Military Service Identification Tool

Validating the Military Service Identification Tool in its ability to correctly identify civilians and those who have served in the military.

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Study Synopsis

Full Title	Validating the Military Service Identification Tool in its ability to correctly identify civilians and those who have served in the military.
Short Title/Acronym	Military Service Identification Tool
Protocol Version number and Date	Version 1 (02/03/2020)
Study Duration	12 months
Study Design	Questionnaire, interview or observation study
Sponsor/Co-sponsors	King's College London
Chief Investigator	Dr Sharon Stevelink
IRAS number	278987
Primary objective	The principal research question is to ascertain whether individuals identified by the Military Service Identification Tool have or have not served in the military (Armed Forces).
Secondary objective (s)	N/A
Number of Subject	Expected sample n=1168. This represents an estimation that 20% of our cohort (n=5844) will have given consent for contact.
Main Inclusion Criteria	Only those participants who formed part of our original study will be screened for eligibility. This corresponds to 2,922 probable veterans and 2,922 civilians. The following inclusion criteria will apply: 1. Participant are listed as 'Alive' in the NIHR Maudsley Biomedical Research Centre Clinical Record Interactive Search database; 2. Participants aged 18 years and older; 3. Participant has given Consent for Contact; 4. Participant has a valid postal address or telephone number; 5. Participants have capacity to consent.
Statistical Methodology and Analysis	Aggregation of data to estimate accuracy of the Military Service Identification Tool

Glossary of Terms and Abbreviations

BRC	Biomedical Research Centre
EHR	Electronic Healthcare Record
KCMHR	King's Centre for Military Health Research
MSIT	Military Service Identification Tool
SLaM	South London and Maudsley
UK	United Kingdom

1. Introduction

Summary of the study:

Estimates of the UK's military veteran population, defined by the British Government as those who have served in the military for at least one day [1], is approximately 2.5 million, equivalent to around 5% of household residents aged 16 years or over in the UK [2]. UK military veterans receive healthcare provision from the National Health Service (NHS), with care recorded in local, regional and national EHRs [3]. EHRs – structured and unstructured (i.e. free text) – can be used to evaluate disease prevalence, surveillance, to perform epidemiological analyses and investigate quality of care and to improve clinical decision-making [4], [5].

There is no national marker in UK EHRs to identify veterans, nor is there a requirement for healthcare professionals to record it, making it difficult to evaluate the unique healthcare needs of those who have served in the UK Armed Forces [6]. This study, funded by Forces in Mind Trust, seeks to validate the Military Service Identification Tool, an open-source computer program that searches through free-text clinical notes to make a prediction on a person's military status. It is in the public interest to know the health of our Armed Forces. The Tool has been validated using manually annotated datasets, but we now need to valid an individual's military status by contacting them via post or telephone and asking, "Have you ever served in the Armed Forces". The research team will work closely with the CRIS Patient Advisor Group and local healthcare professionals.

The current study:

Currently, there is no military service marker in electronic healthcare records to identify who is a veteran in England and Wales [3]. This makes it difficult to evaluate the unique healthcare needs of those who have served in the UK military. In a previous study, we set out to investigate whether it was feasible to identify veterans who accessed secondary mental healthcare services via their anonymized electronic healthcare records using a manual, text search based, method. To do this, we used the SLaM BRC Case Register. This is a novel data resource, derived directly from the routine electronic healthcare records of the SLaM NHS Foundation Trust. SLaM is one of Europe's largest mental health providers, serving over 1.2 million residents in four South London boroughs. This Case Register holds patient's electronic healthcare records for all secondary mental healthcare provisions within SLaM. All these electronic healthcare records have been anonymized and a system has been developed to enable researchers to access and search through these records called the clinical record interactive system (CRIS).

As part of the first study we developed a manual, text search based, method using commonly used terms and phrases found in the free text clinical notes to identify veterans. Running this manual method resulted in the identification of n = 6,039 potential veteran records, of which n = 1,600 were selected to scrutinize in more detail, whilst considering time and manpower restrictions. This resulted in n = 693 veteran records, suggesting an identification rate of 43% when using the manual method. Therefore, we concluded that it was feasible to identify veterans in electronic healthcare records, but time consuming. Each potential veteran record was manually verified by the research team by reading through each patient's notes. This took on average 11 minutes per record.

To address the time it took to identify veterans and improve sensitivity and reach we developed the MSIT, and it proved to be quicker, more accurate and cheaper than the manual method. The Tool was designed to detect military service, not just veteran status. We took a systematic approach to developing and testing the MSIT. We used different subsets of all the electronic healthcare records available to us, to ensure the MSIT was developed and trained on a different set of electronic healthcare records (named the training dataset). Subsequently the MSIT was verified on another subset of the data (named the gold standard dataset) to ensure it would still be able to identify veterans if a different set of electronic healthcare records would be used.

We managed to identify 2,922 veterans in the electronic healthcare records when applying MSIT to inspect 150,000 individual records. The MSIT took only 20 minutes to go through all these records and had an identification rate of 88% when compared to the manual approach. We also matched these veterans to 2,922 non-veterans based on age and gender to compare their mental health treatment pathways.

Despite the success of our initial developments we have faced a significant barrier that may prevent the widespread, dissemination, roll-out and implementation of the MSIT. Various academics and stakeholders (e.g. NHS England,

Cobseo) are interested in the MSIT. However, they have highlighted an important limitation, namely it is still unclear whether the veterans identified by the MSIT are 'actual' veterans. MSIT identifies veterans based on the notes provided by the clinician in the electronic healthcare record. It is also important to understand if higher rates of physical and mental health are represented in a veteran population compared to civilians. By including both samples – civilian and veteran – we're ensuring that fair comparisons are able to be made. This There is currently no opportunity to verify their veteran status. For example, no service number is provided in their medical records.

Therefore, to overcome these limitations and to demonstrate that the MSIT is correctly identifying military service (serving personnel, veterans or civilian) it is important to reach out to those who have been identified to ask about their previous Service.

2 Study Objectives and Design

2.1. Study Objectives

The principal research aim is to ascertain whether individuals identified by the MSIT have or have not served in the military (Armed Forces). This study will ask up to 5 questions to eligible participants, with the responses used to validate the MSIT algorithm predictive ability.

Primary Outcome:
The primary outcome of interest will be the military serving status of participants. We will use the information provided to cross-check the performance of the MSIT. Where incorrect classifications have been performed, refinement of the algorithm will take place to improve the accuracy. The questions that will be asked have been designed to elicit as descriptive information as possible to help us refine the MSIT in the event it has made an incorrect prediction.

2.2 Study Design & Flowchart

The study will employ a questionnaire approach by asking a set of (up to 5) questions on previous military service. These questions are as follows:

Question 1: Have you ever served in the Armed Forces?

- Yes
- No

Question 2: Which part of the Armed Forces did you serve in?

- Royal Navy
- Royal Marines
- Army
- Royal Air Force

Question 3: What was the highest rank when you left the military?

- Senior Commissioned Officer (Cdr/Lt Col/Wg Cdr and above)
- Commissioned Officer (to Lt Cdr/Maj/Sqn Ldr)
- Senior Non-Commissioned Officer
- Junior Non-Commissioned Officer
- Other ranks (AB/Pte/AC/JT or equivalent)
- Other (please specify)

Question 4: How long did you serve in the Armed Forces?

Question 5: When you left the Armed Forces, were you:

- Regular
- Reserve
- Both

If the participant responds NO to Question 1, the questionnaire will end. If they answer YES, they will be asked questions relayed to military service. The participant can skip any question. These questions will be asked only once. No follow-up will be performed. Participants who take part in the study will be asked to supply an email address at the end of the questionnaire to enter a prize draw. This is voluntary. If they decide to take part, they will be entered a prize draw. At the end of the study, we will randomly select the winners. The prizes are: 1 £50 Amazon Gift voucher, 5 £25 Amazon Gift voucher and 20 £10 Amazon Gift voucher.

The study is using a cross-section, single point in time, questionnaire approach. There is no control comparison group, or randomised group allocation.

3. Sample Size, Statistics, Selection and Withdrawal of Subjects

Sample Size:
No formal power calculation was performed as the development of the MSIT was part of a feasibility study. In total, 150,000 patient medical records were examined by MSIT, which resulted in 2,922 probable veterans being identified. These were matched on age and gender to a probable civilian cohort of 2,922. Hence, a total sample of 5,844. Due to resource limitations we did not apply the Tool to the full database of the SLaM NHS Foundation Trust. It is expected that 20% of the sample will have Consent for Contact. This estimate is based on previous studies.

Participant Eligibility:
Only those participants who formed part of our original study will be screened for eligibility. This corresponds to 2,922 probable veterans and 2,922 civilians.

The following inclusion criteria will apply:

1. Participant are listed as 'Alive' in the SLaM BRC Clinical Record Interactive Search database;
2. Participants will be aged 18 years and old;
3. Participant has given Consent for Contact;
4. Participant has a valid postal address or telephone number;
5. Participants have capacity to consent.

The following exclusion criteria will apply:

Participants will be excluded if a clinician is required to be notified of the research prior to contact, as this may indicate at risk participants. Further participants who are not fluent in spoken English will be unable to take part in the study due to inability to understand the participant information and consent form. Therefore, non-English speaking participants will not be included in this study.

Withdrawal:

Participants are able to withdraw at any point throughout the study up until data analysis. To ensure the participants do not feel unduly burdened by the requirements of the study at any time, they will be reminded of the voluntary nature of their participant, and that they do not need to answer the question and can withdraw from the research at any time. Once a participant has withdrawn from the study, no further contact will be made. Data from withdrawn participants will not be used in the analyses.

Any protocol deviations or violations will be reported to Dr Sharon Stevelink (Chief Investigator) who will act accordingly. If the protocol deviation/violation relates to a participant, they will be withdrawn from the study and appropriate support given (ie. contact by the study clinical team). If the deviation/violation relates to a member of the research team, the NHS Research Ethics Committee and Research and Development will be informed.

4. Study procedures

Participants will be asked to complete a single questionnaire via a bespoke study website or take part in a short telephone interview.

Informed Consent Procedures:

Once eligible participants have been identified a Post-Doctoral Research Associate (to be appointed) will, in the first instance, send an email to the participant informing them of the study and asking for consent to the main research question (question 1). Informed content will be obtained prior to any questionnaires or procedures being employed. This will be performed either via the study website or via telephone. Time and date of consent will be recorded alongside a unique study identifier. Participants will be informed that participant is voluntary, that non-participant or withdrawal from the study will not affect their medical care in anyway. Prior to consent being sought, participants will be given time to read and consider the Participant Information Sheet.

Questionnaire Approach:

Where an email address is not present, a letter will be sent instead, where an email an email address and postal address are not present, the Post-Doctoral Research Associate (to be appointed) will make contact via telephone. Through all forms of communication, participants will be directed to record their response via the study website using a proxy_id, which is unique to the participant. If participants do not respond after 2 weeks a maximum of 3 attempts to contact the participant using contact information will be made. If we are not able to make contact, they will be removed from the study.

No personal information will be retained on the website, and participants will be required to provide two unique sets of 'identifiers' to log-in. If a participant fails to complete the online questionnaire or would prefer to undertake the study via telephone, a research assistant will make contact. The Post-Doctoral Research Associate (to be appointed) will log participant responses via the study website.

Risk and Burdens:

We do not anticipate their being any consequences for taking part in this research. However, there is a potential for participant to have negative perceptions towards the concept of military service due to negative experiences in some way. To manage and mitigate these risks, we will adopt the following process:

1) The Post-Doctoral Research Associate (to be appointed) employed on the study will have relevant research and clinical experience on how to deal with distressed participants;
2) The Post-Doctoral Research Associate (to be appointed) will be trained to encourage the participant to seek help if they are experiencing problems;
3) A formal risk protocol will be implemented to ensure that participants who are deemed at risk are appropriately managed;
4) For those who are seriously distressed, or deemed at risk, advice will be sought from and as appropriate a call back will be offered by Dr Dominic Murphy, Clinical Psychologist at Combat Stress.

In terms of participant burden, it is estimated that to take part in the study will take no more than 15 minutes. If during the telephone discussion the participant become distressed, the Post-Doctoral Research Associate (to be appointed) will halt the discussion and re-arranged to an alternative time or day. Additionally, to ensure the participants do not feel unduly burdened by the requirements of the study at any time, they will be reminded of the voluntary nature of their participant, and that they do not need to answer the question and can withdraw from the research at any time.

Screening Procedures:

Except applying the eligibility criteria described previously, participants will not undergo any screening.
Treatments and Follow-up:

This study does not seek to test any intervention or treatment. We will not perform any follow-up, nor require the participant to provide any further information above and beyond the questionnaire.
End of Study Definition:

Once all participants have been contacted using the stated procedure, or after 12 months, whichever comes first, the study will we be defined as complete. Participants who have provided an email address will be randomised and winners selected. They will be contacted within 3 months of the study completing.

5. Assessment of Safety

It is possible, but unlikely due to the nature of interaction, that some participants may perceive the interview as distressing or upsetting as we are asking about their military service. It will be stressed to participants during the telephone discussion, email or via post that they do not need to answer the question and are able to decline to partake in the study. The Post-Doctoral Research Associate (to be appointed) contacting the participants will be trained to signpost wherever needed and will be able to act as a listener. A robust risk protocol has been developed in collaboration with SLaM and BRC and Dr Dominic Murphy (Clinical Psychologist at Combat Stress) to ensure that the Post-Doctoral Research Associate (to be appointed) understands how to respond to a situation. This risk protocol includes key contact information for a range of charitable organisations. It is anticipated that a participants GP manages any identified risk but where that is not possible for any reason, then participants who are seriously distressed or deemed at risk then advice will be sought from and as appropriate a clinical call back offered to participants by Dr Dominic Murphy, Clinical Psychologist at Combat Stress.

6. Study oversight arrangements

The study proposal has undergone extensive review and evaluation within the research team. Study conduct and progress will be monitored by a steering committee representing the research team.

7. Ethics & Regulatory Approvals

This application will be reviewed by the NHS Research Ethics Committee and has received approval from the Research and Development office.

8. Data Handling

Data collected for this study will be encrypted and stored on a secure server maintained by the sponsor organisation and will not identifiable by participant name. The bespoke website for this study will be developed prior to data collection and will use servers located in London, England. The information stored on this system will be:

1. Proxy ID: A unique identifier will be created to allow users to 'log-in' and complete the questionnaire. The mapping key to link responses and contact details will be held by the SLaM BRC Research Administrator.
2. Questionnaire responses: Participant questionnaire responses will be recorded in the system and will be saved with the 'proxy id' identifier.
3. Prize draw: Participants are able to provide an email address to enter the prize draw. This will be saved in a separate database. At no time will the 'proxy id' and email address be linked.

Upon completion of data collection, all data will be downloaded from the server and the server be decommissioned. At any time, up until data analysis, participants can withdraw from the study.

The research team will keep legible and accurate documents to ensure thorough documentation of study conduct. The highest degree of confidentiality will be maintained for managing data collected throughout the course of the study. However, to meet legal responsibilities we will permit authorised representatives of the health authorities to examine records, to satisfy quality assurance reviews, audits and evaluations of study safety and progress.

For data analysis, the non-identifiable data acquired will be downloaded and stored on a secure network managed by SLaM BRC. Only the immediate research team will have access to data collected with the Chief Investigator Dr Sharon Stevelink being the custodian of the data. Data will be used to assess the performance of MSIT, and further refine the Tool to improve classification rates.

This study will be compliant with the principles of the Declaration of Helsinki, compliant with the Data Protection Act (2018) and follow local and national regulations.

9. Finance and Publication Policy

This study is being undertaken by KCMHR based at King's College London and is funded by the Forces in Mind Trust. Results will be disseminated via social media, KCMHR mailing list and scientific journals. Participants will not be identified in any report or publication.

References

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