Reviewer's report

Title: Cognitive Function, Social Integration and Mortality in a U.S. National Cohort Study of Older Adults

Version: 1 Date: 2 February 2009

Reviewer: Takao Suzuki

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2, Feb, 2009
Reviewer's comments

I have checked the manuscript "Cognitive function, social integration and mortality in a US national cohort study of older adults".

This research found a significant and independent relationship between cognitive function and mortality, and social integration and mortality among older people. These findings may have possibilities to contribute to steady progress in the research area. However, the present version of this manuscript has significant weaknesses which should be overcome. Attention to the issues below would significantly strengthen it.

#1(Maj)
In the Background section, the authors should give more detail explanations regarding the importance of interactions and independence of cognitive function and social integration in studies of mortality. I believe that because the issue is the most important research interest in this study, the authors should clearly account for the reason why the research subject needed to be examined in this study and suggest a hypothetical framework concerning the subject in the Background section.

#2 (Maj)
In the Methods section, the authors described data collection methods of participants. Of 6588 people aged 60 years and over, finally 5908 were used in the analysis. The authors may want to address the difference in health characteristics at baseline between those who were analyzed (n=5908) and those who were eliminated (n=608), so that the readers easily understand the representativeness of the data set used in the analysis and generalizability of the findings in this study.

#3(Maj)
In the last paragraph of the Results section, the authors suddenly started examining C-reactive protein as a mediator of the association of cognitive function and social integration to mortality. Moreover, the authors discussed the issue in the Discussion section. However, I could not understand why CRP
needed to be examined in this article. The authors should clearly explain the above-mentioned issue in the Background section, so that the readers may understand the descriptions.

#4(Maj)
In the Discussion section, the authors should address about mechanisms underlying the relationship between cognitive function and mortality, and the relationship between social integration and mortality. I believe that the authors should express in detail how the authors imply the mechanisms in the section. Also, if the authors were interested in CRP as a mediator underlying the mechanisms, they had addressed the issue in the Background section in advance.

#5(Min)
In the table1, the percentages of the subjects by SICF score are not correct or miss-calculation. The authors should describe the exact number of subjects in each characteristic.

In the figure 1, the authors should explain in the article why the line with stars (green colored) sharply declined at around 110 months. Is this a significant finding or only an artifact?

#6(Min)
The authors should rebuild all tables and figures as according to the following points:
1) Some abbreviations should be spelled out in the footnotes in each table or figure (e.g. SICF). The authors also should describe how to measure SICF and social-network index in the footnotes because the two measures are the most important explanatory variables to understand the research results.
2) In Table 1 and Table2, the authors comprehensively should rethink how to use lines (especially vertical lines) for better understanding. For instance, at the top of in table1, “SICF score” is split by a vertical line and the readers may find it difficult to see.
3) In Fig1 and Fig2, the authors clearly show the label of vertical and horizontal axis.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
'I declare that I have no competing interests'