Reviewer’s report

Title: The effect of a lifestyle intervention in obese pregnant women on change in gestational metabolic profiles: findings from the UK Pregnancies Better Eating and Activity Trial (UPBEAT) RCT.

Version: 2 Date: 10 Aug 2018

Reviewer: Rand Wilcox

Reviewer's report:

You cite 23 to support the claim that non-normality is not an issue.

But this paper does not take into account differences in skewness, which is known to be a serious concern. It was done using only one skewed distribution. This is not very convincing when you look at other simulation studies dealing with robustness issues. Consider something simple: the paired t-test. It is known that differences in skewness from time 1 and time 2 can be a serious concern (e.g., Wilcox, 2017).

Apologies for not making this clear in my last report.

A general pattern is that as we move toward more involved models, robustness becomes an increasingly serious concern when using any method based on means and variances.

Suggest not saying exact p-value, just say p-value. It is not exact although it might be close.

What is a robust standard error? In the supplemental material this is not made clear, it simply refers to the main paper.

If you are using a robust measure of location and its corresponding standard error, this would be very useful. But have the sense that this is not the case.

In your response you state:

The standard deviation is only used to provide an appropriate scale comparison for the different metabolites, as they are all measured on such different scales.

Yes, but this does not deal with the lack of robustness associated with the standard deviation. So it remains unclear whether a robust measure of scale might be more informative.

Note that there are fundamental concerns about the robustness of means and variances summarized in the books listed below, which also describe important ways of characterizing the robustness of parameters. It could be that robustness is not an issue for the situation at hand, but the only known way of determining whether this is the case is to actually use a robust method.
Diagnostic methods have been studied extensively but all the papers I have seen conclude that they can be ineffective.

In summary, the paper would benefit from a more robust look at the data, and the results would be more convincing if more effective methods were used to deal with non-normality. I am not saying that the results are wrong or misleading. But there is uncertainty about whether this is the case or whether important features of the data are being missed.


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.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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