Author's response to reviews

Title: Association of obesity with socioeconomic status among adults of ages 18 to 80 years in rural Northwest China

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Author’s response to reviews:

Dear Editor,

RE: MS: 4964834381303880-Association of obesity with socioeconomic status among adults of ages 18 to 80 years in rural Northwest China

We are really grateful to yours and other reviewers’ critical comments and thoughtful suggestions. We have considered these comments and suggestions carefully. All changes made to the text are marked in red in MS Word. This manuscript has been edited and proofread by Medjaden Bioscience Limited. We hope the new manuscript will meet your magazine’s standard. Below you will find our point-to-point responses to the reviewers’ comments/questions:

Reviewer: Estrella Miqueleiz’s comments:

Reviewer’s report:

1. They don’t indicate the non-response rate. It would be interesting to add a table with the sociodemographic characteristics of the study subjects.

Reply: Thanks for your suggestions. In the revision, we have added the response rate is 84.17%. According to your advice, we also supplement a table 1 about the sociodemographic characteristics of the study subjects.

2. It would be interesting to conduct a logistic regression to see the relationship between obesity relationship and SES adjusted for risk factors analyzed in the study, to see whether the differences observed between SES and obesity may be due to differences observed between SES and risk factors.

Reply: Thanks for your comments. We have considered your suggestions carefully, and made a modification in the analysis of the relationship between obesity relationship and SES (table 3).

3. It would be interesting to perform the logistic regressions by age group. It could be differences between the youngest and the oldest subjects.
Reply: We think reviewer’s questions are helpful. We have added the logistic regressions by age group (table 4). It was found that we still noted a strong positive association between age and obesity in this population, after the inclusion of multiple lifestyle factors.

4. Page 5. Second paragraph. They have to put the reason that has made the different categories.

Reply: Thanks for your comments. We have carefully checked the second paragraph. Accordingly, we supplemented the reason that has made the different categories. “According to previous studies (15, 16), variables related to the participants’ lifestyles were categorized into two levels, e.g. farming frequency (<3 times/week and #3 times/week), hours of TV viewing (<2 h/day and #2 h/day), smoking frequency (no smoking and #1 cigarette/day), drinking alcohol frequency (no and #1/week) as well as amount of vegetable and fruit consumption (<500 g/week and #500 g/week).”

5. Page 7. Third paragraph (Line164-165). They say that the prevalence is higher in women when the OR is 0.77. Error in interpreting the results.

Reply: I am very sorry for the error. We have carefully checked the section, and corrected the sentence. “Furthermore, a gender difference was clearly identified for overweight/obesity in the study, that is, a significantly higher prevalence of overweight/obesity was observed in men than women (AOR:0.77, 95%CI:0.60,0.98).”

6. Page 8. Second paragraph. Comparisons with the results of other studies are confusing and do not give an idea of the prevalence of obesity in each area. It is recommended to restructure the paragraph.

Reply: Thanks for your comments. After carefully checking them, we have rewrite the paragraph. “Results indicated that the crude prevalence of overweight and obesity was 33.2% (age-standardized percentage 28.9%) and 5.7% (age-standardized percentage 5.3%), respectively, among participants in rural Hanzhong, northwest China in 2010. The figures reported from other studies conducted in China have varied considerably. For instance, approximately 37.5% of adults in Zhejiang province in 2009 were reported to be overweight/obese (BMI#24kg/m2, age-standardized rate 36.4%) (17). A study performed in Shanghai during 2007–2008 reported the prevalence of overweight/obesity (BMI#24kg/m2) to be 43.4% (18). A 2002 China Health and Nutrition survey indicated that 37.9% of adults aged#18 years were overweight/obese (BMI#24kg/m2) nationwide (19). Globally, it was estimated that the prevalence of obesity (BMI#30kg/m2) was the lowest in south Asia in both men (1.4%) and women (2.9%) (20). By comparison, it seems that the prevalence of overweight/obesity observed in our study population is approaching the Chinese mean level as well as the values reported in eastern China, which are also much higher than that reported in south Asia.”

7. Page 9. First paragraph (Line 211) .It’s necessary a reference when they say that in developed societies there is a negative association between SEP and
obesity in women but not in men is given.

8. Page 9. First paragraph (Line 214). It is not clear whether it refers to the results of this study or the reviewed literature.

9. Page 9. First paragraph (Line 216). Mechanisms of SEP-obesity association. They have to delve a little more and put some other mechanism that has been studied in previous studies.

Reply: Your suggestion is helpful. We have restructure this paragraph.


Reply: We have made a modification in the manuscript.

Reviewer: Lifoter Navti

Reviewer’s report:

Major compulsory revisions:

1. Abstract: It is important to include some statistics (odds ratios and p-values) in the results section of the abstract. Also, the conclusion of the abstract does not appear to be consistent with the aims of the study. Please rephrase the conclusion (what is the contribution of SES to obesity? How does SES affect lifestyles?). Please let it be clearer and more concise.

Reply: We are grateful for your comments. We have added some statistics (odds ratios) in the results section of the abstract. We also rephrase the conclusion.

2. Methods: Lines 64 to 70: The sampling procedure is hard to understand. Can the authors be more explicit on this? Also, 350 participants from 9 strata gives a sample of 3150 and not 3030 subjects as indicated in the abstract and methods sections. I would strongly suggest to the authors to revise the sampling procedure to express it more clearly and accurately.

Reply: We are grateful for your suggestions. Accordingly, we have made some corresponding changes in the section.

3. Results: the authors used logistic regression analysis to explore relationships between SES and obesity; and also SES and lifestyle factors (univariate analysis). Since income, level of education and gender have shown significant interactions with obesity, I would suggest to the authors to do a multivariate binary logistic regression analysis (which involves all significant variables being fitted in the model) to get the independent effect of each of the variables on obesity.

Reply: Thanks for your comments. In the manuscript, we have done a multivariate binary logistic regression analysis to explore relationships between SES and obesity; and also SES and lifestyle factors (which involves all significant variables being fitted in the model) after controlling for risk factors (Table 3-6).

Minor essential revisions:

4. Title: It is better for the title to read; ‘Association of obesity with socioeconomic
status among adults of ages 18 to 80 years in rural Northwest China\\n\hspace{1cm} Reply: Thanks for your suggestion. We have accepted it in the manuscript.

5. Abstract: in the background the authors use ‘the identification of obesity risks.....’ please change this to ‘the identification of risk factors of obesity’. Also in the last sentence of the background (line 5), the authors use ‘general and abdominal obesity as well as lifestyles’. Please use overweight+obesity or overweight/obesity and abdominal obesity as well as lifestyles.
\hspace{1cm} Reply: We are grateful for your advice. We have corrected them in the manuscript.

6. Abstract: in the methods (lines 7 to 8), it should read; a total of 3030 participants of ages 18 to 80 years from rural Hanzhong , Shaanxi, province, Northwest China were recruited using a two-level stratified random cluster sampling technique.
\hspace{1cm} Reply: Thanks for your advice and we have modified them.

7. Abstract: in methods line 10, it should read; ......while controlling for confounders. In correcting the abstract, the authors should ensure not to exceed the word limit.
\hspace{1cm} Reply: Thanks for your advice and we have modified them.

8. Throughout the manuscript, the authors have used general obesity, overweight/obesity. I think it would be easier for the reader to write overweight/obesity (BMI) or overweight+obesity (BMI) and abdominal obesity (WC) so that the reader can detect the method used to measure each variable. Please be consistent, even on some of the tables.
\hspace{1cm} Reply: We are very grateful for your help. Throughout the manuscript, we have corrected general obesity to overweight/obesity.

9. Background: Line 33; please rephrase sentence to make the information clearer. E.g ...........energy balance resulting from high energy intake or low physical activity levels........
\hspace{1cm} Reply: Thank you for your suggestions. According to your comments, we have modified them.

10. Background: Line 35: please rephrase sentence to make it clearer. E.g. .....strongly associated with increased risk of ..............
11. Background: line 36: Use ...... ‘type 2 diabetes’ instead of ‘diabetes mellitus type 2’........
\hspace{1cm} Reply: Thank you for your suggestions. The corresponding modifications have been made in the manuscript.

12. Background: Lines 36 to 38. Please rephrase the sentence
13. Background: Line 39: please replace ........ ‘obesity risks’.... with ....‘risk factors of obesity’......
14. Background: Lines 40 to 50: the sentences need to be rephrased to make the message clearer to the reader.
Reply: Thank you for your suggestions. The corresponding modifications have been made in the manuscript.

15. Background: Line 55: Please make the primary goal explicit. The authors have only mentioned the relationship between SES and abdominal obesity (WC). What about SES and overweight+obesity (BMI)? And also what about the relationship between SES and lifestyle factors?
Reply: We think your suggestions are correct. So, we have rephrased the primary goal in background.

16. Background: Line 64; .....adult residents of ages 18 to 80 years, recruited ......

17. Methods: Line 78: authors should indicate the country where the electronic scale Tanita HD-350 was made.
18. Methods: lines 81 to 82: please rephrase.
Reply: Thanks for your help. The correct modifications have been made in the manuscript.

19. Methods: Lines 89 to 90. Body mass index (BMI) and waist circumference (WC) were used for the assessment of overweight+obesity and abdominal obesity respectively.
Reply: We have corrected them, according your suggestions.

20. Methods: Line 99: The sample size of this study is large enough and I would suggest to the authors to use 3 categories of income (low, middle and high) instead of poor and non-poor, except there is a reason for this. It will be interesting to bring out the contribution of participants in the middle class, which is also important.
Reply: Thanks for your suggestions. We have 3 categories of income (low, middle and high) to analyze the SES of participants in surveyed areas.

21. Methods (research indicators): Lines 104 to 108: The use of 0 and 1 to explain categorization of variables is not necessary. For instance, for farming frequency, instead of using 0 to represent < 3 times/week and 1 for # 3 times/week, it is better to say: farming frequency was categorised into two groups; < 3 times/week and # 3 times/week.
Reply: We are very grateful your help. Accordingly, we have some modifications in the methods section.

22. Results: Lines 123 to 128: please rephrase.
Reply: Thanks for your comments. We have rephrased the paragraph.

23. Results: Line 132: Are the authors talking of prevalence or incidence?
Reply: We think your comments are correct and have changed incidence to prevalence in the manuscript.

24. Results: Line 163. The association between overweight+obesity and SES in men not determined?
Reply: We have reanalyzed the data and modified the results.

25. Results: Lines 167 – 175: Authors should be more explicit.
Reply: We have rephrased the paragraph.

Reply: Thanks for your advice. We have rephrased the paragraph.

27. Discussion: Line 247: ‘..... many previous studies...’ please cite some references to confirm the statement.
Reply: We have rephrased the paragraph.

28. Table 3: the footnote under table 3 indicates the medium SES used as reference group. Where is this from?
Reply: Thanks for you to point out the error. We have checked them and made the corresponding change.

29. Line 268 is supposed to be under acknowledgements.
Reply: According to your suggestions, we have put them under acknowledgements.