Reviewer's report

Title: Comparative Effectiveness of Psychological Treatments for Depressive Disorders in Primary Care: Network Meta-Analysis

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Reviewer: Areti Angeliki Veroniki

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Comparative Effectiveness of Psychological Treatments for Depressive Disorders in Primary Care: Network Meta-Analysis

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This is a NMA of RCTs to address the treatment effectiveness for depressive disorder in primary care. The paper is well-written and the methods clearly described. I think this systematic review and NMA will be useful in its field. I have only minor comments for improvement, and I discuss them below.

Minor Compulsory Revisions

Statistical analyses

1. Lines 173-177. The authors apply pairwise meta-analyses in a frequentist framework using RevMan, a NMA for binary data in a Bayesian framework using R and R2WinBUGS, and a NMA for continuous data in a frequentist framework using R and netmeta. Why did the authors apply their analyses in different settings? I would suggest applying all analyses in the same framework (frequentist or Bayesian) and using the same estimators for heterogeneity, so that the NMA and pairwise MA results can fairly be compared.

2. Please provide the priors or estimators used to estimate heterogeneity. Several methods exist to estimate the heterogeneity variance with different properties, and it has been shown that different estimation methods may considerably impact on the meta-analysis results (see for example Cornell et al, Annals of Internal Medicine 2014, Kontopantelis et al PLoS One 2013, Novianti et al Contemporary Clinical Trials 2014).

3. Line 182. Citation is needed for the applied inconsistency model. It is not clear to me which inconsistency model was applied (e.g., the model suggested by Lu and Ades J Am Stat Assoc 2006, White et al Res Synth Methods 2012, or the model without consistency constraints (applying pairwise meta-analysis for each comparison, which share a common heterogeneity parameter)).

4. Line 187. Did the authors assess for funnel plot asymmetry using a statistical test apart from the visual inspection of funnel plots? Also, the Cochrane Handbook recommends evaluating funnel plot asymmetry “when there are at least 10 studies included in the meta-analysis” due to the insufficient power of the
tests to distinguish chance from real asymmetry.

5. Line 231. Is this I² referred to the heterogeneity for pairwise meta-analysis or to the heterogeneity/inconsistency for network meta-analysis (as suggested by Jackson et al Stat Med 2014)? Please provide a reference and clarify if this is for inconsistency, heterogeneity or both.

6. Line 237. Please change CIs to Credible Intervals, if these have been estimated in a Bayesian framework.

7. Lines 263 to 265. The visual inspection of funnel plots suggested that small trials tend to report more positive findings in some cases. Did the authors also attempt to apply a fixed-effect model and compare the results with the random-effects model? In the presence of small-study effects, the fixed-effect model would probably be best to apply, as small studies are given a smaller weight and contribute less to the overall pooled effect.

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

**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