Reviewer's report

Title: Associations between diet and mental health using the 12-item General Health Questionnaire: cross-sectional and prospective analyses from the Japan Multi-Institutional Collaborative Cohort Study

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Reviewer: Anika Knuppel

Reviewer's report:

Review of the manuscript NUTJ-D-19-00238In this paper the authors report associations between food and nutrient intake and mental health cross-sectionally and prospectively in a Japanese population. The work adds important prospective evidence on associations between diet and health.I enjoyed reviewing this manuscript - it is of very good quality, well-structured and excellently written. The data was of high quality and the authors conducted sound analyses. However, I think the manuscript could be improved if sensitivity analyses were referred to explicitly, if it would include a discussion of the role of selective drop-out and if the conclusion were slightly rephrased.Main revisions / clarification required: 1. Abstract: The abstract could be improved by referring to all the findings - the associations between vegetables and MUFA in cross-sectional analyses, and dairy products in prospective analyses are currently missing. 2. Line 146f: The authors have chosen to dichotomise variables on employment, smoking and alcohol consumption, I wonder if this might reduce the ability to effectively adjust for confounding, especially regarding alcohol consumption - how many participants were potentially zero-drinkers (who could potentially be former alcoholics). Firstly, I think it would be good to add the dichotomy definitions in the main manuscript. Secondly, it would be helpful to see the univariate associations (Tables 1-4) for more than two categories to show that the associations are not importantly different when using finer categorisations. 3. Line 177-179: As far as I understood the longitudinal studies excluded GHQ score at baseline so adjustment by binary score would be impossible. I assume this was kept in from an earlier version of the draft. I suggest deleting these lines? 4. Methods section: Please add a list describing all sensitivity analyses conducted, even if they are not all presented in the results, such as including certain participants and additional adjustment models - I understand there was a analysis including those with intake of drugs of central nervous system and additional mutual adjustment of dietary factors. 5. Lines 244-248 refer to an association between protein intake and mental health as shown "both the cross-sectional and follow-up stud[y]" - I think this is a mistake as there was no significant trend, if these results are to be referred to I would value to qualify this insignificant trend/non-linearity of the association. 6. Line 289-291: here there is reference very important sensitivity analyses. I believe these should be reported in the results section, and maybe even as supplementary tables. I wondered when reading this what had happened to the calcium result - was this attenuated after dairy adjustment? 7. Discussion: I believe that two important limitations have been missed out of the discussion, firstly, the role of selective drop-out of participants during follow-up, it is likely that those prone to mental health issues or experiencing mental health issues could have not participated in the follow-up survey because of that, potentially the authors could consider presenting the cross-sectional results in those with follow-up data only as a supplementary - but in
general the risk of selective drop-out should be discussed as a limitation; secondly, the authors should list the risk of a chance findings as a limitation considering the number of multiple tests conducted. 8. Conclusion: I am a little unsure about the conclusion of the paper and in the abstract (do not entirely synch up which I think they should). I think the manuscript would be improved if the authors would either be referring to an association for the cross-sectional results or consider only referring to the calcium results and saying that there was a suggestion of associations with (list of foods and nutrients in both analyses).  

Optional and minor revisions: 1) Line 74f: The authors report here the evidence from other work and describe it as affective. I would recommend referencing more recent research and systematic reviews such as Scheffț et al. European Neuropsychopharmacology 2017 and/or weaken the language as "suggested to" rather than reported to be effective, as such as associations with for example folate could not be verified in more recent larger RCT’s. 2) Line 83f: Reference [13] is referring to GHQ-30, but the authors are talking about GHQ-12, maybe a different reference is more suitable here. 3) Line 214f: I would suggest saying "marginally insignificant" as it is above 0.050 or just referring to a negative correlation and presenting the p-value in brackets. 4) Line 139: Could the authors add the reference for the validation after this sentence, reference [23] only covers the food composition table. 5) Optional - Discussion: From a style point of view I would suggest transferring lines 235 to 242 to 321 as generalisability is part of the discussion of strengths and limitations and it is common practice to start the discussion with a short summary which is provided lines 243 onwards. 6) Line 316: Longitudinal analyses cannot prove causality, I would prefer referring to "incidence" here and maybe "temporality". 7) I believe the authors could consider putting Table 3 and 4 in the supplementary material. 8) Consider using the term "prospective" instead of longitudinal.

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