Author's response to reviews

Title: Dietary antioxidant capacity of the patients with cardiovascular disease in a cross-sectional study

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Author's response to reviews: see over
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Dr. Nehme Gabriel
Editor-in-Chief
Nutrition Journal

Re: MS: 3269835111454154 - Dietary antioxidant capacity of the patients with cardiovascular disease in a cross-sectional study

The authors appreciate all the concerns raised by the Reviewers and Editorial Board and as much as possible we have attended to all of these issues in the modified version of our manuscript. The remarks of the Reviewers were followed and revised in the text.

We have done our best to improve the quality of our manuscript. Hopefully this will meet the expectations of the Reviewers and Editorial Board.

Kindly find below the point-by-point answers for the comments and concerns.

With kind regards,

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Responses to major compulsory revisions:

Q1. The authors should not present the data both in tables and in the text.
A1. We agree with the reviewer’s comments and have changed the result section.

Q2. The authors must present 95% confidence intervals when presenting mean group intake estimates. Likewise, if presenting median group estimates, 25th and 75th percentiles must be included.
A2. We agree with the reviewer’s comments and have presented results as means with 95% confidence intervals and medians with 25-75 percentile range (table 2, 4, 5, 6).

Q3. The authors must present statistical tests with p-values or 95% confidence intervals to be able to claim that there are differences between groups. This must be revised throughout the results section and in table 2 and 3.
A3. We agree with the reviewer’s comments and have presented statistical tests with p-values or 95% confidence intervals (table 2, 4, 5, 6).

Responses to minor essential revisions:

Q1. The text needs to be revised by a scientist/researcher who is fluent in written English.
A1. The manuscript has been checked and corrected by a native English speaking person.

Q2. Please describe how the people with CVD were identified as such. Was it self-reported health status or diagnosed by a physician?
A2. Identification of CVD patients was based on self-reported health status of participants, who reported that have been previously diagnosed by a cardiologist and hospitalized for CVD.
We added that information in the methods section (subjects and food consumption).

RESPONSES TO THE REVIEWER # 2, Ock K. Chun
Responses to comments:

**Q1.** How was the number of subjects determined and what age range was used when selecting participants from the total study sample?

**A1.** A sample of 19,200 individuals (men and women) from the general population of more than 26 million Polish inhabitants aged 20–74 years was randomly selected. Two small (up to 8 thousand inhabitants), 2 medium (8–40 thousand inhabitants), and 2 large communes (above 40 thousands inhabitants) from each of the sixteen Polish provinces were randomly selected. One hundred men and 100 women from each commune, were randomly chosen from the personal identification number (PESEL) database. Finally, 13545 people (6392 men and 7153 women) agreed to take part in the study. Of these, approx. 50% was randomly selected for nutrition study. Lastly, from 6661 adults 643 subjects (357 men and 286 women) have been previously diagnosed by a cardiologist and hospitalized for CVD.

We added that information in the methods section (subjects and food consumption).

**Q2.** How many days of dietary recall were used to estimate intake?

**A2.** 1 day 24-hour dietary recall (1-d 24-h DR) were performed.

We added that information in the methods section (subjects and food consumption).

**Q3.** One point of concern is that the authors do not mention selection bias; patients with cardiovascular disease may have been more likely to die and thus excluded from this study - since the study is cross sectional - thereby introducing bias. Subjects excluded in this manner could have had different dietary patterns or food preferences compared with subjects without cardiovascular disease. Furthermore, recall bias was not discussed as possibly affecting the results of the study; it may be that subjects diagnosed with cardiovascular disease were more likely to recall eating "heart healthy" foods, and this may explain the greater TAC and certain food preferences (e.g. nuts and seeds) among subjects with cardiovascular disease. The authors seem to have overlooked or ignored these and other potential sources of bias.

**A3.** The authors are aware of some limitations of this research. At first, food intakes in this study have been estimated with the 1-day 24-hour dietary recall method, that does not reflect habitual or long-term food intakes. Twenty-four-hour recall, however, is a common method, which is useful to estimate mean
food intakes in large groups of participants and by this it is suitable for contrasting the dietary status of a group with different levels of risk factors of certain diseases. In this study, however, the number of participants was less than 1300, but taking into account the fact that the sample selection reflected the general adult Polish population, it seemed to be the most suitable for the objectives of this study. One of the limitations of this cross-sectional study is the fact that some patients may have been more likely to die and thus were excluded from this study thereby introducing bias. Subjects excluded in this manner could have had different dietary patterns or food preferences compared with subjects without cardiovascular disease.

It is likely that CVD patients paid more attention to adequate nutrition due to CVD diagnosis. Despite generally low nut and seed intake in the Polish population, these foods were one of the major contributors to DTAC in the men with CVD. On the contrary, dietary intake in the women with CVD was teeming with apples and strawberries.

The limitations of the study were explained in the discussion section.

Q4. I think it is good to explain the reason why the analysis was conducted with men and women separately. I wonder what the result of the analysis for all (men and women) was.

A4. The survey was conducted individually in men and women due to gender differences in burden of CVD, which include prevalence of hypertension, diabetes mellitus, metabolic syndrome and lifestyle factors.

Q5. Lacking in appropriate explanation about the reason why the CVD patient’s diet was better balanced in terms of antioxidant protection in comparison to healthy subjects. Of course, the people with CVD may have a possibility of changing their diet rightly because of the diagnosis of CVD. However, we cannot find any evidence and data that the patients with CVD have more dietetic knowledge and have changed their diets in right way in this paper.

In addition, the paper has a lot of grammatical and sentence structure errors, I don’t think 24 hour recall is an accurate representation of food intake to determine antioxidant compounds or to make the conclusion that the author did. The authors also did not mention reasons as to why CVD patients had a better balance diet, could it be due to their diagnosis? They also did not clearly explain how they matched the two groups, in one section a control group was mentioned but I didn’t see anywhere that defined what the control group was.
As to control group: a control group with no diagnosed CVD was randomly chosen from 6661 adults by a propensity score matching (PSM) technique, based on matching characteristics: age, body mass index (BMI), cigarette smoking, physical activity, commune type, marital status, level of education, household per-capita income, self-rated health. Scheme of the study and subjects’ selection procedure are presented in figure 1.

The limitations of the study were explained in the discussion section.

The manuscript has been checked and corrected by a native English speaking person.

Errors:

Q1. Abstract:
In conclusions it should saw which evidences.
Second paragraph of background should read “which is much higher than all other classes”
First paragraph of Methods. Sentence describing the 1661 subjects is worded weird.
Second paragraph of methods, first sentence is very confusing.
First paragraph of discussion should read, “that may protect against damage, reducing risk of various diseases”

A1. We corrected errors in the text.

Quality of written English:

Q1. Not suitable for publication unless extensively edited

A1. The manuscript has been checked and corrected by a native English speaking person.
RESPONSES TO THE REVIEWER # 3, Lidia Wądołowska

Responses to major compulsory revisions:

The objectives and references:

Q1. The Authors are not only one scientific team working in this area so others Polish papers must be cited, e.g. a paper “Total Antioxidant Capacity and Its Dietary Sources and Seasonal Variability in Diets of Women with Different Physical Activity Levels”, M. Czlapka-Matyasik, K. Ast, Pol. J. Food Nutr. Sci., 2014, 64(4) should be included into references.

A1. According to the reviewer’s recommendations the authors included into references other Polish papers in this area.


Abstract and Conclusion section:

Q2. The conclusions must be revised:
(1) there is no evidence regarding “an increasing dietetic knowledge of CVD patients” because of the manuscript provides a comparison between CVD patients and healthy subjects, and no changes with time were investigated;
(2) no data regarding “usually consumption of foods” exist since a short time consumption was investigated using the 24-hour recall method;

A2. The conclusions were revised omitting these questionable statements.

Methods section, statistical analysis:

Q3. To present food consumption data the median and range of 25–75 percentile is the better choice than mean;

A3. We presented results as means with 95% confidence intervals and medians with the 25-75 percentile range (table 2, 4, 5, 6).

Results:

Q4. The data related to correlation analysis are not presented in the tables although in results sections were discussed.
A4. The results section and the tables were revised according to the reviewer’s suggestions.

Discussion:

Q5. The first paragraph of discussion should contain a short summary of own findings followed by discussion of other authors findings.

A5. The discussion section was revised according to the reviewer’s comments.

Table 2:
Q6. The p-values for comparisons between groups are missing (at least for total beverages, total vegetables, etc.) although in results sections were discussed.

A6. Table were revised according to the reviewer’s suggestions.

Q7. The percentage contribution food items in consumption of total beverages, total vegetables, etc. should be given.

A7. The percentage contribution individual foods in consumption of food categories was presented in table 3.

Q8. For means (or medians) the 95%CI or 25th/75th percentiles must be given, at least for total beverages, total vegetables, etc.

A8. We presented results as means with 95% confidence intervals and medians with the 25-75 percentile range (table 2).

Table 3:
Q9. The p-values for comparisons between groups are missing (at least for total beverages, total vegetables, etc.).

A9. The corrected data from table 3 was presented in tables 4, 5, 6.

Q10. For means (or medians) the 95%CI or 25th/75th percentiles must be given, at least for total beverages, total vegetables, etc.

A10. We presented results as means with 95% confidence intervals and medians with the 25-75 percentile range (table 4, 5, 6).

Discussion section:
Q11. The seasonal variability in dietary antioxidant capacity should be discussed.

A11. Dietary intakes of antioxidants are dependent on seasonal variability of consumption, e.g. intake of berry fruits such as strawberries and raspberries in Poles is the highest in the summer period. This research, however, was conducted throughout the year, therefore it recorded virtually essential and representative sources of antioxidants for the studied population.

The seasonal variability in dietary antioxidant capacity was explained in the discussion.

Q12. The weakness of 24-hour recall method in relation to own findings should be discussed.

A12. Food intakes in this study have been estimated with the 1-day 24-hour dietary recall method, that does not reflect habitual or long-term food intakes. Twenty-four-hour recall, however, is a common method, which is useful to estimate mean food intakes in large groups of participants and by this it is suitable for contrasting the dietary status of a group with different levels of risk factors of certain diseases.

Limitations of 24-hour recall method in relation to own findings have been discussed in the discussion section.

Responses to minor essential revisions:

Q13. Table 3: “DTAC - μmol TE”, “DTPC - mg GAE”, “DTFC - mg QE” should be explained.

A13. Abbreviations have been explained.

Q14. Background, the first paragraph: “inverse association” instead the “inverse correlation” should be used; It was a correlation analysis used to find relation between antioxidant-rich food consumption and CVD risk or varied type of statistical analysis in references 3 and 4?

A14. It was corrected.

Q15. Methods section, the first paragraph: “study sample” term instead “study population” should be used; the same “approx. 11% of studied sample” instead the “approx. 11% of studied population” should be used.

A15. It was corrected.
Q16. Methods section, Assessment of total polyphenols...: Explanation for FRAP method must be given.

A16. It has been explained.

Responses to discretionary revisions:

Methods section
Q17. To prepare a figure with sample choosing and study design is suggested.

A17. A scheme with sample choosing and study design has been prepared and added in method section.