Reviewer's report

Title: Physical therapy treatments for low back pain in children and adolescents: a meta-analysis

Version: 1 Date: 22 January 2013

Reviewer: Wolfgang Viechtbauer

Reviewer's report:

I am glad to see that the authors have taken up my suggestion to also use the difference between the treatment and control groups with respect to the standardized mean change as the effect size measure for the meta-analysis. Although only (a maximum of) 5 studies can then be analyzed, this approach provides unconfounded evidence about the effectiveness of the treatments. Fortunately, the results are very similar to those obtained from analyzing the treatment and control groups separately and then computing the difference in the standardized mean change afterwards. I have no requests for major compulsory revisions, only a few minor remarks that can be easily addressed.

Major Compulsory Revisions
----------------------------
None.

Minor Essential Revisions
-------------------------

p. 4: I would replace "has been proven" with "has been demonstrated" (proven is a bit strong).

p. 4: I am not sure I understand what the authors are trying to say with: "In any case, the impact of LBP in terms of quality of life is far from being a major problem [1]." This sentence implies that LBP is *not* a major problem, but I believe the authors are trying to make the point that it is.

p. 10: As the correlation between pre- and post-test scores was not reported, the authors assumed a value of 0.5 for all studies. Ideally, one should then conduct a sensitivity analysis to ensure that the results are robust when assuming other values (e.g., 0.2 or 0.8). Given the results, I would not expect any of the conclusions to change, but it would be nice to check.

p. 11: What estimator did the authors use for the amount of (residual) heterogeneity?

p. 14: Please remove the extra "time" in: "regards to time, context, time, etc.". I would replace "no studies carried out reliability analysis" with "none of the studies carried out reliability analyses".
p. 19: I would replace "and intent-to-treat analysis included" with "and intent-to-treat analyses should be carried out".

p. 19: I think "is" is a bit strong in: "and manual therapy is the most effective". Maybe change this to: "and manual therapy appears to be the most effective" and then start the next sentence with "However".

Table 1: Under "Objective" for Fanucchi et al., 2009 [31], change "To investigate whether that exercise" to "To investigate whether exercise".

Table 1: Under "Objective" for Jones et al., 2007 [29], change "as an treatment" to "as a treatment".

Table 3: It is not quite clear to me what the "overall" outcomes represent. Are these based on first combining multiple standardized mean changes within a single group? Or are these based on a single overall improvement measure within each group?

Table 4: Based on the data shown in Figure 1, I can reproduce the results in Table 3 (for pain) exactly. However, when I try to do the same for the results in Table 4 (for pain), I get a value for $d^+ = 1.03$ (which is close), but 95% confidence interval bounds 0.62 and 1.43 (which are quite a bit different from what is reported in Table 4 and which can't be due to rounding errors). I also find $I^2 = 33.33\%$. However, if I compute the standard errors of the standardized mean differences (i.e., the square root of the sampling variances), but then (incorrectly) treat those values as if they were the sampling variances in the analysis, then I get $d^+ = 1.02$ with CI bounds .48 and 1.56, which matches the authors results (and now $I^2 = 0\%$). Therefore, I suspect that the results in Table 4 are not quite correct.

Table 4: Change "were nonstatistically significant" to "were not statistically significant".

Figure 1: If possible, it would be nice to adjust the figure so that the lower CI bound for Harringe et al. (2007) does not overlap with the text.

Discretionary Revisions
-----------------------
None.

Level of interest: An article of importance in its field

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.