Reviewer's report

Title: Musculoskeletal symptoms of the upper extremities and the neck: Assessment of prevalence and analysis of symptom-predicting factors at visual display terminals workplaces in a cross-sectional study

Version: 1 Date: 8 November 2007

Reviewer: Julius Sim

Reviewer's report:

This study explores an interesting aspect of occupational neck and upper limb pain. I thought that some of the statistical analysis lacked clarity, however. I also could not understand the rationale for the selection of predictors in the final model. I also felt that the discussion could be developed in some respects (e.g. discussion of psychosocial factors).

Page 1
i. Title: VDT should be given in full.

Page 3
ii. Background: I feel this would benefit from an introductory sentence setting the scene, before reporting the literature search.

iii. I think ‘Aim of this study’ would be a better sub-heading.

Page 4
iv. I would refer to a ‘workstation’ rather than a ‘workplace’ – the latter tends to be used for a ‘place of work’ (e.g. office, factory, shop).

v. I think you probably mean ‘currently’, not ‘actually’. The temporal sense of ‘aktuell’ does not carry across to ‘actual’.

vi. They received ‘advice’, not ‘advices’.

vii. If a 95% CI for a percentage is based on an approximation, would this not be a normal approximation?

viii. Although it is implicit in the choice of 95% CIs, it would be good to state explicitly that alpha was set at p # 0.05 (two-tailed).

Page 5
ix. As there was a single outcome variable (but multiple predictors) within each model, these were ‘multivariable analyses’, not ‘multivariate analyses’.
x. Maybe refer to ‘categories’ rather than ‘modules’.

xi. What is a ‘pseudo-correlation’; what is a ‘base confounder’? I don’t think this is usual terminology.

xii. What does ‘adjusted to individual significant factors’ mean? Do you mean that only the statistically significant factors were selected from the possible predictors in a particular category?

xiii. What do you mean by ‘they were reduced by the factors that correlated strongly with each other’? Do you mean that where collinearity was identified, one or more of the variables involved in the collinear relationship was removed? If so, how was collinearity assessed – e.g. what level of association led to a conclusion that variables were collinear?

xiv. I think you mean that the important factors were ‘fulfilled’, not ‘given’.

xv. For the mean age and mean VDT use, give the s.d.s as well.

xvi. When reporting symptom prevalence in the 3rd paragraph, make it clear that these are figures for the whole sample, so that readers can reconcile them immediately with the bottom row in Table 3.

xvii. 4th paragraph: you should establish the abbreviation ‘OR’ when ‘odds ratio’ is first introduced under ‘Statistical methods employed’. Note that it should be ‘odds ratio’ (as on page 4) not ‘Odds Ratio’ (as here) – but ‘OR’ is of course fine as the abbreviation. If you wish to quote the p values for individual factors, with the exception of ‘p < 0.001’, I would suggest exact p values rather than ‘p < 0.05’, ‘p < 0.01’.

xviii. Am I reading this correctly? Did you determine a single set of predictors for all the regions (neck, shoulder etc) based on significant predictors for the individual regions? If so, this would mean that the final model for a particular region might include a predictor on the basis that it was significant in a model for another region, but not in respect of the region concerned. Why was the choice of predictors for the final model not specific to the region concerned? If there was a particular rationale for this approach, it should be given.

xix. The range of values of the Nagelkerke pseudo R-squared statistics is stated in the discussion, but these statistics should be stated explicitly for each model in the results section.

xx. Looking across the final models across the four regions, some of the ORs, and their lower confidence limits, are very close to unity; their statistical significance is largely attributable to the large sample size. The magnitude of the associations needs to be discussed.

xxi. I had understood that age and sex were control variables in the analyses, but
age does not appear in Table 5. As a control variable, it should be presented in the model (irrespective of its significance).

xxii. You refer to ‘sex’ in the text, but ‘gender’ in Table 5. In this context, ‘sex’ is probably the better term.

Page 7

xxiii. 2nd paragraph: as the outcome was dichotomous, I would refer to ‘association’ not ‘correlation’.

xxiv. The offer ‘to undergo’, not ‘to underwent’.

xxv. Please state the magnitude of the difference in the percentage of women in the subgroup, compared to the total sample.

Page 8

xxvi. The symptoms were ‘more prevalent’, I think, not ‘more pronounced’ (which would suggest the intensity of the symptoms, not their frequency).

xxvii. I think the role of psychosocial factors should be discussed more fully, and related to other empirical studies. In general, a broader range of occupation medicine literature could be drawn upon in the discussion, I feel. I think possible biases connected with the use of a cross-sectional design to gather information on recalled symptomatology could be explored in more detail in relation to the study, and any attempts to minimize such biases could be explained and evaluated.

xxviii. In the tables, figures and legends there seems to be inconsistent us of ‘N’ and ‘n’. Generally speaking, ‘n’ is best when describing samples or subsamples, with ‘N’ reserved for populations. Probably the only place where it might make sense to use ‘N’ would be in Figure 1, for ‘total employees’

Page 15

xxix. It is normally recommended that the limits of a CI are separated by a comma, not a dash.

Page 16

xxx. The meaning of the bold font needs to be explained in the legend to the table.

xxxi. The rows in table 6 seem to be labelled the wrong way round.

xxxii. The differential shading in Figure 6 needs adjusting – the two shades are too close. Why not just have shaded vs unshaded?

xxxiii. Figure 4. A bar chart is an inappropriate display for a point estimate of an OR and CI. This needs to be an error plot. Shading is redundant, as the vertical
axis identifies the categories.

xxxiv. Figure 7. Although an argument could be made for a bar chart to display these prevalences, as the emphasis is on the point estimate and the CI, an error plot would again be better. I think this figure is referred to as ‘Table 7’ on page 8.

**What next?:** Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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

**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.