Reviewer's report

Title: Dietary pattern analysis: a comparison between matched vegetarian and omnivorous subjects.

Version: 2 Date: 19 February 2013

Reviewer: Sharon Kirkpatrick

Reviewer's report:

General comments:
1. The specific research question addressed by this study is not clear. The background section provides some information on dietary patterns analysis and vegetarian diets but how these pieces link together and what the aim of this paper is are not clear. One confusing point is that the aim seems to be to compare patterns but there are also results and discussion about differences in nutrient intakes.

2. The authors refer to the HEI and briefly mention a more recent model but they are not clear about which version was used for this research. From what they note about the index, it appears to be the original HEI, which is an outdated version.

The original HEI has since been updated to the HEI-2005 – the HEI-2005 (and the soon to be released HEI-2010) take a very different approach from that its predecessor. It is density based in that components are expressed relative to 1000 kcal and thus, it separates diet quality from diet quantity and eating more does not result in higher scores as might be the case with the original HEI. Further, the HEI-2005 does not require any single food or commodity – thus, they are appropriate for vegetarians and vegans. As a result of other differences between the versions, the suggestion that an alternate HEI for vegetarians may be required is likely not warranted. The food patterns from the US Department of Agriculture on which the HEI-2010 is based actually include patterns for lacto-ovo vegetarians and vegans.

Major compulsory revisions:
3. I would suggest that the authors update their analysis using the most up-to-date version of the HEI available. It may also be important to point out whether the HEI warrants adjustments to reflect the dietary guidelines espoused by the government of Belgium as well as the food supply.

4. The review of the literature could be more integrated rather than mentioning the specific findings of different studies.

5. The discussion section seems repetitive of the results. A discussion that does more integration and pointing out future research needs, limitations (e.g., error in dietary intake data), etc. would be helpful.
Minor compulsory revisions:

6. Page 3, dietary pattern analysis is a ‘better’ approach – perhaps a 'different' approach rather than better, suited to a different research question.

7. Page 3, more recent HEI includes adequacy and moderation components – could be comparable to desirable/undesirable components of MDS?

8. Page 4, not clear what is meant by assuming different ‘outcomes’ when applying indices to vegetarians and non-vegetarians.

9. Page 5 – Costacou et al. – index-based/investigator-driven analysis or data-driven analysis (or both)? Summary is confusing.

10. Page 6 – matching by proxy, is this an established approach for matching?

11. Page 9 – the comparison of results to those of other studies is confusing because it is not clear which version of the HEI was used in each study and the authors do not address the main differences between the versions and the impact these would have on findings.

12. Page 11 – scores on a component do not necessarily indicate consumption of healthy choices within that component – the HEI-2005 addresses this by separating out specific subgroups, such as dark green and orange vegetables and legumes (from total vegetables) and whole grains (from total grains).

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