Francesco Visioli, PhD

Associate Editor

*Frontiers in Nutrition – Nutritional Epidemiology*

Dear Dr. Visioli,

We thank the editors and reviewers for their careful assessment of our manuscript and constructive comments. Please find our detailed responses submitted.

We have also uploaded two revised manuscripts (tracked and cleaned manuscripts).

Thank you for your interest in our manuscript and we look forward to hearing from you soon.

With best regards,

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Comments from Referee:

**Referee:1**

The paper by Wang et al. represents an important study to document the relationships between food groups and eating time slots according to diabetes status. Overall, this is an interesting study, which confirms associations between evening/night and consumption of pudding, soft drink, sugar confectioneries, chocolates, spirits, beers, ice cream, biscuits, and crisps for all adults in the UK. Sweetened beverages, sugar-confectioneries appeared more strongly associated with evening/night among un-diagnosed diabetics. Foods consumed in the evening/night time tend to be highly processed, easily accessible, and rich in added sugar or saturated fat. Individuals with undiagnosed diabetes are more likely to consume unhealthy foods at night. The results are interesting and important to inform the health authorities about the prevention of diabetes in adults.

**RESPONSE:** Thanks for your positive evaluation of our manuscript. We have modified the manuscript according to your comments and recommendations.

1. The results of this study are based on a representative sample of the population with large sample size and detailed baseline information on dietary and lifestyle determinants. As a main concern, detailed information on the validity of the dietary questionnaire is lacking. The authors need to better justify the dietary assessment method chosen (photos at every eating occasion, participant self-report and photo images of meal times (with time stamps), provide references for the validity or utility of this method. The numbers of food records for analysis are large, nevertheless, it must be acknowledged that the patterns identified make sense, and that they strongly relate to lifestyle factors and diabetes risk.

**RESPONSE**: Food records are considered the gold standard in nutrition epidemiology. Validation against biomarkers has been conducted in a subset of the sample and has been reported in the survey report.

1. The authors should inform in the introduction section on diabetes prevalence data in the UK National Diet and Nutrition Survey.

**RESPONSE:**

Almoosawi, S., Cole, D., Nicholson, S., Bayes, I., Teucher, B., Bates, B., Mindell, J., Tipping, S., Deverill, C. and Stephen, A.M., 2014. Biomarkers of diabetes risk in the National Diet and Nutrition Survey rolling programme (2008–2011). J Epidemiol Community Health, 68(1), pp.51-56.

1. How was sample size calculated?

**RESPONSE:** This is an epidemiological study that has been designed to be nationally representative of the UK and has an annual sample size of 1000 adults.

1. What was the inclusion and exclusion criteria for selection of the participants?

**RESPONSE:** This is a nationally representative survey that includes all children and adults living in UK who are aged…years and above. There is no specific limits to inclusion and exclusion criteria as it is designed to be representative of UK population.

1. Were participants who reported following a strict diet (i.e., vegan, coeliac/gluten free, or ketogenic) excluded?

**RESPONSE:** This data is only available for a limited number of survey members and has not been included in the analysis due to the high prevalence of missing data.

1. The lack of information on waist circumference (or waist-to-height ratio) and physical activity is a limitation of the study, and it should be mentioned, since abdominal obesity and sedentary lifestyle are the main mediating pathways that lead to diabetes.

**RESPONSE:** Due to missingness these variables were not investigated. We propose to add a sentence to outline this limitation.

1. The total intake and consumption of pudding, soft drink, sugar confectioneries, chocolates, spirits, beers, ice cream, biscuits, and crisps should be compared according to diabetes status (healthy, pre-diabetic, undiagnosed, diabetic) to find out if the intake of pudding, etc., in diabetics and non-diabetics is presumably accurate, so the magnitude should be explored of this problem. A sensitivity analysis could be performed.
2. Table 2 should also be adjusted for BMI.
3. Figures cannot be understood, cannot be read, have no title. The authors need to resubmit the graphics.
4. Spirits food has very high Odds and very wide confidence interval in all groups analyzed, probably due to a very small "n". Therefore, this association is very imprecise and should not be included in the conclusions. The authors should explain this association in the discussion and clarify what these foods groups are.
5. The authors have described the relationship between food groups and eating time slots in diabetics and non-diabetics participants. In addition, the authors have studied how such relationships may vary by status diabetes. One concern is that the results of this study are conditional on the diagnosis of diabetes. That is, diabetic participants require a dietary strategy and have different lifestyles than non-diabetics. So, if we focus only on diabetics, it would be interesting to add a table stratified by years diagnosed, or by controlled and uncontrolled diabetes, if possible.

[by Suzana] I believe we have data on diagnosed vs undiagnosed? We could comment on this point. Alternatively, we could say. Data on time of diagnosis is not collected in NDNS and could be outlined as a limitation of the current study. Moreover, although measures of glycaemic status have been collected in a subset of the population which will permit identification of undiagnosed diabetes, this data is not available for all individuals.