Author’s response to reviews

Title: Adherence to low carbohydrate diet and prevalence of psychological disorders in adults

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Author’s response to reviews:

Dear Editor,

Thank you very much for your letter informing us of your decision regarding the manuscript entitled “Adherence to low carbohydrate diet and prevalence of psychological disorders in adults” (NUTJ-D-19-00129). The manuscript has been revised according to the editor’s comments. Responses to the reviewer’s comments have been provided below. Revised texts have been provided in red font. Thank you so much in advance.

Yours Sincerely,
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Reviewer #1:

With the spread of fad diets, it is extremely important to study possible disorders and the influence of low intake of certain nutrients, the study was insightful and relevant for publication.

It should only make its conclusion as clear as possible. Congratulations!
Authors: Thank you so much for your valuable comment. Agreed. Done.

Reviewer #2:

The study assessed the cross-sectional association between a low carbohydrate score and psychological disorders in adults. The topic is of interest. However I have some major concerns.

1. The conclusion is not supported by the results. A high score of low carbohydrate diet was associated with a high prevalence of depression based on Figure 1 and the multivariable logistic regression model. A non-linear association between the score and the psychological disorders should be tested. The diet score can be used as a continuous variable in the analysis.
Authors: Thank you. We considered this point in the p-trend analysis in which diet score was used as continues variable.

2. The prevalence of the psychological disorders was above 10%. Prevalence ratio should be used instead of odds ratio to assess the association between the exposure and the outcomes. It can be done by Poisson regression with robust variance in Stata.
Authors: Thank you. We agree that when the prevalence of outcome in cross-sectional studies is higher than 10%, the ORs would overestimate the risk. Therefore, we corrected the ORs in the revised version using suggested formulas. This has been revised and clarified in the statistical analysis.

Minor

Table 3: Reference group should not have odds ratio of zero.
Authors: Thank you. Agreed. Corrected.

It is not clear why the authors choose diabetes and colitis as confounding factors.
Authors: We chose the confounding factors based on previous studies that revealed that patients who suffer from these diseases, are more prone to psychological disorders like depression, anxiety and psychological distress. Added in the statistical part of methods.
The rationale for the multiple multivariable models should be given.
Authors: All variables controlled for in the analyses were selected based on their contribution to psychological disorders in previous studies. The reason for not controlling them in a single model (and rather, adjusting for these variables in multiple models) is providing additional information for the readers in each model.
Reviewer #3:

The authors examine in a cross sectional setting the possible correlation between low card diet and prevalence of psychological disorders in adults. It is unclear how identifying differences in individuals already suffering from psychological disorders would help in either identifying etiology or improving treatment. While the study is based in a previously described SEPAHAN project, it is unclear why the total number of responders included is only half of those that provided the questionnaire on psych health. It seems that both phases weren't completely overlapping and that is a bit confusing.

Authors: In SEPAHAN project, 4763 questionnaires from phases 1 and 2 that provided all relevant information for each participant were considered for the current analysis. We also excluded individuals who had missing data on dependent and independent variables as well as on confounding factors. We provided all these information in the Figure 1.

Some background on diet, specifically low carb diet, and psych disorders is mentioned but not put sufficiently enough into perspective. There seem to be contradictory findings and that should clearly be pointed out. It is unclear why the authors limit the analysis to low carb diet, it certainly would add value to include a more comprehensive analysis of potential dietary differences in individuals with psych disorders.

Authors: Agreed. We added backgrounds on diet in the introduction part. Also we added the dietary intakes of participants according to having/not having psychological disorders in Table 2 and results part of manuscript. However, the associations between other dietary intakes such as magnesium and whole grains with psychological disorders were examined in our previous studies in SEPHAN project.


As etiology can't be explored using the cross sectional design, identifying potential dietary shortcomings in individuals with psych disorders might provide some novel insight and open new avenues for supportive treatment regimen.

Authors: We agree that the cross-sectional design cannot reflect the etiology, but it should be kept in mind that findings from cross-sectional studies provide some clues for the associations that must be studied in cohort studies. We discussed these points in the discussion part of manuscript.
Two different figure 1's are listed, only one shown and Figure 2 listed but not shown.

Authors: Maybe there was a systemic wrong. We corrected it.

Range of LCD score in quartiles seems missing, this is crucial as low range would indicate low ability to link with psych disorders.

Authors: The LCD score in quartiles were provided in the Table 3.