Reviewer’s report

Title: Evaluation of sex differences in dietary behaviours and their relationship with cardiovascular risk factors: A cross-sectional study of nationally representative surveys in seven low- and middle-income countries

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Reviewer: Paola Villaverde

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McKenzi B. L. et al. investigated sex differences in the dietary behaviours of salt use, fruit and vegetable consumption and type of oil and fat used in cooking, and the association of these behaviours with the prevalence of high waist circumference, hypertension and diabetes.

In general, I suggest a review of the language in the article, sometimes is not very clear what the authors want to express.

Comments related to the title, when I read the title, I thought that I would observe differences in dietary intake of salt, fruits and vegetables and oil and fat by sexe, however the authors did not observe strong differences. In your abstract you conclude that dietary behaviours were not notably different between sexes. Further, in table 4 the p-interaction was not significative with sexe. You can state your title as a question (Is there differences in dietary intake by sex?) or that there was not differences by sexe.

The methods of the article were not very clear and I have some doubts. In the section "data source or data collection": How many surveys did you have available? Why the country survey data were included if the survey was conducted during or after 2005? What is the temporality of the surveys? Why did you include participants 15 and older if hypertension and diabetes risks increase with age? In this section the temporality of the outcome, exposure and covariates is not clear, these variables came from the same survey in terms of time? (for example, all the previous variables came from the survey of 2005?).

In the section terminology sex and gender: "A person's sex is recorded in the WHO STEPs surveys by the interviewer documenting the observed sex of the participant (binary, male or female)". According to the survey the answers were female and male, can you explain please.

In the classification of dietary behaviours: I disagree with the use of the term "behaviours". Usually when we refer to diet, we use dietary intake, consumption, use or pattern when principal component was conducted. However, behaviour is a more complex variable. Which was the source of this definition?

When I reviewed the article, I had to look for WHO STEPS, I suggest to include a paragraph describing these, because is part of your methods and it was not easy to understand what you did.

What kind of instrument was used to assess diet? Food frequency questionnaire (FFQ), 24 h recall? The alcohol consumption was evaluated using a FFQ? why you did not use percentiles? Is better to rank the participants according to their consumption in the survey.
Regarding the way you defined and classified salt intake. You state that is a salt use behavior, it is better to use salt intake or salt use. Also, when you state that is positive behaviour is confusing, first I understood that was a higher intake of salt, maybe high-low or adequate-inadequate. Is there a particular reason to you this definition?

Which is the reference for the way you score the consumption of salt (These answers were assigned a value of 0, 0.25, 0.5, 0.75 or 1, respectively)? WHO STEPs? Which is the reference for this: "Another method of scoring salt use behaviour and categorizing into positive vs. poor behaviour was not identified in the literature, and therefore other options of quantification were tested".

Fruit and vegetable intake (per day) was then calculated using the methods of Frank S et al, you can add a brief paragraph to describe the method.

The authors have to be careful in the use of the terminology in the article. When you cited the STEPS include the reference (line 183), further in the line 191 referent=reference. In the analyses section the authors mentioned that they adjusted for potential confounding factors. The correct term is for potential confounders, I suggest you to verify the terminology used in the article.

The final population for your analyses was 24,332, what were the inclusion and exclusion criteria for the study?

The authors used Generalized linear models, if there are model assumptions, did you verify them? In addition, you conducted a complete case analysis. Did you compared participants with missing data with those included in the analyses to evaluate a potential selection bias?

In the results section, in table 1, I observed the population characteristics according to the sex in seven countries, however the tittle described something completely different. The variables were regrouped in socioeconomic including age and sex which are not socioeconomic variables and then the other variables of the table were risk factors for hypertension or diabetes and the outcomes. This table has to be improved in order to be clearer as well as the description and the presentation of the results in the text, for me was very difficult to understand. For example: "Just under a third of the sample were affected by hypertension (26.7%, 25.8-27.6%, 27.4%, 26.1-28.8% of men". In this result you showed two prevalence for men?

In the "Sample characteristics and dietary behaviours" section I suggest you to review the wording is very difficult to understand as well as the way you present the results. In this section first finish to present the results and then add table 2, the last paragraph of this section seems incomplete.

Table 2 also has to be improved in the columns of male and female you write down the confidence interval of a prevalence? You did not specify this information in the columns. Further, the p-value are in the middle of the variable is better when they are in the same level of the variable of interest.

In table 3 as in other tables, presentation needs to be improved for example: "Percentage (CI) with undiagnosed" instead you can use this format: % (95% CI) undiagnosed. In addition, if you found no association the p-value can be presented with two decimals.

In the discussion the authors mentioned that seven STEPs were included in the analyses nonetheless in the methods no information about this was explained. Moreover, in the study seems that the exposure
was measured after the assessment of the outcomes. Thus, health condition could influence the diet.

No energy adjustment is a very important issue in nutritional epidemiology, any nutrient is associated with daily calorie intake, including sodium. Thus, the results observed may be invalid.

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