Author’s response to reviews

Title: Healthy Eating Index versus Alternate Healthy Eating Index in relation to Diabetes status and health markers in US adults

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Author’s response to reviews:

Dear Editor,

Thank you again for forwarding the reviewers’ constructive comments regarding our manuscript. After careful consideration, we made the essential revisions on the manuscript according to the comments and questions provided by Reviewer #1. As shown below, we provided a point-by-point response with detailed explanation for each comment and question. In addition, we highlighted the modified sections of the manuscript, which can be found in the revised version of our manuscript. We hope that the revised manuscript is now suitable for publication.

Reviewer #1: The authors extensively revised the article based on reviewer comments. It is well written with appropriate methodology and statistical analysis.

My major comment is in regards to results section and related tables. Various findings show statistical significance, which is common with large samples; as in Table 2, 3, and 5, would the authors like to comment if these findings have clinical relevance? For example, in Table 5 the CRP levels are almost identical from Quartile 1 to Quartile 4, although statistically significant these values show no clinical relevance. It might be suitable for the authors to comment on the clinical interpretation of these statistical findings in the discussion section.

The respected reviewer’s comment is valid. We clarified the paragraph from lines 639-655 that presents statistically significant and clinically important findings related to Tables 2 and 3. We discussed about the meaningful differences in HEI-2010 and AHEI-2010 components across
diabetes status groups as shown in the paragraph below. In addition, the authors already discussed in more detail throughout the subsequent paragraphs (lines 656-704) on the clinical relevance (supported by statistical significance) related to Tables 2 and 3 (i.e., higher protein intake for diabetes, method of alcohol scoring in AHEI-2010).

“The HEI-2010 and AHEI-2010 individual food and nutrient component scores are clinically important because they can provide more insight about dietary quality, which would allow more flexibility to tailor dietary intervention among individuals with diabetes. This study found statistically significant differences in the sub-component HEI-2010 and AHEI-2010 scores across diabetes status (Tables 2 and 3). Some of the food and nutrient groups in the HEI-2010 and AHEI-2010 were aligned with one another in terms of protein and carbohydrate intake. For example, adults with diabetes had the highest intake of total protein foods (corresponding to highest score) in the HEI-2010 (Table 2), which was consistent with their having the highest intake of red and/or processed meat (corresponding to lowest score) in the AHEI-2010 (Table 3). Similarly, adults with diabetes had the lowest intake of empty calories (corresponding to highest score) in the HEI-2010 (Table 2), which was consistent with their having the lowest intakes of alcohol (corresponding to lowest score) and sugar-sweetened beverages and fruit juice (corresponding to highest score) in the AHEI-2010 (Table 3). In terms of clinical relevance, it seems that adults with diabetes are consuming food groups that are higher in protein and lower in carbohydrates and fats than other groups.”

In addition, we provided a paragraph in the discussion paragraph to comment on the clinical relevance related to Tables 4 and 5 as shown in the paragraph below.

The present study found a significant linear trend between HEI-2010 and AHEI-2010 quartiles and some of the health markers (Tables 4 and 5). For example, there was a significant decrease in BMI, WC, and triglycerides with increasing total HEI-2010 and AHEI-2010 scores. These findings are also clinically important because these health markers are negatively influenced by consuming a healthy diet (i.e., whole grains, fruits, vegetables, nuts and legumes). In clinical practice, individuals (especially for diabetes) are often advised to make dietary changes, and compliance to a healthful dietary pattern can lead to improvement in anthropometric or metabolic outcomes. However, there was no difference in CRP levels across HEI-2010 and AHEI-2010 quartiles, which makes the clinical relevance of this health marker to be less clear. Contrary to the present study, previous studies have shown significant inverse association between CRP levels and dietary patterns [52,53]. Smidowicz and Regula (2015) conducted a systematic review on the role of diet in reducing inflammation and thereby decreasing the risk of chronic disease [53]. The review focused on the effects of several dietary patterns (i.e.,
Mediterranean diet, DASH diet, low-fat vs. low-carbohydrate) in relation to inflammatory markers (CRP and IL-6) [53]. Based on the review of the research, the authors concluded that it is difficult to determine which dietary pattern is optimal for reducing inflammation. The relationship between inflammation and diet is complex since inflammatory response is often triggered by the cumulative effect of dietary and other factors [53].

Reviewer #2: Thank you very much for revising the paper.

Your welcome. Thank you for your constructive feedback regarding our manuscript.