Author’s response to reviews

Title: Remarkable increase of musculoskeletal disorders among soldiers preparing for international missions – Comparison between 2002 and 2012

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Response letter
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Remarkable increase of musculoskeletal disorders among soldiers preparing for international missions – Comparison between 2002 and 2012
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BMC Musculoskeletal Disorders

Dear editor of BMC Musculoskeletal Disorders,

Thank you for considering our manuscript entitled “Remarkable increase of musculoskeletal disorders among soldiers preparing for international missions – Comparison between 2002 and 2012”

We greatly appreciate your efforts in obtaining reviewer with considerable knowledge in the field and we wish to extend our gratitude to the reviewer for their valuable comments and for your own review of the manuscript.

We have tried to address the comments that were raised, and you will find below, a detailed point-by-point response to the reviewers’ comments.

If there is anything that still is unclear I hope you don’t hesitate to contact me for further explanation or revision.

Yours sincerely
Alexandra Halvarsson,
On the behalf of all authors
Reviewer reports:

Palash Chandra Banik, MPhil in Noncommunicable Diseases (NCD) (Reviewer 1): Title of this study is clear and relevant. Abstract of the study written appropriately. Objective of the study is clear but some of the references used in the manuscript is relevant but too old.

Response: We have several references that are not older than 10 years. Older references that are included in this paper are considered to contain important information and are therefore still included in the paper.

In the methods section: I think author can tell the comparative cross-sectional study also.

Response: We have changed the text according to your suggestion.

It is not clear about the validation of the used tool, Musculoskeletal Screening Protocol (MSP).

Response: In the text we have already written about the validation of this tool and added references. Text in the manuscript: Both content and predictive validity of the protocol had been established (5,12).

What was the procedure of data collection? is it face to face interview? were the data collected by interviewer? or self-administered? if collected by interviewer then what about their training?

Response: We have clarified this in the manuscript. Added text in the manuscript: The questionnaire is self-administrated, and a physiotherapist was present during the survey to explain the procedure and to answer questions.

Only pain considered here? but MSD has other symptoms like sensory loss, motor function disorder etc., on the other hands, if any one is on treatment by NSAID or steroid what was inclusion criteria. or if any one has no MSD but he/she had previously and treated.

Response: We have clarified in the manuscript that MSD includes pain, complaints or injuries. In this case self-perceived MSD.

All soldiers that report that they perceive MSD are all referred to the medical services for further examination and treatment.

In result: I will suggest put a table for prevalence of MSD with age group, then the age effect can be understand and which region affected in which age group?

Response: Thank you for your insightful suggestions. We have not added a table for prevalence of MSD with age group since this is not part of the aim in this manuscript.

other behavioral factors and medication or existing diseases history were not reported here which may vary the prevalence.

Response: We have clarified in the manuscript. Added text in the manuscript: All soldiers perform a medical examination before entering the preparation phase before deployment, i.e. all soldiers are
considered to be healthy and not suffering from any medical conditions.

Discussion: it is well written and compared accordingly.
Conclusions: written appropriately.
Overall: it is a good work among the solders because they are always suffered by this issue but can not report properly for the fear of job.

Caroline Alexander (Reviewer 2): This paper reports shocking data revealing a marked increase in musculoskeletal complaints over a 10 year period within the Swedish population of pre deployment soldiers. Although a very specific cohort, there are important factors that will be of interest to a wide audience interested in musculoskeletal health. This paper is the clearest to read paper I have reviewed over many years and has the least number of suggestions that I have ever given. I congratulate the authors on this important and well expressed paper.

Minor suggestions and typos: The line number relates to the author's line numbers rather than the pdf line numbers

Abstract: Line 51 I think it would be clearer to say 'Across each anatomical location....'
Background Line 84 'has been found in studies of military populations...
Method Line 155 typo with missed bracket but I'd suggest this correction (95% CI; based on the Wilson score interval)
Figure 1 legend and title for Table 1 there is a typo. 0.05 rather than 0.005
I suggest adding Significant value p < 0.05 to the title for Table 2.
Response: We have done all the correction in the text according to the comments above.

The only point that shifts my recommendation from minor discretionary to minor essential is:

Results Line 192 I think a more accurate statement would be to say 'Although in general, soldiers in 2012 reported higher scores than those in 2002, they did not reach significance except for two of the five areas. That is, significant differences between cohorts were found with respect to how they perceived their physical ......'
Response: We have changed the text according to your suggestion.

Gülseren Derya Akyüz, M.D, Professor (Reviewer 3): Please include all comments for the authors in this box rather than uploading your report as an attachment. Please only upload as attachments annotated versions of manuscripts, graphs, supporting materials or other aspects of your report which cannot be included in a text format.
Please overwrite this text when adding your comments to the authors.
1. The authors stated that the aim of this study was to investigate the prevalence of musculoskeletal disorders (MSD), including pain and medically diagnosed injuries and self-perceived health, in two cohorts within the Swedish Armed Forces ten years apart (2002 and 2012). According to the definition of prevalence, it is the proportion of a particular population found to be affected by a medical condition (typically a disease or a risk factor such as smoking or seat-belt use). It is derived by comparing the number of people found to have the condition with the total number of people studied, and is usually expressed as a fraction, as a percentage, or as the number of cases per 10,000 or 100,000 people. Point prevalence is the proportion of a population that has the condition at a specific point in time. So, the authors can use "rate" or "frequency" in stead of prevalence.

Response: Thank you for your insightful comment. However, we choose to keep the word prevalence. We know that our military population are small but we refer to all soldiers in this specific military population and therefore we consider it to be justified to use the word prevalence. Furthermore, we would like to keep the word prevalence to keep the alignment in wording with other research articles in the field.

2. In this study design, there is a lack of methodology and many question marks about the demographic data.

What is the exact number of soldiers going for international missions in Swedish Army?

Response: In the manuscript we have written the exact number of soldiers that were deployed during this period in 2002 (n=810) and 2012 (n= 579). Thereafter, we have also stated which soldiers that were excluded and reason for that.

Which method was used for the selection of the soldiers?

Response: All soldiers that were deployed during this period in 2002 and 2012 respectively and were eligible for participation are included in this manuscript.

Are there any randomization?

Response: No randomization was necessary in the present study. We have studied two different cohorts and in each cohort all eligible soldiers were asked to participate.

Did these soldiers go to the same region/country for the international mission?

Response: All soldiers in 2002 went to Kosovo and soldiers in 2012 went to Afghanistan.

How about the climate of these places? Some rheumatic conditions are influenced from the weather/climate.

Response: The data were collected before deployment, i.e. during the preparation phase/training before the international mission. All soldiers have performed a medical examination before deployment and none of them were suffering from any rheumatic condition.

3. We know that, many rheumatic diseases such as rheumatoid arthritis or ankylosing spondylitis can
start at the same age.

Low back pain is not a regional pain, it is one of the chronic pain syndromes.

Response: Soldiers working in a military operation are medically examined just before the mission and, that kind of medical diagnosis is disqualifying for being a soldier.

4. What kind of musculoskeletal problems according to the body parts are determined in the soldiers?
Response: Common problems in this military population are injuries due to overload or traumatic injuries that can occur during missions, training or in sports.

5. Where is the flowchart? It should be added to the manuscript.
Response: We have chosen to explain and write about this information in the text. In the text you can find number of eligible participants, which soldiers that are excluded and included in the study.

6. The results are not clear and are not well-discussed.

Charlotte Beaudart (Reviewer 4):
1/ Page 3, line 72, please move the "(MSD)" just after "musculoskeletal disorders".
Response: We have corrected the text according to your suggestion.

2/ The chronology of the study is unclear. A previous study about this topic was performed in 2002 and authors decided to perform the same in 2012 and compare results between cohorts? Is that right? Why did the authors decided to publish their work 7 years later? The chronology of this study should be explained more deeply.
Response: Data collection was performed at to different time points. In 2002 and 2012. This manuscript was written to highlight the important issue about the remarkable increase of MSD during a decade. The authors have worked with this data material and manuscript during a long time and have not had the opportunity to complete the manuscript earlier due to logistic reasons. Furthermore, thru this work the researchers has gained important knowledge about that problems with MSD are still increasing in the military population and there is still a need for illustration this area and improve ways to prevent and treat these problems with the military context.

3/ It is not clear how the protocol with questions has been developed. What is the methodology used behind this? It does not appear that authors used validated questionnaire in order to collect their data. Same question for questions that concerned perceived self-rated health. There are validated questionnaires available in the literature to measure this. How can authors be sure that the questions they used are valid to measure perceived health?
Response: This questionnaire has been developed and further adjusted for the military population during the last two decades and this questionnaire has been tested for validity as well as for reproducibility, which is also mentioned in the manuscript. The authors decided to use this questionnaire since it is developed for the military population and are implemented in the Swedish
4/ Did the authors checked for normal distribution of their variables prior running statistics? It is a necessary step before using parametric or non-parametric statistics.
Response: All data were check for normal distribution before performing statistical analyses.

5/ Please clarify the logistic regression use in table 3. Is the initial model an univariate analyse and the final model a multivariate one?
Response: The multiple logistic regression analysis that was performed in the present study was done by using a backward likelihood ratio model, where the final model only includes independently associated factors.