Reviewer's report

Title: Contextual socioeconomic determinants of cardiovascular risk factors in rural south-west China: A multilevel analysis

Version: 1 Date: 26 January 2007

Reviewer: Anne A Kavanagh

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General

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

This a large multilevel study of cardiovascular risk factors in China. The findings are of enormous interest and the study was well-conducted. My main concern is that the way the paper is currently written it is difficult to understand what the aims are, as well as to follow the methods and analysis and discussion. I make the following recommendations for improvement.

1. I suggest that they have someone who has excellent English to read the manuscript and improve expression.
2. The abstract is difficult to follow. At first I read that the sample size was only 200. It wasn't until later that I realised that it was 6000. Please rework the abstract to show this.
3. The introduction is poorly structured and I could not understand what they were trying to say in many parts. For example:
   a. what is meant by 'knowledge of the whole neighbourhood'? The sentence that this phrase is in is impossible to understand. (sentence 2, para 3 of intro)
   b. Likewise the last sentence of 3rd para is difficult to understand
   c. I do not follow the argument about genetic factors
   d. There are a number of contextual SES characteristics used: population density, literacy levels, percent ethnic minorities, mean income and distance from city. As I am unfamiliar with China, and many other readers will be, they need to argue why they include these different measures of contextual SES. Clearer argument about the conceptual underpinnings of each of these variables will aid interpretation.
   e. At the end of the introduction the authors need to make clear how their proposed study contributes to knowledge.

2. The methods need considerable improvement also.
   a. How were the independent variables fitted: continuous or categorical etc?
   b. The statistical analysis section needs attention. They do not state whether they are doing ML linear or logistic regression. Presumably the analyses of current smokers and drinkers were logistic.
   c. They do not make clear what variables are included in the models. Is the idea to put all the individual variables and fit models for each of the contextual variables separately or are they all in the one model?

4. Results:
   The presentation of the findings of table 5 needs improvement. It would be useful for key findings to repeat the effect estimates here. Sentence beginning "For individual SES variables.... This sentence goes onto to discuss the effect of age but it says it is about individual SES?? I suggest they restrict their discussion to area-level variables only.

At the end of the results they say they tested every possible interaction but none were significant. Is this true? Why did they do this? This was not in the method. They should only include interactions if they think they are plausible.

5. Discussion
   The first paragraph is almost completely repetitive of the last para of the results. This para needs to be more focussed and direct the reader to key findings.

Overall this section needs to be more interpretative and less about restating the results. eg how might you interpret associations between adult literacy levels and CVD risk factors. What might future work examine and what might be potential interventions.
The last sentence of 3rd para is very unclear. What is associated with ethnicity: drinking or literacy level or both?

I am unclear as to why the argue for genetic influences in the last sentence of para 4.

I suggest that the rework the discussion. Shorten it, highlight important findings only and make clear recommendations about future research and outline more clearly the significance of their findings for health promotion and policy.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: Yes, and I have assessed the statistics in my report.

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