Reviewer’s report

Title: Evaluation on Intervention Effects of Work-related Musculoskeletal Disorders among School Teachers

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Reviewer: Johannes R Anema

Reviewer’s report:


This study presents the results of an education and training intervention aimed at reducing musculoskeletal disorders (MSD) among school teachers in China. We agree with the authors that MSDs are a problem among the working population in developed as well as developing countries. Therefore, this article addresses a relevant and important topic in occupational and public health. However, we do have some major and minor concerns about this study that the authors need to address.

Major Compulsory Revisions

Abstract
1. The authors mention this study as being a self-controlled study. However, as the authors later discuss themselves, no control group was used in this study. Pre- en post-measurements were performed in longitudinal setting. Thus, the design of this study is not a self-controlled design.

Methods
2. This article reports merely on descriptive statistics, and does not address exposure effects of the intervention. Based on the described methods, it is impossible to make conclusions regarding the effectiveness of this strategy. There are some issues the authors should address, including:
   • Which statistical analyses were applied to assess the effects?
   • Why was no control group used?
   • Which groups were compared in the analyses (as described in this article)?
   • How many teachers actually received the intervention?
   • Why was no exposure effect measured between teachers receiving the intervention and teachers not receiving the intervention?
   • Were any confounders and/or effect modifiers taken into account?
   • Why did the authors rely on merely self-reported data? As the authors describe, sick leave and absenteeism (among others) are important in WSMDs in school
teachers. Why were no objective measures taken to assess sick leave and absenteeism?

Discussion
3. The authors should discuss their results, and the strengths and limitations of their study in more detail. Also, it should be made clear how these results relate to existing knowledge.

Conclusion
4. The authors conclude that they demonstrated the effectiveness of their intervention program. However, due to the design and statistics performed, this conclusion cannot be drawn from this study.

Minor Essential Revisions
General
5. We advise that the authors consult a (native) English speaker regarding spelling and use of terms.
6. Figures were missing correct labelling/titles.

Methods
7. Authors should describe the selection and recruitment of participants more clearly.

8. The authors mention follow-up rates for 6 and 12 month post-measurement interventions. Their 6-month follow up rate is expressed as a percentage of the initial number of subjects included. However, their 12-month follow up rate is expressed as a percentage of the subjects remaining at 6 month follow-up. This is unusual and confusing; 12-month rate should also be expressed as a percentage of the initial number of subjects that were included (i.e. 350 teachers).

9. The process of validating the questionnaire is not entirely clear and should be described in more detail. This is important in assessing the quality of the results.

10. It is unclear who provided the occupational health education lectures and on-site ergonomics training. This is important information when assessing the quality of the provided intervention.

11. It is not described how the 12-month follow-up measurement was performed.

Background
12. Authors describe the following goal of the study: “Our goal is to present evidence-based prevention strategies for school teachers that will assist in ultimately reducing these potentially career-threatening injuries.” This description implies that the article will give an overview of prevention strategies. However, it describes merely one intervention strategy, designed for this particular study. It would be good if the authors could describe more strategies using literature. Also, the authors might consider formulating their goal in a different way that
suites the content and design of their study better.

Results
13. Authors describe the results referring to the question numbers used in their questionnaire. This is uncommon and inconvenient for the reader. Rather, the authors should describe their results more clearly and refrain from referring to question numbers.

14. It would be good if authors presented their main results in one overall and easy accessible/readable table.

Discretionary Revisions
General
15. The authors could consider a title that suites the content of the study and this article better, and that makes clear the population of this study was limited to a province in China.

16. It would be good if the authors considered adding extra literature references, clarifying for example the quantity of the MSD problem, and why school teachers are at higher risk for developing MSDs. Also, some points miss literature reference, for example referring to the work of Santos et al. (Background, 1st paragraph, line 67).

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

Quality of written English: Not suitable for publication unless extensively edited

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

Declaration of competing interests:
Both reviewers declare that they have no competing interests.