Author’s response to reviews

Title: Fit for Fight – Self-Reported Health in Military Women: a cross-sectional study.

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Author’s response to reviews:

Dear editor and reviewers.

Thank you for reviewing our manuscript and helping us to improve its’ quality. We have addressed your comments in the following. Amendments are also marked in the attached file Fit for fight[BMCrevised]. Some minor linguistic edits are also seen in the attached file.

Reviewer reports:

Michael Waller (Reviewer 1): This is an interesting and well described article. The main limitation is the description and presentation of the Hierarchical Multiple Regression modelling.
1. On page 10 the authors should perhaps describe that the Hierarchical Models were used to account for the longitudinal design of the dataset (more than one response for some people) and that robust standard errors were used because of clusters of responses from the same individuals(?).

We realize that the description of the study design is unclear. To make it clear that the current study used a cross-sectional design we have added “a cross-sectional study” to the title and revised the method section, page 6 line 136-140 to the following:

The current study has a cross sectional design utilizing survey data from 2015 and 2017. To maximize statistical power, we combined the two dataset into one study sample. A total of 18,947 unique individuals were invited to participate in one or both of these surveys, and 12,903 (68.1%) completed. If participants took part in both surveys, we only used their responses from 2017.
2. The section "Combined effects of age, gender, and military status" does not give any indication of the direction of association for each of these variables. Table 2 has the same problem. For example what does a negative coefficient of -0.71 for military status on drug use, actually mean? Please can these results be described in a way to allow a scientific or lay reader could more clearly understand the associations presented.

We have amended the aim and the result section to clarify the direction of the associations and to better explain the hierarchical model:

Aim, page 5 line 122-125:
We wanted to explore if the expected differences would be present in different age groups and examine if increasing age had a different impact on self-reported health in the three groups of military women, military men and civilian women.

Results, page 14 line 307-326:
The combined effects of increasing age, gender, and military status on self-reported health
Age (step 1) was an independent predictor of more drug-use, increasing BMI, less mental distress, and less physical activity, but was not associated with symptoms of post-traumatic stress. More specifically, a higher age was associated with more drug use and a higher BMI, but with less mental distress and physical activity.
Gender (step 2) added statistically significantly to the prediction of each outcome and being female was a statistically significant predictor of more drug use, lower BMI, more symptoms of mental distress, more post-traumatic stress, and more leisure time PA. Military status (step 3) added statistically significantly, but explained less than 1% of the prediction of less drug use, lower BMI and more leisure time PA.
The three variables age, female gender and military status together added statistically significantly to the prediction of drug use [...]. But, entering the interaction terms into the model (step 4) altered some of the associations to non-significant predictors. Step 4 (interactions) was statistically significant on BMI, mental distress and PTSD (Table 2). We found statistical interaction between age and gender for BMI and symptoms of mental distress (Figure 4) and no statistical interactions between age and military status.

Further, to make the effect sizes more easily available to the reader we did small revisions in the result section page 11 and 12 line 268 and 279.

Gunilla Sydsjö, PhD (Reviewer 2):
This is a well-written and interesting paper.
I have one concern and that is a discussion and a rational for not including pregnancy child bearing and reproduction into this paper. Investigation mental health defined in anxiety and depression symptoms a scientific view on the knowledge about women's hormones both during their reproductive period as well as women hormones and effects on life during menopause. That might have a great influence on both self perceived mental as well as physical health. I do suggest that the authors include this in both the introduction- as well as in the discussion section of their results.

Unfortunately, the study did not have the data on pregnancy, reproductive periods or any biological factors that could contribute to elucidate the findings. Still, we agree with the reviewer’s point of view and have amended sex-determined biological factors as one of the main explanations to gender differences in self-reported health in the background, page 3 line 79:
The exact mechanisms behind this pattern remain unclear, but some of the most common explanations are based on sex-determined biological factors, gender differences in reporting behaviour, and differences in male and female psychology regarding things like risk perception, illness definition, and coping strategies (2).

Further we emphasize the importance of this topic for future research in the discussion page 17 line 354 and we have amended the lack of data on biological factors as a limitation of the study, page 20-21 line 428-429:

The study lacked information about relevant biological factors, such as the women’s hormonal and reproductive status.

Minor
Also the readers should be informed about have a drop out and the reason for this.
We hope this concern is cleared out by the revision on page 6 line 136-140.

During the method section the inclusion of the civic group should be more clearly explained.
We have strengthened the text on civilian employees in the Norwegian Army, page 6 line 149-153:

Civilian women include women who were employed by the Norwegian Armed Forces in positions that do not require military training. Civilians may work in the Armed forces in a range of positions i.e. academic positions, engineering, human resources, law, economics etc. Civilian employees are not required to have passed military training, to have a military health certificate, or to wear a military uniform at work. Their education, training and salaries varies with their position.

We hope you find our revised manuscript suitable for publication and look forward to hearing from you again.

Sincerely

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