Reviewer’s report

Title: The relation between body mass index and musculoskeletal symptoms in the working population.

Version: 4 Date: 2 May 2013

Reviewer: Rahman Shiri

Reviewer’s report:

The manuscript has been improved very much. However, the results of this study do not support an interaction between physical load and BMI on the risk of musculoskeletal symptom. The analysis of follow-up data did not confirm an effect modification by physical load. Moreover, the additional results (Appendix 1) do not show an interaction between physical load and BMI.

Major Compulsory Revisions

1) Presence or absence of exposure to physical load factors was defined based on force and awkward postures only. Using vibrating tools and exposure to repetitive work tasks were ignored.

The results of Appendix 1 do not support an interaction between physical load and BMI.

Exposure to a physical load factor was a risk factor of musculoskeletal symptom independent of overweight/obesity. Both overweight and obesity were associated with musculoskeletal symptom independent of physical load factors with a dose-response relation. The joint effect of physical load factor and overweight/obesity was additive only.

Such results do not produce a significant interaction after including product term of BMI (3 groups) x physical load (2 groups). With a large sample size, both independent and joint effects could be significant. The authors would specify how the product term of BMI x physical load was included in the model. Was BMI included as a 3-category variable? Was only joint effect significant?

The study had a higher power for exploring the association between BMI and musculoskeletal symptom in those with no exposure to physical load factors (N=31,623) than in those with exposure to a physical load factor (N=8,897). The prevalence of overweight/obesity as well as that of musculoskeletal symptoms was not compared in those with or without exposure to physical workload. The differences could be due to low power of study in those with exposure to a physical load factor. Moreover, using vibrating tools and repetitive movements were not defined as exposure to physical load factor or the results were not controlled for using vibrating tools and repetitive movements.

If the authors would like to keep the results of Table 3, it is necessary to modify this table: 1) to add the results of product term of BMI (3 groups) x physical load
(2 groups) to this table and control also for using vibrating tools and repetitive movements, 2) to add the number of normal weight, overweight or obese subjects, and 3) to add the prevalence of musculoskeletal symptom for normal weight, overweight or obese subjects.

Minor Essential Revisions

1) Upper case letters of the reference 18 need to be corrected.
2) The last sentence of the Discussion: musculoskeletal symptoms were dependent variables, not independent variables.

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

Quality of written English: Acceptable

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.