Reviewer's report

Title: Non-specific, specific and total effects of acupuncture - a meta-analysis of randomized controlled trials

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Reviewer: Girdhar Agarwal

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Review of the paper “Non-specific, specific and total effects of acupuncture - a meta-analysis of randomized controlled trials” by Klaus Linde, Karin Niemann, Antonius Schneider1, Karin Meissner

This manuscript deals with the systematic review of randomized controlled trials (RCTs). The authors have followed most of the methodological guidelines for the conduct of the systematic reviews. Although, they have not addressed one of the major issue, namely “control of bias” in this review. Some specific comments are as follows:

1. Definition of groups. I am unclear about “Sham Intervention” group (point 4, p. 4). Where was insertion of needle done for this group? What points were chosen? Are these arbitrary? If yes, will not be harmful for the subjects?

2. Measuring effect size. Participants could be either completely untreated or receive treatment and were allowed “rescue medication” (p. 4). This will effect the outcome measure. How the effect of intervention (acupuncture) will be identified from that of “rescue medication”?

3. Study Selection (p.5) The search strategy and data extraction should be more explicitly specified.

4. Methodological quality assessment How was this done so that the studies with high & low quality can be identified?

5. Heterogeneity This is the most difficult task to handle. Personally, I think it is better to draw conclusions in subgroups than combining the results over large heterogeneous groups. This is more important here as the effect size measure is not same across all the studies. Also different outcomes are measured in different studies. How is “standardized mean difference” defined? Is it some kind of coefficient of variation?

6. Meta-analysis specific effects (p.9) Heterogeneity coefficient (I² = 0.83) was very high. In this light, the pooled effect size will have no clear meaning. The funnel plot was also highly asymmetrical (fig. 3 B)

7. Meta-analysis total effects. Here also I² = 0.80 is very high. again the pooled effect size will have no meaningful interpretation.

8. Meta-regression (p. 10). Actually meta-regression is also one method of addressing the heterogeneity. So the same comments apply as in 5.
9. In view of comments 5-8, I would suggest pooling the results over subgroups, which are nearly homogenous, rather than over large heterogeneous group. I would not recommend the manuscript for publication unless the above points are kept into consideration.

**Which journal?**: Appropriate or potentially appropriate for BMC Medicine: an article of importance in its field

**What next?**: Accept for publication in BMC Medicine after discretionary revisions

**Quality of written English**: Acceptable

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

**Declaration of competing interests**:

I declare that I have no competing interests.