

## **Reviewer's report**

**Title:** A randomized, controlled trial of dietary improvement for adults with major depression (the 'SMILES' trial)

**Version: 1 Date:** 23 Nov 2016

**Reviewer:** Mark Weaver

### **Reviewer's report:**

In this revised manuscripts, the authors have been mostly responsive to previous reviewer comments. There are a few key issues that remain:

- 1) In the previous review, I had suggested that neither the complete-case nor the BOCF analyses addressed the substantial concerns caused by the clearly differential loss between the randomized groups. I had recommended that a more convincing sensitivity analysis would be a best/worst case analysis. The authors' response that power limitations would preclude such a sensitivity analysis is insufficient, power would not seem to play a role here. The complete-case and BOCF analyses would both seem to be biased away from the null, that is biased toward a conclusion of beneficial intervention effect if in fact none exists. The purpose of a sensitivity analysis is to explore the extent to which assumptions made in the primary analysis (here, non-differential loss or MAR) could lead to erroneous conclusions. I strongly recommend that the complete-case and BOCF analyses be removed and that sensitivity analysis that can more severely test the assumptions be performed instead.
- 2) The statement that "non-parametric statistics were used when assumptions for parametric methods were violated" is still included in the manuscript, although the authors' response indicates that it was removed.
- 3) Despite the addition of the footnote on Table 2, it is still unclear exactly what data were included in the primary analysis. Figure 1 indicates that data from 11 participants were excluded from the analysis. However, a mixed model repeated measures approach would allow for baseline data from those 11 participants to be included in the analysis even though they didn't provide follow-up data. Were those baseline data included or were they excluded, this needs to be made clear?

- 4) The p-values have been appropriately removed from Table 1, but the first paragraph of the Results still includes 2 p-values for comparing baseline characteristics between groups. What hypotheses are those p-values testing?
  
- 5) The following statement has been added to the Discussion: "Failure to reach our planned sample size increases the possibility that ours was a chance finding." This statement is mistaken. Failure to reach the planned sample size affects the power, which is a conditional probability calculated under the assumption that the null hypothesis is false. The probability of "a chance finding" is a conditional probability calculated under the assumption that the null hypothesis is true. These conditional probabilities are incompatible with one another, sample size is relevant for one but not the other. Suggest removing this statement and instead focus on the potential bias induced by differential loss to follow-up, which is a very serious concern.

**Are the methods appropriate and well described?**

If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**

If not, please specify which controls are required in your comments to the authors.

Yes

**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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