Reviewer's report

Title: Proportional odds ratio model generalizes comparison of diagnostic tests in meta-analysis

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Reviewer: Karel G Moons

Reviewer's report:

This paper is a very well written paper covering a relevant topic, a tool for adequate meta-analysis of diagnostic tests. Particularly, since the Cochrane collaboration is currently working on a handbook for performing such meta-analysis. The method described by the authors is novel. Also the example study is up to date. As an epidemiologist (rather than statistician), and no expert in diagnostic meta-analysis (merely in individual diagnostic studies) I do have some additional comments/questions.

1. The authors focus very much on the use of the diagnostic odds ratio. There are some limitations on this method as e.g. described in the paper by Glas et al (J Clin Epidemiol 2003). Notably, that the summary estimates of the sensitivity and specificity are not directly available. What are the comments of the authors on this?

2. Given comment 3, I also wonder what the authors think of the method for direct pooling of sensitivity and specificity using bivariate models, as described for trials by van Houweling H in Stat Med 2002 and 1993. This bivariate method for diagnostic meta-analysis is also discussed at the Cochrane meetings by Reitsma JB et al. I wonder to what extent the authors' method corresponds or differs to this bivariate approach, and what the pros and cons of both are?

3. The paper includes a toolkit (including syntaxes) for performing a diagnostic meta-analysis using their method, plus additional explanation. However, the paper is very long and therefore hard to read and keep on track. It would be appealing if the authors could reduce the paper by 10 pages?

4. Furthermore, I do not understand why the authors split up the two examples in section 2.4 and 3.2. It would be more clear to me if first the theory would be explained (at once). And finally, the entire approach illustrated by the same clinical example study. So why not integrating 2.4 and 3.2.

What next?: Accept after discretionary revisions

Level of interest: An article whose findings are important to those with closely related research interests

Declaration of competing interests: None.