Reviewer's report

Title: Validity of the Australian Recommended Food Score as a diet quality index for Pre-schoolers

Version: 1  Date: 25 March 2014

Reviewer: Carley Grimes

Reviewer's report:

Overall the paper is of interest to the journal readership and fills an important research gap with regards to developing a DQI score for use in the paediatric population. The article is well-written and references appropriate supporting literature. The major concerns are use of old Dietary guidelines 2005 for benchmarking to develop the DQI, as opposed to the latest 2013 guidelines and the presentation of statistical analysis. There seems to be some confusion between correlation analysis and regression output. As is what tests have been performed and the resulting output in tables is not clear to this reviewer.

MAJOR

Line 123-130. Should the score be revised and based on the 2013 Australian Dietary Guidelines? This would seem most appropriate for future use of the developed diet quality index score. At present it is dated from the outset. Servings and serving sizes recommendations have changed in the revised guidelines. Given the revised guidelines include guidelines for younger children i.e. 2-3 years and this is within your age range seems appropriate. Or can you provide justification of why the most recent guidelines are not being used as a benchmark? Some discussion of this choice is required.

Line 175 Statement “Both ....... were standardised so the model coefficient was the correlation” it is unclear what is meant by this statement. If multiple linear regression analysis was used the model should produce a beta-coefficient not a correlation coefficient as per Tables 3 and 4. Whilst correlation and regression analysis are similar they are not the same. It is unclear how all of the confounders were included in correlation analysis. Also if data was skewed it would be appropriate to use Spearman’s correlation rather than Pearson – even though it is unclear how correlation has been performed. Clarify statistical tests used with appropriate terminology and presentation.

Table 4

As is the table title is lengthy and confusing. Still unclear how correlations are being reported from multiple regression analysis. What is meant by ‘standardised’ are these the standardised beta coefficients from regression models? As is this is difficult to interpret

MINOR
Line 85. Can some clarification regarding why inclusion criteria of ‘eldest child in their family was also in this age range’ was made.

Line 104. Can clarification be made regarding how exactly the child specific portion sizes were derived from the 2007 CNPAS survey. This is unclear. Where was information relating to the ‘natural’ portion sizes sourced?

Line 109. The most current version of the food composition database that appears to have been used is AUSNUT2007 it is not clear why reference is made to earlier versions – is this needed, it is confusing?

Line 116. The referenced 2003 dietary Guidelines for children and adolescents in Australia are not the latest. It would seem most appropriate to make comparisons with the revised 2013 Australian Dietary Guidelines which include children.

Line 133. What were the two age groups compared in univariate analyses and what was the purpose of this? As is it is unclear why this comparison is being made?

Line 134. Correct terminology. By using multiple regression analysis an ‘association’ rather than a ‘correlation’ as stated has been assessed. Replace

Line 137. Can the variables that were transformed be listed here.

Some further detail on how the DQI scoring system was developed would help with the interpretation of the results presented in table 3. Can this be included as a supplementary table

Line 142. Can a clear explanation be provided of why split into these two age groups i.e. assume for comparison with NRV groupings. Can this be stated in methods.

line 171 − 177. Some of this information should go in methods section i.e. comments on root transformation – and specify to which variables; what confounders were included and explanation for nothing on race. This is not results per say but methods. Can further explanation as to why energy was included in the model please be provided.

Table 3.
Would suggest using full terms/correct spelling of words for food items.
The data in table 3 for each age group for nutrients i.e. median and IQR is repetitive of data in table 2.

More information is needed on what the number scoring for each of the food groups actually means. Whilst overall score of 0-73 max is mentioned in methods there is no indication to the reader if these scores are high or low for each food group component. A footnote could be included to convey this information or be provided in methods.

Discussion
Line 220. From the results that are presented it is not clear how increasing the variety of vege, fruit etc is an important interpretation of the data. It should be clear to the reader from the results that the DQI score was low in the area of variety of these foods, as is this is not clear.

Line 232-237. Whilst providing some interpretation of the DQI score is useful. It should be clearer to the reader how these cut points were developed and based on. Looking at the current presentation of results in the paper it is not evident how these cut-points were determined from the results. Clarify.

Limitations – discuss use of bench marking against out of date dietary guidelines; comment on relatively low sample size

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

No conflicts of interest