Reviewer’s report

Title: USER TESTING OF AN ADAPTATION OF FISHBONE DIAGRAMS TO DEPICT RESULTS OF SYSTEMATIC REVIEWS

Version: 0 Date: 01 Aug 2017

Reviewer: Karin Binder

Reviewer's report:

Summary

This manuscript describes a comparison between summarizing finding tables and fishbone diagrams for systematic reviews. Since a lack of understanding risks and chances of screenings and medical tests could lead to overdiagnosis, overtreatment or even suicides of patients, the examined research question is very important. As far as I know, this is the first time such a comparison was performed and the research idea and results are interesting. The manuscript is well written and the results are well presented. However, I have some major and minor comments to the authors of this paper, which you will find in the following:

Major points:

(1) Background: Please make clearer, why your research question is so important. One argument would be that, unfortunately, most people are not able to understand or combine statistical information correctly. The resulting misjudgments can have severe consequences, like overdiagnosis, overtreatment or even suicides of patients (Stine, 1996; Wegwarth & Gigerenzer, 2013). Therefore, the presentation of benefits and risks of medical test, forms of treatments or screening methods (like the described mammography screening) is crucial for physicians, medical students and patients.

(2) There are other possibilities to present chances of risks of screening methods that should also be mentioned in your manuscript, e.g., fact boxes and icon boxes, developed by the Harding Center for risk literacy (e.g., McDowell et al., 2016).

(3) What is the target population of the developed fishbone diagram? Should it be helpful for practicing doctors or for the education of medical students or for risk communication to patients? Please clarify this point in the manuscript.

(4) In my opinion, the three items (or four items? What about Q3.2.?) for measuring "the ability to find and interpret critical information" should already be presented within the manuscript (page 8) and not in the supplement, because in your study it is crucial to understand, how this
ability is measured. This dependent variable should also be mentioned in the abstract (in the paragraph "method"). For the supplement, the results of the single items, which measured "the ability to find and interpret critical information" would be interesting.

(5) Discussion: Please, point out some new ideas for improving the fishbone diagram (or the summary table) to increase participants' performance (page 17). One idea might be, to minimize the information in the fishbone diagram, e.g., is the presentation of RR helpful to understand possible risks and benefits of the mammography screening?

Minor points:

(1) If the fishbone diagram should be presented to patients, I think this diagram might be psychologically unfavorable: It presents a dead fish and this might trigger the feeling of increasing the probability of dying without a mammography screening. One solution might be to provide an even more schematic representation.

(2) Inconsistent notation of "user-testing" (vs. "user testing") in the manuscript

(3) Side note: Another possibility to provide a summary of finding tables of benefits and risks (compared to Table 1) would be, to present "risk with no intervention" vs. "risk with intervention" (instead of "risk with no intervention" vs. "risk difference with preoperative treatment for anemia"). Maybe the first variant is easier to understand.

(4) Discussion/Conclusion: Please point out the relevance of appropriate presentations of benefits and risks of medical treatment (cf. Major point (1)).

References


Wegwarth, O., & Gigerenzer, G. (2013). Overdiagnosis and overtreatment: evaluation of what physicians tell their patients about screening harms. JAMA internal medicine, 173(22), 2086-2088.

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

Yes
Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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Please indicate the quality of language in the manuscript:

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