

Early Service leavers: a study of the factors associated with premature separation from the UK Armed Forces and the mental health of those that leave early

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Background: Approximately 18 000 personnel leave the UK Armed Forces annually. Those leaving before completing the minimum term of their contracts are called early Service leavers (ESLs). This study aims to identify characteristics associated with being an ESL, and compare the post-discharge mental health of ESLs and other Service leavers (non-ESLs). **Method:** A cross-sectional study used data on ex-Serving UK Armed Forces personnel. ESLs were personnel leaving before completing their 3–4.5 years minimum Service contracts and were compared with non-ESLs. Multivariable logistic regression was used to estimate odds ratios and 95% confidence intervals for the associations between Service leaving status with socio-demographics, military characteristics and mental health outcomes. **Results:** Of 845 Service leavers, 80 (9.5%) were ESLs. Being an ESL was associated with younger age, female sex, not being in a relationship, lower rank, serving in the Army and with a trend of reporting higher levels of childhood adversity, but not with deployment to Iraq. ESLs were at an increased risk of probable post-traumatic stress disorder (PTSD), common mental disorders, fatigue and multiple physical symptoms, but not alcohol misuse. **Conclusions:** The study suggests that operational Service is not a factor causing personnel to become an ESL. Current mental health problems were more commonly reported among ESLs than other Service leavers. There may be a need to target interventions to ESLs on leaving Service to smooth their transition to civilian life and prevent the negative mental health outcomes experienced by ESLs further down the line.

Introduction

Each year approximately 18 000 Service personnel leave the UK Armed Forces.¹ Some will leave before having completed their basic training, while others leave after many years of Service. Those who leave before completing the minimum term of their contract (between 3 and 4.5 years depending on Service branch), are known as Early Service Leavers (ESLs).

Little is known about ESLs, particularly those leaving Service since 2003, after the UK's involvement in the Iraq war. However, evidence on ESLs from previous military operations has raised concerns that this group have poorer mental health outcomes than non-ESLs;² evidence suggests that UK ESLs from the 1991 Gulf War era had poorer mental health outcomes³ and UK ESLs from the Cold War and Northern Ireland generation have been shown to be more likely to have suicidal thoughts, and to self-harm than other service leavers (non-ESLs).⁴

A better understanding of ESLs is therefore required. This study uses cross-sectional data from the first phase of the King's Centre for Military Health Research (KCMHR) cohort study to firstly identify socio-demographic and military characteristics associated with being an ESL, and second, to compare the mental health of ESLs and non-ESLs after leaving Service.

Methods

Participants

Data were collected as part of a representative randomly sampled prospective cohort study of the UK Armed Forces.⁵ The UK Ministry of Defence's (MoD) Defence Analytical Services and Advice (DASA) produced a list of all serving members of the UK Armed Forces (excluding Special Forces personnel) who had been deployed to Iraq in early 2003 on what was termed 'Operation TELIC 1', and all those that had not been deployed on TELIC 1 but who were serving in the military and eligible for deployment named the 'era cohort'. A random sample was then selected separately from both cohorts stratified by Service

branch [Royal Navy including Royal Marines, Army, Royal Air Force (RAF)], and enlistment type (regular or reserve) to ensure a representative sample was selected.

Data were collected using self-report questionnaires completed between June 2004 and March 2006. During this time a number of participants in the era cohort were deployed to Iraq on later TELIC operations and as such were re-classified as belonging to the TELIC cohort. Over the period of data collection the research team mailed out questionnaires in three waves, made over 50 visits to military bases across the UK and Germany and traced personnel through both military systems (e.g. by asking senior personnel in each unit to assist in handing out questionnaires) and civilian systems (e.g. the electoral register). Participants were sent a self-report questionnaire which included information that participation was voluntary and that the research was being conducted independently from the MoD. The questionnaire collected information on demographics, Service information, experiences prior to deployment, experiences on deployment, experiences following deployment, information on current health, background information including past medical history and adversity during childhood.

A total of 17 499 personnel were contacted for participation. Among them, 4755 personnel were from the TELIC 1 cohort and 5517 from the era cohort completed the study questionnaire, giving an overall sample of 10 272 personnel (response rate of 61%, adjusted for those who had never received the questionnaire booklet).⁵ The proportion responding was higher among personnel at military addresses (64%) than at civilian addresses (46% civilian UK, 35% civilian overseas).⁵ Personnel who had left Service will have been at civilian addresses, and therefore had a lower response rate than serving personnel.

Sample

As the leaving process and Service contracts for reservists are different from those for regular members of the Armed Forces, the present analyses are restricted to regular personnel only ($n = 8686$). Of these, 874 (10.1%)

cohort members had left Service by the time they had completed the Phase 1 questionnaires and constitute the present study sample (figure 1).

Variables

Service leaver status

All Service leavers were defined as an ESL or a non-ESL. ESLs were defined as anyone leaving Service before 4.5 years for Royal Navy/Marines personnel, 4 years for Army personnel and 3 years for RAF personnel. In order to ensure the accuracy of Service leaver status, the self-reported cross-sectional data were linked via a unique identifier with routinely collected data (supplied by DASA) to ascertain joining date, leaving date (from which length of Service was calculated), and the reason for leaving Service. Where inconsistencies were found, military experts were consulted (N.G. and N.J.) to determine Service leaver status. Non-ESLs were all other Service leavers.

Childhood adversity

Childhood adversity was assessed with a 16-item measure,⁶ using three items adapted from the Adverse Childhood Exposure study scale (ACE)⁷ and single items based on evidence from the general population on childhood exposures related to adverse health outcomes. This measure asks respondents to respond true or false to each of the 16-items following the stem statement 'When I was growing up...'. Responses were grouped into a four-category vulnerability score based on a quartile split of the data: 0–1 childhood adversity factors [first quartile (low levels of adversity)], 2–3 factors (second quartile), 4–5 factors (third quartile), 6 or more factors [fourth quartile (high levels of adversity)].

Mental health

Symptoms of common mental disorder were measured with the General Health Questionnaire 12 item version (GHQ-12).⁸ Cases were defined as individuals with a score of ≥ 4 . Probable post-traumatic stress disorder (PTSD) was measured with the National Centre for PTSD Checklist Civilian Version (PCL-C).⁹ The cut-off for caseness was a score of ≥ 50 (which is the accepted cut-off in other studies of Armed Forces personnel). Fatigue was assessed using the 13-item Chalder Fatigue Scale.¹⁰ Cases were defined as individuals endorsing four or more symptoms. Alcohol consumption and harmful use was measured with the World Health Organization (WHO) Alcohol Use Disorders Identification Test (AUDIT).¹¹ Cases were defined as individuals with a total AUDIT score of ≥ 16 (usually defined as hazardous use that it is also harmful to health, which we have termed alcohol misuse). Somatic concerns (which we have termed multiple physical symptoms) were ascertained with a checklist of 53 physical symptoms.^{5,12} Cases were defined as individuals endorsing 18 or more symptoms on the checklist (this represents the top decile among respondents).⁵

Statistical analyses

All analyses were performed using STATA version 11.0. Logistic regression analyses were performed to assess the effect of the exposure variables on ESL. Odds ratios (ORs) and 95% confidence intervals (CIs) are presented.

There were no ESLs from the RAF but a number of non-ESLs ($n = 145$), so for the purpose of the analyses, RAF personnel were grouped with those in the Naval Services (of which there were 16 ESLs and 316 non-ESLs).

Table 1 Descriptive statistics, univariable and multivariable analyses of demographic and military related characteristics of ESLs compared with non-ESLs

	Non-ESLs, N (%)	ESLs, N (%)	OR (95% CI)	Age-adjusted OR (95% CI)	AOR (95% CI) ^a
All participants	765 (90.5)	80 (9.5)			
Demographics					
Age at response (years)	Mean (SD) 35.9 (9.7)	Mean (SD) 26.9 (9.1)	Per 5-year increase 0.51 (0.42–0.62)	Per 5 year increase –	Per 5 year increase 0.75 (0.60–0.94)
Sex					
Male	693 (90.6)	65 (81.3)	1	1	1
Female	72 (9.4)	15 (18.7)	2.22 (1.20–4.09)	1.48 (0.78–2.79)	2.14 (1.08–4.25)
Relationship status					
In relationship	611 (79.9)	46 (57.5)	1	1	1
Not in relationship	154 (20.1)	34 (42.5)	2.93 (1.82–4.73)	1.96 (1.19–3.23)	1.89 (1.13–3.19)
Has children aged ≤ 18 years					
No	337 (52.9)	42 (70.0)	1	1	1
Yes	300 (47.1)	18 (30.0)	0.48 (0.27–0.85)	0.99 (0.53–1.86)	0.80 (0.42–1.52)
Educational attainment					
No qualifications or GCSEs	368 (51.6)	51 (69.9)	1	1	1
A-Level or above	345 (48.4)	22 (30.1)	0.46 (0.27–0.77)	0.75 (0.43–1.31)	0.87 (0.48–1.59)
Level of childhood adversity					
First quartile (low levels of adversity)	189 (25.5)	17 (22.1)	1	1	1
Second quartile	261 (35.2)	15 (19.5)	0.64 (0.31–1.31)	0.55 (0.26–1.16)	0.58 (0.26–1.27)
Third quartile	140 (18.9)	19 (24.7)	1.51 (0.76–3.01)	1.28 (0.62–2.64)	1.32 (0.61–2.85)
Fourth quartile (high levels of adversity)	151 (20.4)	26 (33.8)	1.91 (1.00–3.66)	1.48 (0.75–2.92)	1.51 (0.72–3.16)
Military					
Service branch					
Naval services or RAF	316 (41.3)	16 (20.0)	0.35 (0.20–0.63)	0.53 (0.29–0.95)	0.35 (0.18–0.65)
Army	449 (58.7)	64 (80.0)	1	1	1
Rank					
NCO or officer	597 (78.6)	23 (28.7)	1	1	1
Other rank	163 (21.4)	57 (71.3)	9.08 (5.43–15.18)	3.95 (2.10–7.42)	5.21 (2.69–10.10)
Iraq deployed					
No	443 (57.9)	47 (58.7)	1	1	1
Yes	322 (42.1)	33 (41.3)	0.97 (0.61–1.54)	0.55 (0.33–0.90)	0.61 (0.36–1.02)
Role within parent unit					
Combat	201 (26.3)	27 (33.8)	1	1	1
Non-combat	563 (73.7)	53 (66.3)	0.70 (0.43–1.14)	1.22 (0.73–2.05)	1.47 (0.83–2.60)

Numbers in the table do not add up to totals due to missing data. RAF, Royal Air Force; NCO, Non-Commissioned Officer. a: Adjusted for age, sex, rank (as Officer or NCO, and Other) and Service Branch (as Naval Services or RAF and Army).

Age was *a priori* assumed to differ between ESLs and non-ESLs and likely to confound associations. Therefore in building logistic regression models, age was both adjusted for independently of other likely confounding factors to give age-adjusted ORs, and also along with other potential confounders in fully adjusted models. Variables were kept in the fully adjusted model if they were independently associated with the outcome.

Ethical approvals

The study received ethical approval from the MoD (Navy) personnel research ethics committee, the King's College Hospital local research ethics committee and the London School of Hygiene and Tropical Medicine local research ethics committee.

Results

Study sample

The study sample ($N=874$) had a mean age of 33 years, were predominantly male (785/874, 89.8%), in the Army (534/874, 61.1%) and held the rank of Non-Commissioned Officer (NCO) (641/869, 64.0%). In total, 58.0% (507/874) had been deployed to Iraq. Among all Service leavers, the prevalence of fatigue was 36.6% (314/859), common mental disorders was 28.3% (243/860), alcohol misuse was 16.8% (144/859), probable PTSD was 8.5% (73/787) and multiple physical symptoms was 16.5% (144/874). There were 80/845 (9.5%) ESLs in this sample, 29 were missing Service leaver status.

Reasons for leaving Service

In total, 35.9% of ESLs were given an administrative discharge (discharge determined by an administrative board; this includes discharge on disciplinary grounds and temperamental unsuitability), compared with just 3.0% of non-ESLs ($P<0.0001$); 12.8% were given family/pregnancy related discharge, compared with 2.0% of non-ESLs ($P<0.0001$); and 10.3% were discharged for medical reasons, compared with 6.1% of non-ESLs ($P<0.0001$).

Factors associated with being an ESL

ESLs were more likely to be younger, female, not in a relationship, to have been in the Army and to have held a lower rank than non-ESLs, and there was a statistically significant trend for reporting higher levels of childhood adversity in the fully adjusted model ($P=0.043$) (table 1). ESLs were less likely to have children or higher educational attainments in univariate analysis, but as expected, these effects were removed after adjusting for age. There was no association between deploying to Iraq and ESL status in univariate analysis, however, after adjusting for other factors there was weak evidence that having deployed to Iraq was less common among

ESLs. There was no difference in the mean length of time since leaving Service and completing the questionnaire between ESLs (1.12 years, $SD=0.10$) and non-ESLs (0.95 years, $SD=0.05$).

Mental health of ESLs after leaving Service

There was evidence that common mental disorders, PTSD, fatigue and multiple physical symptoms were more prevalent among ESLs compared with non-ESLs after adjusting for confounding factors (table 2). Alcohol misuse was more common among ESLs in univariable analysis, but the effect was removed after adjusting for age. The effects of any comorbidity of these mental health problems were not assessed.

Discussion

Key findings

The study found that after having left Service, ESLs were more likely to self-report symptoms of common mental disorders, probable PTSD, fatigue and multiple physical symptoms, compared with non-ESLs. There was no difference in alcohol misuse by leaving status. This study also found that compared with non-ESLs, those who leave Service early are more likely to be younger, female, not in a relationship, to have held a lower rank, to have served in the Army and there was a trend to report higher levels of childhood adversity. There was some evidence that deploying to Iraq was more commonly reported among non-ESLs.

Interpretation

The characteristics which distinguish ESLs from non-ESLs identified here are in keeping with the literature on ESLs who left prior to the Iraq War; finding that self-reported mental health problems were more prevalent among ESLs than non-ESLs is supported by the literature^{3,4} and substantiates concerns over the health of ESLs. Studies of US Naval personnel, have shown that leaving Service after 1 year was more common among those with either a history or current diagnosis of mental health problems.¹³ Mental health problems are a recognised risk factor for leaving Service; personnel with mental health diagnoses during Service are more likely to leave than both personnel with no mental health diagnoses^{14,15} and personnel with physical health problems.^{16–19} Furthermore, personnel hospitalised during Service for mental health problems were more likely to be discharged due to medical reasons or for misconduct (which is common among ESLs) than personnel hospitalised for other health problems.¹⁷ So the higher prevalence of mental health problems among ESLs may have been part of the reason for their leaving early.

Alternatively, it may be that personnel develop mental health problems after leaving Service. As this is a cross-sectional study, it is not possible to establish when the reported mental health problems began, and therefore

Table 2 Effect of Service leaving status on mental health outcomes, after leaving Service

	Non-ESLs N(%)	ESLs N(%)	OR(95%CI)	Age-adjusted OR (95% CI)	AOR(95% CI) ^a
Common mental disorder					
Non-case	554 (73.5)	43 (54.4)	1	1	1
Case	200 (26.5)	36 (45.6)	2.32 (1.45–3.72)	1.89 (1.15–3.10)	1.80 (1.07–3.01)
Probable PTSD					
Non-case	698 (92.7)	63 (79.7)	1	1	1
Case	55 (7.3)	16 (20.3)	3.22 (1.75–5.95)	2.32 (1.21–4.45)	2.16 (1.09–4.29)
Fatigue					
Non-case	493 (65.5)	36 (45.6)	1	1	1
Case	260 (34.5)	43 (54.4)	2.26 (1.42–3.61)	1.84 (1.13–3.00)	1.78 (1.08–2.95)
Multiple physical symptoms					
Non-case	648 (84.7)	59 (73.7)	1	1	1
Case	117 (15.3)	21 (26.3)	1.97 (1.15–3.37)	2.03 (1.15–3.59)	2.10 (1.15–3.82)
Alcohol misuse					
Non-case	638 (84.9)	55 (68.7)	1	1	1
Case	113 (15.1)	25 (31.3)	2.57 (1.54–4.29)	1.47 (0.85–2.52)	1.60 (0.89–2.87)

Numbers in the table do not add up to totals due to missing data. PTSD, post-traumatic stress disorder

a: Adjusted for age, sex, rank (as Officer or NCO, and Other) and Service Branch (as Naval Services or RAF, and Army).

whether they may be a cause or a consequence of being an ESL. As other studies have rarely separated ESLs from non-ESLs, explanations for the increased mental health problems among ESLs after leaving Service is limited.

It is somewhat surprising that post-Service alcohol misuse was not associated with being an ESL. Although it is well established that there is a culture of alcohol misuse among UK Armed Forces personnel,¹⁹ and the prevalence of this misuse was high among both ESLs and non-ESLs compared with the level of misuse in the general population.²⁰

That ESLs are younger than non-ESLs is unsurprising and found elsewhere.⁴ ESLs were less likely to be in a relationship than non-ESLs; being single is associated with a greater likelihood of being unemployed compared with being married.²¹ Men have previously been found to be less likely than women to leave the Armed Forces early,³ which may be accounted for by the number of women who leave due to pregnancy and family related reasons. Similarly, the finding that RAF and Navy personnel are less likely to leave early than Army personnel has been found previously.³

This study found weak evidence that deployment to Iraq was less common among ESLs than non-ESLs. Media reports tend to focus on the minority of Service personnel who suffer poor mental health and social outcomes following deployment, suggesting that deployment itself is a risk factor for such negative outcomes.^{22–25} However, previous research conducted by KCMHR has shown that there is little or no effect of deployment on such outcomes for regular members of the Armed Forces (the exceptions being that deployment is associated with a slight increase in the odds of reporting multiple physical symptoms⁵ and alcohol misuse).²⁶ The present study suggests that deployment is not associated with being an ESL and could indicate that it is not deployment itself that leads personnel to leave Service early.

Strengths

There have been few studies of ESLs of the UK Armed Forces and so this study contributes to a topic which is little understood. This study was

based on a large cross-sectional survey of a random sample of the UK Armed Forces from the current Iraq generation, whereas those that have been conducted previously^{3,4} have comprised of respondents from the Cold War or Northern Ireland generation of Service personnel. Furthermore, unlike previous studies, the definition of an ESL used in the present study takes account of the differing minimum contract terms for each Service branch. Previous studies used a cut-off of 4 years service or less to define ESLs,^{3,4} and therefore this study brings greater accuracy to the definition of ESLs.

Limitations

Analyses have been conducted using multiple exposures and outcomes thus increasing the probability of some associations occurring by chance. However, following recommendations by Rothman,²⁷ Bonferroni (or equivalent) adjustments were not made as these assume independence of data so were not appropriate for this study. Furthermore, despite the study being based on a small number of ESLs, given the strength of the associations reported here, it is unlikely that they occurred due to chance.

A more accurate measure of pre-Service vulnerability looking specifically at family breakdown, police record/criminality and homelessness before joining the Armed Forces^{28,29} and a more robust measure of socio-economic status pre-enlistment, may have improved our understanding of the characteristics associated with being an ESL.

Analyses were based on cross-sectional data making it impossible to determine causality. This is particularly pertinent to the association between Service leaving status and mental health outcomes, as it is not possible to determine whether the negative mental health outcomes were a cause or a consequence of leaving Service. Furthermore, response rates were lower for personnel at civilian addresses, which would include all Service leavers. Without any data on non-responders at civilian addresses it is difficult to assess how this could have affected the results, though the low response means the results should be treated with caution. Where

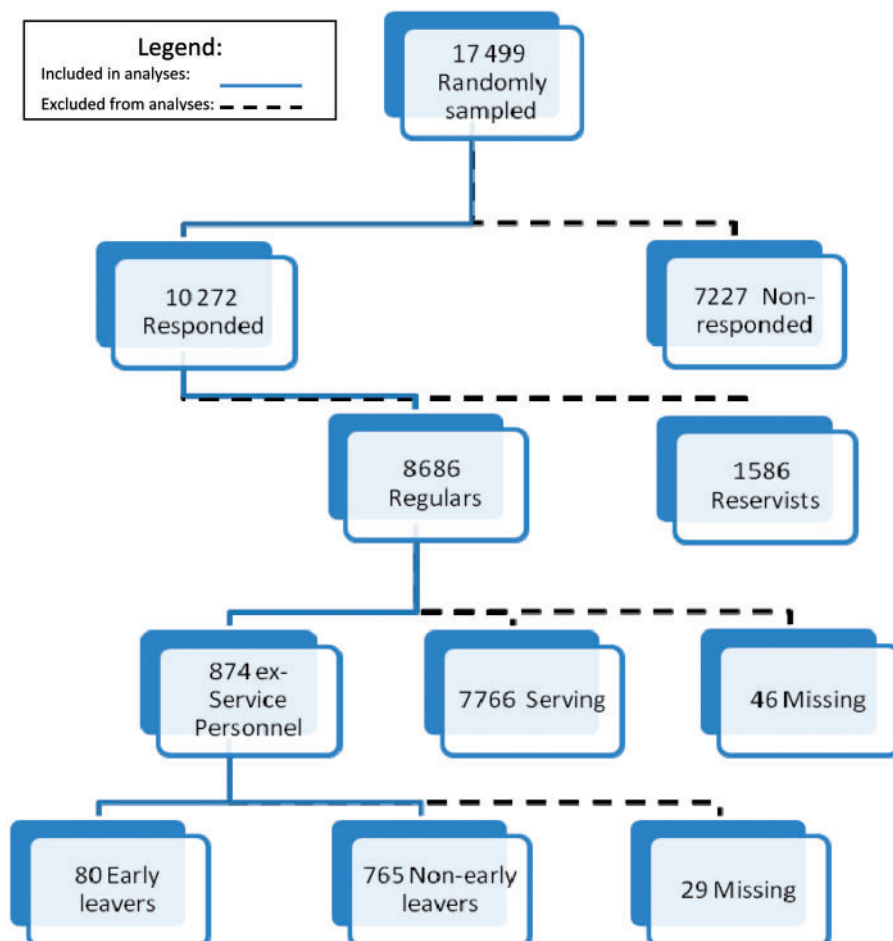


Figure 1 Number of participants included in the analyses

non-response was due to a failure to identify a valid address this may have excluded personnel who were now homeless and therefore excluded Service leavers with potentially, very poor mental health outcomes.

Implications

Further research is needed given the growing number of ex-Service personnel in the UK and the pressures applied to health services, charities and governmental bodies in relation to the health outcomes of ex-Service personnel. Highlighting that ESLs are more at risk of having poor mental health outcomes after leaving Service than non-ESLs may help target interventions to smooth their transition to civilian life, preventing some of the negative health outcomes experienced by ex-Service personnel. Prospective studies would help to determine whether these mental health problems contribute to early separation from Service or develop after leaving Service.

Conclusions

Current mental health problems were more commonly reported among ESLs than other Service leavers and consideration of the mental health of ESLs warrants further attention. There may be a need to target interventions to ESLs on leaving Service to smooth their transition to civilian life, preventing some of the negative health outcomes experienced by this group of Service leavers further down the line. Furthermore, despite media reports purporting the contrary, this study suggests that operational Service is not a factor causing personnel to leave Service early.

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Conflicts of interest: N.G. is a member of the Royal Naval Services and N.J. is a member of the British Army. Although they are paid by the UK Ministry of Defence (MoD), they were not directed in any way by the MoD in relation to this publication. S.W. is Honorary Civilian Consultant Advisor in Psychiatry to the British Army and a Trustee of Combat Stress. H.J.F. and N.T.F. are funded by the MoD but they were not directed in any way by the MoD in relation to this publication. All other authors have no declaration of interest.

Key points

- Current mental health problems were more commonly reported among ESLs than other Service leavers and the mental health of ESLs warrants further attention.
- There may be a need to target interventions to ESLs on leaving Service to smooth their transition to civilian life, preventing some of the negative health outcomes experienced by this group of Service leavers further down the line.
- The study suggests that deployment is not associated with becoming an ESL.

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