Factors associated with smoking behaviour change in UK military personnel

G. Thandi and N. T. Fear

Academic Department of Military Mental Health, King’s College London, 10 Cutcombe Road, Weston Education Centre, Denmark Hill, London SE5 9RJ, UK.

Correspondence to: G. Thandi, Academic Department of Military Mental Health, King’s College London, 10 Cutcombe Road, Weston Education Centre, Denmark Hill, London SE5 9RJ, UK. Tel: +44 207 848 5210; e-mail: gursimran.k.thandi@kcl.ac.uk

Background

Research in the UK civilian population suggests that poor mental health outcomes are associated with smoking behaviour. In the UK military population, smoking cessation is associated with deployment in the reserve forces. However, little is known about the links between mental health outcomes and smoking initiation and cessation in the UK military.

Aims

The aim of this longitudinal study was to examine change in mental health and military factors associated with smoking initiation and cessation in a representative sample of UK military personnel.

Methods

Data were collected between 2003 and 2009; 5138 regular and reserve military personnel were included in the analyses.

Results

The results showed that smoking initiation was associated with symptoms of psychological distress, symptoms of probable post-traumatic stress disorder (PTSD), relationship breakdown and deployment.

Conclusions

These findings are consistent with existing research in civilian populations showing links between poor mental health and smoking behaviour. Furthermore, our finding that deployment is associated with smoking initiation is also in line with research from the US military and UK reserves.

Key words

Mental health; smoking; UK military.
independent variables were created to measure change from phase 1 to phase 2 in psychological distress [8], PTSD [9], relationship status, military service status, rank change, and deployment. Ethical approval was received from the Ministry of Defence’s research ethics committee and the King’s College Hospital local research ethics committee.

## Results

Overall percentage of participants who reported smoking at phase 1 (n = 1297) was 25% (90% male, 10% female) and at phase 2 (n = 1082), it was 21% (92% male, 8% female). A total of 3588 (71%) reported that they had never smoked between phases 1 and 2, 1065 (21%) reported smoking initiation at phase 2 and 433 (9%) were ex-smokers at phase 2.

Smoking initiation at phase 2 was associated with reporting improvement in symptoms of psychological distress and with new or persistent symptoms of psychological distress. Initiation of smoking at phase 2 was associated with improvements in symptoms of PTSD, and with new-onset or persistent symptoms of PTSD. Experiencing a breakdown in an intimate relationship was associated with new-onset smoking. Deploying to Iraq or Afghanistan between phase 1 and 2 was associated with smoking initiation. Those who had left the military by phase 2 were less likely to start smoking compared to those who were still in service (Table 1).

### Discussion

In this study, mental health and relationship status are associated with smoking initiation and cessation. Deployment to Iraq/Afghanistan was associated with smoking initiation in this sample of UK military personnel. The results of our investigation show that smoking initiation was associated both with a remission in symptoms of psychological distress and PTSD as well as with new-onset/persistent symptoms of psychological distress and PTSD. A study of US military personnel found that personnel with a history

<table>
<thead>
<tr>
<th>Change variables</th>
<th>Never smoked (n = 3588)</th>
<th>New smokers at phase 2 (n = 1065)</th>
<th>Ex-smokers at phase 2 (n = 433)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>(95% CI)</td>
<td>Unadjusted MOR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(95% CI)</td>
</tr>
<tr>
<td>General Health Questionnaire 12 item version (GHQ-12) change</td>
<td>2564 (72)</td>
<td>666 (63)</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Remitted case</td>
<td>353 (10)</td>
<td>1.47 (1.17, 1.84)</td>
</tr>
<tr>
<td></td>
<td>New case/persistent case</td>
<td>636 (18)</td>
<td>1.57 (1.32, 1.87)</td>
</tr>
<tr>
<td>PTSD Checklist Civilian Version (PCL-C) change</td>
<td>3384 (9)</td>
<td>939 (8)</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Remitted case</td>
<td>56 (2)</td>
<td>2.50 (1.63, 3.83)</td>
</tr>
<tr>
<td></td>
<td>New case/persistent case</td>
<td>103 (3)</td>
<td>2.40 (1.74, 3.32)</td>
</tr>
<tr>
<td>Marital status change</td>
<td>3034 (84)</td>
<td>831 (77)</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>In a new relationship</td>
<td>343 (10)</td>
<td>1.27 (1.01, 1.60)</td>
</tr>
<tr>
<td></td>
<td>Relationship breakdown</td>
<td>209 (6)</td>
<td>2.00 (1.56, 2.56)</td>
</tr>
<tr>
<td>Serving status change</td>
<td>2338 (80)</td>
<td>867 (82)</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Left service</td>
<td>736 (20)</td>
<td>0.84 (0.70, 1.00)</td>
</tr>
<tr>
<td></td>
<td>Rank change</td>
<td>2931 (82)</td>
<td>0.79 (1.00, 1.48)</td>
</tr>
<tr>
<td></td>
<td>Promotion</td>
<td>571 (17)</td>
<td>1.23 (1.03, 1.48)</td>
</tr>
<tr>
<td>Deployments since phase 1</td>
<td>2232 (59)</td>
<td>550 (49)</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Iraq/Afghanistan</td>
<td>1356 (41)</td>
<td>1.49 (1.29, 1.72)</td>
</tr>
</tbody>
</table>

*Adjusted for sex, age, rank, education, service, role in unit, service status, having children at home, childhood antisocial behaviour, childhood adversity, body mass index, and phase 1 alcohol misuse.

*Not adjusted for phase 1 service.

*Not adjusted for phase 1 rank.

*Participants who were demoted between study phases were excluded from the analysis due to small numbers, n = 47.
of mental health disorders were at a higher risk of smoking initiation compared to those without [2]. Smoking as a coping mechanism for stress reduction may explain why smoking initiation in this study is associated with a history of mental health disorders. Our results suggest that a history of mental health disorders may be a risk factor in smoking initiation as opposed to new-onset symptoms of mental health disorders alone.

Our findings show an association between deployment and smoking. An increase in smoking and new-onset smoking has previously been attributed to operational factors such as boredom, social factors and stress by a sample of deployed UK military medical personnel [5]. A study of US military troops demonstrated that combat exposure and multiple deployments were associated with new-onset smoking and relapse [1,2].

Participants who reported a breakdown in their intimate relationship between phases 1 and 2 were more likely to start smoking than those who experienced no change in their relationship and those who were in a new relationship at phase 2. Data from the civilian population show that those who are married or in a relationship are more likely to give up smoking, while those who are unmarried are at a greater risk of smoking initiation [10].

The major strengths of this study are that it draws upon a large representative sample of the UK Armed Forces. However, with self-reported data there is always the risk of social desirability and response bias. Our results show that smoking initiation was associated with mental health disorders, relationship breakdown and deployment which may be crucial factors in identifying personnel at risk of smoking initiation in the UK Armed Forces. Preventative programmes should be directed towards preventing smoking relapse during or after deployment.

**Conflicts of interest**

G.T. and N.T.F. both work for a department that receives funding from the UK Ministry of Defence.

**References**


**Key points**

- Smoking initiation was associated with symptoms of psychological distress, symptoms of probable post-traumatic stress disorder and relationship breakdown.
- Smoking initiation was associated with deployment.
- This study identifies these crucial factors in identifying personnel at risk of smoking initiation in the UK Armed Forces.