Author's response to reviews

Title: Adherence to the USDA dietary recommendations for fruit and vegetable intake and risk of fatal stroke among ethnic groups: a prospective cohort study

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Version: 2 Date: 1 June 2013

Author's response to reviews: see over
June 1, 2013

Subject: MS# 6083618848467934

Dear Editor:

We thank you for the opportunity to submit a revised version of our manuscript entitled “Adherence to the USDA dietary recommendations for fruit and vegetable intake and risk of fatal stroke among ethnic groups: a prospective cohort study” to BMC Neurology.

We would like to thank the reviewers for the many insightful suggestions that we agree could contribute to improving our manuscript. Unfortunately, we are unable to revisit or conduct new analyses due to timelines and funding constraints. However, for the majority of the reviewers’ suggestions, we were able to supplement the manuscript with analyses that we had chosen not to include in the original submission, as well as information that was available from other MEC reports (published and unpublished). Detailed responses to the reviewers’ suggestions are on the following pages.

The correspondent regarding this manuscript is Dr. Sangita Sharma, University of Alberta, Department of Medicine, 5-10 University Terrace, 8303 112 Street, Edmonton, Alberta, T6G 2T4, Canada. Tel: 780 492 3214; Fax: 780 492 3018. Email: gita.sharma@ualberta.ca.

Sincerely,

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Endowed Chair in Aboriginal Health,
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Reviewer's report
Title: Adherence to the USDA dietary recommendations for fruit and vegetable intake and risk of fatal stroke among ethnic groups: a prospective cohort study
Version: 1 Date: 21 February 2013
Reviewer: Linda JOude Griep

Reviewer's report:
Sharma et al. examined associations between adherence to the USDA dietary recommendations for fruit and vegetable intake and risk for fatal stroke by ethnicity. They used valuable data from a large prospective cohort study of 174,888 Hawaiian and Los Angeles residents comprising different ethnic groups who were followed for eight years. Stroke mortality rates differ sizably per ethnicity and at present limited data is available about potential benefits of higher fruit and vegetable intake on fatal stroke risk among these ethnic groups. I have the following concerns about the study that may help the authors to further improve the paper:

Major compulsory comments
Statistics/results Section:
1. Please add average intakes of fruits and vegetables and numbers of participants’ adherent to the current dietary recommendations per ethnic group. The number of participants adhering to the fruit and vegetable recommendations is probably low and such binary analysis may limit the power of the analysis. Please present numbers of participants in each group.

Details on adherence to dietary guidelines as well as intake levels among the different ethnic groups participating in the MEC study have been reported previously. The percent of participants adhering to the recommendations ranged from 36-69% among the ethnic-sex groups, thus sample sizes were sufficient based on the binary cut-point. We have summarized findings on adherence levels and added comments and references to reports with detailed information on adherence and intake levels. (Background, line 16; Methods-Dietary Assessment-last paragraph-lines 88-92).

Adding categorical (tertiles/quartiles) or continuous (per serving) analyses by ethnic group may be more useful to detect associations.

We have included the available analyses using the categorical variables [i.e., that mentioned in the original manuscript – Discussion, paragraph 5, ‘...(data not shown)...’ - this has now been removed from the discussion], as well as analyses using a continuous variable for the exposure measures. These additional results have been incorporated into 2 tables (for men and women) and the sex-specific results from the original binary analyses included in the relevant table. The text has also been updated to reflect these changes (Methods, Statistical Analyses, lines 103-109; Results, lines 135-145; Discussion, lines 202-206).
2. Page 8, line 130: What is the reason for stratified analysis by gender? If there is no effect modification detected for gender, then there is no reason for showing results stratified. Results were stratified by gender due to observed differences in stroke mortality between men and women in some ethnic groups (Introduction, 4th sentence). We agree with the reviewer that it would be appropriate to pool the results given no evidence of effect modification. Unfortunately we are unable to access resources to re-compile the original data sets to run new models at this time.

3. Identification and validation of stroke:
* Please add data on fatal stroke data validation. Elaborate in the Discussion if potentially cases are missed due to misclassification of endpoints or loss to follow-up and its impact on the results.
* Please add data on numbers of ischemic/haemorrhagic strokes; incidence may vary between ethnic groups and may explain results.
We chose not to separate out the ischemic/hemorrhagic cases, for several reasons; several previous studies have shown the effects of diet to be similar for both types of stroke (3 references have been added), and as the number of cases was relatively small, this would have further limited statistical power. The concern regarding misclassification using the ICD codes noted by the reviewer was also considered. We have expanded our discussion and added these points and several references (Discussion, lines 231-235).

4. Please add data on censoring date. How are participants treated in the analyses that are lost to follow-up?
This information has been added. (Methods, Statistical Methods, lines 103-104).

5. Table 1: Please present differences in risk factors according to ethnicity instead of by gender. If available, please include data on biomedical risk factors other than BMI that may differ per ethnicity, e.g. prevalence of high blood pressure, cholesterol, and hyperglycaemia/DM.
For reasons mentioned above, we are unable to revisit the analysis to include new information for this specific subset of the MEC cohort. However, a previous report has published this information based on MEC participants comprising over 93% of the participants included in the current study, thus should be reflective of the current study population. We have added comments on this point to the Background, with details on the prevalence of hypertension among the different ethnic groups: (Background, lines 17-21).

Minor essential comments

6. Study population: Please elaborate in the discussion whether low response rates may have biased the results or had impact on the generalizability of the results.
This point has been added to the 2nd last paragraph of the discussion, and the comments regarding generalizability that were originally in the last paragraph have been moved to this sections for continuity. (Discussion, lines 238-243)

7. Study population: How long have participants been in the US? In what proportion have they adapted towards a typical Western diet?
We do not have these details available, but have added discussion on this point referencing MEC publications regarding food choices. (Discussion, lines 224-229)
8. Can you present more details on differences in dietary patterns between ethnic groups? Details on dietary patterns among MEC participants are extensive and have been presented in several previous MEC publications (or are under review). We have added comments referring to these other publications, and included the references for published manuscripts (Discussion, lines 181-184, lines 224-227).


10. Please describe the validation study of dietary intake in more detail; e.g., number of participants in sub cohort, which data are compared, etc. Please present correlation coefficients for fruit and vegetable intake measured by 24-hr recall and FFQ. Correlation coefficients were calculated for nutrient intake (which are presented) rather than food group in the calibration study. The number of participants in the validation study has been added (Methods, line 65), and we have expanded this section to provide more detail on fruit and vegetable contribution to specific nutrients (Methods, lines 69-72).

11. Page 5, line 69: It is here suggested that data is available on types of fruits and vegetables. Please include such data in this paper – at least intake levels per ethnic group - since associations with stroke risk may be explained by varying intake levels of types of fruits and vegetables per ethnicity. The intake levels by ethnicity have been reported previously. A study with extensive details on the types of fruits and vegetables consumed by the different ethnic groups (and contribution to specific nutrients) is also currently in the final stages of revision and is expected to be published soon. Comments referencing this information have been added to the manuscript (Methods, lines 88-92, Discussion, 181-184).

12. Page 6, line 70: Please add information on the inclusion or exclusion of fruit juices (100% or not?) and other processed fruits and vegetables. These sources were included – comments added to clarify. (Methods, lines 79-80)

13. Page 6 line 72: Are number of servings per day summed? Yes. (Methods, line 80)

14. Page 7, line 95: Please justify the adjustment for these food groups. Models were adjusted for the other food groups noted in Table 1 due to potential for confounding – text has been revised and references included for justification. (Methods, lines 114-116)

15. Page 7, line 106: Please add SD and some general informative data as mean intake per ethnicity. Details on mean intake/SD for fruits and vegetables, including some food subgroups, have previously been published and can be found in references 8 and 9. (please also see notes above regarding Table 1).

16. Page 8, line 117 + Page 10, line 186: The aim suggests that only fruit and vegetable intake was examined in relation to stroke. Here, however, it is mentioned that five food groups were examined in relation to stroke. Please clarify. We have made revisions to clarify that only fruit and vegetable intake is examined in the present analyses.
17. Page 10, line 164: Please add more on potential mechanisms from other micronutrients or bioactive compounds than only vitamin C that may be beneficial in relation to stroke.
We have added comments and references regarding potassium and antioxidants. (Discussion, lines 188-191)

18. Page 10, line 170-172: Though results vary between men and women, there is no evidence for effect modification since 95% CIs are overlapping. There may be other explanations for this such as women are in general more health conscious than men and may tend to over report healthy food intake and residual confounding.
We thank the reviewer for raising these very relevant points, and agree the differences in results are not sufficient to support effect modification. We have revised the Discussion accordingly (Discussion, lines 209-214)

19. Page 10, line 184: total intake of what? Nutrients – sentence has been revised. (line 226)

20. Page 10, line 188: please explain what has been done in this analysis more clearly in the Statistics and present results in the Results section.
These sections have been revised accordingly, with addition of other points noted by the reviewer for clarification. (Methods, lines 103-109, 114-118; Results, 135-145)

Level of interest: An article of importance in its field
Quality of written English: Acceptable
Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:
I declare that I have no competing interests
Reviewer's report
Title: Adherence to the USDA dietary recommendations for fruit and vegetable intake and risk of fatal stroke among ethnic groups: a prospective cohort study
Version: 1 Date: 25 February 2013
Reviewer: chenya huang

Major Compulsory Revisions
1. Please clarify why hypertension was not part of the stratified models.
A high percentage of stroke cases reported hypertension, and this factor was also highly correlated with diabetes, thus this factor was not included as a covariate. (added to Methods, lines 116-118)

2. Please clarify whether there are disparities in the distribution of other risk factors (diabetes, hypertension, smoking, body mass), amongst the different ethnic Groups. Details including this information have been previously published, we have expanded comments and added references in Background and Methods (Please see author response to Reviewer #1, point 5)

3. Please clarify whether the recorded prevalence of hypertension and diabetes has been verified by medical records, or are based only on what has been reported by the participants, and whether the diagnosis of hypertension is based on blood pressure figures. Is there any information on whether the different ethnic groups have similar understanding of what is meant by hypertension and diabetes and whether they have equal access to diagnostic facility and treatment to make the data comparable.
The data was self-reported on the mailed questionnaire, and we have added clarification (Methods, line 45). We were unable to find any information regarding ethnic differences in understanding of these conditions or access to health care.

Minor Essential Revisions
4. Death due to ischemic stroke and death due to hemorrhagic stroke should also be separately analyzed if the data is available.
Unfortunately, we are unable to revisit analyses to provide this information. However, we have added justification regarding our initial decision to combine cases regardless of stroke type (Discussion, lines 231-237, and also see author response to Reviewer #1, point 3).

5. Conversion factor for serving to gram should be stated for food group intake since there is worldwide variation in what is meant by servings.
There is no weight conversion for the serving sizes for the USDA dietary guidelines, as the serving weight can vary depending on the food choice. For example, a serving from the fruit group may be an apple, or ¾ cup of juice.

6. Although the authors stated that a similar trend was seen when categorical variable based on levels of adherence was used, this data should be available perhaps as a supplementary data table.
This information has been added to the manuscript, as also suggested by Reviewer #1.

Discretionary Revisions
The authors might like to clarify that their study is not designed to study the impact of diet on non fatal or total stroke. Their results does not apply to any possibility of an effect of adherence on stroke incidence.
A comment has been added regarding this point (Discussion, line 247-250)

Level of interest: An article of importance in its field
Reviewer's report

Title: Adherence to the USDA dietary recommendations for fruit and vegetable intake and risk of fatal stroke among ethnic groups: a prospective cohort study
Version: 1 Date: 25 February 2013
Reviewer: Dean Sherzai

Reviewer's report:
1) I don’t have any discretionary Revisions.
2) I suggest some minor Essential Revisions
Given the growing minority populations in United States, and the high prevalence of stroke in these groups, the topic of this paper is timely and very important. But in light of recent research, the data may have some important limitations such as its inability to address the different types of fruits and vegetables, and methods of food preparation. Our current understanding of differences in types of fruits and vegetables accessible to different ethnic groups, as well as differences in food preparation amongst these populations, may warrant expansion on these topics in the limitation section.

We have added some discussion and additional references regarding this point on some available data regarding food choices and subgroups (Discussion, lines 183-186, 226-231 in limitations).

Other than a small paragraph about Vitamin C and its indirect relationship with stroke through Uric Acid levels (lines 164-169), there was not much further elaboration on possible biological mechanisms relating fruits and vegetables and stroke. This paragraph seems arbitrary and the authors may choose to either expanded or eliminated it.

We have expanded on this (as suggested by Reviewer #1, point 17) and merged this text into the 2nd paragraph of the Discussion. (Discussion, lines 188-191)

3) I don’t have any major Compulsory Revisions

Level of interest: An article of importance in its field
Quality of written English: Acceptable
Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests: I declare that I have no competing interests.