Reviewer’s report

Title: Does a dose-response relation exist between spinal pain and temporomandibular disorders?

Version: 1 Date: 3 October 2008

Reviewer: Eduardo Bernabe

Reviewer’s report:

Major Compulsory Revisions

My major comments on this report relate to the statistical approaches selected to analyse data. Although the study set out to assess the dose-response relationship between two clinical conditions (SP and TMD), no formal test for assessing such a relationship was used. Therefore, I would suggest authors improve statistical analysis before considering further their manuscript for publication. The authors are advised to seek for statistical supervision in order to get the full information from their otherwise methodologically well-performed study. Specifically, the two aspects that need to be checked regarding statistical analysis are:

The first aspect relates to the prevalence of TMD/SP reported for each of the 4 groups of participants (for example, from 13% for SP-0 to 48% for SP-3 group). It seems that authors are reporting unadjusted prevalence figures, even though they reported OR's controlling for some covariates (sex and age). OR's are measures of association, which is not the aim of this study. Since this study compares the prevalence of TMD/PS across groups, I would suggest using Prevalence Ratios (PR) rather than Odds Ratios (OR) in order to get properly adjusted prevalence figures and their corresponding confidence intervals.

And the second and most important aspect is the lack of a formal test for the dose-response relationship. In using OR's, the authors compared the probability of reporting TMD/SP symptoms across 4 ordered groups. However, by this approach the authors only compared the chances of reporting symptoms for each individual group (i.e., SP1, SP2 or SP3 and TMD1, TMD2 or TMD3) against the reference groups (SP0 and TMD0). Despite OR's increased gradually from the reference group to the group with the most frequent/severe symptoms, there are no statistical comparisons between the 3 groups with SP/TMD symptoms (i.e., SP2 against SP1 or SP3 against SP2, TMD2 against TMD1 or TMD3 against TMD2). Indeed, these omitted comparisons would have provided authors with useful information on any linear or non-linear trend (the dose-response relationship authors were interested since the beginning). I could see some overlapping between the 95% CI for OR’s for the 3 groups reporting SP/TMD symptoms (Figure 2 for instance), which would imply that there were no differences between these groups, and thus, questioning the presence of a dose-response relationship. The current information only allows concluding that
each of the 3 groups reporting SP/TMD symptoms differed from the reference group. Since a formal test for any trend should be performed in order to provide evidence for a dose-response association, a more appropriate analysis would have been to use Generalized Least Squares for trend estimation of dose-response data (see the command glst in STATA).

Minor essential Revisions

Authors may consider discussing why the 13% of participants in SP-0 group and 30% in TMD-0 group reported symptoms. Are these values indicating that no condition could occur without the other? Or perhaps, any other trend?

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