Reviewer's report

Title: Ranking treatments in frequentist network meta-analysis works without resampling methods

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Reviewer: Teresa Greco

Reviewer's report:

The authors propose a frequentist P-score to ranking treatments in a network meta-analysis, without use the resampling procedures. They argue that this score can be the analogue to SUCRA which it is frequently used to rank treatments in the Bayesian framework.

In general, I find this work very good although the use of p_values for rank expositions (i.e. treatments, devices, procedures) is not so new. For example, the genes are frequently ranked according to the p-values derived from the evidence of their differential expression.

Major Compulsory Revisions
- Background: Could the authors outline the literature use of p_values in the ranking treatments?
- Methods: The authors have assumed that the treatment effects of A and B are indipendent. This aspect should be discussed and underlined.
- Conclusion: The last sentence of the paper seems to be out of context. The authors should discuss in a better way this point or argue this topic in a new specific work.
- Data: Only one real data example might be too restrictive to compare the performance of the two score. This does not allow to outline the potential disadvantages of the P-score.

Minor Essential Revisions
- Background: The authors stated that “We use a simple analytical argument to show that the probability of being best can be misleading if we compare only two treatments.” However it is not clear that the authors are referring to the Fictitious example. This paragraph seems to be disconnected from the other ones.
- Methods: It is not clear the use of the ROC curve in the network meta-analysis framework. Furthermore, the ROC curve is drawn by plotting the sensitivity against the 1-specificity at various threshold settings. Figure 2 have to be setted by respecting the proper terminology.

Discretionary Revisions
- Table 2: The authors could include in the table 2 the means of Pij for each treatment i.
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