Author's response to reviews

Title: The prevalence of metabolic syndrome and cardiovascular risk factors in adults in southern China

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Author's response to reviews: see over
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Victorino Silvestre  
Journal Editorial Office  
BioMed Central  

Dear Victorino Silvestre,

On behalf of my co-authors, I would like to thank you for arranging peer-review of our manuscript and for your invitation to submit a revised version. We appreciate the effort of the reviewers, and believe that their constructive suggestions have resulted in a stronger manuscript for readers of BMC Public Health.

If there is any further information required please feel free to contact us. We look forward to hearing from you.

Yours sincerely,

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We thank the reviewer’s valuable comments. The reviewer’s comments are shown in italics for easy reference, with our responses shown below the comments.

C = comment; R = reply

**Reviewer: Xiaoshu Hu**

**Reviewer's report:**

In this cross-sectional survey, the authors evaluated the metabolic syndrome prevalence and cardiovascular risk factors in adults in the south part of China. Although this topic is not something new, it is quite interesting to know the situation in such an economically developed area, giving a large disparity in China. The study design is reasonable and the survey has been appropriately conducted. Data analysis is appropriate and the tables are quite clear. The conclusions are supported by the data.

**Minor Essential Revisions:**

**C1:** Description of waist circumference measurement may be inaccurate. Please check the protocol of the 2002 China National Nutrition and Health Survey. “The WC measurement was made at minimal inspiration to the nearest 0.1 cm, midway between the lowest rib and the superior border of the iliac crest”.

**R1:** We have now revised the sentences into:

“Waist circumference measurement was made at minimal inspiration to the nearest 0.1 cm, midway between the lowest rib and the superior border of the iliac crest”.

**C2:** There are several definitions available for metabolic syndrome. Please justify why you used IDF definition to present your study prevalence. Moreover, the expression of IDF definition in the article was not accurate. For example, In IDF definition “Reduced HDL-cholesterol was defined as: <1.03 mmol/L in men, <1.29 mmol/L in women, or specific treatment for this lipid abnormality” – “The metabolic syndrome—a new worldwide definition. Lancet. 2005 Sep 24-30;366(9491):1059-62”.

**R2:** We have now added the following sentences in Methodology:

“The International Diabetes Federation criteria (IDF) were used to define MetSyn in the present study because this definition considers the ethnic difference for central obesity.”

We apologize for the typo. We have replaced the “≦” with “<” in the sentence.

**C3:** You mentioned “The 2000 census and associated administrative data” were used for derivation of weight. Is that the national data or provincial data? Please clarify it.

**R3:** It is provincial data. We have changed the sentence into:

“The weight was derived based on the provincial 2000 census data and associated administrative data.”

**C4:** In result part, you should point out clearly “the overall prevalence of MetSyn was…” in the result description of Table 2.

**R4:** We have now added the following sentence in the paragraph:
“The prevalence of the MetSyn in this population was 7.30%.”

**C5:** Please add the corresponding footnotes under Table 3 as well.

**R4:** We are not sure about what footnote refers to here. Does that mean the unit of age? We have added the unit for age in the table. We are very happy to revise the table if the reviewer can further clarify this.

**Discretionary Revisions:**

**C6:** Please use the term consistently. To my knowledge, vascular disease is just a form of cardiovascular disease.

**R6:** We have revised throughout the whole manuscript.

**C7:** In the methodology part, please explain why your study results from six urban city districts and seven rural villages in such an urban/rural proportion could be representative for the province.

**R8:** The stratified multistage cluster sampling with probability proportional to size method is a classic sampling method for selecting a representative sample from a population. We already indicated in Methods that we used this method for the present study.

**C8:** I think OGTT results were not used for analysis in this study. So it can be removed since it was not relevant here.

**R8:** We have deleted OGTT results in Table 1

**C9:** In the discussion, how do you calculate the estimated the number of MetSyn-affected population aged # 20y? You should say something about the number of adults having an age # 20y in 2000 Guangdong province Census

**R9:** We checked the provincial census data again, the size of the population aged 20 years or above is 55 millions. We therefore have changed the sentence into:

“This translates into a total of 4.0 million adults having MetSyn in Guangdong province which has a population of 85 millions (around 55 million residents with age of 20 years or above), with more than 60% having at least one individual component of MetSyn.”
We thank the reviewer’s valuable comments. The reviewer’s comments are shown in italics for easy reference, with our responses shown below the comments.

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Reviewer: Chee Weng Fong
Reviewer's report:

• Major Compulsory Revisions

C1. In the DISCUSSION section, the limitations of the study should be included. For instance, did all household residents who participated in the study comply with the fasting duration of at least 8 hours overnight? Are there missing values on the components of the MetSyn? Are there differences in the response rates of the urban and rural participants that warrant a check to see if selection bias exist between the two groups of participants?

R1: We have now added the following sentences to address the advantages and disadvantages of the present study:

“The advantage of our study is that we included a representative sample targeting to the whole population with 85 million residents in Guangdong province. However, large scale survey has limitations (e.g., nonsample errors including nonresponse, coverage errors and measurement errors), which may influence the accuracy of estimation.”

C2. In the METHODS section, it was mentioned that “a third of the sampled households (2,424 households with 9,509 all age residents) were randomly selected for dietary intake examinations, as well as blood sample laboratory test including fasting glucose and lipids profiles. Therefore, a total of 6,468 participants aged 20 years or above were included in the present analysis”. Does this mean that all members aged 20 years or above of each of the 2,424 households make up the 6,468 participants? Are there any household residents aged 20 years or above from any of the 2,424 households who did not participate? If so, are there any differences in those who participate and those who did not that would impact on the MetSyn results generalised for all adults aged 20 years or above in Guangdong in the study?

R2: All members of each of the 2,424 households were invited to participate in the survey, but not all the members were agreed or available to participate in the survey. The overall response rate was 89.45%. The members who participated in the survey with age of 20 years or above (6,468 participants) in these 2,424 households were included in the present analysis. The impact of non-response has been incorporated into the weight calculation. With regard to the difference between participants and nonresponse, we have discussed it as a limitation (please see R1).

C3. In Table 1, the sample numbers for the different age groups (20-, 40-, 60- and total 20+) by gender and region (urban & rural) should be included.

R3: We have added the sample numbers in the first row of Table 3 (it should be Table 3) for the age groups as the reviewer suggested. However, we found it will make the table complicated if we add the numbers for all categories.

• Discretionary Revisions

C4. In the METHODS section, it was mentioned that blood pressure measurement was based on reference [13]. It would be good if the specific cut-offs for defining hypertension are indicated for clarity.
R4: The cut-offs for defining hypertension based on the IDF definition has been provided in page 6 as follows:

“Hypertension: systolic blood pressure $\geq 130$ mmHg, or diastolic blood pressure $\geq 85$ mmHg, or treatment of previously diagnosed hypertension;”

C5: In the METHODS section, the authors could clarify on the specific attributes (e.g. age, gender and urban-rural distributions) of the Guangdong population (based on census and associated administrative data) that were used in the post-stratification weight of the sample.

R5: The weights in the present study did not use information on age and gender distribution for calculation. We have revised the sentences and provided more details for weight calculation as follows:

“The weight was derived based on the provincial 2000 census data and associated administrative data. These weights account for the stratified multistage and the unequal selection probability design. The non-response information was also incorporated into the weight.”

C6: In Table 1, data on education, tobacco consumption and alcohol consumption could be omitted as these have no bearing on the MetSyn analysis of the study unless the authors want to include additional analysis on MetSyn by educational inequalities or lifestyle behaviours (smoking and drinking).

R6: Education, smoking and alcohol consumption are important factors associated with the MetSyn. Although the purpose of this manuscript is to investigate the prevalence rather than assessing the association, we think the information on education, smoking and alcohol consumption in this table supports the difference between gender and region in this population.

C7: Table 2 and Table 3 can be combined into a more holistic table that provide readers information on the prevalence of the individual MetSyn components and MetSyn by age groups for the two genders by urban and rural regions.

R7: Each table contains much information. The table will be very big if we combine Table 2 and Table 3 together. Furthermore, if we group participants into more groups (by age groups for the two genders by urban and rural regions), the sample size in each category will decrease and the 95% confidence interval will be wider.

C8: Figure 1 would be more complete if an additional panel showing the number of MetSyn components by gender for both the urban & rural regions (combined) is included.

R8: We have redrawn the figure as the reviewer suggested.
We thank the reviewer’s valuable comments. The reviewer’s comments are shown in italics for easy reference, with our responses shown below the comments.

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**Reviewer: Puneet Misra**

**Reviewer's report:**

- Research Question is well defined, the study question authors proposed is relevant in the population where work has been done looking at CVD epidemic there.
- Methods are OK, although they have not given details of quality control of lab work. Sampling methods is OK, details are given. if there are more than one person doing interviews there may be interviewers bias, details has not been provided to control it.
- It’s a prevalence study and data for prevalence is reported rightly. Results justify the conclusion.
- This writing is acceptable and fit for publication

R: Because most laboratory tests were conducted in the national CDC laboratory rather than in the provincial CDC laboratory, we do not have the quality control data.