Reviewer’s report

Title: An additive effect of leading roles on the association between social participation and dementia onset among Japanese older adults: The AGES cohort study.

Version: 0 Date: 14 Oct 2017

Reviewer: Mei Lan Fang

Reviewer's report:

Overall, research presented in this paper addresses an important topic area. However, there are some essential revisions that would further enhance this paper.

1) "holding leadership positions in organization could lead to a decrease in risk of dementia onset by almost 20% than regular members" - what part of this is influenced by socio-economic status? You have co-variates that can be an indicators of this i.e. job status and education - can you explain how much these influence this result?

2) Please remove the language of 'unproven' to 'unknown'

3) Please provide more details regarding participant selection criteria i.e. Why did you select older adults who did not receive public long-term care insurance benefits?

4) Explain how you accounted for selection bias.

5) Can you discuss some determinants and potential factors that might explain this finding: "social activity non-members have a greater risk of incident dementia than social activity members, and members in leadership positions have a significantly lower risk compared with the non-leading members in the young-old group." Perhaps from some other studies that has investigated social participation and dementia (more broadly).

5) From your findings, it seems that perhaps a future qualitative study might help acquire deeper understandings from older adults themselves their social participation, particularly their leadership position and how it has influenced their everyday life which might shed light on the fifth limitation of this study (the types of social activity or leadership in relation to the incidence of dementia). I would suggest including this as a recommendation of your study.

6) This paper would benefit from a thorough proofread to enhance the English grammar aligned with academic style writing.

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?**
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I am able to assess the statistics

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Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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