Reviewer’s report

Title: Relationships between cognitive function and body composition among community-dwelling elderly: a cross-sectional study

Version: 0 Date: 04 Apr 2017

Reviewer: Insa Feinkohl

Reviewer's report:

The authors describe findings from a study on associations of anthropometric measurements and cognitive function in an Asian cohort. Though the study is limited by cross-sectional design, small sample size and use of a brief screening tool (MMSE) rather than detailed neuropsychological testing, the article has some merit. Overall, it is a concise representation of the study's aims and findings. Some suggestions for improvement are listed below. My main concern is the fact that Tables 3 and 4 are difficult to understand at present. In my view, re-running the analyses with exclusion of underweight patients would also benefit the study's conclusions.

MAJOR COMMENTS

* have there been any systematic reviews on BMI/obesity and cognitive impairment? If so, please consider citing

* MMSE is often skewed. Did the authors check its distribution?

* please translate the effect sizes in some meaningful way in the Results section, so that readers understand the results better (e.g., "each standard deviation increase in XX was associated with a XX standard deviation lower K-MMSE score" or similar)

* as predictors were used as continuous variables in linear regression analyses, U-shaped relationships of BMI, body fat etc. with cognitive function may not show up. I suggest the authors re-run their analyses with exclusion of underweight patients.

* Tables 3 and 4: I do not understand the way that results are presented here. I understand that the variables listed in the column on the far left are covariates. Where are the predictors? Do the standardized betas refer to the predictors or to the covariates?

* The fact that all results are based on the MMSE, which is a screening tool for dementia, rather than on a detailed battery of cognitive tests needs to be mentioned in "limitations". Were patients with dementia included or excluded? This needs to be described in Methods.
MINOR COMMENTS

* please use the term "sex" instead of "gender" throughout
* please use the term "older adults" instead of "elderly" throughout
* p.5 line 30: what does "monotonic" mean?
* p.5 line 52: in what way are cut-offs for obesity different for Asian populations? Are BMI cut-offs generally lower or higher?
* p.6: final sentence of Introduction: the decision to stratify by sex was made post-hoc. Therefore, "stratified by gender" should be removed from the description of aims
* p. 6: the first paragraph of Methods could be shown in a flow chart instead of text. Alternatively, the section could be cut down.
* Tables 1 and 2: please list abbreviations in table legend alphabetically
* Table 1: why are GGT, uric acid and hemoglobin listed at the bottom of the table, rather than along with the remaining lab parameters?
* Tables 3 and 4 and in Results section: no need to write "0.05>p>0.01" etc. Instead, simply write p<0.05, p<0.01, p<0.001
* p.9: please describe adjustment variables. Stating "after adjusting for other related factors" is too vague.
* p.9 line 49: please cite reference when citing your "previous report"
* p.9/10: are the authors talking about "brain reserve" or "cognitive reserve"? (Stern, 2002, Journal of the International Neuropsychological Society, 8).
* p.10: in description of possible mechanisms, please tone down the implication of causality
* p.11 line 8: please replace "GDS" by "depression scores"
* perhaps consider using the term "obesity paradox" when describing previous research. Many readers will be familiar with this concept.
* The article would benefit from additional keywords
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

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.

Yes

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:

Needs some language corrections before being published

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