Reviewer’s report

Title: A Systematic Review of the Effects of Residency Training on Patient Outcomes

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Reviewer: Hayley E Jones

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I have been asked as a statistician to comment on whether the decision not to perform any meta-analysis in this systematic review was appropriate. In fact, mathematically it is generally possible to combine results from all kinds of studies in a meta-analysis. However, whether or not it is appropriate to do so must be based on a necessarily subjective decision as to which studies are truly asking the same question. Since the authors clearly have a much better knowledge of the particular subject area than I do, I’m happy to trust their judgement on this.

Having made the decision that meta-analysis is not appropriate here, in lieu of any quantitative analysis the authors instead have to perform a narrative review of the large number (97) of relevant studies identified. This is of course a rather epic task! In order to complete it, the authors have split the studies into categories and then essentially performed “vote counting”, which means counting the number of studies in each category that found a statistically significant result and the number that did not.

Unfortunately vote counting is a flawed approach, which has been much criticised in the statistical literature. See, for example, Chapter 28 of Borenstein et al (2009). The major problem is that this procedure places an undue emphasis on statistical significance. See Sterne & Davey Smith (2001) for relevant discussion in a broader context.

Tables 1a-1d contain the only details of the specific studies included in the review. However, unfortunately these tables currently contain very few quantitative results from the primary studies, and seemingly no confidence intervals or p-values at all. I urge the authors to include such details in the tables, and to rewrite the results section of the paper reducing the emphasis on vote counting.

References


Quality of written English: Acceptable

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