Author’s response to reviews

Title: Dietary patterns are associated with type 2 diabetes mellitus among middle-aged adults in Zhejiang Province, China

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Responses to reviewers

Reviewer #1:

1. The background, methods and results sections are well presented but the discussion section would benefit from a substantive review.

Answer: Thank you for pointing this out. We have made revisions in the discussion section in red font.

Reviewer #2:

1. Methods: Your reporting of participant selection seems to be a little unclear. You report on line 98 that 2437 eligible participants were invited… Could you please describe what criteria were used to define 'eligible'. This would also assist readers to understand how the population may not be representative (as stated in the limitations).

Answer: Thank you for pointing this out. We have rewritten the participants selection in red font in this paper.
2. In line 101 you report that "424 participants with a history of diabetes, cardiovascular disease, or stroke were excluded because of possible disease-related changes in diet." However, you then report in line 160 that T2DM was confirmed if the participants reported having been diagnosed with T2DM…. Could you please clarify? Were all or just some participants who had diagnosed T2DM excluded? Could you please explain your criteria for selection more clearly.

Answer: Thank you for pointing this out. We have rewritten this section in red font. The correct expression should be “424 participants with family history of diabetes(type 1 and/or type 2 diabetes), cardiovascular disease, or stroke were excluded”. Moreover, just some participants who reported to have the family history of diabetes have been excluded in our analyses.

3. You describe the collection of relevant biomarkers, (fasting glucose, total cholesterol etc). However, in the results tables you do not report these data. Was the FG used to check on stability of subjects with reported diagnosed T2DM and/or used to assess for potential undiagnosed T2DM? If so was further follow up undertaken to confirm this diagnosis? - The definition of T2DM section states that you have used participant reporting of diagnosis as the initial step from which you have then identified further evidence. Can you please explain how you assessed for the potential of undiagnosed T2DM in the study population if you only considered T2DM where this was previously diagnosed (and therefore the participant could report this)? Overall - the section on biomarkers in the methods should be revised to ensure that you explain the use of these data more clearly.

Answer: Thank you for pointing this out. The biomarkers were used to be further diagnosed with diabetes. In this study, there are some undiagnosed T2DM in the study population. During the interview process, we found that some participants were rarely go to hospital for physical examination. Thus, some participants with T2DM did not know they have it. Finally, according reviewer’s suggestion, we have revised the definition of T2DM section states in red font.

4. Did you consider creating a selection flow chart?

Answer: Thank you for pointing this out. We have added a selection flow chart in this paper.

5. Results: The description of the evidence alongside the results tables provides a succinct summary of the data.

Answer: Thank you for pointing this out. We have provided a succinct summary of the data in red font.
6. Line 197: A more detailed description of the models that you have presented in Table 5 could be useful to alert the reader as to what is reported.

Answer: Thank you for pointing this out. We have added a more description of the models in red font in Data analysis.

7. Discussion: In the abstract you mention nutritional transitions as a key factor indicating why studies of this kind are important. You do not go into any depth regarding this in either the introduction or the discussion. Has the nutritional transition been uniform across the population of China? If not, could you discuss in more depth the relevance of intergenerational factors associated with nutritional transition and NCD risk and prevalence - and contextualise this for the reader.

Answer: Thank you for pointing this out. Firstly, the nutritional transition has been uniform across the population of China. Secondly, the “fetal origins” hypothesis has suggested that T2DM is initiated by undernutrition during sensitive periods of growth and development, such as fetal life and infancy. In this study, most participants aged 45-59y are undernourished in childhood and put on weight rapidly later in adolescence. Thus, we mentioned nutritional transitions as a key factor in the Abstract.

8. Grammar: It would be valuable to have the paper reviewed by a language editor for proofing and grammatical accuracy as there are small issues throughout the manuscript that need to be addressed prior to publication.

Answer: Thank you for pointing this out. This paper has been reviewed by a language editor.

Reviewer#3:

1. Typographical errors include: 1) A lack of consistency in spacing between references and text. 2) A lack of consistency in spacing between punctuation marks (such as brackets) and text.

Answer: Thank you for pointing this out. We have modified these typographical errors in red font.

2. Grammatical errors include (only some examples are listed here): 1) Consistency with the phrase "...the associations between" instead of "...the association between" 2) "...evaluate the
relationship between dietary patterns and the risk of T2DM"… instead of "…evaluate the
relations of dietary patterns with T2DM risk" 3) "…adjusting for potential confounders" instead of
"…adjustment for the potential confounders…” 4) "…risk of developing T2DM…” instead of
"risk of T2DM" 5) "…logistic regression…” instead of "…logistic regression analysis model…”
Please also preface numbers describing a sample size with "n=…".

Answer: Thank you for pointing this out. We have replaced these grammatical errors in red font.

3. Abstract Lines 39-41: The sentence requires re-phrasing.

Answer: Thank you for pointing this out. We have rewritten this sentence in red font.

4. Background Line 75: Please include the relevant timeframe for the quoted statistic.

Answer: Thank you for pointing this out. We have included the relevant timeframe for the quoted statistic in red font in this paper.

5. Line 80: Reference(s) required for the epidemiological studies mentioned in this statement.

Answer: Thank you for pointing this out. Reference(s) required for the epidemiological studies have been mentioned in this statement in red font.

6. Lines 82-84: This sentence is unclear and requires re-wording.

Answer: Thank you for pointing this out. We have rewritten this sentence in red font.

7. Subjects and method Lines 97-98: Please re-phrase, or combine with lines 96-97 for a succinct description of the study population and study design.

Answer: Thank you for pointing this out. We have rephrased these sentences in red font.

8. Lines 101-102: A sentence should not begin with a number. In addition, the use of the phrase "…possible disease-related changes in diet" is unclear and should be re-worded.
Answer: Thank you for pointing this out. We have modified the sentence in Lines101-102. in addition, we also deleted the phrase "...possible disease-related changes in diet" and re-worded this sentence in red font.

9.Lines 108-109: Please provide a brief description of the validation method used for the FFQ.
Answer: Thank you for pointing this out. We have provided a brief description of the validation method used for the FFQ in red font.

10.Lines 110-114: This sentence requires re-phrasing.
Answer: Thank you for pointing this out. This sentence has been rephrased in red font.

11.Line 117: Reference(s) required for previous studies conducted in China.
Answer: Thank you for pointing this out. Reference required for previous studies has been added in this paper in red font.

12.Lines 134: Please include a description of the position (supine? upright?) participants were required to rest in.
Answer: Thank you for pointing this out. We have included a description of the position in this paper.

13.Line 135: Please include a description of how multiple readings were taken, i.e. consecutively? Over a set period of time?
Answer: Thank you for pointing this out. We have included the description of how multiple readings were taken in red font.

14.Line 136: Pleased also include the make and model of the sphygmomanometer used.
Answer: Thank you for pointing this out. The make and model of the sphygmomanometer has been included in this paper.
15.Lines 145-146: This sentence requires re-phrasing. The make and model of the scales used should also be included.

Answer: Thank you for pointing this out. We have re-phrased this sentence in red font. In addition, the make and model of the scales have been added in this paper.

16.Line 149: Replace "circumstance" with "circumference."

Answer: Thank you for pointing this out. We have replaced “circumstance” with “circumference” in red font.

17.Line 157: Replace "reliable" with "validated".

Answer: Thank you for pointing this out. We have replaced “reliable” with “validated” in red font.

18.Line 162: Please add "FPG" to abbreviations list.

Answer: Thank you for pointing this out. We have added “FPG” to abbreviations list

19.Results Line 179: A summary table listing foods under each of the three dietary patterns will be useful.

Answer: Thank you for pointing this out. We have added a summary table(Appendix2) listing foods under each of the three dietary patterns.

20.Discussion: Suggest replacing use of phrases such as "null result", "null association", "reverse causality", "temporality" and "temporal causal inference".

Answer: Thank you for pointing this out. We have replaced these phrases in red font.

21.Line 217: This sentence requires re-phrasing.

Answer: Thank you for pointing this out. We have rephrased this sentence in red font.
22. Line 223: Replace "In a word" with alternative phrase.
Answer: Thank you for pointing this out. We have replaced "In a word" with “In summary”.

23. Lines 227-228: This sentence requires re-phrasing.
Answer: Thank you for pointing this out. We have rephrased this sentence in red font.

24. Lines 230-231: Reference(s) required for this statement.
Answer: Thank you for pointing this out. The reference has been added for this statement in red font.

25. Line 249: Use of the word "wealth" implies multiple references however only one study has been referenced in this statement.
Answer: Thank you for pointing this out. We have replaced "wealth" with “A previous study ” in red font.

26. Lines 263-265: Elaborate on implications of this statement on findings of this study.
Answer: Thank you for pointing this out. We have elaborated on implications of this statement on findings of this study in red font.