Author’s response to reviews

Title: Reproducibility and relative validity of a newly developed web-based food-frequency questionnaire for assessment of preconception diet

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BMC Nutrition point-by-point response letter

Thank you for your efforts in reviewing our article.

Reviewer reports:

Gail Rees, PhD (Reviewer 1): This paper assesses the reproducibility and validity of a FFQ for use with young adults in Norway. This is a worthwhile piece of work, which will be useful for widespread dietary assessment with this population. However, there are a couple of methodological issues that reduce the robustness of the data and the conclusions made. Firstly, the sample size is very small. Only 21 participants completed the study (22 according to figure 1). The authors note that this is a limitation in their discussion, and acknowledge that a reasonable sample size for this type of work would be 100-200. So my question is, whether the work should be published at this stage or whether more data should be gathered to ensure the data and subsequent conclusions are correct.

Response: Currently, we are not intending a larger validation study.

The sample was recruited from a university campus and so is unlikely to be representative of the wider population - and again this is noted, but it does reduce the usefulness of the work. The two methods of dietary assessment (FFQ and weighed intake) are not assessing the same period of time and so there are likely to be differences with the weighed intake assessing 7 days and the FFQ reflecting the last 4 weeks.
Response: This has been included as a limitation in the Relative validity section, line 367-368, page 17.

The paper was well written, clear and concise. Some smaller issues include:

-I disagree that pre-conception nutrition has just recently gained attention. Although there are some recent important papers and reports, it has been a subject of concern for some time. (Wording of abstract and first paragraph).

Response: Thank you for this comment. We have changed the wording of abstract and the first paragraph, Abstract Background section, line 21-22, page 2, Background section, line 53-54, page 3.

-main section on page 4 about dietary assessment methods is not well referenced and references 9 and 10 are not original sources. Refer to a 'scale' as a 'weighing scale' for clarity.

Response: Added references in Background section, line 70, 74, 75, 79. Reference 9 and 10 have been replaced with other sources in Background section, line 83 and 86, page 4, Test-retest reproducibility section, line 336, page 15, Relative validity section, line 415, page 19.

‘Scale’ changed to ‘weighing scale’ in Background section, line 76, page 4, The 7-day weighed food record section, line 195, 196 and 202, page 9, Ethics approval and consent to participate section, line 557, page 24.

- lines 132 - 133. It is unclear if 21 or 22 people completed the study (also figure 1).

Response: Thank you for commenting this. There were 21 participants that completed all study components. The FFQ retest was distributed to the same 25 participants that started the WFR. This resulted in 22 participants completing the WFR and 22 completing the FFQ retest. Of these, one participant completed the WFR but not the FFQ retest, and one participant did not complete the WFR but completed the FFQ retest. Amendments in Study population section, line 134, page 7 and Figure 1.

- line 162 - what are 'cold cuts'? Cold meats?

Response: This has been changed to ‘lunch meats’, The food-frequency questionnaire section, line 164, page 8.

- lines 168-169 - what is the difference between 2-3 per day and more than 1 unit per day?
Response: Thank you. This is a typo. Changed to ‘more than 3 per day’, Food-frequency questionnaire section, line 171, page 8.

- for data entry (page 10) - was there more than one researcher who did this, was a proportion of the data checked?

Response: The FFQ data was downloaded from SurveyXact and converted to the statistical program SPSS, followed by nutritional calculations conducted by the corresponding author. The weighed food records were coded by the corresponding author and two research assistants. Cowriter ALB oversaw the nutritional calculations of the WFRs. This is now described in The food-frequency questionnaire section, line 179, page 8, The 7-day weighed food record section, line 208-210, page 10.

- spelling of axis on line 228.

Response: Thank you for noticing this. Changed to axis, Statistical analysis section, line 233, page 11.

- line 248 BMI needs units here and on Table 1 kg/m2.

Response: We have added kg/m2, Sample section, line 253, page 12 and Table 1, following “Median BMI”, page 12.

- line 206 the r value for calcium is quoted as 0.94 but is 0.93 in the Table.

Response: Thank you for noticing this. It has been corrected to 0.93, Test-retest reproducibility section, line 265, page 12.

- how did you choose which nutrients to examine - for example why did you not look at vitamin C or thiamine?

Response: The nutrients used in the analysis were based on the Norwegian Directorate of Health “A healthy lifestyle before and during pregnancy”. Energy, macronutrients and fibre were included to assess dietary contributions. Alcohol to asses alcohol intake. Vitamin A because of its importance in fetus development during pregnancy. Salt and sugar were included as they are important factors in a public health aspect and are priority areas in the Norwegian “Partnership for a healthier diet”. This has been included in the Discussion section, line 401-407, page 18.

- line 278 - how did you decide on a plausible energy intake range? Did you calculate under / over reporting according to estimated BMR?
Response: We did not calculate under/overreporting according to established BMR. The FFQ is too crude to limit to estimated energy expenditures according to BMR. We have elaborated the issue in the Relative validity section, line 374-378, page 17.

For the discussion - you have shown reproducibility for the nutrients under examination but the measures were taken quite close together and so you would expect them to be correlated.

Response: The reproducibility of the FFQ was addressed in the Test-retest reproducibility section, line 331-333, page 15. We chose a shorter time interval in order to limit the impact of the upcoming Christmas time on diet and thereby the reproducibility.

Fernando Vio (Reviewer 2): The main problem is the sample size and the uneven distribution by sex.

However, the validation process is well done and the results are consistent.


Response: The questionnaire used in this study has not yet been translated into English, however this may be done upon further request.