Ministry of Defence. Op Herrick Casualty and Fatality Tables, Afghanistan Casualty and Fatality Tables, 2014, <https://www.gov.uk/government/statistics/op-herrick-casualty-and-fatality-tables-released-in-2014>
3. Counting the costs (Diehle and Greenberg, 2015).

References

- Abidin, R. R. (1995) *Parenting stress index: Professional manual* (3rd ed.). Odessa, FL: Psychological Assessment Resources.
- Beck, J. S., Beck, A. T., Jolly, J. B., & Steer, R. A. (2005) *Beck Youth Inventories for children & adolescents, manual* (2nd ed.). San Antonio, CA: Psychological Corporation.
- Birleson, P. (1981). The validity of depressive disorder in childhood and the development of a self rating scale: A research report. *Journal of Child Psychology & Psychiatry*, 22, 73–78.
- Birleson, P., Hudson, I., Buchanan, D. G., & Wolff, S. (1987). Clinical evaluation of a self rating scale for depressive disorder in childhood (Depression Self Rating Scale). *Journal of Child Psychology & Psychiatry*, 28, 79–86.
- Birmaher, B., Khetarpal, S., Brent, D., Cully, M., Balach, L., Kaufman, J., . . . Neer, S. M. (1997). The Screen for Child Anxiety Related Emotional Disorders (SCARED): Scale construction and psychometric characteristics. *Journal of the American Academy of Child Adolescent Psychiatry*, 36, 545–553.
- Butera-Prinzi, F., & Perlesz, A. (2004). Through children's eyes: Children's experience of living with a parent with an acquired brain injury. *Brain Injury*, 18, 83–101.
- Card, N. A., Bosch, L., Casper, D. M., Wiggs, C. B., Hawkins, S. A., Schlomer, G. L., . . . Borden, L. M. (2011). A meta-analytic review of internalizing, externalizing, and academic adjustment among children of deployed military service members. *Journal of Family Psychology*, 25, 508.
- Chandra, A., Lara-Cinisomo, S., Jaycox, L. H., Tanielian, T., Burns, R. M., Ruder, T., . . . Han, B. (2010). Children on the home front: The experience of children from military families. *Paediatrics*, 125, 16–25.
- Chandra, A., Martin, L. T., Hawkins, S. A., & Richardson, A. (2010). The impact of parental deployment on child social and emotional functioning: Perspectives of school staff. *Journal of Adolescent Health*, 46, 218–223.
- Chartrand, M. M., Frank, D. A., White, L. F., & Shope, T. R. (2008). Effect of parents' wartime deployment on the behaviour of young children in military families. *Archives of Pediatric & Adolescent Medicine*, 162, 1009–1014.
- Comer, J. S., Furr, J. M., Beidas, R. S., Weiner, C. L., & Kendall, P. C. (2008). Children and terrorism-related news: Training parents in coping and media literacy. *Journal of Consulting and Clinical Psychology*, 76, 568–578.
- Cozza, S. J., Chun, R. S., & Polo, J. A. (2005). Military families and children during Operation Iraqi Freedom. *Psychiatric Quarterly*, 76, 371–378.
- Diehle, J., & Greenberg, N. (2015). *Counting the costs*, Report. Retrieved from <https://www.kcl.ac.uk/kcmhr/publications/assetfiles/2015/Diehle2015.pdf>

- Dyregrov, A., Kuterovac, G., & Barath, A. (1996). Factor analysis of the Impact of Event Scale with children in war. *Scandinavian Journal of Psychology*, *36*, 339–350.
- Essau, C. A., Conradt, J., & Petermann, F. (2000). Frequency, comorbidity, and psychosocial impairment of anxiety disorders in German adolescents. *Journal of Anxiety Disorders*, *14*(3), 263–279.
- Essau, C. A., Conradt, J., & Petermann, F. (2002). Course and outcome of anxiety disorders in adolescents. *Journal of Anxiety Disorders*, *16*, 67–81.
- Essau, C. A., Muris, P., & Ederer, E. M. (2002). Reliability and validity of the Spence Children's Anxiety Scale and the screen for child anxiety related emotional disorders in German children. *Journal of Behaviour Therapy & Experimental Psychiatry*, *33*, 1–18.
- Fear, N. T., Jones, M., Murphy, D., Hull, L., Iversen, A. C., Coker, B., . . . Greenberg, N. (2010). What are the consequences of deployment to Iraq and Afghanistan on the mental health of the UK armed forces? A cohort study. *The Lancet*, *375*, 1783–1797.
- Flake, E. M., Davis, B. E., Johnson, P. L., & Middleton, L. S. (2009). The psychosocial effects of deployment on military children. *Journal of Developmental & Behavioural Paediatrics*, *30*, 271–278.
- Gibbs, D. A., Martin, S. L., Kupper, L. L., & Johnson, R. E. (2007). Child maltreatment in enlisted soldiers' families during combat-related deployments. *Journal of the American Medical Association*, *298*, 528–535.
- Gold, A., & Yule, W. (2001). *Wise before the event: Coping with crisis in schools*. Tokyo, Japan: Kito Shobo.
- Goldberg, D., & Williams, P. (1988). *A users guide to the General Health Questionnaire*. London, England: GL Assessment Ltd.
- Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry*, *38*, 581–586.
- Goodman, R. (1999). The extended version of the Strengths and Difficulties Questionnaire as a guide to child psychiatric caseness and consequent burden. *Journal of Child Psychology and Psychiatry*, *40*, 791–801.
- Hale, W. W., Raaijmakers, Q., Muris, P., & Meeus, W. I. M. (2005). Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED) in the general adolescent population. *Journal of the American Academy of Child & Adolescent Psychiatry*, *44*(3), 283–290.
- Hammen, C. (2005). Stress and depression. *Annual Review of Clinical Psychology*, *1*, 293–319.
- Hodges, K., Gordon, Y., & Lennon, M. P. (1990). Parent-child agreement on symptoms assessed via a clinical research interview for children: Child Assessment Schedule (CAS). *Journal of Child Psychology & Psychiatry*, *31*, 427–436.
- Holmes, E. A., Creswell, C., & O'Connor, T. G. (2007). Posttraumatic stress symptoms in London school children following September 11, 2001: An exploratory investigation of peri-traumatic reactions and intrusive imagery. *Journal of Behavior Therapy and Experimental Psychiatry*, *38*, 474–490.
- Horowitz, M. J., Wilner, N., & Alvarez, W. (1979). Impact of event scale: A measure of subjective stress. *Psychosomatic Medicine*, *41*, 209–218.
- Hotopf, M., Hull, L., Fear, N. T., Browne, T., Horn, O., Iversen, A., . . . Greenberg, N. (2006). The health of UK military personnel who deployed to the 2003 Iraq war: A cohort study. *The Lancet*, *367*, 1731–1741.
- Iversen, A. C., van Staden, L., Hughes, J. H., Browne, T., Hull, L., Hall, J., . . . Fear, N. T. (2009). The prevalence of common mental disorders and PTSD in the UK military: Using data from a clinical interview-based study. *BMC Psychiatry*, *9*, 1.
- Jensen, C. P. S., Xenakis, S. N., Wolf, L. P., & Bain, M. W. (1991). The 'military family syndrome' revisited: 'by the numbers'. *The Journal of Nervous and Mental Disease*, *179*, 102–107.
- Jensen, P. S., Grogan, D., Xenakis, S. N., & Bain, M. W. (1989). Father absence: Effects on child and maternal psychopathology. *Journal of the American Academy of Child & Adolescent Psychiatry*, *28*, 171–175.
- Jensen, P. S., Martin, D., & Watanabe, H. (1996). Children's response to parental separation during Operation Desert Storm. *Journal of the American Academy of Child & Adolescent Psychiatry*, *35*, 433–441.
- Jensen, P. S., Watanabe, H. K., Richters, J. E., Cortes, R., Roper, M., & Liu, S. (1995). Prevalence of mental disorder in military children and adolescents: Findings from a two-stage community survey. *Journal of the American Academy of Child & Adolescent Psychiatry*, *34*, 1514–1524.

- Lester, P., Peterson, K., Reeves, J., Knauss, L., Glover, D., Mogil, C., . . . Beardslee, W. (2010). The long war and parental combat deployment: Effects on military children and at home spouses. *Journal of the American Academy of Child & Adolescent Psychiatry, 49*, 310–320.
- Lincoln, A., Swift, E., & Shorteno-Fraser, M. (2008). Psychological adjustment and treatment of children and families with parents deployed in military combat. *Journal of Clinical Psychology, 64*(8), 984–992.
- MacManus, D., Dean, K., Al Bakir, M., Iversen, A. C., Hull, L., Fahy, T., . . . Fear, N. T. (2012). Violent behaviour in UK military personnel returning home after deployment. *Psychological Medicine, 42*, 1663–1673.
- Mansfield, A. J., Kaufman, J. S., Engel, C. C., & Gaynes, B. N. (2011). Deployment and mental health diagnoses among children of US Army personnel. *Archives of Pediatrics & Adolescent Medicine, 165*, 999–1005.
- McFarlane, A. C. (2009). Military deployment: The impact on children and family adjustment and the need for care. *Current Opinion in Psychiatry, 22*, 369–373.
- Meiser-Stedman, R., Shepperd, A., Glucksmann, E., Dalgleish, T., Yule, W., & Smith, P. (2014). Thought control strategies and rumination in youth with acute stress disorder and posttraumatic stress disorder following single-event trauma. *Journal of Child and Adolescent Psychopharmacology, 24*, 47–51.
- Millegan, J., Engel, C., Liu, X., & Dinneen, M. (2013). Parental Iraq/Afghanistan deployment and child psychiatric hospitalization in the US military. *General Hospital Psychiatry, 35*, 556–560.
- Monson, C. M., Taft, C. T., & Fredman, S. J. (2009). Military-related PTSD and intimate relationships: From description to theory-driven research and intervention development. *Clinical Psychology Review, 29*, 707–714.
- Morrison, J. (1981). Rethinking the military family syndrome. *The American Journal of Psychiatry, 138*, 354–357.
- Orth, U., Robins, R. W., & Meier, L. L. (2009). Disentangling the effects of low self-esteem and stressful events on depression: Findings from three longitudinal studies. *Journal of Personality and Social Psychology, 97*, 307.
- Paley, B., Lester, P., & Mogil, C. (2013). Family systems and ecological perspectives on the impact of deployment on military families. *Clinical Child and Family Psychology Review, 16*, 245–265.
- Parkinson, M., & Creswell, C. (2011). Worry and problem-solving skills and beliefs in primary school children. *British Journal of Clinical Psychology, 50*, 106–112.
- Perrin, S., Meiser-Stedman, R., & Smith, P. (2005). The Children's Revised Impact of Event Scale (CRIES): Validity as a screening instrument for PTSD. *Behavioural and Cognitive Psychotherapy, 33*, 487–498.
- Pfefferbaum, B., Nixon, S. J., Tivis, R. D., Doughty, D. E., Pynoos, R. S., Gurwitch, R. H., . . . Foy, D. W. (2001). Television exposure in children after a terrorist incident. *Psychiatry: Interpersonal and Biological Processes, 64*, 202–211.
- Pfefferbaum, B., Seale, T. W., Brandt, E. N., Pfefferbaum, R. L., Doughty, D. E., & Rainwater, S. M. (2003). Media exposure in children one hundred miles from a terrorist bombing. *Annals of Clinical Psychiatry, 15*, 1–8.
- Sowislo, J. F., & Orth, U. (2013). Does low self-esteem predict depression and anxiety? A meta-analysis of longitudinal studies. *Psychological Bulletin, 139*, 213–240.
- Weber, E. G., & Weber, D. K. (2005). Geographic relocation frequency, resilience, and military adolescent behavior. *Military Medicine, 170*, 638–642.
- White, C.J., de Burgh, H. T., Fear, N. T., & Iverson, A. C. (2011). The impact of deployment to Iraq or Afghanistan on military children: A review of the literature. *International Review of Psychiatry, 32*(2), 210–217.
- Yule, W. (2001). Post-traumatic stress disorder in children and adolescents. *International Review of Psychiatry, 13*, 194–200.
- Zatzick, D. F., Rivara, F. P., Nathens, A. B., Jurkovich, G. J., Wang, J., Fan, M. Y., . . . MacKenzie, E. J. (2007). A nationwide US study of post-traumatic stress after hospitalization for physical injury. *Psychological Medicine, 37*, 1469–1480.

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