Author's response to reviews

Title: A single item stress measure as a predictor of severe injury: a prospective cohort study of 16,385 forest industry employees

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Author's response to reviews: see over
Dear Editor,

We were pleased to learn that you encouraged us to submit a revised version of our manuscript (MS 1973882951029258). We feel that the editorial comments and the comments that were provided by the two reviewers dealt with important issues, leading us to revise the manuscript in accordance with those comments.

Please see below for a point-by-point response to concerns raised by the reviewers. We have highlighted all new text in the revised manuscript. We hope that our response adequately addresses all the concerns raised.

We look forward to hearing from you.

Sincerely,
The Authors

Editorial comments:

The editor asked us to give an indication of how long the effect lasts. The proportional hazards assumption was tested using the method of Lin and Wei, in which the observed score process is compared with the simulated score process for each covariate. The p-value was obtained by performing a Kolmogorov-type supreme test. We performed 1000 simulations for these tests, and the maximum absolute value for intermediate stress was 1.38 and for high stress 0.74. Because all p-values were >0.05, we can assume that the hazard was stable throughout the follow-up. (See page 7.)

Reviewer 1

1. The flow diagram depicting the number of potentially eligible participants, the number of eligible participants, the number of participants who completed the questionnaire, and the number of participants who were excluded due to missing data or previous injury is now presented in a new Figure 1.

2. The reviewer is correct that in the present study we examined the relationship between stress and injury adjusting for known confounders. We have now corrected the terminology throughout the manuscript and do not use the term predictor anywhere in the text. We are also happy to amend the title if requested.

3. A comparison of the demographic characteristics of the final analytic sample and the missing population is now presented at the end of the first paragraph of the results section (page 8).

4. Based on the reviewer’s helpful comment, we have amended the description of the results presented in Table 4 and now write as follows:

"Table 4 shows that the employees who experienced high stress at both measurement points with a four year interval had more than a 1.7 fold risk of severe injury during the follow-up (HR 1.74; 95% CI 1.01-2.99, in Model 2). This result attenuated slightly and became non-significant when physical work environment was included into the model (HR 1.65; 95% CI 0.96-2.84)." (page 9)
5. Following this important point made by the Reviewer, we have re-written Discussion and amended Abstract accordingly, focusing on the results presented in Table 2. Please see the revised Abstract and pages 10-11.

6. We have moved the description of the demographic characteristics of the cohort from the Methods section to the start of the Results section.

7. We merged the first and the second, and the fourth and the fifth category as the numbers of participants in categories 1 and 5 were very small (page 5).

8. The two-year period for exclusion of injury cases is based on the assumption that an older injury, that is, an injury experienced more than 2 years ago, would not anymore affect the new injury risk (page 6).

10. The reviewer queried about the reasons for including these particular confounders. These confounders were selected because they have been associated with injury risk in earlier studies as references 8 (Salminen) and 9 (Cheung) showed. This point has now been added to methods section (page 7). In addition, the identical set of confounders has now been adjusted for in all analyses (tables).

12. The fact that the number of injuries among those who reported high stress at two measurement points was very low has now been noted in Discussion (page 11).

13. See our earlier Response #1.

14. The reviewer suggested to present the results by injury type. Unfortunately our data did not allow that.

15. The reviewer asked us to present the strengths of the study. We have now added these to the same paragraph as limitations and consequently changed title of this section to “Strengths and limitations” (pages 11-12).

Reviewer 2:

1. We have now spelled out the acronym HR and specified that the number of cases refers to the number of injury events in Table 1. In addition, based on the reviewer’s comment, the values in Table 1 were checked. HR values for age (1.03) and gender (1.68) and their CIs were corrected, but the p-value for age was correct (0.63).

2. Using data from the “Still Working” cohort, Ahola and her co-workers [18] showed that occupational burnout increased the risk of injury. It is not surprising that our results are in line with that study, because burnout is a chronic work-related stress syndrome. However, we used a larger dataset and had a longer follow-up period, and we measured stress in general rather than just work-related stress. Taken together, it seems that both severe work-related stress and general non-specific stress can lead to an increased risk of severe injuries that require hospital treatment. (page 11)