Reviewer's report

Title: The role of cognitive stimulation at home in low-income preschoolers' nutrition, physical activity and Body Mass Index

Version: 0 Date: 22 Aug 2016

Reviewer: Kristy Bolton

Reviewer's report:

I think this paper has real potential however currently it is lacking a lot of detail, particularly in the methodology section, and some of the statements made in the discussion section are a little far-reaching - rather than showing cause and effect in the study, it is important to be clear that there were associations between the variables tested.

Please see the attached document for more details, however a few key comments are below:

- I think body size should be replaced with BMI

- More detail about the Head Start program would be beneficial to give the reader context

- A definition of cognitive stimulation should be included, and examples of what is included as a cognitive stimulating activity (or referral to the table outlining the activities)

- Discussion - if you are suggesting improving cognitive stimulation would be beneficial, can you make any specific recommendations about what sort of cognitive stimulating activities these should be?

- The methods section is lacking detail in many places and it would be hard to replicate the methodology, particularly the analysis section

- Paragraph 1, page 11 seems very disjointed and out of place, and this analysis was not included in the methodology or reported in the results section, nor a part of the aim, and could be removed from the paper?

- The lack of association with BMI was not discussed in the Discussion
-the abstract states it is a longitudinal study however it reads as though the analysis was cross-sectional - can you make this clearer for the reader to understand?

Please see in text comments for more details.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable
Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal