Reviewer’s report

Title: Association between anemia and frailty in 13,175 community-dwelling adults aged 50 years and older in China

Version: 0 Date: 25 Aug 2019

Reviewer: Ruth Teh

Reviewer's report:

Thank you for the opportunity to review this manuscript titled "Association between anaemia and frailty in 13,175 community-dwelling older adults in China (BGTC-D-19-00496)". The authors aim to investigate the association between anaemia and frailty in community-dwelling adults aged 50 years and older using data from the SAGE-China study.

Overall, this is an interesting research area and demonstrates relevant clinical implications. The relationship between anaemia and frailty is complex and critical assessments of published articles is warranted. The authors have included potential confounders in the regression models and I wonder if they have examine the interaction between sex and household wealth, and education? This needs to be stated explicitly in the analysis section. Below are specific comments aiming to improve the overall clarity of the manuscript.

Specific comments:
Page 3 line 15: unclear and Refs needed
Page 3 Third paragraph: The referenced meta-analysis reports that the association between anaemia and frailty differ by study designs. Would be good to include the follow-up time for the longitudinal studies which found no association between anaemia and frailty. Line 49: unclear which frailty criteria is referred to.
Page 4 Line 23: Unclear. The number of respondents n=13,175 and number of those responded to individual questionnaire (n=13,175?) with a response rate of 98%.

Methods: which dietary assessment tool was used to ascertained fruit and vegetables intake? A brief description as to why limit to fruit and vegetable consumptions considering animal protein have higher level of heme-iron which is more absorbable than non-heme-iron.

Statistical method: Why 'residence' is considered as a confounder? Is this correlated with household wealth?

Results: Page 6 second paragraph: Interesting findings. One would assume wealth is positively correlated with education level but an inverse association between wealth and Hb level. Interesting point for discussion.

Discussions:
Page 7: would be good to synthesise findings on prevalence of anaemia across different countries instead of reporting the individual finding.

Page 8 and 9 Discussion on the association between anaemia and frailty: Need to acknowledge reverse causality, and be clear/specific about study design, i.e. association at one time point vs longitudinal study. Are there any reports on anaemia predicting frailty over time?

Page 9, line 32: last sentence unclear, is it protective against frailty or anaemia? Is this mentioned in the result section?

Page 9, line 49: which type of bias may be related to missing Hb data?

Conclusion: New term "low-normal Hb" is introduced in the conclusion paragraph.

Table 1. Confusing column heading for age

Table 2: would be good to include the mean (SD) of Hb level, and define what is 'low-normal Hb'

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

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

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