Reviewer's report

Title: Social capital and health in China: Exploring the mediating role of lifestyle

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Reviewer: Bjørn E. Holstein

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Review of PUBH-D-00802: Social capital and health in China: Exploring the mediating role of lifestyle

The authors use a large and nationally representative survey to explore whether there was an association between social capital and health and whether lifestyle factors mediated this association. They found a clear association between high social capital and good health and a complicated picture of mediation.

This is an important study since most of the literature on social capital and health are from Western countries and we need more information about this issue from China. I have mixed feelings about the manuscript (see below) and a number of recommendations for the authors in order to make the manuscript ready for publication.

The paper includes three dimensions of social capital: trust, network, and organization; two dimensions of health: self-rated health and an index of psychological wellbeing; and five lifestyle factors: healthy diet, physical activity, sleep, smoking, and overweight. This multifaceted dataset is both the strength and the weakness of the manuscript: strength because we need the kind of knowledge that the authors strive to produce; a weakness because it is impossible to provide an answer to research questions based on so diverse data. The result is a conceptually unclear approach (see for instance the many related concepts mentioned in the section of previous literature: social participation, social trust, social support, social integration, cognitive social capital, structural social capital, community social capital).

In my opinion, it would be a better strategy to deal with the components one by one in detail, in separate papers or separate sections of a large paper, e.g.

- analyse whether smoking mediates the association between trust and self-rated health
- analyse whether healthy diet mediates the association between network and self-rated health

- analyse whether physical activity mediates the association between network and psychological wellbeing etc.

I know that the authors do all this but the weakness is that there is little focus on these individual analyses. I do not request the author to follow this advice but it would be appropriate to address this dilemma in the Discussion section.

These are my recommendations for a revision of the manuscript:

1. Social capital is in its origin a sociological concept, a concept about features of social organization. I am aware of the new tradition in health research where social capital is used about individual characteristics. This manuscript applies the term social capital to individual characteristics of the participants. In my opinion, it would be more appropriate to apply the concept "perceived social capital". I do not request the authors to do so since they seem to follow a new use of the concept in health research but in my opinion, it would be more appropriate.

2. The objectives of the paper are clear and nicely justified but it would facilitate the reading if the authors move the section about previous literature into the background section. The most appropriate way to structure an introduction is to follow this line of argumentation: First to present the topic of the article and why it is important (the authors did this in the first couple of lines in the background section), second to provide an overview of what is already known about this topic (the authors did that in the background section and in the section about previous literature), third to present what is not known (the authors did that in the background section) and fourth, presenting the aim of the paper justified by what is known and not known. As it stands now, the reader does not have sufficient insight in what is known when he or she reads the aims.

3. The section about the aims of the paper explains that the analyses include three types of social capital but not which types. Please explain.

4. Please provide more information about the sampling and the participation rates so the reader can assess the risk of selection bias.
5. Please explain how the data were collected.

6. The authors mention that self-rated health is a well-known and valid indicator of health. Is there a similar documentation about the validity of the psychological wellbeing measure?

7. The operationalization of the trust dimension and the network dimension of social capital follow the tradition of many previous studies. The operationalization of the organization dimension appears strange to me (membership of a political party). Please explain and justify this measure and discuss its validity in the Discussion section.

8. Path c which is mentioned in the text should be included in Figure 2.

9. Under Figure 2 there is sentence which must be wrong, "First, the outcome variable must affect the mediator"

10. Please add a section which explains data protection issues and whether the study complies with traditional ethical guidelines

11. Table 1 describes the characteristics of the sample in terms of Mean and Standard Deviations. This is not consistent with the way the variables are used in the analyses. Please present percentages instead.

12. The heading of Table 2 does not really explain the content of the table. Please consider a more informative heading, e.g. "OR (S.E.) for high levels of self-rated health and psychological wellbeing by social capital indicators, adjusted for socio-demographic factors"

13. The headings of Table 3 and Table 4 also need to be more informative.
14. The Discussion section comprises a nice highlight of the most important findings but need more references where the authors claim that their results are consistent with other studies.

15. It is a strong norm that papers of this kind includes a thorough discussion of potential limitations. The authors explain that the cross-sectional design and the self-reported data about lifestyle are limitations. It is important also to discuss potential selection bias and to provide more considerations about the validity of the applied measures. I have already mentioned the unusual measure of organization which needs to be thoroughly discussed, not only because it is unusual but also because the measure plays a central role in the authors highlighting and interpretation of their main findings.

16. The reference list needs a thorough cleaning and revision: Journal names are presented in different formats (with and without dots, with and without use of standard abbreviations); "et al." appears with and without dot; there should be a consistent use of "and" or "&"; some authors are miss-spelled, e.g. Lindström appears as Lindstrom).

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

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?
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Yes

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