Reviewer's report

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

Version: 1 Date: 28 December 2013

Reviewer: Nadine Andrew

Reviewer's report:

This is an interesting study that examines the association between self-reported stress and serious injury using linked occupational questionnaire data and hospital data. Of particular value is the prospective nature of the study, performed in a large population. However, there are a number of factors that need to be addressed.

Major Compulsory Revisions

Methods

1. Page 6 paragraph 1: This section should be presented as a flow diagram at the beginning of the results. The flow diagram should show the number of potentially eligible participants, number of eligible participants, number that completed the questionnaire, number excluded due to missing data, previous injury etc. This is important for assessing the generalisability of the data and sources of potential bias especially in regards to the number of participants with missing data.

2. Page 7 paragraph 2 Statistical analysis: Inconsistent terminology has been used throughout the manuscript to describe the type of multivariable modelling used. There are two ways of modelling: these types of data: 1. Predictive modelling, in which a range of factors are included in the model to determine factors are most associated with the outcome of interest and; (2) modelling in which the association between a specific risk factor and an outcome are examined and adjusted for known confounders. It is the second method that is reported in this study i.e. the authors have examined the association between stress and subsequent injury and adjusted for a range of confounders. On this basis the so called predictor variables are confounding variables and the study has shown that stress is independently associated with injury (not a predictor of injury).

Results

3. A comparison of the demographic characteristics of those that did or did not respond to the survey, including those excluded due to missing data should be provided.

4. The results from table 4 should be interpreted with caution. Four models were run to show the impact of including various confounders on the hazard ratio between stress and injury. The final model, which includes all of the confounders, should be the definitive model when reporting whether or not there is an
association between repeated exposure to stress and being hospitalised for injury. On this basis there is no significant association between repeated exposure to stress and sustaining a serious injury. Although though the hazard ratio is large the wide confidence intervals and lack of statistical significance means that these results are likely subject to type 2 error.

Discussion

5. The discussion is overly brief and the focus on the association between repeated stress and injury, derived from a partial model and not the full model (see comment above), is misleading. This is also the case in the abstract. It is the results from table 2 that are most robust and showed a significant 30-40% increase in injury risk for all three models in high stress compared to those with low stress. This should be the focus of the discussion.

Minor essential revisions

Methods

6. Page 4 Paragraph 2: Demographic characteristics of the cohort should be presented in the results section of the manuscript.

7. Page 5 paragraph 3: The authors state that the stress measure has been validated for survey research. Has it also been validated for the subcategories used in the study? If not on what basis were the low, intermediate and high sub categories decided.

8. Page 6 paragraph 2: Please provide a reference, or justification for why a 2 year wash out period was chosen for the exclusion of hospitalisation due to previous injuries.

9. The last three lines of this paragraph should be reported in the results section.

10. Page 7 paragraph 3: On what basis where the confounding variables chosen for inclusion in the model? Also, the model in table 3 included a different set of confounder variables to the model in table 2. Why?

11. It is not clearly explained how the repeated exposure to stress was measured? In paragraph 2 of the methods the authors state that those that had responded in previous years were excluded in the subsequent years so that only the first questionnaire completed by each participant was included. I assume that table 4 results refer to a nested cohort of participants that completed the questionnaire at two time points? Please clarify this in the methods

Limitations

12. When data were analyses for those with measurements over two time points results may be limited by small sub group numbers (n=14 injuries).

Discretionary Revisions

Methods

13. Page 4 Paragraph 2: The data presented in this paragraph would be better presented as a flow diagram.

Results
14. It would be interesting to see the results broken down by injury type eg, occupational, motor vehicle, home/leisure injuries.

Discussion

15. The strengths associated with the prospective nature of this study should be emphasised.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests