

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form ([see an example](#)) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below. Some articles will have been accepted based in part or entirely on reviews undertaken for other BMJ Group journals. These will be reproduced where possible.

### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Increased Waist Circumference and Prevalence of Type 2 Diabetes and Hypertension in Chinese Adults: Two Population-based Cross-sectional Surveys in Shanghai, China
<b>AUTHORS</b>	Xu, Wang Hong; Ruan, Ye; Mo, Miao; Joss-Moore, Lisa; Li, Yan Yun; Yang, Qun Di; Shi, Liang; Zhang, Hua; Li, Rui

### VERSION 1 - REVIEW

<b>REVIEWER</b>	Huimei Chen  Associate professor Nanjing University, School of medicine
<b>REVIEW RETURNED</b>	26-Jul-2013

<b>THE STUDY</b>	<p>The manuscript from Ruan et al. described that the prevalence of central obesity and related chronic diseases has been 64 increasing in Shanghai, China. It is very important and interesting to show such statistics in China. But, there are several major points:</p> <p>1. Methods: some subjects under 35 years were excluded from this study without reason? For matching age? Actually, the mean age in the two groups was significantly different.</p> <p>2. the authors described the relationship between obesity and other diseases. Is it a bit far from the key point of the manuscript? It is a common point and has been widely accepted. On the other hand, the possible factors related with the increased prevalence of DM or waist circumference.</p>
<b>RESULTS &amp; CONCLUSIONS</b>	<p>1. It is better to illustrate the differences of the two groups, besides the year collected, such as income, age group, distribution. It will help find new points with increased prevalence.</p> <p>2. Some comments, such as "Our findings provide useful information for the projection of a more rapidly growing burden of T2DM than hypertension in Chinese adults" might be modified. Or detail evidence is needed.</p>

<b>REVIEWER</b>	George Bayliss, MD Division of Kidney Disease and Hypertension, Rhode Island and the Miriam Hospitals Alpert Medical School, Brown University Providence, RI USA I have no conflicts of interest to declare.
<b>REVIEW RETURNED</b>	04-Aug-2013

<b>THE STUDY</b>	Strobe statement is included at the end of the article and appropriately describes the article
<b>GENERAL COMMENTS</b>	<p>Ruan and colleagues have presented an interesting study using data from two surveys of Chinese adults in and around Shanghai in 2002-2003 and 2009 to see if changes over time in waist circumference and BMI correlated with changes in the incidence of hypertension and type 2 diabetes. They found that while BMI was similar in the two periods, there was a marked increase in waist circumference over time. Hypertension was more clearly found in elderly men and middle-aged women; type 2 diabetes was observed in all groups, particularly in subjects age 45-49. They further found that while BMI was more closely linked to hypertension, waist circumference was more closely associated with type 2 diabetes.</p> <p>A review of the literature in PubMed shows that the work further clarifies the work of others on the relationship between BMI and waist circumference and the development of cardiovascular disease. The findings of a change over time in waist circumference, but not BMI, and the closer association of waist circumference to type 2 diabetes and BMI to hypertension certainly increase our understanding of the developing public health risks facing China's largest metropolitan region.</p> <p>The current study's limits include its cross-sectional nature and significant differences between survey populations in many variables for both men and women, which certainly may have introduced selection bias into the analysis. Indeed, the authors do not offer an explanation for the differences between the two survey samples. This raises the question of whether comparisons of the two populations represent a true trend.</p> <p>Before I can recommend publication, I would ask the authors to spell out in greater detail why comparisons can be drawn between the two survey populations when they were not the same on many points. In the end, if they cannot, then one can only conclude that the work is hypothesis generating and needs closer study before we can that it shows a significant trend.</p>

### VERSION 1 – AUTHOR RESPONSE

Reviewer 1:

1. Methods: some subjects under 35 years were excluded from this study without reason? For matching age? Actually, the mean age in the two groups was significantly different.

Response: We excluded the subjects under 35 years from the first survey in order to compare prevalence of obesity and other diseases between two survey populations. It is true that the mean age was different significantly. Therefore we compared the age-specific prevalence between two surveys.

2. The authors described the relationship between obesity and other diseases. Is it a bit far from the key point of the manuscript? It is a common point and has been widely accepted. On the other hand, the possible factors related with the increased prevalence of DM or waist circumference.

Response: The purpose we described the relationship between obesity and other diseases is to present the closer association of waist circumference with type 2 diabetes and BMI with hypertension,

which increased our understanding of the developing public health risks facing Shanghai, the China's largest metropolitan region.

1. It is better to illustrate the differences of the two groups, besides the year collect, such incoming, age group, distribution. It will help find new points with increased prevalence.

Response: We agree with the reviewer. As shown in table 1, we have compared the difference between two groups on age, income, education and other lifestyle factors. We also have presented the distribution in age groups in table 2. We can find that the two survey populations were different on many points, which may reflect the changes in characteristics of the general population over time.

2. Some comments, such as "Our findings provide useful information for the projection of a more rapidly growing burden of T2DM than hypertension in Chinese adults" might be modified. Or detail evidence is needed.

Response: Now we tone down the sentence as "Our findings provide useful information for the projection of growing burden of T2DM and hypertension in Chinese adults." (Line 64-65).

Reviewer 2:

Before I can recommend publication, I would ask the authors to spell out in greater detail why comparisons can be drawn between the two survey populations when they were not the same on many points. In the end, if they cannot, then one can only conclude that the work is hypothesis generating and needs closer study before we can that it shows a significant trend.

Response: The reason why comparison can be drawn between the two populations is that both samples were randomly selected from the general population following a similar protocol. Therefore, the samples generally represented the population at the respective time point, although selection bias could not be excluded. It is true that the two survey populations were different on many points. The differences somewhat reflected the changes in characteristics of the general population. Now we add the possible explanation for the differences between the two survey samples to the discussion section (Line 256-257).

#### VERSION 2 – REVIEW

<b>REVIEWER</b>	Huimei Chen  Associate professor  Medical school Nanjing University
<b>REVIEW RETURNED</b>	30-Aug-2013

<b>THE STUDY</b>	This study would tightly focus on the difference between the two survey and related factors.
<b>RESULTS &amp; CONCLUSIONS</b>	I think it would be better to find the factors involved in the defference between the two survey than the assciation between obesity and other dieases. That would be more impressive and interesting.
<b>GENERAL COMMENTS</b>	Another point confusing: the author presented the distribution in age groups. It suggested the distribution of age was a fator for the difference between two group. Why the information less than 35 was excluded?

<b>REVIEWER</b>	George Bayliss, MD
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	<p>Division of Hypertension and Kidney Diseases, Rhode Island and Miriam Hospitals, Providence, RI, USA  Assistant Professor of Medicine, Alpert Medical School, Brown Univ., Providence, RI, USA</p> <p>I have not conflicts of interest to declare.</p>
<b>REVIEW RETURNED</b>	29-Aug-2013

<b>REPORTING &amp; ETHICS</b>	<p>The article notes that the study was approved by the local IRB, but does not mention specifically whether informed consent was obtained or how it was obtained. This needs to be addressed.</p>
<b>GENERAL COMMENTS</b>	<p>Minor revisions with exception of inclusion of information about informed consent, which is a major revision</p> <p>The authors have addressed my main concern about the differences in the two survey groups by acknowledging the potential selection bias. Their suggestion that the differences between the two groups are in part the result of changes in Chinese society, or at least in Shanghai, are certainly reflected in the data. But I wonder if this also reflects changes in the population of Shanghai as result of internal migration. I would suggest rephrasing the conclusion along the lines of “Our findings provide useful information about the growing burden of type 2 diabetes and hypertension in Chinese adults and suggest the need for further study in other rapidly changing populations in China.”</p> <p>In reading the methods section, I do not see mention of whether or how informed consent was obtained was obtained. This must be addressed.</p> <p>The paper is well written. There are a few minor errors:</p> <p>Line 172 “The male participants in the <u>two</u> studies ...”</p> <p>Line 173 “The female <u>participants</u>”</p> <p>Line 185 “... did not <u>change</u>.”</p> <p>Line 186 “...prevalence of central obesity <u>was...</u>”</p> <p>Line 188 “<u>the</u> prevalence...”</p> <p>Line 199 “alcohol consumption” instead of “drinking”</p> <p>Line 239 “both epidemics”</p>

## VERSION 2 – AUTHOR RESPONSE

Reviewer 1: George Bayliss, MD

1.The article notes that the study was approved by the local IRB, but does not mention specifically whether informed consent was obtained or how it was obtained. This needs to be addressed.

Response: Usually, when we apply for the approval of IRB, we will be asked to provide an application form, full proposal and consent form in which all potential benefits and harms are described clearly. During the period of application, sometimes we are asked to revise the consent form according to the comments from IRB. The study cannot be initiated only after approval from IRB is obtained. All participants of the study will be asked to sign on the consent form before they are interviewed and/or examined physically. We have mentioned that “Informed consent was obtained from each participant before data collection and laboratory measurements.” (Line 115-116)

2.The authors have addressed my main concern about the differences in the two survey groups by acknowledging the potential selection bias. Their suggestion that the differences between the two groups are in part the result of changes in Chinese society, or at least in Shanghai, are certainly reflected in the data. But I wonder if this also reflects changes in the population of Shanghai as result of internal migration. I would suggest rephrasing the conclusion along the lines of “Our findings provide useful information about the growing burden of type 2 diabetes and hypertension in Chinese adults and suggest the need for further study in other rapidly changing populations in China.”

Response: It is true that we could not exclude the possibility that the changes in the population of Shanghai were the results of internal migration. We now rephrase the conclusion as suggested (Line 264-266).

3.In reading the methods section, I do not see mention of whether or how informed consent was obtained. This must be addressed.

Response: Please see the Line 115-116.

4.The paper is well written. There are a few minor errors:

Line 172 “The male participants in the two studies ...”

Line 173 “The female participants

Line 185 “... did not change.”

Line 186 “...prevalence of central obesity was...”

Line 188 “the prevalence...”

Line 199 “alcohol consumption” instead of “drinking”

Line 239 “both epidemics”

Response: We now correct these minor errors one by one.

Reviewer 2: Huimei Chen

1.This study would tightly focus on the difference between the two surveys and related factors.

Response : This study mainly focused on the difference between the two surveys, but not on the related factors. Our available data appears not enough to achieve the goal. For example, we did not collect information on diet, an important factors that may contribute to the difference between the two surveys.

2.I think it would be better to find the factors involved in the difference between the two surveys than

the association between obesity and other diseases. That would be more impressive and interesting.

Response : We agree with the reviewer that it would be much more interesting to identify the factors involved in the differences between the two surveys. As we described above, however, the data collected in this study could not develop reliable results.

3. Another point confusing: the author presented the distribution in age groups. It suggested the distribution of age was a factor for the difference between two groups. Why the information less than 35 was excluded?

Response : We recruited subjects less than 35 years old only in the first survey, but not in the 2009 survey. To compare the changes in BMI and waist circumference at same age groups, we excluded these young subjects from the analysis.