Author's response to reviews

Title: Dietary patterns of the brazilian macro-regions.

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Title: Dietary availability patterns of the brazilian macro-regions.

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Dear Editor of Nutrition Journal,

We thank the reviewers for the careful review. The following is our reply to the comments,

Reviewer: Patrick Mullie

Reviewer's report:

No comments

Level of interest: An article of limited interest

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

No competing interests
Reviewer: Cathrine Lau

Reviewer's report:

Overall:

Major concerns:

Question:
- the methodology of the paper is still hard to follow and understand

Answer:
We conducted a review and made some changes that we believe to have improved the understanding of the Methods. And it was changed in section Methods:

Page 4, paragraph 1: “The present study was based on the nationwide 2002-2003 Brazilian HBS [1]. The study adopted a two-stage cluster sample design. The geographic sectors of the 2000 Brazilian Demographic Census were the primary sampling units (PSU). Sampling was stratified by the five regions of the country and by the socioeconomic level of PSU. Households were selected by simple random sampling without replacement within the selected PSUs.”

Page 4, paragraph 2: “The data allowed assessing the dietary availability pattern of overall country, all states, and the large regions of the country. Information on the socio-demographic characteristics of the household members such as age, education of the head of the family, and income of the household was also collected”.

Page 4, paragraph 3: “The basic information of HBS is the purchases of food and beverages for household consumption during a period of seven followed days recorded daily by the participants and reviewed by trained interviewers. The records include a detailed description of the product, the amount purchased and the paid value.”

Page 4, last paragraph: “… (i.e. fish is classified under 900 different codes, aggregated into three groups: freshwater fish, saltwater fish and unspecified)…”

Page 5, paragraph 2: “For purchases such as rice, beans, sugar and oils usually bought monthly the total amount could varied from zero to many kilograms. Thus for all food groups amount it was divided by the number of households composing each PSU. In order to render the data more symmetrical, obtained the amounts acquired of the food groups were log transformed and PSU instead of household were used in the analysis”.

Page 5, paragraph 3: “All variables were related to the PSUs, such as percentage of PSUs with children, adolescents, or elderly people, PSUs’ mean income, and percentages of PSUs with education of the household head, categorized according to the educational level attained (illiterate, elementary school, high school, and college or more).”
**Question:**

- there are several errors in reporting of the results, which also makes the discussion unimpressive

**Answer:**

The results were reviewed and the tables 2 and 4 were corrected. After these corrections we believe the results and discussion are consistent.

It was included in the results:

Page 6, paragraph 4: “...The third pattern designated as fruits/greens/sweet pattern, explained 11.6% of the variance, included vegetables and leafy vegetables; potatoes; others tuberous roots; fruits; sweetened beverages and products diets/light (Table 2)”

Page 7, paragraph 1: “The third pattern explained 8% of the variance and was interpreted as indicating PSUs with acquisition of the group foods as vegetables and leafy vegetables; fruits; nuts and coconuts; meats; poultry and eggs; fish. This pattern was denominated as the high protein pattern (Table 2).”

Page 7, paragraphs 2, 3 and 4: “The high energy pattern, in the Northeast region, was associated to elementary and high school education levels. For PSUs in which the household heads had an elevated mean of education in years, a greater adherence to the mixed patterns characterized by acquisition of fruits, vegetables and leafy vegetables, sugar, and diet and/or light products was detected. The same relationship with mixed pattern was observed for mean sector’s income (Table 4).

In the South, Southeast and Midwest beyond of rice and beans pattern, other designed as mixed pattern with positive loadings for the groups of vegetables and leafy vegetables (ex.: lettuces, pumpkin, chayote); potatoes; other tuberous roots (ex.: yam, sweet potatoes, beets); fruits; coconuts; breads; cakes and cookies; fish; milk and dairy; butter and margarine; sweetened beverages (soft drinks; juices and others); and diet and/or light products was also extracted (Table 2).

A higher proportion of children, adolescents, and elderly people in the geographic sectors were associated with the regional pattern in the North and with the rice and beans pattern in the Northeast. In the other regions, only the presence of adolescents was associated with the rice and beans pattern (Table 4). “

It was included in the discussion:

Page 7, first paragraph: “... (wheat, manioc, and corn meal), sugar, butter and margarine, and oils and fats.”
Page 7, second paragraph: “A survey conducted in Rio de Janeiro, Brazil, indicated that the traditional combination of rice and beans as major staple foods was protective against obesity[2].”

Pages 7 and 8, last paragraph: “The North region has the highest fish availability, obtained mainly through fishing,[3]. The regional pattern included beyond fish nuts and coconuts. Only this pattern in the North region was associated with the composition of the families assessed by the proportion of children, adolescents, and elderly (Table 4).”

Page 8, paragraphs 3, 4: Higher levels of education and income influence food acquisition[4], and our analysis showed that higher socioeconomic status had weaker association with the rice and beans pattern but also had stronger association with mixed pattern.

High energy pattern identified only in the Northeast region was associated with elementary and high school educational levels and higher income and was characterized by the availability of items with high energy density and poor nutritional value (Table 4). Our findings are in contrast with other studies where high energy density diets was the preferred choice of low income and low education populations in the Northeast region of Brazil[5]. Also, Lenz et al.[6] analyzed the dietary patterns of a sample of women in the South region of Brazil, and detected an inverse relationship between income and the consumption of rice, beans, sugar, roots, and tuberous roots. “

Page 9, last paragraph: “…Composition of the families, income and level of education of the head of the families has also influence on the purchased items. Therefore, data of the HBS could help to recognize different food choices, allowing a proper planning of food and nutrition policies in the countries with large heterogeneity along their regions. “

Abstract:

Question:
There is still some language errors in the last two lines of the results in the abstract (whereas should be changed to where, Mixed patterns to the mixed pattern)

Answer:
It was corrected in the abstract.

Conclusion:

Question:
PSU’s should be deleted from first sentence of conclusion. In the last sentence of conclusion for should be deleted and HBS should be defined.

Answer:
It was altered in the conclusion.

Introduction:
3rd paragraph:

**Question:**
Line 1: The rationale for the use of HBS is not clear. The line of thought should be clarified.

**Answer:**
It was included in the text: “The HBS collect food availability data at the household level and stand a position between the food balance sheets and the specifically designed individual-based food consumption surveys. HBSs are country-representative surveys, conducted at regular time intervals by the National Statistical Office in Brazil and other countries”.

**Question:**
Line 3: dietary practices should be changed to dietary habits

**Answer:**
It was changed in the text.

**Question:**
4th paragraph: Rewrite with more full stops to make it more readable. And specify that second is the second pattern.

**Answer:**
It was changed in the text for: “the first dietary pattern availability was remarkably similar in all countries with positive loadings for a wide range of foods, from fruits, vegetables and cereals to meat, fish and dairy products, with rarely negative loading and it was interpreted as a mixed pattern, that indicates households with a wide variety of food purchasing. This pattern was more common among households whose head was retired and elderly people. The second pattern had positive loadings for beverages (alcoholic and nonalcoholic) and foods that could be consumed without elaborate preparation and negative loadings for plant foods and some requiring laborious kitchen work. This pattern was more common among households located in urban or semi urban areas and also among Scandinavian adults living alone.”

**Question:**
Objective: I guess there should be an “and” after HBS?

**Answer:**
It is correct, we changed in the text.

**Question:**
Page 4,
Paragraph 3. Full stop after large regions and add of and for in the following sentence: “ … large regions. The sampling of HBS was …………………representative estimate for the country…….”
Answer:
It is changed in the text.

Question:
paragraph 4. The fish category included 900 different codes and they were aggregated into one group? If yes, please describe that.

Answer:
The fish category was aggregated into three groups: freshwater fish, saltwater fish and unspecified fish. It was included in the text.

Question:
Paragraph 6. The 2nd sentence should be corrected to: Therefore for purchases such as rice, beans, sugar and oils which usually are bought monthly the total amount was zero or many kilograms. Hence the amount ……….. 

Answer:
It was corrected in the text.

Question:
Page 5
Line 2: values should be food groups

Answer:
It was included in the text.

Question:
2nd paragraph, the last part is unclear. Please rephrase.

Answer:
It was changed for: All variables were related to the PSUs, such as percentage of PSUs with children, adolescents, or elderly people, PSUs’ mean income, and percentages of PSUs with education of the household head, categorized according to the educational level attained (illiterate, elementary school, high school, and college or more).

Question:
4th paragraph: a cut off loading of 0.15 is very low considering how high loadings you have observed. I suggest a cut off equal to 0.4 or at least 0.3. I have noticed that it has been changed from 0.20 to 0.15 since first submission.

Answer:
We agree with his arguments. But we kept the food groups with factor loadings below 0.3 allowing comparability regarding the upcoming HBS to be held in Brazil. These food groups are growing acquisition in Brazil.

**Results**

Generally a very rough and imprecise report of the results.

**Question:**
Page 6, paragraph 3: Flour is not part of the pattern in North.

**Answer:**
It was corrected in the text.

**Question:**
You do not mention sugar, butter and sweetened beverages which also have a high loading on Brazilian pattern. Specify that these results can be found in table 2.

**Answer:**
It was included in the text.

**Question:**
Page 6, paragraph 5 starting with “In the South…….” Here is a lot of reporting errors. They should be corrected.

**Answer:**
It was corrected in the text and in the table 2.

**Question:**
Page 7, upper paragraph. The sectors are the geographic sectors I suppose.

**Answer:**
It is now included in the text.

**Question:**
The sentence: “An inverse relationship was observed between income and the Brazilian rice and beans pattern in all regions” is only significant in south. This should be corrected.

**Answer:**
This fact has no association with the results, therefore it was excluded.

**Question:**
The sentence “The PSUs in which the household heads presented elevated mean of education years demonstrated greater adherence to the Mixed patterns characterized by the acquisition of fruits, vegetables and leafy vegetables, sweetened beverages, and diet and/or light products.” Could be changed to “For PSUs in which the household heads had an elevated mean of education in years, a
greater adherence to the Mixed patterns characterized by the acquisition of fruits, vegetables and leafy vegetables, sugar, and diet and/or light products was observed.”

Answer:
It was changed in the text.

Question:
Specify where the results reported in the following sentence can be found “The same relationship was observed for mean sector’s income.”

Answer:
It was changed in the text.

Question:
Discussion.
Page 7:
Again the resume of results is not correct as results have been described incorrectly.

Answer:
It was corrected in the text, the results were described again.

Question:
There seem to be some repetitions in last paragraphs on page 7 of the discussion.

Answer:
It was changed in the text.

Question:
Page 8, last paragraph, last sentence should be changed to “The Brazil have taken many actions for to improve nutrition as part of their public health policies. The data of the HBS can help to recognize the different food choices in the large regions of the country.”

Answer:
It was changed in the text to: “Although data of HBS express the availability of foods rather than the consumption, the data are a useful tool to depict dietary options between large regions of country. Composition of the families, income and level of education of the head of the families has also influence on the purchased items. Therefore, data of the HBS could help to recognize different food choices, allowing a proper planning of food and nutrition policies in the countries with large heterogeneity along their regions”.

Question:
Table 3:
How can the variation explained in the rural areas add up to more than 100%?

**Answer:**
The value was incorrect, was changed in the text.

**Question:**
Table 4: It must be possible to name pattern 3.

**Answer:**
The names were included in the patterns. In the North, the third pattern designated as *fruits/greens/sweet* pattern and in the Northeast was denominated as *high protein* pattern.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
I am employed by Steno Diabetes Center A/S, a research hospital working in the Danish National Health Service and owned by Novo Nordisk A/S.  
I own shares in Novo Nordisk A/S.
Reviewer: Rachel Millstein

Reviewer's report:
The authors have done a good job of responding to my initial comments.

Level of interest: An article of limited interest

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: Laurie Ricciuto

Reviewer's report:
Discretionary Revisions,

Question:
Recommend revisions to the concluding paragraph for more clarity and stronger concluding statements

Answer:
It was changed for: “Although data of HBS express the availability of foods rather than the consumption, the data are a useful tool to depict dietary options between large regions of country. Composition of the families, income and level of education of the head of the families has also influence on the purchased items. Therefore, data of the HBS could help to recognize different food choices, allowing a proper planning of food and nutrition policies in the countries with large heterogeneity along their regions.”

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

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


