Reviewer's report

Title: Osteopathic manipulative treatment for nonspecific low back pain: A systematic review and meta-analysis

Version: 1 Date: 7 April 2014

Reviewer: Simon French

Reviewer's report:

General comments
This manuscript describes a systematic review of osteopathic manipulative treatment for low back pain. It is well conducted and reported, but I have a few concerns as described below that, if adequately addressed, will hopefully improve the paper.

Major revisions
1. It does not appear that the PRISMA checklist has been used for guidance in reporting this review, eg structured abstract, PICO outcomes, etc. The authors should resubmit a revised version with improved reporting and the checklist completed.
2. Abstract: outcomes are not mentioned in the Methods section of the abstract, nor is the duration of follow up upon which the conclusion is based.
3. Search strategy (Abstract & Methods): the search strategy identified 307 reports, not 31. Thirty one was the full text papers that were retrieved.
4. Abstract Conclusion: clarify that the conclusion relates to 3 month follow up (and not other time points).
5. Background: needs some data reported here on the percentage of people with low back pain who visit an osteopath (eg see Walker BF et al. J Manipulative Physiol Ther 2004;27(5):327-35)
6. Background: need a section on LBP in pregnancy with prevalence, etc. And some justification for why this should be included in the category of “non-specific LBP” (see below for more about this).
7. Background: needs some more information on OMT. What treatment components does this typically consist of? Perhaps some history of the development of OMT would also be helpful.
8. Methods: Inclusion and Exclusion criteria more information needed:
   a. To make this clearer, this section should be described in terms of PICOS (see PRISMA for suggestions), perhaps with the use of sub-headings, as per Cochrane systematic review reporting.
   b. more description needed about what constituted “authentic OMT intervention”, e.g. was this based on training of the practitioners, whether the authors of the RCT identified the practitioners as osteopaths, whether they were registered
health professionals, etc

c. and when you say “authentic” do you mean “pragmatic”, in that practitioners could choose from a range of treatments under the broad category of OMT?

d. In some of the back pain literature, back pain in pregnancy is not classified as non-specific LBP, eg some LBP RCTs specifically exclude women who are pregnant because this may be seen as a different condition, and in the Rubinstein Cochrane systematic review (see citation below) this category of low back pain was excluded. The authors of this review include this under the category of non-specific low back pain. I would suggest the authors provide justification for this, or else change the title, objective, etc of the review to remove the term “non-specific” to reflect that this category of low back pain was included in this review.

e. Justification is needed for why only RCTs of >10 participants were included. If studies meet all inclusion criteria and provide relevant outcome data the sample size should not be relevant. The study that was excluded based on this criterion (Kirk et al 2005) could possibly have been excluded because the purpose of the study was to determine feasibility, not efficacy.

9. Search: full search strategy including MeSH terms used should be included as an additional file, as per PRISMA

10. Risk of bias: the authors' determination of a study being at “low risk of bias” is unclear. They state “In line with recommendations from Cochrane Collaborations…” however no reference is provided here. Do you mean based on the Cochrane Back Review Group recommendations (Furlan 2009), or on the Cochrane Handbook? (Note that these two sources provide different recommendations). I would suggest the authors provide more detail here, for example that which is reported in Rubenstein et al Cochrane Database of Systematic Reviews; 2011, Issue 2. Art. No.: CD008112

11. Methods line 174 & 175. Definitions needed here (with references) for acute and chronic.

12. No information is provided in the Methods about how heterogeneity of included studies was determined. Please provide. Also, results of heterogeneity analysis are provided in the forest plots, but this is not discussed in appropriate detail in the results.

13. Results: in the Risk of Bias section, it would be helpful to have more description of the different biases of the studies, eg how many had no allocation concealment described, blinding, etc?

14. Line 215: sentence commencing “According to the recommendations…” should be moved to Methods

15. Results, section “Effect of Interventions”. It would be helpful when reporting the results that a comment on the Risk of Bias of the studies discussed is included, to give the reader a sense of the strength of the findings. See how Rubenstein et al did this in their Cochrane Review (cited above)

16. It is a shame the data from the largest included RCT could not be included in the meta-analysis, especially considering the study was done so recently. The
alternate method used by the authors (best and worst) seems to give some strange results. For example, for pain the best and worst results are the same. I am not familiar with this method, but not sure how useful it is when the results for best and worst are the same? Please clarify. Also, the methods description this should be in the Methods, not the Results section – and more detail is needed so reader can understand how this was done.

17. Also, in the relevant Forest plots I would suggest removing the Licciardone 2013 study where the results are entered as 0. Confusing when you look at Forest plots without text explaining this.

18. Discussion: how do the results of this review compare to results where other professional disciplines have been evaluated for the treatment of LBP, eg physical therapy or chiropractic?

Minor compulsory revisions

19. A few typographical errors throughout, eg line 103 term “language” missing, line 244 & line 291 “data was…” Needs a thorough proof read and correction before resubmission.

20. Line 171/172 sentence commencing “If different time interval…” is a duplication of earlier information

21. Competing Interests. At least two of the authors have osteopathic backgrounds, so I would suggest that this is declared in this section.

Level of interest: An article of importance in its field

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

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

Declaration of competing interests:

I declare that I have no competing interests