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14. ABSTRACT
The primary aim of the study is to assess whether post deployment screening would reduce the levels of mental illness and the secondary aim is to assess the health-seeking behavior in relation to screening. The study is a cluster RCT design and recruited subjects at platoon level (20-35 individuals) as the unit of randomization. There are 2 arms: a screening group and a control group. Both arms have completed an offline self-administered computerized assessment at baseline which was carried out between October 2011 and February 2013. The baseline assessment included PTSD, depression, anxiety and alcohol misuse in troops returning from Afghanistan. Only the screening group received specific advice on help seeking related to their scores on the mental health measures. 8,673 (85%) out of 10,200 service personnel completed the baseline assessment. Follow up data collection began in December 2012 and will continue until October 2014. The response rate so far has been 6288 (61.7%). Our trial has fulfilled our expectations to obtain a response rate above 60% and expect to finish with a response rate between 63% and 65%.

15. SUBJECT TERMS
RCT, screening, mental health, post-deployment, service personnel

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INTRODUCTION

- Despite intense efforts to screen US military personnel for mental disorders following deployment, the prevalence of mental disorders continues to rise in the first year after deployment. There have been calls in the UK to introduce similar post-tour screening in spite of a lack of evidence of its effectiveness.

- The main aim of this cluster randomized controlled trial (RCT) is to assess whether a post-deployment screening program for PTSD, depression, anxiety and alcohol misuse is effective in reducing the morbidity and functional impairment related to these conditions.

- Secondary aims are to assess the subsequent health-seeking behavior of those identified as cases in the screened group in comparison to the control group and carry out an economic appraisal of screening for mental illness.

- The study design is a cluster RCT, based on platoon (20-35 individuals) as the unit of randomization, which includes 10,191 service personnel in 2 arms: a screening group and a control group. Both arms will complete the self-administered assessment. The screening group received specific advice related to their mental health scores but the control group only received general advice on help seeking in the military. Those in the screening group were able to decide whether they wanted to see the specific advice.

- The study was initially planned to include 50% in the screening group and 50% in the control group. However, as nearly 50% of those in the screening group in the first tour indicated that they did not want to receive specific advice related to their mental health status the following changes were introduced subsequently to the study: a two to one ratio between the screening and control group, and the inclusion of a third tour which would increase sample size by 50%. The final percentages in screening and control groups were 62.3% and 37.7% respectively.

- We expect that this cluster RCT will offer a robust assessment of the impact of screening using a computer-based tool on mental illness in the military. We also expect that an effective screening program will improve

the psychological welfare of personnel and thus contribute to force resilience and preparedness.

BODY

Task 1: Development of an offline mental ill health assessment tool

STATUS: Completed

The screening tests selected for the study were: the Post-traumatic Stress Disorder (PTSD) Checklist (PCL); the Brief Patient Health Questionnaire-9 (PHQ-9); Generalized Anxiety Disorder questionnaire (GAD) and the Alcohol Use Disorders Identification Test (AUDIT). As indicated in our protocol the assessment is based on a two stage approach, a short test for each type of disorder and the full version of the PCL, PHQ-9, GAD and/or AUDIT according to the results of the short tests. We use in the first stage appraisal the Primary Care PTSD (PC-PTSD); the first two items of the PGQ-9 and the GAD and the first two questions of the AUDIT questionnaire (initially four items but modified later on, see last paragraph of this section).

In addition we collect information for monitoring purposes on mild Traumatic Brain Injury (mTBI) and one question to assess functional impairment. We also collect Service-demographic data, and a 5 items health economic instrument (Euro Qual-5D) to generate quality of adjusted life years (QALYs). Specific recommendations are generated as a result of the responses given to each of the screening tests for those in the intervention group and general advice for those in the control arm of the study.

The screening procedure is implemented using an offline tool. Data collected is stored in two separate encrypted files on a secure server. One file includes the participant's personal identifiers and survey number, and another includes the survey number and the responses to the offline questionnaire.

We ensured that the offline instrument was free of glitches, provided a high standard of security and confidentiality, and that information could be downloaded securely to our University server. In the process of developing the tests, we piloted the tool in-house to ensure correct functionality and ease of use.

We piloted the procedure in 99 Service personnel, all of whom were private rank, to ensure that participants understood the items of the screening tests, were able to navigate the system

appropriately, and gained feedback from participants on advice provided to the screening and control group (June 2011). In 52 participants we obtained consent to ask for detailed feedback on the questionnaire and separately, for a qualitative study aimed to assess the views on a screening program for mental illness in the UK military.

After piloting we refined the online instrument to produce a full model of the tool which is used in the study, both for those who will be in the intervention arm and those who will be part of the control arm. We decided to eliminate the first two questions on alcohol misuse from the post-deployment screening instrument used by the US Department of Defense in the first stage of assessment as too many sub-threshold participants were completing the AUDIT. We re-piloted this modified questionnaire with 18 Royal Marines and 20 Reservists to assess understanding, acceptability and length. The tool was ready for use two months before the start of the main study.

Task 2: Recruitment and assessment of personnel in the initial assessment of the screening and control groups

STATUS: Completed

We randomized 437 platoons into two groups and obtain informed consent from individuals for follow up and access to medical/personnel records. In the first wave of data collection, between October 2011 and February 2012, we assessed 2,640 (70.6%), Royal Marines and Army personnel, out of a maximum of 3,737 randomized into the study. In the second wave of data collection between May and June 2012 we assessed 3,054 (92.7%) out of a possible 3,295. In the third wave of data collection we assessed 3036 (91.9%) out of an estimated preliminary total of 3,159 subjects in the selected platoons. Altogether, the response rate was 85.6% (Appendices, Table 1). Altogether 6355 (62.4%) service personnel and 3836 (37.6%) service personnel entered the screening and the control groups respectively (Appendices, Table 1). A small group of participants, approximately 50, were mistakenly given the version not corresponding to their allocated intervention. They will be assessed as "intention to treat" in the analysis.

We provided those in the screening arm with advice according to test results immediately following questionnaire completion. The control group received general advice. Both

groups received a letter by post within 2 weeks of completing the offline questionnaire. This letter reiterated the advice given on-screen during the assessment.

In February 2012 the USAMRMC granted permission to extend the period of recruitment of service personnel to the trial by a further 6 months. Our request followed a finding that approximately 50% of those in the screening arm of the study did not want to receive specific advice. This unexpected result would decrease the statistical power to detect a difference between the screening and control arms of the study. We changed the ratio of randomization between the intervention and the control arms in waves two and three of baseline data collection from 1:1 to 2:1; thereby increasing the number of tours included in the study from 2 to 3 (HERRICKS 14, 15 and 16). These proposed changes were agreed by Dr Robert Linton, Chairman of the Ministry of Defence Research Ethics Committee (General), and the college ethics committee. These changes increased the total number of service personnel in the study from 7032 to approximately 10,191 service personnel. The distribution by cluster is given according to number in each platoon and the number which completed the questionnaire at baseline (Appendices, Figure). The majority of the clusters were between 15 and 35 as originally planned. However, the number of individuals per cluster varied from 6 to 47. The majority of the clusters outside range entered into the study were near the range, i.e. 13, 14 and 36, but 6 (1.3%) platoons were fewer than 13 and 11 platoons were larger than 37. The reason for entering these platoons into the study was that they were randomized the day of the visit based on best information available from the units, which was not always correct. Once platoons were randomized, we could not exclude them if more or fewer subjects than the planned range presented for assessment, as this would have created insurmountable problems, affecting the randomization schedule and decreasing the total number entered into our study due to exclusion of the larger platoons. The screening and the control arms of the study show a similar distribution of platoons. The cluster sizes of the graphs based on completion of the questionnaire provide an overview of the high response rate at baseline regardless of platoon size. We found that the percentage unwilling to receive tailored advice in tours 2 and 3 decreased to nearly 30% from 50% in tour 1. This trend towards an increase of the acceptability of tailored advice will also increase the

contrast between the intervention and the control arms of the study.

Appendices, Table 2 show the prevalence rates of our mental health outcomes at baseline for the total sample. There is a small discrepancy (11 participants) between those who were analyzed in this table and those who completed the questionnaire. The rates of PTSD were below the percentages expected at baseline based on our main cohort study (Fear et al, 2010), as they were also for PHQ-9 based on our Battlemind study (Mulligan et al, 2012). The prevalence of Generalized Anxiety Disorders was also low. The prevalence of alcohol misuse was high as expected. Most of those who were cases of alcohol misuse (AUDIT score of 20 or more) were also high in the dependence and harm related to alcohol scales. The prevalences in the control and screening arms were similar for all mental health issues. We also looked for any moderate mental health issue excluding and including alcohol misuse, and any more serious mental health issue excluding and including alcohol abuse. The prevalences were in general low unless alcohol misuse was also included in the analysis. The prevalences were similar in the intervention and control groups.

A secondary aim of our study is to assess the health care seeking behavior of personnel in the screening and control arms of the study. This undertaking will be carried out obtaining information from those recruited in the study in the follow up stage and obtaining routinely collected information UK Defence Medical Information Capability Programme (DMICP) and the Joint Personnel Administration (JPA). DMICP has never been used in research until now and this intended use of the system is a major challenge. An assessment of suitable fields from the DMICP and the JPA databases has been successfully undertaken on pilot data and a Data Sharing Agreement between King's College and DASA was signed in August 2012.

Task 3: To reassess personnel in the two arms (17 months)

STATUS: Ongoing

The content of the follow-up questionnaire was finalized in January 2012. We developed three alternatives for the follow-up questionnaire: an offline questionnaire to use on base

visits in personnel who remained in their original assessed unit, a pen and paper postal questionnaire and an online questionnaire which would allow for the completion of questionnaires anywhere in the world with an internet connection. The second and third options will be used in those who changed unit, were not available during the visit or left the services. We have to make several attempts to contact a large proportion of the participants as this population is highly mobile. The suitability of offline, online, web-based and pen and paper follow-up questionnaires were piloted in May 2012 with a company from the Household Cavalry and ready by September 2012.

Our approach to data gathering in the follow-up stage was as follows: we firstly identify where our cohort is based, whether they have been discharged or posted to other units or still in their original unit. Where there are sufficient numbers, we have conducted base visits in order to follow up those still with their original units. We have used paper or web-based questionnaires for those who were unavailable during the visits, those who have left service and those who are in bases with a low number of participants.

We started the follow up stage in December 2012 and plan to continue data collection until October 2014. Approximately 15% to 20% of the participants may have left the Armed Forces and we will need to find contact details for many of them. We are attempting contact all those who were randomized into the study whether they participated or not at the baseline stage, provided they did not choose to ask us not to contact them again or not contactable for other reasons. The total number that we are following up is 9,305 service personnel. We will not be able to follow up 895 service personnel out of the 10,191 for the following reasons: 214 declined to participate, 10 passed away and 671 are not contactable because we do not have current contact details. The reasons for contacting those who did not complete a baseline questionnaire in the selected units are to assess whether those who did not participated in the initial assessment were different to those who participated, and also because we will include all those who provided data in the follow up stage of the study in the main analysis (intention to treat) and compare it to results of the analysis of those who participated in the baseline assessment only (treatment effect).

Linkage to personnel electronic data systems (JPA) has been successfully provided by Defence Statistics (previously known as 'DASA'). We received one extract of medical data on our first cohort from the Defence Medical Information Capability Programme (DMICP) database for the consenting participants for a period of 18 months pre-initial assessment and 18 months following initial assessment in September 2013. This followed the first test extract of DMICP data received from Defence Statistics in March 2013. We received the second DMICP extract from Defence Statistics in March 2014. Unfortunately this routinely collected data set is not straightforward to analyze and we are carrying out exploratory work to find out to what extent this information could be helpful for assessing demand for service in relation to the screening intervention.

The follow up response rates in our study are so far: 2265 (60.5%) for HERRICK 14, the first tour recruited into the study, 2135 (64.7%) for HERRICK 15 and 1856 (58.7%) for HERRICK 16 (Appendices, Table 3). Altogether the response rate so far is 6288 (61.7%) or 67.6% if the 895 subjects who were not contactable were excluded from the denominator (see above). We expect that the overall response rate will be between 63% and 65% (Appendices, Table 3). These response rates correspond to the total selected for the study, not those who responded at baseline. The response rate at follow up includes 1,533 participants who used the offline version, 2161 the online version and 2594 who used the hard copy version.

Task 4: Analysis and dissemination of main results

STATUS: Ongoing

Baseline data collection was completed in February 2013. Preliminary analyses have been started on these data looking at the prevalence rate of each mental health outcome in the study. We are assessing the prevalence of PTSD and alcohol misuse in the screening study and comparing them to the rates in other studies carried out at King's Centre for Mental Health Research (KCMHR) such as the in-theatre assessment (OMHNE), the Battlemind randomized control study and the main cohort study. We are also assessing the impact of carrying out a two stage screening, first using abridged questionnaires for the whole sample and using the complete format only in those with a score above a defined threshold.

In preparation for the main analysis we will carry out a preliminary analysis using the information so far collected and cleaned. At this stage we are merging baseline and follow up information to prepare a data set for analysis.

Following the publication of the paper on contrasting beliefs about screening in UK military personnel (Appendices, Document 1), we have submitted for publication a qualitative analysis on the views of screening for mental health problems by Welfare and Medical Officers. The study explored whether on balance the main providers of health services would engage in a screening program for mental health problems in the UK military (Appendices, Document 2).

KEY RESEARCH ACCOMPLISHMENTS

1. A versatile offline mental health screening assessment that offers immediate tailored advice has been successfully implemented in 8,730 Service personnel.

2. A system of entry of Service personnel into the study has been fully proven; first gaining chain of command support for the study, then preparing a fully identifiable set of companies and platoons for randomization on the day of assessment.

3. Setting up 45 laptops in a remote location pre-loaded with the appropriate type of questionnaire (intervention and control versions), to minimize waiting time for participants and minimize errors of allocation i.e. personnel being presented with the correct version of the computerized questionnaire according to randomization.

4. Ensuring the safe and secure return of data to research offices and to download data to the secure college server.

5. Sending feedback letters to all trial participants within 2 weeks of completing the questionnaire.

6. Ensuring the maximum response rate at follow up by using online, offline and pen and paper questionnaires obtained via a combination of face to face visits and email/postal reminders.

REPORTABLE OUTCOMES

We have published a qualitative study based on data collected in our study. *Contrasting beliefs about screening for mental disorders among UK military personnel returning from deployment to Afghanistan.* Journal of Medical Screening; November 2012 (Appendices, Document 1).

As indicated in the previous section we have submitted for publication a manuscript to a scientific journal (Appendices, Document 2). The paper covers outlines views of 11 Medical Officers and 10 Unit Welfare Officers on screening post-tour.

CONCLUSION

Conclusions: As we have not finished the study we do not have results on its main outcomes. However, we have gained invaluable information on the way service personnel think and appraise the value of screening for mental illness in the service and also the beliefs of medical and welfare officers on an eventual post-deployment screening for mental health. If the study were to show that screening is effective we would be in position to advise on the organization of a screening program in the UK military. The study is on target as we have completed the recruitment stage (January 2013) and baseline assessment of individuals in the platoons entered into the study. We are finalizing the follow up stage of the study and expect to have a data set ready for analysis in November 2014. Although the follow up data collection has been, as expected, challenging, we have managed to contact a large percentage of participants. We are cautiously optimistic that we may obtain an overall response rate between 63% and 65%.

We are in the process of analyzing the first full extract of DMICP data and hope that we will be able to utilize routinely collected medical and personnel data to assess the health care seeking behavior of our cohort for research purposes. However, as DMICP has not previously been used for auditing or research purposes we expect that the process will be labor intensive and we will need to ensure that the validity of the data set is such that allows proper analysis of the help seeking behavior of service personnel in the Armed Forces

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APPENDICES

TABLE 1: ***Response rates at baseline and allocation to intervention and control groups***

	HERRICK 14 Oct 2011-Feb 2012	HERRICK 15 May 2012 - June 2012	HERRICK 16 Oct 2012-Feb 2013	Total
	N (%)	N (%)	N (%)	N (%)
Did not complete questionnaire	1097 (29.4)	241 (7.3)	123 (3.9)	1461 (14.4)
Total in study	3737 (100.0)	3295 (100.0)	3159 (100.0)	10191 (100.0)
Allocation				
Intervention group	1948 (52.1%)	2230 (67.7%)	2177 (69%)	6355 (62.4)
Control group	1789 (47.9%)	1065 (32.3%)	982 (31%)	3836 (37.6)

TABLE 2*: **Prevalence rates of mental illness at baseline outcomes***

Outcome	Caseness	Complete sample N= 8719	Control arm N= 3124	Screening arm N= 5595
		N (%)	N (%)	N (%)
PTSD (PCL-C)	*Subthreshold (score 40-49)*	236 (2.7%)	93 (3.0%)	143 (2.6%)
	Case (score 50+)	180 (2.1%)	69 (2.2%)	111 (2.0%)
Depression (PHQ9)	*Other depressive syndrome (either of core 2 questions plus 2-4 others)*	216 (2.5%)	80 (2.6%)	136 (2.4%)
	Major depressive syndrome (either of core 2 questions plus 5+ others)	104 (1.2%)	38 (1.2%)	66 (1.2%)
Anxiety (GAD)	*Moderate anxiety (10-14)*	102 (1.2%)	36 (1.2%)	66 (1.2%)
	Severe anxiety (15+)	72 (0.8%)	22 (0.7%)	50 (0.9%)
Alcohol (AUDIT)	*Misuse (dependence scale < 5 AND harm scale < 10, but total score >= 20)*	233 (2.7%)	78 (2.5%)	155 (2.8%)
	Case (dependence scale >= 5 AND/OR harm scale >= 10)	539 (6.2%)	196 (6.3%)	343 (6.1%)

At least one mental health issue, excluding alcohol misuse	*Any moderate mental health issue (Subthreshold PTSD and/or other depressive syndrome and/or moderate anxiety) BUT no severe mental health issue*	348 (4.0%)	136 (4.4%)	212 (3.8%)
	Any severe mental health issue (PTSD case and/or major depressive syndrome and/or severe anxiety)	241 (2.8%)	90 (2.9%)	151 (2.7%)
At least one mental health issue, including alcohol misuse	*Any moderate mental health or alcohol issue (Subthreshold PTSD and/or other depressive syndrome and/or moderate anxiety and/or alcohol misuse) BUT no severe mental health issue or alcohol case*	*466 (5.3%)*	168 (5.4%)	*298 (5.3%)*
	Any severe mental health or alcohol issue (PTSD case and/or major depressive syndrome and/or severe anxiety and/or alcohol case)	*704 (8.1%)*	*258 (8.3%)*	*446 (8.0%)*

TABLE 3: ***Follow up response rates so far based on all personnel randomized to the trial****

	HERRICK 14 Oct 2011-Feb 2012	HERRICK 15 May 2012 - June 2012	HERRICK 16 Oct 2012-Feb 2013	Total
	N (%)	N (%)	N (%)	N (%)
Response Intervention	1184 (52.3)	1452 (67.8)	1299 (69.1)	3910 (62.2)
Response - Control	1081 (47.7)	690 (32.2)	582 (30.9)	2346 (37.8)
Response TOTAL	2265 (60.6))	2142 (65.0)	1881 (59.5)	6288 (61.7)
Non response**	1472 (39.4)	1153 (35.0)	1278 (40.5)	3903 (38.3)
Total***	3737 (100.0)	3295 (100.0)	3159 (100.0)	10191 (100.0)

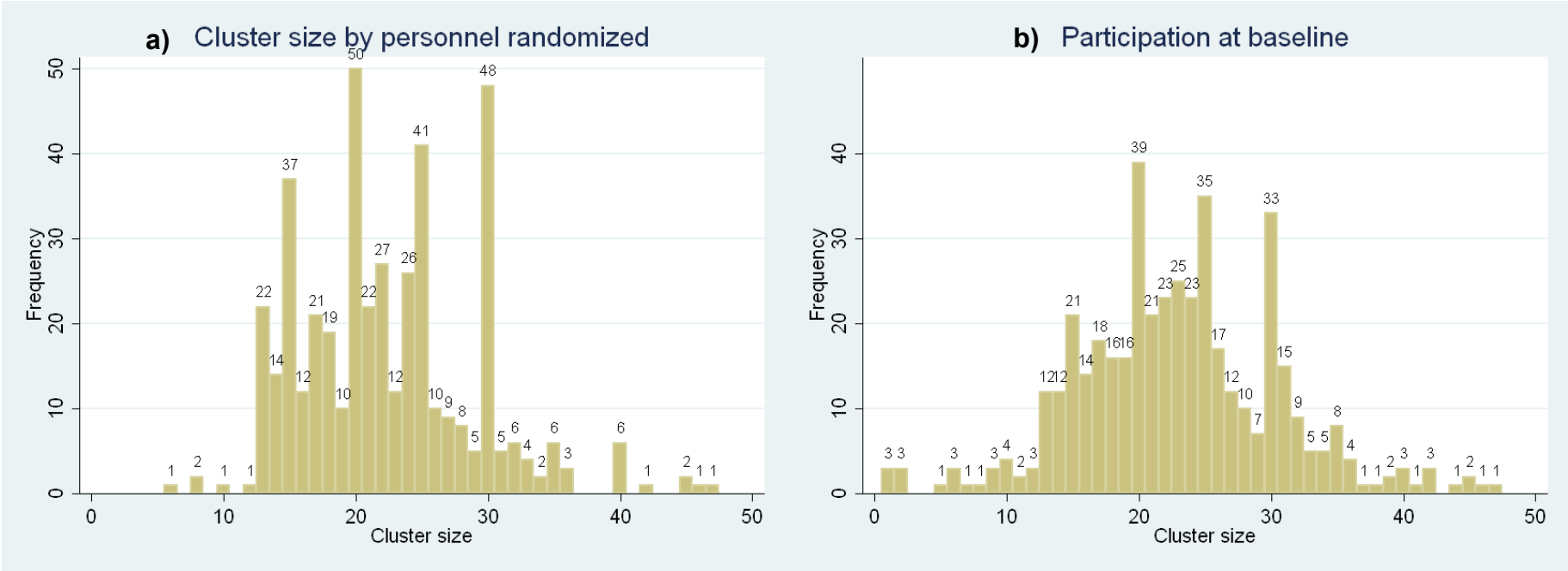
**** Declined to complete questionnaire, n=128; Information on current contact details unavailable, n=631***

***** Data collection will finish in October 2014***

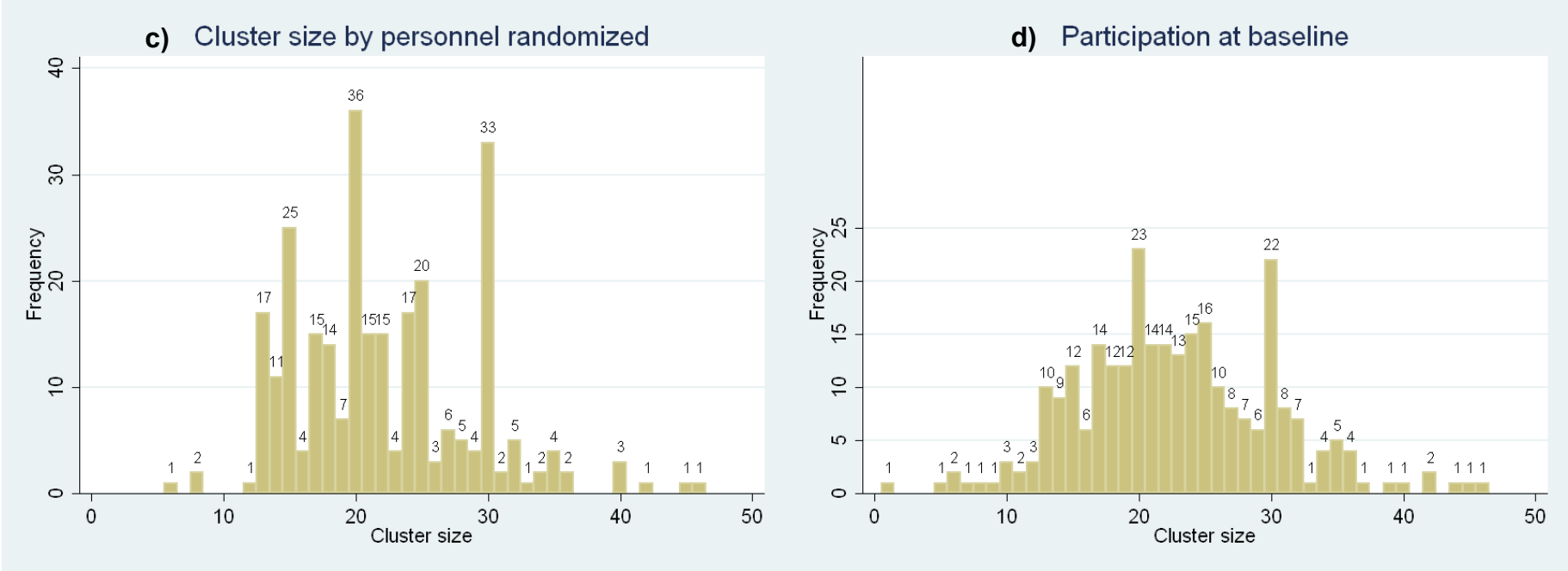
****** HERRICK 14 data collection completed, HERRICK 15 and HERRICK 16 data collection ongoing***

Figure: Cluster distributions based on all personnel randomized to the study at baseline and participation at baseline

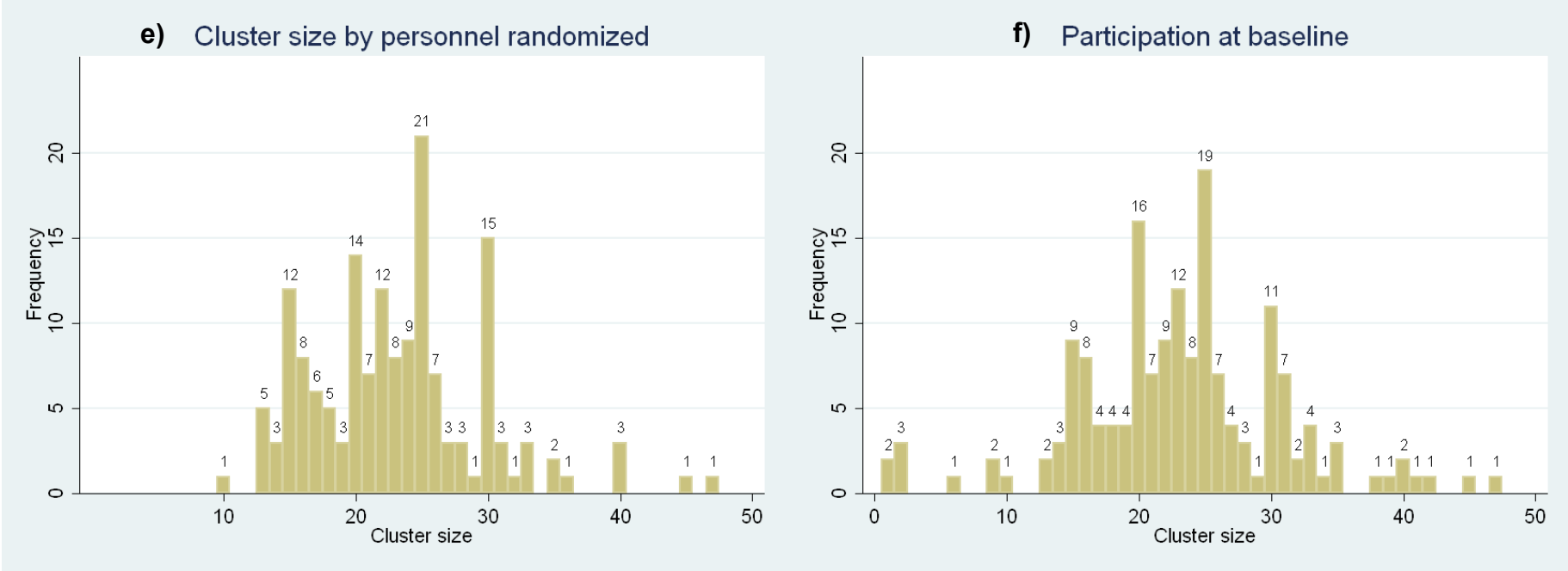
Total sample



Intervention arm



Control arm


e) Cluster size by personnel randomized
Frequency
0
5
10
15
20
10
20
30
40
50
Cluster size
1
5
3
12
8
6
5
3
14
7
12
8
9
21
7
3
3
1
15
3
1
3
2
1
3
1
1
f) Participation at baseline
Frequency
0
5
10
15
20
0
10
20
30
40
50
Cluster size
2
3
1
2
1
2
3
3
9
8
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16
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Document 1

ORIGINAL ARTICLE

Contrasting beliefs about screening for mental disorders among UK military personnel returning from deployment to Afghanistan

M Keeling, T Knight, D Sharp, M Fertout, N Greenberg, M Chesnokov and R J Rona

J Med Screen 2012:1–6

DOI: 10.1258/jms.2012.012054

See end of article for authors' affiliations

Objective

The objective of the study was to elicit beliefs and experiences of the value of a screening programme for mental illness among UK military personnel.

Method

Three months after returning from Afghanistan 21 army personnel participated in a qualitative study about mental health screening. One-to-one interviews were conducted and recorded. Data-driven thematic analysis was used. Researchers identified master themes represented by extracts of text from the 21 complete transcripts.

Results

Participants made positive remarks on the advantages of screening. Noted barriers to seeking help included: unwillingness to receive advice, a wish to deal with any problems themselves and a belief that military personnel should be strong enough to cope with any difficulties. Participants believed that overcoming barriers to participating in screening and seeking help would be best achieved by making screening compulsory.

Conclusions

Although respondents were positive about a screening programme for mental illness, the barriers to seeking help for mental illness appear deep rooted and reinforced by the value ascribed to hardiness.

INTRODUCTION

Less than half of military personnel returning from deployment with mental health symptoms seek health care for their problems.1–4 It is likely that many military personnel do not receive treatment which may benefit them.1,2,5 Many factors may deter them from seeking help, including stigma, mistrust of health-care professionals, a desire to deal with problems on their own, lack of recognition of their own mental health issues and perceived practical barriers to accessing care services.2,5,6

Considering the introduction of a screening programme is a common response from policy-makers and practitioners as they perceive that there would be an improvement in the mental health status of those who are screened. The US Department of Defence (DOD)

introduced a screening programme for mental disorders in 1998.7–9 In contrast, the UK military has not developed such a programme, and is waiting for information on the effectiveness of a screening programme for mental disorders before deciding whether to introduce one. The effectiveness of screening depends on the validity of the tests, the efficacy of available treatments, acceptability of the programme to service personnel and the commitment of the professionals involved. The acceptability of the screening programme includes the willingness to be tested, the acceptance of advice received and willingness to act upon advice. It is frequently expected that the issues preventing service personnel from seeking health care will fade away in response to screening advice; however, this view is not supported by the literature.6,7,10,11 A qualitative study would help to conceptualize the range of issues raised by military personnel in relation to screening. Few studies have explored military personnel's beliefs about screening for mental illness.12

As part of a pilot study to test the tools for a randomized controlled trial (RCT) of screening in the UK Armed Forces, we carried out this qualitative study to elicit beliefs about the perceived utility of introducing a screening programme.

METHODS

Participants: Two companies of British Army troops, with approximately 100 personnel in each, who had returned from Afghanistan within the previous three months, were recruited to take part in a pilot study to assess the effectiveness of post deployment screening for mental illness. The first screening session included 52 male personnel from the first of the two companies, all of whom completed the online screening questionnaire. For the purposes of the current study 21 of the possible 52 male personnel completed an interview in relation to their beliefs about post deployment mental health screening (referred to as the in-depth interview). The remaining 30 participants completed a structured interview related to the online questionnaire, covering subjects such as the questionnaire design, clarity and ease of understanding (referred to as the questionnaire, but not included in this report). Opportunity sampling was used to initially recruit 22 service personnel. One of the 22 participants was excluded during the interview as he disclosed a mental health difficulty that required immediate action. Potential recruits were asked, on completion of the screening questionnaire, if they would be happy to take part in a one-to-one interview. All 52 male personnel from the first of the two companies agreed to take part. The participants were assigned to completing the in-depth interview or the questionnaire. This was decided based on the next available interviewer. As completing the in-depth interview took longer than the questionnaire, more participants were assigned to the questionnaire. A smaller sample size was appropriate for the nature of the qualitative study. There were 21 participants. The median and interquartile range age in the pilot study was 22 years (20–24 years), the youngest being 18 and the oldest 31.

Materials

A semistructured interview schedule consisting of open-ended questions was designed to encourage participants to talk openly about their beliefs of post-tour screening for mental health. The schedule consisted of eight questions, covering opinions and feedback on the screening questionnaire and process, likelihood of and barriers to using the advice offered, attitudes towards future screening and barriers to follow-up screening. Probes

were included to assist if participants did not understand a question or if the interview became tangential. All interviews were recorded using Dictaphones.

Procedure

Four researchers, with prior experience of qualitative interviewing, were briefed and trained in using the interview schedule. The semistructured interviews were conducted in private rooms on the military installation. Interviews lasted 5–20 minutes. The semistructured nature enabled participants to discuss issues they felt were important. Consequently, the interview schedule was not prescriptive in sequence or use of the questions. All interviews were transcribed, including all spoken words, non-verbal utterances (such as laughter and sighs), significant pauses and hesitations.

Analysis

The transcripts were analysed following the procedures outlined as recommended for thematic analysis. This method involved a detailed and interpretive analysis where themes and concepts were identified within and across the transcripts.

This was a purely data-driven inductive approach, with no existing coding or theoretical frame. Each participant's transcript was analysed by the individual researcher who conducted the interview, and a table of themes was created for each of the 21 participants. The four researchers met three times, for up to four hours at a time, to identify patterns and connections across the 21 theme tables. The researchers considered how themes in one case might illuminate those in another. The different themes in the 21 cases were merged and connected to create five master themes, each encompassing their own sub-themes. At all stages of analysis the researchers remained reflective, re-examining the transcripts to ensure themes and connections related to the participant's experiential responses. The analysis was independently audited by other members of the research team.

RESULTS

The five master themes were: positive reception to screening; criticisms of the screening process; barriers to seeking help; got to be forced to do it and mental health is not a weakness. The master themes included subthemes which illustrated the participant's perceptions, experiences and beliefs about post-tour screening for mental health. A selection of extracts from the interviews is provided in support of the themes in Tables 1–5.

Table 1. Positive reception to screening: subthemes and verbatim extracts from interviews

Yeah it's good
'Yeah it was good like' (Fred: Pg 1. Line 12)
'Yeah it's useful' (Ian: Pg 1. Line 6)
Raises awareness
'It might hit home, they might start thinking right okay, I do need the. . .I think seeing it on screen. . .they'll start to realise they need to get help' (Brian: Pg 3. Line 80)
'You do notice the changes in yourself with the series of questions and it starts to hit home a wee bit more like so that's what I liked about it' (Pete: Pg 2. Line 51)
Relevance
'It was quite dead on, let me know, it was bang on' (Daniel: Pg 3. Line 84)
'A couple of questions that related to me and a couple of the boys' (Jason: Pg 1. Line 3)
Confidential
'Boys are too scared to go to the doctors or places they need to go to say I need help with this and that so that's obviously all confidential, and you get that bit at the end. . .makes it easier for the boys' (Brian: Pg 1. Line 9)
'It's a very private thing that they can do themselves without other people knowing' (John: Pg 1. Line 21)
'Well what if you were afraid to tell other people, you could say so now' (Henry: Pg 1. Line 16)

Table 2. Criticisms of the screening process: subthemes and

verbatim extracts from interviews

Computers are impersonal
‘Like a computer telling me that I need to seek help I would have probably been like you don’t need to tell me!’ (David: Pg 2. Line 58)
‘It’s only a computer’ (Fred: Pg 3. Line 82)
‘I don’t think just cos the computer says there’s something wrong with them they’re going to immediately go’ (Ed: Pg 3. Line 101)
Not all problems are related to the military: ‘Everyone goes through different problems. . .my problems are nothing to do with decompression like some people have compassionate problems’ (Simon: Pg 1. Line 25)

Table 3 Barriers to seeking help: Sub-themes and verbatim

extracts from interviews

Avoidance

'Er, I didn't do the advice. . .it said yes or no to the advice and I just went no' (Fred: Pg 2. Line 43)

'No I didn't ask for none' (Mark: Pg 1. Line 22)

'I didn't look at it to be honest' (Luke: Pg 2. Line 47)

Got to be strong

'The army's all about being strong you know mentally, physically, tough all the time. . .umm I think deep down there is some underlying tones there that I can't be weak' (David: Pg 4. Line 127)

'Even the likes of going sick with a normal injury, boys wouldn't do it because it looks bad and you get quite a lot of stigma about it too, which isn't a good thing' (Daniel: Pg 4. Line 132)

'Some lads are afraid to be seen as soft or something' (Keith: Pg 5. Line 126)

Fear what others will think 'They'll start knowing your problems, you might start thinking ah they're looking at me differently, that sort of thing' (Brian: Pg 4. Line 100)

'Boy's wouldn't do it cos it looks bad. And you get quite a lot of stigma about it too which isn't a good thing' (Daniel: Pg 4. Line 129)

'What your peers think. People might think they're mad. . .you see someone going to get help and you think they're a nut job' (Luke: Pg 1. Line 25)

Easier to talk to mates

'If us boys got problems then we speak to each other get down to our own level' (Mark: Pg 1. Line 31)

'Tell them and maybe have a laugh and a joke about it between yourselves or something' (Pete: Pg 4. Line 113)

'We talked about every patrol. . .debriefing patrols, then the boys go off in their own little groups and that or just talk together about what we seen' (Brian: Pg 5. Line 139)

Fear of impact on career

'The boys that will be wanting a promotion and wanting to get further but might panic if I say something and they might not get promoted or something' (Mark: Pg 3. Line 94)

Table 4 'Got to be forced to do it': subthemes and verbatim extracts from interviews
'If they see a letter and it just says whatever on it they just going to go ok. . .so if they came back and did this again it'd be much handier' (Brian: Pg 6. Line 179)
'They won't do it unless someone's making them do it. . .if it said you've now got an appointment booked with the welfare officer they'd go then cos they've got no choice' (Carl: Pg 2. Line 47)
'Not in the post, you'll probably have to get them in their room, sit down, and make them do it, like to be honest. They'll probably sack it off like 'nah it doesn't matter'' (Ed: Pg 1. Line 21)

Table 5 Mental health is not a weakness: subthemes and verbatim extracts from interviews
'I think it's great that the army actually tries to erm say that it's stigma it's not that you are weak or anything, but you have problems everyone has them' (David: Pg 4. Line138)
'I mean that some lads, you know lads its all their experience, and some people just have a bad experience, like it's nothing to do with their weakness or anything, it's just the way it is' (Kieran: Pg 3. line 75)
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Positive reception to screening

All participants expressed positive perceptions of post-tour screening. Five subthemes represent the different elements of the positive reception to screening. Table 1 shows

verbatim statements illustrating each of the subthemes. This theme demonstrates the contrast of a generic, slightly ambivalent experience, to more involved and connected feelings of positivity. The more connected positive responses, such as perceptions of raising awareness, relevance and confidentiality, create positive perceptions and lead to an increased willingness to participate in post-tour screening, but the views about their likelihood to accept advice and seek help are subdued.

Yeah it's good: The first question aimed to draw out the participant's initial thoughts and experiences of the post-tour screening they had completed. A common feature was to provide a general positive response. Although positive, these generic responses were succinct and suggested some level of indifference.

Raises awareness: Positivity towards post-tour screening grew from the belief that it can help initiate a reflective process in the soldiers, in turn raising awareness of symptoms or possible difficulties and even an interest in seeking help. In contrast with the previous subtheme it shows a more active interest.

Relevance: Some of the participants felt positive about the screening as it was relevant to them. It appears that the relevance the soldiers experienced lead to their positive attitude towards the screening process, in turn potentially increasing the likelihood of accepting any advice received.

Confidential: Participants showed positivity towards the screening process due to its confidential nature. Confidentiality around mental health issues is important to military personnel. The perception of confidentiality increased willingness to participate in screening and to provide honest responses.

Criticisms of the screening process

Despite being positive about the screening process, participants offered some insight into possible shortfalls. Table 2 shows statements illustrating each of the criticisms of the screening process.

Computers are impersonal: A few of the participants felt that using computers to conduct screening was impersonal and decreased the likelihood of any advice given being accepted or utilized.

Not all problems are related to the military: One participant raised the issue that just because they are in the military not all their problems are going to be a consequence of their military activities.

Barriers to seeking help

While the participants had positive attitudes towards screening, there were several reasons that may prevent them from seeking help. Table 3 shows verbatim statements illustrating each of the subthemes of barriers to seeking help.

Avoidance: Almost half of the participants discussed experiences, attitudes or beliefs indicating they have avoided or would avoid dealing with personal or mental health related issues. Although providing previous positive attitudes to screening and the advice it gives, some participants do not actually want to engage with it. Their positivity towards

screening may be passive, or to show a preference to deal with issues on their own, suggesting reluctance to disclose mental health issues to others and avoidance of seeking help. These extracts exemplify a belief that even if people are told they need help, they would not act on this advice. The narrative used is about problems that may affect others, but not themselves, or they would hide the problem from others.

Got to be strong: Some participants demonstrated beliefs that soldiers must show strength, regardless of their feelings. Some of the thoughts suggest that they may be influenced by their training and a general attitude of the military towards hardiness.

Fear what others will think: Many participants expressed concern about other people knowing that they have personal problems, or were seeking help. These concerns highlight the stigma attached to mental health difficulties and how these lessen the likelihood of people discussing and seeking help for their problems.

Easier to talk to mates: Some of the participants suggested a preference for talking to their peers about their difficulties and concerns as they can 'get down on their own level'. Talking to each other is an important part of coping with their experiences. This does not necessarily have to be an alternative to seeking help, but is more than likely where some will start.

Fear of impact on career: This theme emerged from just one participant's experience in this study, but may be a concern for many soldiers.

Got to be forced to do it!

Participants were asked if they thought people would get involved in future screening. A few participants believed that people will only participate in screening and maybe act on advice if they are forced to do so (Table 4). This further highlights that despite soldiers being well disposed towards screening, it seems unlikely that they will act on any advice

Mental health is not a weakness

Despite some participants' experience that illness is often perceived as weakness, two participants held the view that having a mental health problem is not a weakness, and things should be and are being done to address this stigma (Table 5). These beliefs indicate that although there are some reports of a prominent negative stigma attached to mental illness as shown above, these views are not held by everybody.

DISCUSSION

This study illustrates the presence of a complex set of beliefs about screening for mental illness among the UK military. While many participants made positive remarks about the advantages of screening, these were tempered by some criticisms of the process, and the advantages appeared detached from participants' own needs. Despite positive attitudes towards screening, it appears that, in keeping with previous research findings, several barriers to accepting advice and seeking help following any advice given may exist. These included: unwillingness to receive advice, a desire to deal with psychological issues on their own, belief that military personnel ought to be strong to cope with any mental problems and concern about what others may think if they sought help. Some participants

noted that mental health problems should not be construed as a sign of weakness. The view that computers are impersonal was expressed by some participants. This suggests that a personal approach to giving advice may enhance the likelihood of its acceptance. However, interviewees provided a wide range of reasons why they would refuse advice during the screening process (Table 3). This gives rise to doubt that personnel would return on a further occasion to receive advice, even if provided in a personal manner. Making the screening process mandatory through the chain of command was perceived as a potentially effective way of lowering barriers and resistance to seeking help. However, widespread support for this may be difficult, because any mandatory intervention among people who do not lack mental capacity raises serious issues of ethics, informed choice and autonomy. Most participants' beliefs corresponded to a reflective assessment of the way they or their comrades would act. There were generally positive responses to screening and its suitability. However, many participants voiced skepticism of the utility of any future screening programme, because barriers to seeking help in terms of stigma, the belief that they should show fortitude and deal with mental health issues on their own and the lack of interest in receiving tailored advice, would reduce the impact of screening. Previous quantitative studies show most of these barriers both in military and civilian populations.1–6 Fewer studies have emphasized the belief that people want to tackle mental health issues on their own,5 and none have shown the reluctance to even read tailored advice that might potentially be beneficial.

Despite showing a willingness to be assessed, an unexpectedly large group of participants did not want to receive the advice available. These opinions were consistent with the wider findings of the pilot study, that approximately 50% of those in the intervention arm of the study choose not to receive specific advice regardless of their mental health status. Another study in the USA showed that 60% of those who screened positive for mental disorder were not interested in receiving help.6 In a study carried out in 2002, before the outbreak of the most recent hostilities in Iraq and Afghanistan, we found reluctance among participants to respond to an invitation to visit their medical officers after completing a set of screening questions.10 The current study shows that this reluctance persists, despite the large numbers of service personnel who have been killed and injured in the recent conflicts and the various efforts of the UK Armed Forces to support the mental health of its personnel, for example, the Trauma Risk Management programme (TRiM).14 Several participants indicated that they should be strong and able to deal with stress on their own. These characteristics could be construed as a component of hardiness. An important element of hardiness is the belief in one's power to control or influence events experienced,15,16 and engendering mental fortitude is an important aim of training in the Armed Forces. In this respect, the health message that one should recognize mental health problems and seek help appears to contradict the ongoing theme of hardiness in military personnel. As the theme of both physical and mental hardiness is pivotal in military training and doctrine, the message to accept screening for mental illness and accept help to tackle mental illness should be presented without appearing to contradict this concept of hardiness. If screening were to be adopted by the UK military, this would be a challenge for the Armed Forces, as current mental health briefings would need to be amended to take account of this central issue of screening. Some soldiers were concerned about others in the military knowing if they had mental health issues, whereas some suggested soldiers are happy to share emotional issues with comrades. The

willingness of comrades to share problems provides opportunities as well as disincentives to seek help. Battlemind in the US military,17,18 and TRiM19 aim to reinforce camaraderie, and in doing so help to eliminate barriers. Our results indicate, perhaps unsurprisingly, that not all service personnel are prepared to talk about their problems to their commanders, welfare personnel or medical officers. The strength of this study is the willingness of those who were approached to share their beliefs. This may have been enhanced by the perception that the researchers, although acquainted with the ethos of the Armed Forces, were not part of the chain of command. An additional strength is that respondents were able to voice cogently their own views, rather than have to select from a set of rigid response options in a survey. A weakness of our study is that the views of the personnel interviewed may correspond solely to those of the company participating in the study, and not to the wider military, although this seems unlikely because the responses of participants reaffirm opinions from a study carried out in 2002.12 These results are also consistent with research on health-seeking behaviour.1– 3,11 Our results cannot be extrapolated to women in the services, or to personnel who have exited the military. The RCT for screening for mental illness which we are undertaking will help to gauge the impact of the opinions of service personnel towards a screening programme.

CONCLUSION

This qualitative study indicates that, within the interviewed sample, despite overall positive attitudes to screening and assessment, barriers to accepting advice and seeking help for mental disorders were deep rooted. Some aspects of military training, such as those related to the development of physical and mental fortitude, may be seen as an impediment for seeking help. Prevention programmes for mental illness should ensure that advice to military personnel to seek help should not appear to contradict values inculcated through training.

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Professor Neil Greenberg is member of the Royal Naval Service, Mohammed Fertout is member of the British Army and Duncan Sharp is member of the Royal Air Force. All other authors declare no conflict of interest.

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Document 2

Medical and Welfare Officers beliefs about post-deployment screening for mental health disorders in the UK Armed Forces: A qualitative study

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Abstract

Background: This study aimed to examine currently serving United Kingdom (UK) military Medical and Welfare Officers views on the potential introduction of post-deployment screening for mental ill health.

Methods: Semi-structured interviews were conducted with 21 Medical and Welfare Officers. Interview transcripts were analysed using data-driven thematic analysis.

Results: Four themes were identified: positive views of screening; reliability of responses; impact on workload; and suggestions for implementation. Interviewees viewed the introduction of screening post-deployment as likely to increase awareness of mental health problems whilst also reporting that service personnel were likely to conceal their true mental health status by providing misleading responses to any screening tool. Concern over reliability of responses may provide one explanation for the reluctance of service personnel to seek help for problems, as they could feel they will not be taken seriously. Welfare Officers felt they would not have the knowledge or experience to respond to help-seeking. Although participants were concerned about potential impact on their personal workload, they indicated a desire to positively engage with the screening programme if research showed it was an effective tool to improve mental health care.

Conclusions: Welfare and healthcare providers are well disposed towards a screening programme for mental health but highlight a few concerns in its implementation. In particular Welfare Officers appear to require more training in how to respond to mental ill health. Concerns about available funding and resources to respond to increased workload will need to be addressed should post-deployment screening for mental health be introduced in the UK military.

Keywords: Post-traumatic stress disorder (PTSD); Alcohol misuse; Military; Thematic analysis; Secondary prevention; Health provision.

Background

Following deployment, a number of Armed Forces personnel experience mental ill health, with symptoms ranging from post-traumatic stress disorder (PTSD) to alcohol misuse [1,2]. Whilst there are a range of mental health services available for service personnel who require them, previous findings show that many of those who experience mental ill health post-deployment do not access these services and are reluctant to seek help [3,4]. Help-seeking for mental ill health among Armed Forces personnel is lower than help-seeking for other types of health problems, and those who seek help tend to do so only once the problem has become more severe, i.e. when function is impaired or a person meets the criteria for two or more mental health problems [5,6]. This reluctance to seek help has been shown in veterans and civilians too [7]. Developing a method to encourage early uptake of mental health services could improve the response to such support and minimise the impact of mental ill health on an affected individual.

One possible method for improving uptake of mental health services is the use of mental health screening. Other military forces already use screening for mental ill health post-deployment, notably the United States (US) Department of Defense (DOD) [8,9]. This was introduced shortly after troops first deployed to Iraq in 2003 and has evolved since. Initially, screening was conducted within two weeks of service personnel returning home from deployment [10]. As it has been shown that symptoms of mental ill health may not be displayed or experienced until later on after returning from deployment [11], the screening tool was developed to contain a 3-6 month follow up component which picked up additional cases of mental ill health not identified by the earlier screen [12].

The main argument in support of post-deployment screening of military personnel for mental ill health, is that it could identify mental health problems sooner or whilst these

are less severe. Early identification allows for early intervention and could potentially decrease the impact that mental ill health has on the individual. A qualitative study of UK service personnel's opinions on the potential introduction of screening found that whilst screening was considered worthwhile, lack of confidence in military health care, along with lack of trust that results would be confidential, stigmatised beliefs and concerns about impact on career would prevent service personnel from answering honestly [13]. A proposed computerised screening tool is currently being assessed by cluster Randomised Control Trial (RCT) in the UK Armed Forces. The RCT seeks to assess the suitability of such a tool and answer the question of how effective screening for mental ill health post-deployment is at identifying cases of mental ill health and encouraging help-seeking. A pilot study for the RCT included qualitative interviews exploring the views of service personnel recently returned from deployment to Afghanistan towards post-deployment screening. Whilst participants displayed positive attitudes towards screening, they also expressed a reluctance to follow health advice due to beliefs that military personnel should be seen as strong [14].

The current tool under examination in the RCT directs participants towards agencies in the military for informal support or treatment depending on the type and severity of the problem. This is likely to increase attendance to Medical Officers (MOs) and Welfare Officers (WOs) whose support for the screening programme is vital for it to have a positive impact on service personnel benefitting from the screening programme. A lack of support from military service providers may reduce the interest of serving personnel in approaching these services following tailored advice related to mental health problems. The aim of the current study is to use a qualitative methodology to examine the views of MOs and WOs on the potential introduction of a mental health screening programme post-deployment. The views of UK military health care providers have hitherto not been investigated on this topic.

Methods

Participants were 21 members of medical and welfare staff currently serving in the UK Armed Forces; 11 MOs and 10 WOs. Participants were directly recruited by researchers during visits to military units in the initial stages of the RCT of a post-deployment mental health screening tool. Informed written consent was obtained from all participants. Interviews were conducted by one of two authors (SB and GT) with training and experience of qualitative interview techniques. One participant requested to be interviewed in person, all other participants preferred to be interviewed by telephone. Prior to commencing the interview participants were assured of the voluntary nature of their participation and confidentiality of their responses. They were also informed that their responses would not be interpreted as being indicative of the military as a whole. Interviews were recorded on a Dictaphone and transcribed by a third party. Interview length ranged from 20 to 50 minutes.

The semi-structured interview schedule comprised of nine open-ended questions; four enquired about mental health services in the UK Armed Forces as they currently stand and five focused on the proposed introduction of screening. The five questions focusing on mental health screening will be considered in the following thematic analysis. The questions aimed to gain insights into the views MOs and WOs hold about screening, and to explore perceived positives and negatives of introducing post-deployment screening, along with difficulties and workload pressures MOs and WOs think may arise due to the implementation of screening. The open-ended nature of the questions enabled participants to provide their own views on the topic, which could be explored further through prompting by researchers. The five questions were as follows:

What do you think about post-deployment screening?

What problems do you envisage for the provision of services if a screening programme for mental illness were implemented in the UK military?

How would screening impact on your working life?

If someone came to you having been advised to do so following screening, how would you respond to this person?

Overall, how do you feel about the potential introduction of post tour screening for mental health?

Throughout the interview schedule interviewers explored both positive and negative aspects of introducing mental health screening. Where negative comments or concerns about screening were raised, interviewers prompted for suggestions to overcome these reservations.

Two pilot interviews were conducted to assess the suitability of the questions; no changes were required to the interview schedule following these pilot interviews. These pilot transcripts were included in the final analysis. The analysis was exploratory and data-driven; the researchers had no pre-conceived themes or conceptual framework. SB and GT initially analysed a random selection of eight transcripts, with regular meetings to discuss any variability in the arising themes and to generate an agreed set of common themes across the interviews. After identifying a common set of themes SB coded all transcripts and produced summaries of the key themes for each. Common patterns and divergences were then looked for across all themes from each transcript. In addition to analysing the data set as a whole, interviews and the summaries of themes for each interview were grouped according to source (either MO or WO) and common themes in each group explored so potential variations between MOs and WOs beliefs could be examined. Master themes were created by merging and connecting the common themes in the 21 transcripts. The master themes represent both the most commonly presented topics and those of particular importance to the matter of implementing screening. Each of these master themes contained sub themes representing different aspects or experiences described by the participants. Once the master themes had been created, SB returned to the individual transcripts to ensure these were truly representative of the beliefs of the interviewees.

At all stages during the analysis, SB and GT remained reflective and continually returned to the individual transcripts. SB is currently involved in the RCT of mental health screening; therefore this reflective practice was vital to ensure that the master themes and sub-themes were a true representation of the interviewees' views and not impacted upon by her own experience of screening. This reflective approach followed recommended practice for thematic analysis [15]. Analysis was initially conducted by hand; once the master themes had been formed this was followed by use of NVivo 10 software to explore each of the transcripts again. NVivo analysis did not produce any additional themes or undermine the master themes as had been chosen in the analysis conducted by hand.

The study was approved in March 2011 by The Ministry of Defence Research Ethics Committee (Ref 187/GEN/1) and the King's College London Psychiatry, Nursing and Midwifery Research Ethics Subcommittee (Ref PNM/10/11-112).

Results

Four master themes emerged, each reflecting different beliefs about the potential introduction of a post-deployment screening tool: positive views of screening; reliability of responses; impact on workload; and suggestions for implementation. Each of these master themes contain sub themes as presented below.

Positive views of screening

This theme has two sub themes representing different positive aspects of introducing mental health screening. Firstly, participants perceived some advantages in that screening would raise the profile of mental health in the UK Armed Forces. The second sub theme was that use of a computer-based questionnaire format was seen as another positive aspect of the current screening tool being used in the RCT.

Screening would raise mental health awareness: Interviewees felt that the introduction of a screening programme would show that the Ministry of Defence (MoD) is engaging with the issue of mental health and taking mental health care seriously. They perceived that raising

the profile of mental health in this way would increase awareness of mental health issues in the military.

"I like the idea of it …to try to push and drive change I think it's invaluable. It's also I think a good sort of vehicle to then educate as well". MO (19)

"I think it only gives nothing but positivity showing that there is the MoD, the Army, your organisation that there is a body out there that is concerned and working and conscious of the trauma that some bodies may have faced" WO (10)

One WO discussed his conversations with service personnel who had taken part in the RCT:

"The feedback was 'I never knew I was feeling like that until I answered those questions'. Must have been really provoking in their minds for them to actually say that. I'd say a good dozen guys that I spoke to were very…. They were surprised how much they'd learnt about themselves without even thinking about it so I think that's a good sign" WO (13)

The WO felt this feedback from service personnel provided strong support for the use of the screening tool, and showed that it would encourage open discussions of mental health issues.

The format of the screening tool: The current format of the proposed screening tool was viewed positively; younger soldiers were viewed as being accustomed to interacting with computers and therefore would be comfortable completing the questionnaire in this way. It was believed that the current format was particularly user friendly and accessible, and would be perceived as more confidential than a face to face interview with a medical professional.

"It's a more confidential way of somebody to… if they don't want to see somebody face to face, they can fill out a questionnaire and get feedback on it. So I suppose it's another way for them to kind of access mental health care or you know get advice to say should they be accessing mental health care". MO (6)

"I think it's a good idea and I think you know, the younger guys in particular, are very keen on computers and playing and clicking buttons so that will probably be seen as quite low threat" MO (12)

<u>Reliability of responses</u>

A common concern was that service personnel would find the screening tool easy to manipulate, both for masking and for exaggerating symptoms, therefore their responses would not be fully representative of their mental health state.

Masking symptoms: Many participants questioned whether the responses soldiers gave to the questions on the screening tool would be a reliable representation of their actual state of mental health. It was suggested that service personnel who did not want to admit to having mental ill health would be able to mask their symptoms by giving inaccurate responses.

"They see the tour as over, it's done, it's finished, let's move on. Some of them don't want to look back. Do people answer honestly? I don't know". WO (10)

"They are likely to deny, displace any significant problems they've got … umm because they will see it… my perception is that they will see it very much as a test and something that they can pass or fail" MO (16)

Malingering: Some interviewees expressed a concern that a screening tool could be manipulated to produce a false positive response as easily as a false negative. It was felt that some soldiers who currently report mental health problems do so in order to obtain extra leave, or be moved to a different unit which was particularly seen as a common problem for Germany-based units. Seven out of the eleven MOs interviewed felt that malingering was a problem they had come across, whilst only two out of ten WOs reported seeing examples of what they felt were embellished cases.

"Boys will be boys and they find innovative and almost constantly new ways to get out of work or, again these are often based on rumours… how to leave the service and get a medical discharge so I think some of them might think that's a way out" MO (19)

"Mental health is used as a big lever in a small number, but a very time consuming number of soldiers who have a number of discipline and other issues….I think I also hold the view that some of them do hide behind the mental health team and just hang on you know almost indefinitely…. They can't be disciplined, they can't be discharged. " MO (12)

"There are people out there that wouldn't be honest and would probably again try and hide behind it and you know tick the boxes that they are identifying themselves as being at risk and therefore you know you are never going to get rid of that….. those type of people who are going to play the system" WO (17)

Impact on workload

The impact that screening may have on a MO or WOs workload was the most consistent theme. Perhaps unsurprisingly, participants were keen to discuss how their working lives may be affected by the screening process. Sub themes within this theme included staffing levels, funds and resources, the role of the WO and interviewees feeling happy about the potential increase in workload should it have positive impact on the mental health of service personnel.

Staffing levels: The numbers of staff needed both for running the screening itself, and then to cope with a potential increase in service use were seen as important considerations.

"That would be manpower intensive and then it's going to have to be… we are going to prioritise even more because then you are going to have to look at giving priority to ops so if the screening tool brings somebody up then they are going to have to be seen I am sure there will be parameters for that" WO (3)

"You know we're obviously… if we're going to signpost more people then we're probably going to need more people to deal with you know the people that we're identifying who may need help" WO (17)

Funds and resources: The question of finances available for health services came up regularly in MO interviews. One MO pointed out that there are only limited funds available, which need to be shared between mental health and physical health services.

"For us to justify the not inconsiderable expense of screening the entire Armed Forces every time they go on tour" MO (16)

"And whether it's going to take… umm… resources away from other aspects of military health. I mean if it… both be that physical injuries as well as mental injuries and I think that you know there is a finite amount of cash isn't there? MO (18)

Welfare Officer Role: WOs were particularly concerned about their role in screening and its impact on their workload. Some expressed that there was some confusion over their role, and that in the case of mental health they serve as a signpost to appropriate services,

therefore it would be more effective to send people directly to the MO. A few of the WOs suggested that additional training in mental health and how to respond to service personnel post-screening would assist WOs to engage with the process more effectively.

"You know and it says on the screening 'go and seek advice from the Welfare Officer'. What do I tell them?" WO (4)

"I think if somebody has got an issue and it is highlighted they need to go to somebody who is qualified and prepared to accept them and that needs to be resourced rather than just giving it to the Welfare Officer" WO (2)

Happy to have an increase in workload: Whilst all participants were concerned about the impact screening would have on their workload, the majority stated that if screening had a proven positive impact on access to services, they would be happy to take on this additional work. This finding was consistent across MO and WOs' responses, despite many WOs saying they felt it would be more effective for the screening tool to direct service personnel straight to the MO.

"Yeah that's what I'm here for ultimately" WO (8)

"I think that's an unfair question actually because it's not whether it increases… it improves my working life, it's whether it improves the services for patients isn't it? And I think that… I can see it giving me extra work but that doesn't mean it's a bad thing" MO (18)

<u>Suggestions for implementation</u>

Both MOs and WOs had a number of suggestions for ways in which the screening tool could be implemented in order to achieve a high level of efficacy. Sub themes within this master theme were confidentiality, timing and augmentees (individuals who deploy with a different unit from their own) and reservists.

Confidentiality of results: There was a lot of divergence within this sub theme, with eight interviewees suggesting that results of the screening tool should be made available to a medical professional or the unit WO, whilst three interviewees (two MOs and one WO) felt strongly that the results should be absolutely confidential. The justification for making

results available to somebody was that keeping results confidential would not impact on help-seeking levels; service personnel would continue to avoid admitting to a problem.

"I understand medical confidentiality and all that. If we could screen and use that information… it would probably be more effective because like you say if a soldier says 'no, I'm not interested' but is a high risk then the chain of command and the unit may not have picked up on that yet". WO (8)

"If you are going to do the screening then ultimately somebody is going to have to have ownership of it, and if it is a sort of validated screening we are doing then, I think somebody will have to get the results otherwise what is the point of doing it" MO (1)

When questioned further on this issue, all participants who expressed this view also stated that they felt service personnel would be more likely to mask any symptoms they were experiencing should the results not be confidential.

"The beauty of an anonymous set up is that they can literally relax and put down what they feel". MO (9)

Timing of screening: All participants felt that this would be an important and challenging factor in the decision to introduce a screening programme. Screening would need to take place at an optimum time to maximise early detection of symptoms, and detect the majority of cases, but also a time that would not impact on the current post-deployment programme.

"So it would have to be done at a time which clinically… err… would pick up important things… err… in other words you couldn't leave it for too long after theatre but at the same time it would have to be done… where they are all still together I would suggest" MO (9)

"The timing of when the questionnaire is done has got to be done to suit the unit, when the unit is potentially not as busy. A suitable time after the tour because if you do it directly after the tour a lot of them go "no I haven't got a problem" and actually the problem then bubbles up a few months later." WO (4)

Augmentees and reservists: These groups were mentioned by many participants as the service personnel most in need of improved post-deployment care. After initial decompression augmentees usually rejoin their usual unit where they do not have the support of the peers they deployed with. Reservists return to their civilian lives where they do not have the support of the peers they deployed with who can best understand

their experiences. Participants suggested that screening would have the most positive impact on this subset of the UK military.

"Where perhaps the screening would be more useful is where you've got more diffused units, you've got individual augmentees, and I know in the past members of the reservists have been more vulnerable here" MO (16)

"My biggest concern is with mental health screening and post-operational tour leave… umm… even the six to twelve week briefing, the reservists and augmentees have all gone" WO (10)

Overall interviewees expressed a willingness to engage with mental health screening should it be implemented in the UK Armed Forces, and also felt that the presence of such a programme would raise the profile of mental health. However, concerns about reliability of responses, the availability of resources and impact of increased workload on medical and welfare services would need to be addressed should the tool be introduced as part of the post-deployment programme.

Discussion

Four master themes on the potential introduction of post-deployment mental health screening were identified using thematic analysis [15]: positives of screening, reliability of responses, impact on workload and suggestions for implementation.

Interviewees spoke positively about the potential for a screening tool to raise the profile of mental health and facilitate open discussions about mental health between service personnel. This is a benefit of screening which is applicable to both military and civilian populations. It is possible that the process of taking part in mental health screening may cause an individual to consider their own mental health and then discuss the issue more freely with their peers. The format of the current screening tool as a computer based questionnaire was seen as appropriate and non-threatening. A recent study of a self-administered computer based screening tool for mood disorders in a primary care population found this self-report method to be more accurate than GP interviews at

detecting current mood disorder, suggesting that non-military populations may also find this method more appealing [16].

Several interviewees were concerned that service personnel would not respond reliably to the questions in the screening tool; it was suggested that service personnel may mask symptoms of mental ill-health or provide misleading responses creating false-positive results. The issue of service personnel malingering is not one that has been well investigated in the UK Armed Forces thus far. Reporting of fictitious symptoms has been reported in soldiers serving in US Armed Forces [17]. Analysis of US veterans claiming compensation for PTSD has indicated that financial incentives may influence exaggeration of symptoms in US military personnel [18,19], but the reasons for over reporting symptoms in US Forces may not be applicable to UK Armed Forces due to differences in availability of free health care and compensation schemes.

Many interviewees suggested that confidentiality and decisions surrounding whether screening results should be shared with medical staff were potentially problematic considerations. WOs argued in favour of having access to results because they wished to either approach the individual with potential mental health difficulties, or “keep an eye” on that person. There is considerable evidence that suggests a screening tool should remain anonymous to encourage honesty in responses. Perception of confidentiality has a measurable impact on responses to mental health questions, [20,21] and the qualitative study of service personnel views on screening reported the confidentiality of results as a positive aspect of the tool [14]. Perceived confidentiality has also been found to increase acceptability of mental health screening programmes in paediatric care [22,23].

Concerns about the practicalities of implementing screening were raised. These concerns included a perceived need to increase staffing levels to respond to increased demand for services and also whether appropriate funding and resources would be available to respond to this increased demand. For any screening programme these issues would need to be considered, weighing up the benefits of increased awareness of mental health and

possibility of early intervention against the costs of providing screening and services to those who need it. A review of screening programmes for depression in primary care settings found that relevant staff assistance being in place was essential if a screening programme was going to improve depression outcomes [24].

Many WOs felt that it was inappropriate for the screening programme to advise personnel to visit them as they do not have the knowledge to properly advise personnel with mental ill-health. The current screening tool being assessed in the RCT only advises service personnel to visit the WO if their symptoms are mild, as defined by scoring on or above the threshold for depression, anxiety, PTSD or alcohol misuse; more severe symptoms (scoring higher on the screening measures) would result in personnel being advised to visit the MO. Interviewees were aware of this, but WOs still felt that they would not be the best person for giving mental health advice. This common feeling of not being able to assist with mild mental health problems may point to a need for more in-depth training for WOs, or alternatively to a need to clarify the role of the WO with relation to mental health care in the UK Armed Forces. Service personnel may feel more comfortable approaching a WO for informal advice than a medical professional; therefore there would be value in ensuring WOs felt prepared to respond to questions about mental ill health.

Interviewees had a number of suggestions for the successful implementation of screening in the UK Armed Forces. It was felt that the timing of screening would need to be considered carefully in order to provide the most useful tool in terms of a clinically relevant time frame, taking into consideration the fact that some symptoms of mental ill health may not be present until later on following return from deployment [11]. The ease of fitting a screening programme into an already busy post-deployment schedule would also need to be considered. Augmentees and reservists were a key concern; it was felt that this population would benefit most from post-deployment screening. Augmentees do not appear to have more problems post-deployment, however, reservists who deployed to Iraq have been shown to have increased risk of PTSD post deployment and 5 years on [25,

26]. Reservists have reported feeling unsupported by the military following deployment, therefore involving this group in mental health screening may increase their feeling of being supported by the military [27]. The suggestion that screening may be of most benefit to augmentees and reservists is interesting as they are not currently being assessed by the screening RCT; this population may require further investigation. Planned changes to the structure of the UK Armed Forces will result in a more equal ratio of reservist to regular personnel being deployed; therefore it would be important that any screening tool is able to provide advice for this subset of the military.

A strength of the study was the qualitative method used, specifically semi-structured interviews. This allowed for exploration of personal views held by medical and welfare professionals on the topic of the potential introduction of screening, without being constrained by pre-defined response options. This led to the emergence of topics and issues not expressly referred to in the original interview schedule. For example, interviewees were not specifically asked about augmentees and reservists, yet the importance of the issue was able to emerge due to the nature of this method. The variety in experience of those interviewed for the study may be a weakness, for example Welfare Officers can come into their role from a number of different backgrounds, with differing levels of exposure to mental ill health prior to the role. These differences in experience of mental ill health may impact on how interviewees responded to the idea of introducing mental health screening. Due to the necessary timings of interviews based on interviewees' availability, not all interviewees had personally experienced the screening programme prior to completing their interview. All interviewees were knowledgeable about the screening tool, the aims of the RCT and belonged to a unit involved in the trial. This personal involvement with the trial may have encouraged interviewees to think of its impact in terms of their own unit and how they feel they would engage with it.

The results of this thematic analysis raise important considerations for the MoD and any service looking to implement a mental health screening programme. Participants

expressed concern that service personnel would give unreliable responses to the questions in the screening tool, producing either false-positive or false-negative responses. In addition to offering reassurance on confidentiality of response, it may be beneficial for education on the importance of mental health screening to be provided for participants alongside any screening tool, to encourage reliable responses. Concerns about staffing and financial resources which may be further strained by the introduction of screening would need to be assessed before such a programme is introduced. The issue of WOs not feeling prepared to respond to service personnel with mental ill health may be an area for consideration by the Armed Forces; more training in this area may be advisable.

Despite concerns about the impact of mental health screening on workload both for MOs and WOs, the majority of interviewees felt they would still engage with the screening and be happy to see an increase in their work load if it enabled earlier interventions and help-seeking for mental health problems. This suggests medical and welfare personnel would positively engage with an effective screening tool for mental health problems should it be introduced to the UK Armed Forces in the future.

Conclusions

Military medical and welfare service providers are well-disposed towards a screening programme for mental health. Concerns over funding and resources would need to be considered should such a programme be introduced, and the suggestion that service personnel may not provide reliable answers would need to be addressed. The role of the WO in mental health services may need to be clarified, or further training in mental health may be required for service personnel in this role.

Abbreviations

PTSD post-traumatic stress disorder, DOD Department of Defense, MoD Ministry of Defence, MO Medical Officer, WO Welfare Officer, RCT Randomised Controlled Trial, UK United Kingdom US United States

Competing Interests

SB was involved in the RCT of mental health screening which was the basis for the thematic analysis. At the time this paper was conceived, NG was a member of the UK Armed Forces but has subsequently retired. NJ is a serving member of the UK Armed Forces but was not directed in any way by the Ministry of Defence. RR, SH, MK, MC, and GT declare that they have no competing interests.

Authors' contributions

SB, the corresponding author, recruited participants with MC, conducted interviews, carried out the thematic analysis and drafted the manuscript. GT conducted interviews, carried out some thematic analysis and provided feedback on drafts of the manuscript. RR is a principal researcher (PI) to the project and designed the study with MK and SH. SH had a supervisory role as expert in qualitative methodology. NG is a PI to the study. GT, MK, NG, NJ, RR and SH provided quality feedback on drafts of the manuscript. All authors read and approved the final manuscript.

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