Reviewer’s report

Title: Cross-sectional associations between occupational factors and musculoskeletal pain in female teachers, nurses and sonographers

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Reviewer: Eda EM Merisalu

Reviewer’s report:

The topic of the study is interesting and consists of systematic information about work related and individual factors and ergonomic measurements at work place. The prevalence of musculoskeletal pain were explained with help of questionnaire. Based on health examination the musculoskeletal disorders have diagnosed in shorter study group. Six tables and 2 figures are illustrating the results of study.

The autor group has good experience on earlier population studies, working out several ergonomic indices, whereas some of them have used in the present study as mechanical exposure index (MEI) and physical exposure index (PEI), giving weight on this study.

General comments

Abstract – the aim is not clear about the justification of the study, and need to harmonise with the aim in the context (end of background). Quite a lot the results and discussion have focused on disorders when not actual aim of study.

Methods – the study design is well structured but in some parts not so easily accessible to the reader. Need for more information about the technical measurements.

The study population – not clear why teachers included into the study. Although work tasks are well described, teachers’ work in essence different from clinical work.

Long period of carrying out questionnaire study and difficult technical measurements are problematic.

Discussion - First paragraph of the study needs to relate more to the aim of the study. You report on results that were not in the aim of the study.

Conclusions. Although the occupational groups are differently affected by risk factors and pain regions the description of particular protective measures remain too general.

Specific questions

1. Is the question posed by the authors well defined? Yes/No

The aim in the abstract differ from the aim postulated in the context.

Page 119. This study aims to explore which factors that are associated with pain in common
20 occupations with low or medium physical workload, as a knowledge basis in preventive
21 actions.
73 …to ascertain the prevalences of musculoskeletal pain in the neck, 
74 shoulder, hands, low back and feet in females with varying/different occupational 
75 exposures, and to explore the associations between musculoskeletal pain and the 
76 physical workload, psychosocial work environment and personal factors.
Please define the aim in the both sections (abstract on the page 1 and context page 3) more clearly that it is unequivocal for readers.
2. Are the methods appropriate and well described? Yes/No 
The methods are nicely described and referred on the authors.
The 5-years period of measurements via guestionnare stydy is too long - (2008-2012). Although the authors stress that „the dispatches of questionnaires alternated between the various employee categories…“, not convincing argument.
page 4: In order to avoid that the results would 
99 be affected by major changes in society, the dispatches of questionnaires alternated 
100 between the various employee categories; i.e. we began with a surgery department, then 
101 a school, then some sonography departments and then another surgery department, and 
102 so on. 
Many changes are taking place during 5 years in the society.
Surprising, why the authors included teachers into the study. Although the authors used teachers as the reference group, the analysis could be better when only the medical occupations have compared.
3. Are the data sound? Yes/No 
The data are very interesting but so many measurements are included into one article.
4. Do the figures appear to be genuine, i.e. without evidence of manipulation? Yes/No 
The figures are not numbered and not titled. There is difficult to get evidence, is the figure 2 figure or table. Reading of the figure 2 is quite complicated.
5. Does the manuscript adhere to the relevant standards for reporting and data deposition? Yes/No 
Page 4, line113 the authors argue that „Personal characteristics are given in
The topic of the study is interesting and consists of systematic information about work related and individual factors and ergonomic measurements at work place. The prevalence of musculoskeletal pain and diagnoses in different body regions have reported. The ergonomic indices (mechanical exposure index (MEI) and physical exposure index (PEI)) have used in the study. It is a strength.

Recommendations

Major changes advised: to make new statistical analysis without the teachers’ group;

Moderate essential revisions:
1. To harmonise the aim in abstract and context.
2. To describe the results of the table 6 in the text;
3. To change the order of data in table 1, moving personal data on the first place and then physical work load and psychosocial factors, it’s better to follow them.
4. Tables 3, 4, 5 - to add in which time (in past 12 months or last week) the pain was measured. The assessment time is needed to mention in the results and titles of the tables.
5. To add titles to the figures (Fig 2 or table?). The figure 2 need better description.
6. Language corrections are advised.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

'I declare that I have no competing interests' below.