Reviewer's report

Title: Are self-reported gastrointestinal symptoms among older adults associated with increased intestinal permeability and psychological distress?

Version: 0 Date: 02 Nov 2017

Reviewer: Inna Lisko

Reviewer's report:

GENERAL COMMENTS

The paper deals with an important topic and examines if gastrointestinal symptoms associate with increased intestinal permeability and psychological distress among older adults. Overall the paper is sound and adds to the current literature. However, several minor revisions are suggested in the following.

SPECIFIC COMMENTS

HEADING

1. In the heading it is stated that "Self-reported gastrointestinal symptoms among older adults are associated with increased intestinal permeability". Yet, it is clear that zonulin is an indirect indicator of small intestinal permeability. To avoid making a definitive conclusion of zonulin in the heading, the heading could be changed to a question form: "Are self-reported gastrointestinal symptoms among older adults associated with increased intestinal permeability and psychological distress?"

INTRODUCTION

2. Please report and provide a reference on how common in percentages gastrointestinal symptoms are among older adults.
3. Along with gastrointestinal symptoms, cognitive decline is mentioned to be common among older adults (page 4, line 58). This is true but it seems odd to only mention cognitive decline.

4. On page 4, line 59, it is stated: "Diseases of the digestive system are known to contribute to a higher symptom burden [3]." Yet, these results are based on a cross-sectional setting. Thus, it cannot be known whether or not diseases of the digestive system exactly "contribute" to a higher symptom burden. Please revise the text.

5. On page 4, line 66, please provide a reference to the following statement: "Increased intestinal permeability is a hallmark of many GI diseases".

6. Please provide the basic information on the physiology behind disrupted barrier function and explain what it means.

7. On page 4, line 70, I believe the word "character" is supposed to be "characteristics".

8. Please provide already in the introduction a reference for zonulin (page 4, line 73).

METHODS
9. p.6, line 113. Please provide also in the methods section a reference which states that zonulin is an indirect indicator of small intestinal permeability.

RESULTS
10. When reporting the results on psychological distress, the following is stated (page 8, line 148): "Assessment of overall psychological distress (total HADS score), showed increased levels among older adults with GI symptoms compared to general older adults (Table 4)." However, this does not seem to be the case. According to Table 4 there were no statistically significant differences in assessment of overall psychological distress between older adults with GI symptoms and general older adults. Furthermore, the last sentence in the paragraph (page 8, line 154) deals with the same results, and it would be easier for the reader if all results on total HADS score were reported in same place. Please revise the text.
11. In the paragraph for comorbidity and medications, compared to which group multipharmacy was more prominent than in older adults with GI symptoms (page 9, line 172)? Please specify.

12. If there is a reference (references) available on the subsequent study results showing that medication and comorbidities did not influence zonulin levels or psychological distress, please provide it (page 9, lines 173-175).

TABLES

TABLE 1
13. Please report also the body mass index (BMI) of the participants if available.

14. The marking on the GSRS diarrhea/constipation score is unclear. Please revise.

15. Please inform what the acronym GSRS stands for.

TABLE 3
16. The marking on the grading of GSRS is not clear (">" should not be there). Please revise.

TABLE 4
17. Please inform what the acronym HADS stands for.

DISCUSSION
18. The authors state (page 13, line 226): "Experience of anxiety did not differ between older adults with and without GI symptoms, suggesting that anxiety increases with age." The suggestion "anxiety increases with age" cannot be made based on these results. Please revise.

19. It could be pointed out what is considered the gold standard to assess intestinal permeability.

20. Literature shows that zonulin is also associated with BMI (Moreno-Navarrete et al. 2012). Circulating zonulin, a marker of intestinal permeability, is increased in association with

21. Please discuss the role of nutrition in intestinal permeability.

22. On page 14, line 254 the sentence "Moreover, the median plasma zonulin…” should be placed right after the previous sentence "However, only three participants reported…” (page 14, line 253).

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.
Yes

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

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I am able to assess the statistics

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