Author's response to reviews

Title: The prevalence of work-related stress, and its association with self-perceived health and sick-leave, in a cohort of employed Swedish women.

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Author's response to reviews: see over
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Dear Erik Alexandersson,

Thank you very much for showing interest in our paper and for the referee providing constructive comments on the paper “The prevalence of work-related stress, and its association with self-perceived health and sick-leave, in a cohort of employed Swedish women”. We have considered them all in detail and made revisions throughout the manuscript. Below you find the outline of the revisions made, along with some arguments concerning parts of the referee’s comments.

Our comments on review 1

1. Good point – have been changed

2. Page 6: The development of the Work Stress Questionnaire (WSQ) has been clarified with the following: “The instrument used was the Work Stress Questionnaire, developed from the qualitative study described above (17, 18). Two main themes were identified. One was related to factors at work and the other to the persons themselves. Categories were recognized and questions were constructed.” And with: “The items were evaluated by a pilot group, representing the questionnaire’s target group, who agreed to face validity of the questions and their content.”

3. Page 6: In order to clarify “work to leisure time interference” we have changed into a more straightforward expression: “work interference with leisure time”

4. Page 6: In the development of the questionnaire the response alternative has been translated to “less” to correspond with the Swedish response alternative. This response alternative and the translations are already established so unfortunately your suggestion is not possible.

5. Page 6: The following has been added: “The reliability of the questionnaire was tested by a non-parametric statistical method for evaluation of paired data. Values of the tests were throughout close to zero which indicates a high level of reliability of the analyzed items.”

6. Page 7: To clarify the dichotomisations the following was reformulated and added: “Confirmatory answers of the items within the category indistinct organisation and conflicts and individual demands and commitment were counted for every participant. In order to find enough exposure differences without having to compare the extremes, we chose to dichotomise at the upper quartile.”

7. Right. We have changed from “low self-rated health” to “poor self-rated health” and from “high self-rated health” to “good self-rated health”.


8. Page 9. We have changed and added “Self-rated health has been shown to be a good indicator of health, predicting morbidity and mortality in prospective studies.”

9. Page 12: We have added the following: “… OR remained almost unaltered and significant in all categories.”

10. Page 13. We have deleted “High workload appears to cause perceived stress”

11. Agree. Population is better.

12. We chose to only mention the number on disability pension, since the exact denominator is hard to define, the resulting percentage thus being invalid. There is also the age aspect to consider.

13. Page 5. We have reformulated the sentence: … fulfilled these criteria. Of these, nine women did not complete the work stress questionnaire and dropped out.

14. Agree. We have deleted the sentence

15. We have replaced as suggested: data not shown

16. Page 10: We find it more appropriate to present exact p-values so we prefer to keep them as exact p-values

17. Page 13: To clarify “Two British studies” have been added

18. Page 14: Good suggestion, we moved the sentence to the conclusion section

19. Some revision of the discussion has been made to minimise unnecessary repetition

Our comments on review 2

- We mean that the added values of this study are a general population sample of employed working women with several types of occupations, work-places and employers. Few studies have addressed the prevalence of different types of work-related stress in such a general population of women, and have not, to our knowledge, scientifically been presented to a larger extent. This study is part of an existing longitudinal population based study, “The Population Study of Women in Gothenburg, Sweden”, so further prospective studies are possible and will be made in the future.

- We agree that it is an advantage to use existing questionnaires if available. However, the established questionnaires within this field are also prone to difficulties. The job demand-control model was developed during the 1970’s among industrial workers and the Effort-Reward Imbalance Model has its origin in explaining the relationship between work stress and cardiovascular-related outcomes. Unlike those questionnaires, the WSQ was developed specifically to address sources of stress and perceived stress associated to health-related work ability and sickness absence.
Furthermore, research has shown gender differences in the responses to those established questionnaires, especially so when it comes to active jobs. In our opinion, the advantage with the WSQ is that it combined both environmental and personal work characteristics, and distinguishes between the occurrence of negative work characteristics and the immediate perception of stress related to these characteristics.

- We agree that comparisons between women and men are important, but due to the occupational gender segregation, with women in education, social service, health and child-care, and men in technique and construction, separated studies focusing in specific characteristics for women and men also are needed. This study is an attempt to contribute to the development of such studies. As noted cross-sectional studies have limitations regarding cause of conclusions. However, in this important field of public health, studies of prevalence and associations are needed, and cross sectional analyses of associations. As mentioned above, longitudinal studies are planned.

Methodological concerns:

- Since this is the first study with this instrument, the findings strengthen the validity of the instrument. We would rather interpret this as support for the validity of the WSQ.

- In developing the WSQ, face validity was tested by performing a pilot group study addressing the target group of the instrument. The items and scales were developed in close co-operation with the pilot group. They suggested certain response alternatives, and in order to reach as good a test-taking attitude of the questionnaire as possible (18) we decided to use their suggestions. The instrument consists of three different scales with answers on either a four-point or three point ordinal scale (no five –point ordinal scales have been used). In order to define overall work-related stress we dichotomized the answers. To clarify the development of the WSQ the following has been reformulated and added on page 6: “The instrument used was the Work Stress Questionnaire, developed from the qualitative study described above (17, 18). Two main themes were identified. One was related to factors at work and the other to the persons themselves. Categories were recognized and questions were constructed.” And with: “The items were evaluated by a pilot group, representing the questionnaire’s target group, who agreed to face validity of the questions and their content.”

- In the development phase of the questionnaire we have rationales for holding on to grouping the items: one was the idea of relying on and remaining close to the empirical findings in the qualitative study (17), the other was to find a reasonable way
to operationalize the instrument. We agree that these considerations have to be further developed in future studies.

- This study is part of a longitudinal population based study – “The Population Study of Women in Gothenburg, Sweden”. The study was initially designed to study changes during menopause concerning cardiovascular diseases, hormonal changes and changes in body composition. Thirty-eight-year-old women were chosen because they represented a pre-menopausal group, and the 50-year-old women because they represented a peri-menopausal group. Cohort comparisons have been carried out in 1968-69, 1980-81, 1992-93 and now 2004-05. In this study no specific questions were addressed related to the two specific age-groups and analyses were only made to make sure that age was not a confounder in this study. To clarify this we have reformulated on page 5: “This cross-sectional study of women aged thirty-eight and fifty was part of a longitudinal population based study – “The Population Study of Women in Gothenburg, Sweden”. The two-cohort design has been aimed to capture two important stages in women’s life. Cohort comparisons have been carried out in 1968-69, 1980-81, 1992-93 and now 2004-05”.

- We agree that it would have been of interest to explore more of the complexity of sickness absence and we do have access to more sick-leave data. However since the sick-leave group was small and constituted solely of 30 women, we did not find it meaningful to perform further analyses.

- We agree that family factors such as domestic strain can be confounding. We had an idea that the younger women may have a spill over from stress due to a larger total work load but, as presented, no differences were found between age groups concerning exposure to work-related stress. We did analyse if exposure to work-related stress differed according to the number of children living at home, which was not found.

Our comments on review 3

1. Page 3: We have clarified in the manuscript that we meant sickness certification diagnoses. Stress reaction is one of the sickness certification diagnoses, but it is a small group and of minor importance since all different types of psychiatric diagnoses have risen (Hensing et al, 2006, BMC Medicine).

2. Page 5: The longitudinal study is a 36-year follow up study of the Population Study of Women in Gothenburg, studying secular trends in 38- and 50-year old women. The
study was initially designed to study changes during menopause concerning a.o. cardiovascular diseases, hormonal changes and changes in body composition, why 38-year-old women were chosen because they represented a pre-menopausal group and 50-year-old women represented a peri-menopausal group. Cohort comparisons have been carried out in 1968-69, 1980-81, 1992-93 and now 2004-05. To clarify this we have reformulated on page 5: “This cross-sectional study of women aged thirty-eight and fifty was part of a longitudinal population based study – “The Population Study of Women in Gothenburg, Sweden”. The two-cohort design has been aimed to capture two important stages in women’s life. Cohort comparisons have been carried out in 1968-69, 1980-81, 1992-93 and now 2004-05”.

3. Page 6: The reliability and validity procedure of the WSQ has been clarified with the following: “The instrument used was the Work Stress Questionnaire, developed from the qualitative study described above (17, 18). Two main themes were identified. One was related to factors at work and the other to the persons themselves. Categories were recognized and questions were constructed.” And with: “The items were evaluated by a pilot group, representing the questionnaire’s target group, who agreed to face validity of the questions and their content.” And with: “The reliability of the questionnaire was tested by a non-parametric statistical method for evaluation of paired data. Values of the tests were throughout close to zero which indicates a high level of reliability of the analyzed items.”

4. Page 7: To clarify the dichotomisations the following was reformulated and added: “Confirmatory answers of the items within the category indistinct organisation and conflicts and individual demands and commitment were counted for every participant. In order to find enough exposure differences without having to compare the extremes, we chose to dichotomise at the upper quartile.”

With best regards,
Kristina Holmgren

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