Reviewer's report

Title: Validation of digital photographs as a tool in 24-h recall, for improvement of dietary assessment among rural populations in developing countries

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Reviewer: Janine Higgins

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This manuscript deals with the development of a simple yet accurate method of measuring habitual dietary intake in rural women. Currently, there is a focus to improve methods of measuring dietary intake, including methods which decrease reliance on self-report of portion sizes which causes the greatest inaccuracy in standard methods. There is great interest in the use of digital photographs to assess dietary intake in many different populations and this manuscript, focusing on a rural population, has the potential to add to the current body of literature. The use of photographs as a visual aide for completion of a 24h diet recall rather than as visual food record per se, as in previous studies, is very novel. The use of weighed food records as the control condition provides a gold standard reference method with which to compare the novel photographic 24h recall.

The introduction and discussion adequately place the current study in context with select previous reports. The methods section is laborious in its description of the multiple pass 24h recall method and needs editing. The Figures and Tables in the results section are useful and appropriate. The major shortfall of this study is that it suffers from poor written expression and needs to be rewritten for clarity.

MAJOR COMPULSORY REVISIONS
1. The English expression of this manuscript is poor and many sections need to be rewritten.
2. The correlation coefficients for this study were very high. A brief explanation for this is given in lines 428-430 but a direct comparison to data from previous studies using weighed food records and more comprehensive discussion of this should be added to the manuscript. The current comparison of this data with previous reports is vague and not clearly described (lines 419-425).
3. The correlation coefficients compared from this study vs previous reports are presumably for total calories only? This is not specified and the manuscript needs to be rewritten to detail what is actually being compared. In addition, several nutrients of interest were chosen for analysis in this manuscript so the accuracy of the novel 24h recall methods for these nutrients should also be compared to previous reports.

MINOR COMPULSORY REVISIONS
4. Lines 205-229 can be deleted and a reference for the standard multiple pass approach for conducting 24h food recalls can be inserted.
5. In lines 162-165, it is stated that photographs were arranged in ascending order but, in Fig.2, foods are shown in descending order. Please use an actual, unaltered photograph from the atlas in ascending order or change the text to correctly reflect what was actually depicted in the atlas.

6. The Methods section states that “4 macronutrients, 7 minerals and 12 vitamins are reported”. This should be altered to read “3 macronutrients,…”. Also, the authors should specify which nutrients were chosen and why.

7. Justification for breaking the data into food groups and how these were chosen and defined should be included.

DISCRETIONARY REVISIONS

8. Data in Tables and 3 are expressed as mean +/- SD but mean +/- SEM would be more appropriate.

9. The authors have included background information and discussed the results with reference to selected previous publications on this topic. A more comprehensive inclusion of previous publications could strengthen this manuscript.

Level of interest: An article of importance in its field

Quality of written English: Not suitable for publication unless extensively edited

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