Reviewer's report

**Title:** The web-based ASSO-food frequency questionnaire for adolescents: relative and absolute reproducibility assessment

**Version:** 3  **Date:** 14 October 2014

**Reviewer:** Julia Truthmann

**Reviewer's report:**

- **Major Compulsory Revisions**

  1. Please specify the findings of the validation article in line 3 and lines 45-46 since these results are not yet published.

  2. The authors report, that the limits of agreement were narrow for energy and nutrients. This finding may be due to log-transformation, since the resulting LOAs are difficult to interpret. I suggest to present percentages for the mean difference and the LOA in the tables 2 and 4, which are easier to interpret for the reader. These percentages are calculated by back-transforming the results of the Bland & Altman analysis (see therefore Bland & Altman, Statistical methods for assessing agreement between two methods of clinical measurement, Lancet, 1986).

  3. The tables present results of a Wilcoxon-signed-rank test und a student-t-test. Since these are alternative methods please choose only one of the tests.

- **Minor Essential Revisions**

  1. The last sentence of the abstract: “It allows to correctly rank individuals in a group and to estimate the absolute level of intake”. This could be concluded in a validation study, but the present analysis provides only information on reproducibility of the ASSO-FFQ. Please delete this sentence.

  2. In line 44 “partially elaborated database” give more detailed information on this database.

  3. Define the abbreviations which are used in lines 77-82 and the tables (as footnotes).

  4. Describe how food groups are defined (which FFQ items are combined).

  5. A clearer description of the study and FFQ design would be helpful.

  6. Line 86-87 should be moved to the FFQ administration section.

  7. Log-transformation (line 99-100): please make clear that this was done for all following analyses (ICC, Bland & Altman).

  8. Analysis: Please provide a clear explanation how kappa coefficient and LOA
are calculated.

Results

9. Please provide a small table presenting the study characteristics. For instance, the number of girls and boys per age group may be interesting. Explain in the methods section why there are much more boys than girls in the study population.

10. Table 1 and 3 present interquartile range and agreement based on calculation of quintiles. I suggest to harmonize this, by presenting complementary the same, either quintile ranges or calculation of agreement based on quartiles.

11. In lines 129-135 and 148-154 please present only the results and no interpretation in this section (“indicating…” this part should be moved to the discussion section).

12. In lines 135-136 “LOA were quite wide, but the differences obtained by the two FFQs in each subject were well distributed around their mean and they were within the LOA for almost all subjects“- and line 159 “with almost all subject within the LOA”. This is not a result since the LOA are calculated on base of this assumption.

13. Please clarify why the plots of legumes, oils and savory food are shown (as example?). Better refer to them as “scatter plots” instead of „Bland-Altman-LOA“.

14. The results in lines 137-139 and 160-163 are unclear. How were these calculated and presented?

15. In line 155 the mean difference was slightly positive for 48 nutrients.

16. Table 2 and 4: Please clarify in the footnotes that data for calculation of ICC and mean difference were log-transformed too (or better present it like suggested under major revisions 2).

17. Harmonize the presentation of p-values in table 2 and 4. In table 4 there are two decimal places and in table 2 there are three.

Discussion

18. Line 187-188: Is there any literature concerning the reliability of these food groups?

19. Possible study limitation: As described above please clarify why there are much more boys than girls in the study population.

- Discretionary Revisions

Results

1. Line 113: it is not necessary to mention the test method in the results section.

2. Better use “relative and absolute reproducibility” instead of the methods name in the discussion section.

3. I suggest restructuring the discussion section. This section would be better readable and easier to follow if initially the relative and absolute reproducibility are described and after this the results concerning single food groups or nutrients are consecutively discussed.
Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests