Reviewer's report

Title: Epidemiology of multimorbidity and implications for healthcare: Cross-sectional survey among 162,464 community household residents in southern China

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Reviewer: Matthew M. Boulton

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Comments to the authors:

Thank you for asking me to review this paper, multi-morbidity in the Chinese population is an important public health and medical issue. I provide general and specific comments to the authors as follows:

Line 31-33: It would be helpful if the authors could relate chronic diseases to the overall causes of death in China while also providing some specific comparative prevalence figures for more common chronic diseases to provide a better context for the readership. Can you say more specific about the age structure of the Chinese population rather than just a generic statement about it aging?

Line 38: How are multi-morbidities unique in terms of the treatment burden relative to those with just one major condition and why is this important for China particularly?

Line 48-51: This small bit of information on the CHCs is not really helpful (or necessary) unless it is further developed and you can say more about them to provide better context or just eliminate altogether

Line 52: You need to elaborate on what you mean by gate keeper function as that could be interpreted several different ways

Line 54: This is the first mention of a secondary care facility, please explain/

Line 62-64: Although the authors allude to studies in other countries in terms of chronic conditions and healthcare utilization, this paper really doesn’t seem to address that. Rather it is a largely descriptive piece on multi-morbidity and the socio demographic associations with that but says relatively little specific about health care utilization across these different factors and has very little discussion devoted to that topic.

Line 76-78: Who or what entity sponsored and/or paid for this survey….the Chinese government? Please elaborate.

Line 79-83: What was the relative contribution of each of these factors in terms of the actual selection the prefectures. The selection criteria need to be more fully explained including hospital ownership of the CHCs. The CHCs are governmental, are they not? No explanation was provided for the different operating models for CHCs so it is impossible to understand the implication of these being hospital run or owned.
Line 83-90: So, was the unit of randomization the neighborhoods? How does the Neighborhood authority relates to the residential communities, does the former oversee the latter?

Line 93: Who oversees the NHSS, please provide more detail since this was a source of many of your survey questions.

Line 116” It was not clear if “those unable to respond” were persons who were not home at the time or were persons who were unable to physically or cognitively unable to respond, please clarify and provide more detail since a fairly large percentage of your survey respondents were persons answering for the person of interest which introduces a number of other recall and related issues.

Line 199-120: How were medical records used to corroborate the survey and it would be important to quantify how often you were able to do this since you cite it as a methodology for reducing recall bias? It obviously important to know whether that was 10%, 25%, 50%, or 75% (etc) of the time because of the potential impact of doing what it was intended to do? How did the health care staff reconcile the two when there was disagreement between them, please provide some detail?

Discussion section: I feel as if there isn’t too much surprising in your findings? The fact that persons have more multi-morbidities with age and unhealthy lifestyle choices is hardly new. Is there more you can say about your findings in terms its trajectory now that China has reversed the one child policy and the resultant long term changes that might occur with the age pyramid and in the context of the current age pyramid? How does the huge float (internal migrants) play into all of this since they tend to have worse health outcomes and less access to public health and health care services than the remainder of the population? Overall, the discussion feels underdeveloped given the richness of your data.

Line 196-206: Much of this is just a recapitulation of your study design and is probably unnecessary. With careful editing, I think this paper could be easily edited down to a Brief Report format especially given the relative paucity of new findings.

Quality of written English: Needs some language corrections before being published

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