

## Self-harm and suicide in the army: protocol of a systematic review

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### Abstract

As one of the three leading causes of death in people between the ages of 15 and 44 years old, suicide is, according to data from WHO, responsible annually for a million deaths. These numbers do not include suicide attempts, that are usually 10 to 20 times more frequent than suicide itself. This systematic review proposes to gather relevant information on the topic of self-harm and suicide in the Army, following the PRISMA-P statement for systematic review and meta-analysis protocols. This systematic review protocol was developed to present suitable guidelines for the development of research that can provide results to fulfil the sought objective. The search will cover the dates between 2014 and May 2019. Five databases will be accessed (SCOPUS, PubMed, Science Direct, EBSCOhost and Web of Science) with a total of six keyword combinations. The Cochrane Collaboration Tool will assess study selection and quality for determining the risk of bias.

## 1. INTRODUCTION

### 1.1 Background

Suicide stands as one of the three leading causes of death in people between the ages of 15 and 44 years old. According to data from the World Health Organization (WHO), it is responsible, annually, for a million deaths (corresponding to 1.4% of the total of deaths) (WHO, 2019).

Most people who tend to commit suicide do not necessarily want to die; they want to put an end to their pain (real or imagined) and need to be helped. A suicide that leads to death and is deliberate and deliberately committed to destroying oneself is known as successful suicide (Botega, 2014). If suicide is committed but does not lead to death, in this case, it is called attempted suicide, which is often said of those who sometimes pave the way for their "escape" in advance, although in some cases they may not have helpers (Santiago et al., 2008). If the injury is deliberately done to a body part without the intention of death, it is called self-harm (Giusti, 2013).

Research shows that for every suicide that leads to death, there are between 100 and 200 unsuccessful attempts and the suicide rate, in the following 12 months, is about 100

times higher for those that self-harm (Hajebi *et al.*, 2011). There is suicide in all age groups; but their frequency is higher among young people and soldiers due to their particular conditions (Ennis *et al.*, 2006). Suicide is not a uniform phenomenon, but it can be defined as a continuous process, in which there is the thought of suicide at one extreme and the act of committing suicide at the other extreme (Delazar *et al.*, 2009).

Research on military forces shows that suicide is not accidental among soldiers; but the origin of thoughts, behaviours, situations, and interpersonal relationships is the period before military service. Some military personnel experience extreme isolation and suffering, and find no opportunity to receive help and suffer from excitability disorders that often lead to daring reactions, such as committing suicide (Nouri *et al.*, 2012).

In Nouri *et al.* (2012), several aspects were considered risk factors that lead to suicide impairment, such as age, gender, race, religion, marital status, occupation, psychological and physical disorders, drug misuse and personality disorders. In different situations, the most common risk factors that lead to suicide are psychological disorders and previous suicide attempts. Depressive disorders constitute 80% to 95% of recognizable psychological disorders in repetitive behaviours in some people's family history (Delazar *et al.*, 2009).

Ennis' (2006) did research on suicide on soldiers belonging to ground forces of the Islamic Republic of Iran's Army. His study showed that there is a significant relationship between low education, previous suicide attempts, dissatisfaction with military service, conflicts with others, and inadequate psychological status with the increase of suicidal ideas. In Chinese adolescents, weak family relationships (Liu *et al.*, 2005) and in Nicaragua (Herrera *et al.*, 2006), communication problems and parental conflicts, are among the factors that lead to thinking of and committing suicide. In Linehana (2000), it is stated that 39% to 90% of participants had previous experience of attempted suicide. In Shakeri (2000), it is found that those who embark on suicide share personal characteristics such as being an introvert tend to psychological self-torture and unstable behaviour, more than those of the control group. Suicide among soldiers has adverse psychological and social effects and is considered a severe challenge for the country's Health system and Army.

In general, the emergence of suicide cases in military corporations can lead to fear and terror in young soldiers that may lead them to develop antagonistic feelings towards authorities. On the other hand, some authority figures may attribute low scores for self-harm or suicide in soldiers following these actions to avoid further cases, which may lead to an increase of self-harm. Investigating the phenomenon of self-harm and suicide is a technical, complex, scientific and generally preventable subject. Appropriate intervention can openly adjust or eradicate suicide (Carlotto, 2018).

To date, no systematic review based on the listed parameters abovementioned has been conducted. Therefore, a systematic review is proposed to seek relevant information on the subject, to plan in the future appropriate interventions to avoid related negative consequences.

## 1.2 Objectives

This systematic review protocol aims to identify the factors that lead the military personnel to self-harm or suicide when in active duty. The proposed systematic review will attempt to answer the following questions sequentially:

1. Whom are the actors involved in the proposed scenario? (Suicide and Self-Harm)
2. What are the identified factors that led the actors to self-harm or suicide?

## **2. Methodology**

### **2.1. Research structure**

This systematic review protocol follows the guidelines described in the Preferred Report Items for Systematic Reviews and Meta-Analysis Protocols (PRISMA-P) Statement (Shamseer et al., 2015; Moher et al., 2015).

### **2.2. Eligibility criteria**

#### *Type of studies*

Initially, only published and peer-reviewed articles will be used. Experimental and theoretical studies, case studies or field studies where information regarding self-mutilation or suicide is found within the proposed context will be included. Articles that do not contain relevant information will be excluded.

#### *Context*

Eligible publications will include those that present investigations conducted with the military on active duty.

#### *Type of participants*

The research will focus on active military personnel. The study will include female and male samples, without age limitation, and of the most diverse backgrounds. There will be no further restrictions.

#### *Interventions*

Any outcome related to self-harm or suicide will be considered, including studies that analyze and/or report self-mutilation or suicide actions and, whenever possible, significant causes.

#### *Setting*

Any setting, in any country, will be taken into account.

#### *Language*

The study will consider only articles written in English.

### **2.3. Information sources**

The research will include the following electronic databases: SCOPUS, PubMed, Science Direct, EBSCOhost and Web of Science. It will be conducted on articles within the last five years, starting in 2014. The year range is set to get relevant results.

However, the study will also consider the references of the collected articles to search for any additional records relevant to the review objectives. Likewise, authors with more articles on the subject and journals that often appear in the researches will be analyzed in more depth. This process will be repeated until no more detailed results can be found. In this case, publications older than the defined range can be used.

### **2.4. Search strategies**

The first search step will involve researching and sorting the literature with the use of keywords, which will be combined into sentences and will include Boolean terms (AND, OR), in addition to the inclusion and exclusion criteria already foreseen in the search.

Combinations of keywords will be formed as follows:

[("suicide" or "self-inflicted injuries" or "self-mutilation") AND ("Occupational health" or "suicide attempters" or "military")]

The appropriate search engines will be used, which will display all titles. In each database, the search will be performed by using each combination (separated by the operator "AND") and selecting, when possible, "article title, abstract, keywords". All literature eligible for inclusion based on the title will be uploaded to Endnote. This step will be faithfully reproduced for each of the selected databases.

The included articles will be selected by two independent reviewers using both eligibility and exclusion criteria. First, two authors will analyze titles, keywords and abstracts. Secondly, they will analyze introductions and conclusions (in addition to titles, keywords and summary again). Lastly, the full-texts will be read; then all the information found will be checked. If essential data for the review is missing or is unclear, an attempt will be made to contact the corresponding author of the study to resolve or clarify the problem.

In the following stage, as the selected articles are analyzed, new potential keywords will be identified, and further research will be conducted. Likewise, references will also be checked to find older articles that could provide supplementary information. This procedure will be repeated in the new articles identified until no more relevant results are obtained. In addition, other work developed by the authors of the primary studies included in the review will be consulted so to find related investigations that meet the established inclusion criteria.

Finally, in the last step of the research, additional sources referenced in the articles analyzed will be identified and accessed. If verified that several articles found were published in the same journal, special attention will be paid to this and said journal would be searched for more potential articles to be included in this review.

## **2.5. Study records**

### *Data management*

After completing the search and registering the number of articles collected in [Table A1](#) (see attachment), the selected articles from each database will be exported for duplicate sorting and removal. The title and abstracts will be analyzed. Then, after taking into account the established selection criteria, the full-text of the resulting studies will be retrieved and assessed.

The number of articles resulting from each filter phase will be recorded in the aforesaid table. This will allow keeping track of all studies of the first identified articles until the selected final publications, along with the number of articles excluded from each applied criterion.

Records management will be done with the "EndNote" software.

### *Selection process*

As each combination is inserted, three exclusion phases will be applied:

A. Through search filters, the following criteria will be considered:

i Date: articles published after 2014. However, for the final stages mentioned earlier in the search process, no date restrictions will be applied.

ii Type of document: articles.

iii Type of source: journal.

iv Language: English.

B. Duplicated articles will be removed.

C. Articles will be excluded if any of the following conditions are met:

i. Studies are not applied in a military setting.

ii. The studies do not consider occupational hazards in active military personnel.

### *Data collection process*

From the selected final studies, the full-text will be retrieved in order to collect the information of interest.

The extracted information will include:

1. General information: authors, year of publication, country.
2. Sample characteristics: gender distribution, risk.
3. Context: in a military setting, associated risks.
4. Study characteristics: objectives, considered risks, conclusions.
5. Main limitations of the study.
6. Quality assessment: possible risks of bias (selection bias, precision, information bias, investigator bias), reporting (evaluation of the overall quality of the study), external validity (evaluation of whether the results of the study are generalizable), internal validity (evaluation of bias due to study sample selection and/or confounding), strength (evaluation of whether study results could be obtained by chance).

### **2.6. Data items**

Summary tables will be elaborated with information compiling the topics aforementioned presented, mainly: reference and country, gender distribution and average age range, study objectives, conclusions, and assessed risks.

### **2.7. Results and prioritization**

The primary outcome of this research is to define the most common factors that may lead the military to self-mutilation and/or suicide.

### **2.8. Risk of bias in individual studies**

The risk of bias will be assessed individually for this review. Two phases will take place throughout the assessment. First, the general characteristics of each study will be identified and analyzed according to the intended objectives of this review. The parameters considered will include goals and objectives, evaluated variables, applied methods and equipment, evaluation procedure.

Subsequently, using the Cochrane collaboration tool to assess the risk of bias (Table A2), methodological issues will be addressed, such as compliance with ethical standards, sample justification, clear description of the experimental procedure and practical limitations.

Each of the determined topics will be varied by "yes", "no" or "obscure", the latter indicating that there is insufficient information to determine compliance with the criteria.

Studies that present more positive responses to the established criteria will be considered the most adequate and reliable for this review.

### **2.9. Data synthesis**

The synthesis of the data will be carried out through a narrative, based on the assembled data (with information concerning the eligible documents). From this perspective, the bias will also be taken into account when analyzing the data.

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**Table A1.** Form sheet summarizing the proposed rejection criteria

Summary of rejected articles	Summary of selected articles	Summary of rejected articles	Summary of Total Rejected Items						Database	N° of articles included after criteria							
			Date	Type of document	Source type	Language	Other	Out of topic		N° of selected articles	N° of collected articles	Date	Type of document	Source type	Language	Other	Out of topic
0	0	0	0	0	0	0	0	0	Total	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0		0							
0	0	0	0	0	0	0	0	0		0							
0	0	0	0	0	0	0	0	0		0							
0	0	0	0	0	0	0	0	0		0							

**Table A2.** The Cochrane collaborative tool for assessing the risk of bias

Domain	Support for judgement	Review authors' judgement
<b>Selection bias.</b>		
<b>Random sequence generation.</b>	Describe the method used to generate the allocation sequence in sufficient detail to allow an assessment of whether it should produce comparable groups.	Selection bias (biased allocation to interventions) due to inadequate generation of a randomized sequence.
<b>Allocation concealment.</b>	Describe the method used to conceal the allocation sequence in sufficient detail to determine whether intervention allocations could have been foreseen in advance of, or during, enrolment.	Selection bias (biased allocation to interventions) due to inadequate concealment of allocations prior to assignment.
<b>Performance bias.</b>		
<b>Blinding of participants and personnel Assessments should be made for each main outcome (or class of outcomes).</b>	Describe all measures used, if any, to blind study participants and personnel from knowledge of which intervention a participant received. Provide any information relating to whether the intended blinding was effective.	Performance bias due to knowledge of the allocated interventions by participants and personnel during the study.
<b>Detection bias.</b>		
<b>Blinding of outcome assessment Assessments should be made for each main outcome (or class of outcomes).</b>	Describe all measures used, if any, to blind outcome assessors from knowledge of which intervention a participant received. Provide any information relating to whether the intended blinding was effective.	Detection bias due to knowledge of the allocated interventions by outcome assessors.
<b>Attrition bias.</b>		
<b>Incomplete outcome data Assessments should be made for each main outcome (or class of outcomes).</b>	Describe the completeness of outcome data for each main outcome, including attrition and exclusions, from the analysis. State whether attrition and exclusions were reported, the numbers in each intervention group (compared with total randomized participants), reasons for attrition/exclusions where reported, and any re-inclusions in analyses performed by the review authors.	Attrition bias due to amount, nature or handling of incomplete outcome data.
<b>Reporting bias.</b>		
<b>Selective reporting.</b>	State how the possibility of selective outcome reporting was examined by the review authors, and what was found.	Reporting bias due to selective outcome reporting.
<b>Other bias.</b>		
<b>Other sources of bias.</b>	State any important concerns about bias not addressed in the other domains in the tool.  If questions/entries were pre-specified in the review's protocol, responses should be provided for each question/entry.	Bias due to problems not covered elsewhere in the table.