Reviewer’s report

Title: Predictors of physicians' stress related to information systems: A nine-year follow-up survey study

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Reviewer: Lena Ansmann

Reviewer’s report:

The authors study associations between physicians' stress factors and their stress related to information systems using a sample of Finnish physicians surveyed in 2006 and 2015. All in all, it is an interesting manuscript emphasizing the relevance of stress factors in physicians. Nevertheless, there are some major issues regarding the theoretical concepts, the methods and the language, which need to be resolved before a potential publication.

1. General: The manuscript needs a thorough proof reading from an English native speaker, since it is not smooth and easy to read and has some major grammatical errors.

2. General: The authors use a lot of abbreviations and terms for somehow the same thing: HER, IS, HIS, ICT… could the authors be clearer about the differences or stick to only one term?

3. Background: unfortunately, to me the manuscript makes the impression of someone finding data and making the best out of it by simply trying out statistical models and not referring to conceptual models and theory. A conceptual model of physician stress factors for example or a stress theory from which the study would be derived, would be very useful. But I am not sure that can be done retrospectively now …

4. Background and discussion: since there is no conceptual framework, the background and discussion do not have a clear focus, but go from one topic or result to the next without aligning them. Also, causal directions of associations between the many factors in the models are unclear for the reader. Please try to give it a better and more connected/coherent structure.

5. Background: in the first paragraph workload and cognitive demands are introduced as consequences of IS, but in the statistical models they are treated as predictors of IS stress. Please comment on that.

6. Methods: Since the authors do not take up private vs. public care in their models, I think the section on the Finnish healthcare system can be skipped. The section on the EHR adoption can be interesting in this context, but does belong to the background section in my view.
7. Methods: I assume that all measures except the one from Oldham and Hackman were self-developed in 2006. I must say that I have concerns about the reliability and validity of the measures. Has there been a validation of these measures beyond the calculation of internal consistency? Have factor analyses or structural equation modelling tested the structure of the scales? Since many items encompass several statements and concepts (e.g. distracted, worried or stressed), I doubt that the respondents had a common understanding of them and a common response pattern. One of the central rules of survey design is not to include more than one concept in one item. Why did the authors not make use of internationally established validated measures? At least, I would disagree that the measures are well-known and validated (as written in the discussion), right?

8. Methods: Also, is there a reasoning for not using all items from 2006 in 2015 again? This is of course a limitation.

9. Methods: the information on the structural equation model are very limited and require more detail.

10. Methods: What type of regressions were performed? Linear? What about the R² of the models? Why stepwise models? What is the conceptual reasoning behind the steps?

11. Results: How many missings did the variables in table 1 have? How did the authors treat missings? Listwise deletion? Imputation?

12. Results: the results of the SEM are not sufficiently presented. A figure of the model with the loadings etc. is needed and also a table with the standard fit indices. In the SEM the authors must have had a look on the factor structure of the scales. Doesn't that provide information on the scales? (see 7.)

13. Discussion: my concern is that the associations between the stress factors as predictors and the SRIS do mostly reflect common method bias or the general tendency of increasing stress in physicians throughout the last years. Also, the use of IS in healthcare and the associated burden has changed from 2006 until 2015. This will definitely affect the results, but has not really been mentioned or discussed. The changes in IS use for example could have been assessed in the survey as well in order to control for it.

14. Discussion: burnout and other health consequences are mentioned here, but have not been included in the model. That would be very interesting. Does the survey cover these topics?

I hope my comments help to further improve the manuscript.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No
**Does the work include the necessary controls?**
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Unable to assess

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