**Reviewer’s report**

**Title:** An empirical comparison of Bayesian modelling strategies for missing binary outcome data in network meta-analysis

**Version:** 0  **Date:** 27 Jan 2019

**Reviewer:** Ning Dai

**Reviewer's report:**

This article evaluates comparatively Bayesian modeling strategies to handle missing binary outcome data using published systematic reviews with network meta-analysis. Recommendations for good practice are provided based on results obtained from a comprehensive empirical study. This work is necessary and important. My comments are mostly for clarification and to improve readability for a more general audience not familiar with studies of missing data or meta-analysis.

Page 4 line 18

Why do you consider statistical modeling to be a more efficient strategy to handle MOD?

Page 6 line 17 & page 8 line 5 & page 10 line 3

Are (r_ik, m_ik)'s or (r_ik, n_ik-r_ik-m_ik, m_ik)'s independent between trials? between arms within the same trial?

Page 7 line 3

What is an absolute measure? What is a relative measure?

Page 7 line 9

Possible typo: u_i=log(p_{i1})

Page 7 lines 15-16

What do you mean by conditional univariate normal distributions?

Page 7 line 17

What is the consistency assumption

Page 7 lines 8-21
Since this part is not limited to pattern-mixture model, I would suggest put it before section 2.3.1.

Page 8 line 1

Confusing notation: Indices of the interventions are A through T, so exactly 20 interventions?
Page 8 lines 22-23

What do you mean by mechanism for observing outcomes or to the underlying outcomes?

Page 9 line 19

By ``IMOR equals 1 reflecting MAR", do you mean sufficient, necessary, or equivalent?

Page 10 line 5

``We preferred IMOR": compared to what alternatives?

Page 11 line 18

Possible typo: One average MAR

Page 11 line 19

Why is it called intermediate uncertainty?

Page 12 lines 1-18

These scenarios are described only under the pattern-mixture model. The selection model is left out.

Page 13 line 18

What is IF (inconsistency factor)?

Page 14 line 7

What is limits of agreement?

Page 14 lines 13-14

What is Cohen's kappa statistic? How do you interpret this statistic? What are other alternatives? Why did you choose Cohen's kappa statistic as opposed to other methods?
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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