

March 10th, 2025

Author's Responses to editors

Letter to Editors:

“Dear Editor in Chief and Reviewers:

On behalf of my co-authors, I would like to express our sincere gratitude to you and the reviewers for the insightful comments and suggestions regarding our manuscript, “**Exploring the association between dietary Zinc and Vitamin D intake with Diabetes in older adults using NHANES data**”. Your feedback has been invaluable in helping us refine and strengthen our work.

Please find below our point-by-point responses to each of the reviewers' comments, along with the corresponding revisions in the manuscript. We have carefully addressed all concerns and incorporated the necessary modifications to enhance the clarity, accuracy, and impact of our findings.

We appreciate your time and consideration of our revised submission. Thank you once again for the opportunity to improve our manuscript.

This manuscript has not been published or presented elsewhere, in part or entirely, and it is not under consideration by another journal. There are no conflicts of interest to declare.

We look forward to hearing from you.

Sincerely,

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Reviewer 1:

1. Abstract

Comment 1: “In the Introduction: For the sentence “Studies have suggested the potential association between micronutrients such as Vitamin D and Zinc, to the development of the disease.”, I suggest being more clear regarding which aspect of the micronutrients you aim to

investigate, such as adding the word "deficiency of micronutrients" or "levels of micronutrients" or "intake of micronutrients".

Response: Thank you very much for your feedback on the abstract. We have clarified that it is the deficiency of these micronutrients that is related to the development of diabetes.

Comment: "In Methods: remove the article "a" in "This was achieved by employing a univariate and multivariate logistic regression model"; consider adding "potential confounders" instead of "confounders" in "...adjusting for confounders..."

Response: We appreciate your grammatical suggestion and we made the changes related to the use of "a" article, "potential confounders" and the use of the term "item".

Comment: In Results: In "Univariate logistic regression indicated no significant association between dietary Vitamin D or Zinc intake" consider complementing the sentence with "... and diabetes." I suggest using the word "variables" instead of "items". For the numbers 9254 and 1172, please use the same format used in the main text (9,254 and 1,172). I suggest adding the main results of the model in the abstract, including OR and p-values.

Response: In regard to adding the OR and p-values this was added to the results section of the abstract.

2. Introduction

Comment 1: "In the first paragraph, in the sentence "The potential association of micronutrients, such as Vitamin D and Zinc, to the development of the disease holds significant implications in clinical research.", I suggest making more clear if the authors refer to the association of "level of intake" with diabetes."

Response: Thank you for the feedback. We have made it more clear and specified that we refer to the association of level of intake.

Comment 2: "The second paragraph is repeating information provided in the end of the first paragraph."

Response: Thank you for your observation. We modified the paragraphs to avoid repeating information and make it more clear that both paragraphs explain a different perspective about zinc.

Comment 3: "The third paragraph describes the gaps in the literature, but does not provide any reference."

Response: References for other studies and their results studying the diabetes and vitamin D and zinc association were added

Comment 4: "The authors provide previous data for the potential association between diabetes and Vitamin D, but not for Zinc. It would be important to show if previous studies were done and their results."

Response: Thank you. Besides the role of Zinc in metabolism, we did not find previous studies done with zinc to evaluate the development of diabetes related with zinc level intake.

Comment 5: “The flow of ideas could be improved by explaining the rationale and previous studies for Vitamin D and Zinc in separate paragraphs.”

Response: Thank you. We are going to analyze the possibility of change and separate both.

Comment 6: “I miss a paragraph stating the importance of your research question. Why would it be important to evaluate this association? Which would be the potential applications?”

Response: Thank you for your suggestion. We included this paragraph in the manuscript.”

3. Methods

Comment 1: “In the Exposures description, what was the rationale for selecting the confounding variables? Please, explain in this section. Also, the level of intake considered food sources, supplements or both?”

Response: The intake of Vitamin D and Zinc was from food sources and dietary supplements, and this information was added to the section.

Comment 2: “In the sentence “The NHANES dataset has many variables useful for exploring associations between self-reported diabetes status and factors like vitamin D and Zinc levels”, I suggest changing the word “levels” for “intake”, since the blood levels were not evaluated.”

Response: We made the correction and changed the word “levels” for the word “intake”.

Comment 3: “In the sentence “This may help estimate the relationship between nutrition and diabetes risk.”, I suggest not using the word “risk”, because the present study design does not allow us to evaluate risk.”

Response: We agree with this and have incorporated your suggestion throughout the manuscript. We deleted the word “risk”. It is now changed to “This may help estimate the relationship between nutrition and diabetes.”

Comment 4: In the Statistical analysis section, consider changing the word "Consequently" for "Subsequently".

Response: Thank you for this suggestion. We decided to change the word “consequently” for “subsequently”.

Comment 5: “In the sentence “Consequently, potential confounders were added to a multivariable logistic regression model that included zinc and vitamin D intakes using the stepwise approach, considering biological plausibility, coefficient changes, and a 95% confidence interval (CI)", please explain which coefficient changes were used as criteria.”

Response: Thank you for your comment. We identified confounders based on meaningful changes in the zinc or vitamin D intake coefficients, which we have clarified in the manuscript.

4. Results

Comment 1: “In the first paragraph, I suggest commenting on potential differences between responders and nonresponders to the question about diabetes in the survey. Are there relevant systematic differences between nonresponders and responders?”

Response: Thank you for your suggestion. We did not explicitly analyze systematic differences between responders and nonresponders to the diabetes question.

Comment 2: “In the paragraph about the multivariate model, the authors justify the choice about the covariates included in the model, based on clinical judgment and literature. It would be interesting to show the literature to support the selection of the variables.”

Response: Thank you for your valuable feedback. We included references about some of those variables in our discussion section.

Comment 3: “When the authors describe “potential confounders that contributed to the model’s performance”, I suggest describing in detail the criteria used to state that the covariate affected the model’s performance.”

Response: Thank you for your suggestion. We provided a more detailed explanation of the criteria used to determine the covariates that contributed to the model's performance in our discussion section, based on what we found in the literature.

Comment 4: “For the multivariate model description, the following paragraph is appropriate for the Methods section, instead of the Results section: “Based on clinical judgment and evidence from the scientific literature, a multivariate analysis was performed, including potential confounders that contributed to the model’s performance or had well-established associations with diabetes. Through a forward stepwise approach, we selected covariates such as age, gender, race, education level, total sugar and fat intake in the past 24 hours, BMI, minutes of sedentary activity, vigorous recreational activity, thyroid issues, and a history of smoking at least 100 cigarettes””

Response: Thank you for your helpful suggestion. We have moved the paragraph to the Methods section as recommended.

5. Discussion:

Comment 1: “I suggest reframing the first paragraph of this section to provide a brief summary of the main results of the study, discussing the secondary results in the subsequent paragraphs.”

Response: Thank you for your constructive comments regarding the discussion section. We have reframed this section to provide a concise summary of the main findings, with secondary results now discussed in subsequent paragraphs for better understanding.

Comment 2: “In the second paragraph, I suggest rephrasing the following sentence: “This may be due to improved self-care knowledge from education, complicating the nutrient-diabetes relationship and underscoring the need for further research.” The expression “complicating the nutrient-diabetes relationship” does not seem to convey the appropriate interpretation here.”

Response: We have revised the sentence as follows: “this may be due to the enhanced self-care knowledge gained from education, which may influence the nutrients-diabetes relationship, highlighting the need for further research.” This revision better reflects the intended meaning without misinterpreting the role of education.

Comment 3: “Please review the grammar for the whole 3rd paragraph.”

Response: We have reviewed the grammar throughout the paragraph and made the necessary corrections to improve clarity and readability.

Comment 4: “In the 4th paragraph, please review the sentence “The research confirms the connection between higher BMI and diabetes risk and suggests a slight protective effect from reducing sedentary behavior.” I suggest changing the word "confirms" for "suggest".”

Response: In response to your suggestion, we have modified the sentence to: "The research suggests a connection between higher BMI and diabetes risk and indicates a potential protective effect from reducing sedentary behavior."

Comment 5: “In the last paragraph, I suggest that the authors focus more on future research related to their main research question, instead of emphasizing the secondary results obtained in the model. Maybe suggesting longitudinal studies? Or studies considering blood levels of the micronutrients, instead of nutritional intake?”

Response: Thank you for pointing this out. We agree with your suggestion, therefore, we have refocused the conclusion to emphasize future research related to the main research question. We suggest conducting longitudinal studies to better understand the long-term effects of education on diabetes risk, as well as studies that consider blood levels of micronutrients rather than focusing solely on nutritional intake.

Reviewer 2:

1. Introduction:

Comment 1: “Please add the reference to support your statement in the background: ‘Studies have suggested the potential association between micronutrients such as Vitamin D and Zinc’”

Response: Thank you for pointing this out. We have added the references.

2. Methods:

Comment 1: *Results section: You stated “Participants with borderline diabetes (127), those who answered ‘don’t know’ (2) or refused to answer (0) were excluded.” My recommendation is: How is “borderline” defined, and by removing this population, will it affect your results?*

Response: Thank you so much. Borderline patients are those with an HbA1c of 5.7–6.4%. The risk of excluding these patients is that it makes our sample less heterogeneous.

Comment 2: *You added: “We adjusted for covariates like gender, age at screening, race (Mexican American, other Hispanic, white, black, Asian, and other/multiracial), education level (>9th grade, 9–11th grade, high school graduate/GED or equivalent, some college or AA degree*

and College graduate or above), body mass index (kg/m²), total sugar intake (gm/24h), total fat intake (gm/24h), the presence of thyroid problems, minutes of practicing sedentary and vigorous recreational activities, and smoking status due to the potential confounding effects of these variables.” Please elaborate more on the reasoning for adjusting for these variables.

Response: Thank you for your suggestion and feedback. These variables were selected because either they are known to be associated with the development of Diabetes Mellitus, or they are related to the intake, production, or metabolism of Vitamin D and Zinc, based on literature review and clinical judgment.

Comment 3: You defined “older adults” as more than 50 years old. Why not 60 years old? Please justify your reasoning.

Response: The reason we defined older adults as >50 years was to achieve a larger sample size for our study and to broaden the range of comparisons with studies available in the literature. Defining older adults as >60 years yielded non-significant results.

3. Results

Comment 1: As you discussed and disclosed in your paper, the final sample size was reduced significantly. Do you believe the results could be reliable? Please elaborate.

Response: We elaborated on the reliability of the sample size and the impact of excluding certain groups. We also discussed how our findings relate to previously published literature, which reinforces the validity of our results despite the reduced sample size.

4. Discussion:

Comment 1: Your study reported negative results. You should connect to existing literature findings: do they contradict? Should there be further investigation? Do these results contribute to the field, like narrowing the scope for future research?

Response: We appreciate your feedback. We searched for similar studies and identified knowledge gaps in the literature. We emphasized the need for further research and highlighted how our findings can guide future studies to narrow the scope and address these gaps.

Reviewer 3:

1. General

Comment 1: In the manuscript entitled “Exploring the association between dietary Zinc and Vitamin D intake with Diabetes in older adults using NHANES data”, the Author presents a very interesting and timely study. However, in my opinion, there are some major and minor points to be fixed.

Response: Thank you for your feedback on our manuscript. We appreciate your help in improving our work. We have corrected the minor changes as suggested. Additionally, we included the missing information in the discussion section.

Comment: In the manuscript entitled “Exploring the association between dietary Zinc and Vitamin D intake with Diabetes in older adults using NHANES data”, the Author presents a very interesting and Timely study. However, in my opinion, there some major and minor points to be fixed.

Response: Thank you for your feedback on our manuscript. We appreciate your help to improve our work. We have corrected the minor changes as you suggested. Additionally, we included the missing information in the discussion section.

2. Discussion (Major)

Comment 1: *I suggest Authors improve the Discussion section by adding more details and comments regarding the clinical impact of their results.*

Response: Thank you for your valuable suggestion. We appreciate your recommendation to expand on the clinical impact of our results. We have revised the discussion section to provide more detailed insights into how dietary zinc and vitamin D intake may influence glycemic control and diabetes risk, particularly in older adults. We also explored the potential implications for dietary guidelines and clinical practice. Your feedback has helped strengthen the overall impact of our findings.

Minor Issues

Comment 1: *I suggest Authors check for typos. For instance, see the Methods section of the abstract (“incorporating these”). I suggest checking the entire document.*

Response: Thank you for pointing this out. We appreciate your attention to detail. We have carefully reviewed the methods section of the abstract and thoroughly checked the entire document for typographical errors to ensure accuracy and clarity.

Comment 2: *I suppose that the sentence “Figure 2. The area under the receiver operating characteristic (ROC) curve was 0.7298.”, written after the “Sensitivity analysis,” is the heading of Figure 2. If this is the case, I suggest Authors remove the sentence from the main text.*

Response: We thank the reviewer for this helpful observation. The sentence “Figure 2. The area under the receiver operating characteristic (ROC) curve was 0.7298.” is indeed intended as the heading for Figure 2. To avoid redundancy and improve the flow of the text, we have removed it from the main text as suggested.