Author's response to reviews

Title: Consumption of sweet foods and mammographic breast density

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Author's response to reviews: see over
Author's covering letter for initial submission

Title: Consumption of sweet foods and mammographic breast density: a cross-sectional study

Authors:

Version: 1  Date: 30 April 2014

Comments: see over
Editor-in-chief, *BMC Public Health*

**Object:** Revised version of the manuscript entitled “Consumption of sweet foods and mammographic breast density: a cross sectional study”

Dear Editor,

We would like to thank you for providing us with the opportunity to submit a revised version of our manuscript entitled: *Consumption of sweet foods and mammographic breast density: a cross sectional study*. We would also like to thank the reviewers for their thoughtful comments regarding our manuscript. We agreed with most of them and modified our manuscript accordingly. You will find below a point-by-point description of the changes made.

All of the authors have read and approved the paper and it has not been published previously nor is being considered by any other peer-reviewed journal. None of the authors had a personal or financial conflict of interest.

We believe that this revised version is much improved and hope that you will now find our manuscript suitable for publication in the *BMC Public Health* journal. We look forward to hearing from you in the near future. Please do not hesitate to contact me if there are any questions regarding this submission.

Best regards,

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Answers to reviewers comments

Reviewer #1

Minor essential revisions

1. Abstract: P-trend among premenopausal women for absolute MD stated as equal to 0.01 whereas in results section it is stated as 0.007. Please correct accordingly.
Answer: The p-trend was corrected in the result section of the abstract (p.2 line 38).

2. Methods: There is no mention of any drops outs from the final 776 premenopausal women and 779 postmenopausal women. However, in the results section, in Table 2, the total numbers of women (all, preM or postM) do not add up to the numbers stated in the Methods. Clarification should be provided if any further exclusions were made. For example, were the FFQs of women with intake below or over a certain amount of daily calories removed?
Answer: Thank you to bring this error to us. We had already indicated in a footnote in the Table 2 that: **Number do not add up because of missing data, but we forgot to add the ** in Table 2. We have corrected this in the revised version (see Table 2). The detail of the missing data had already been provided in a footnote to Table 1. Concerning other exclusions for this study, we indeed excluded three subjects who reported extremely high (>5000 kcal/day) or extremely low (<600 kcal/jour) caloric intake, as well as 11 subjects who did not complete the FFQs. We added this information in the first paragraph of the Method section (p.5 lines 93-98).

3. Results (Consumption of sweets, para 1):
   a. Results for beverages should be separated from results for sweet foods intake to help the reader follow though all the different results.
Answer: We agreed that this section was difficult to follow. We added subtitles and organized this section according to the different exposures. We hope that this will help the readers following through the results of this study (Result section, p.9 -10 lines 189-216).

   b. Figures C and D should be clearly labelled for the menopausal status they represent. I was unable to find a figure legend; one should be provided including adjustments made.
Answer: We thank the reviewer for pointing out this omission. The revised manuscript now includes a detailed figure legend (see p. 26 lines 684-698).
4. Discussion:
   a. The P-value for percent density in all women who had sweet beverages and more than 3 servings per week, is stated as 0.040 in the discussion and 0.046 in Figure A. Please correct accordingly.
   Answer: The P-value of 0.040 reported in the discussion section was for the women who had a sugar-sweetened beverages intake of more than three servings per week compared with women who do not drink sugar-sweetened beverages. The P-value in Figure 1 was for the trend between the four categories presented. To avoid any misunderstanding, we removed the p-value of the discussion section (p.11 line 236).

   b. Findings regarding the positive correlation between sweet foods and MD in less active women has not been adequately addressed in the discussion. Do the authors have a possible hypothesis for these findings?
   Answer: The results shown in the Additional file 1 were obtained from exploratory analyses. Therefore, we do not intend to focus on the results of the additional file because these analyses were not originally planned. We performed these analyses because of the well-known link between sweet food intake, BMI and physical activity. However, we do have some hypothesis for these finding. Indeed, high levels of physical activity were associated with lower triglyceride levels, and improvements in lipoprotein lipid profiles, glucose homeostasis and insulin sensitivity [1, 2]. Therefore, the deleterious effect of sweet foods and sugar-sweetened intake on mammographic breast density should be minimised among women with a high level of physical activity. Modifying effect of physical activity on insulin sensitivity has already been observed in a teenager population [2].

Discretionary revisions:
   5. I found the description of results in the paragraph entitled 'Consumption of sweets' a bit difficult to follow as the authors go from different types of sweet foods, to 2 different sets of data (table and figure) and menopausal status. I suggest re-write of that paragraph.
   Answer: Please see answer to comment #3a.

Reviewer #2

Major compulsory Revisions

1. Abstract: Method section should include some information on the adjustments made in the analyses
Answer: As requested, the most important information has been added in the abstract section (p.2 lines 34-35).

2. Background: Well written and research introduction
Answer: Thank you!

Methods:
3. How confounding variables were categorised needs to be described
Answer: We agree with this comment. We added a description following each variable in the Statistical analysis paragraph of the Method section (p. 7-8 lines 152-164).

4. How exposure variables described as servings per week were categorised are not described. It is not particularly clear that two categorisations of the exposure variables (quartiles and servings per week) were used in the analyses.
Answer: The principal analyses of the study were performed using quartiles. This decision was made because we did not find an “a priori” (specific) categorisation for sweet foods in the literature, and most of the study that evaluated sweet foods and breast cancer risk used percentile categorizations. For a public health purpose, we performed additional analyses with more applicable cut offs of servings per week for results that were statistically significant only (trend for quartiles or correlation). We agreed that this was not particularly clear in the text. Therefore, we changed the structure of the Statistical analysis paragraph in the Method section (p.7 lines 140-152) to help the reader understand the choices we made.

5. Spearmans rank correlations are univariate analyses that assess the correlation between two variables. I think too much weight has been placed on them and, in particular, using them in the BMI and physical activity stratified analyses is uninformative.
Answer: The Spearman correlations presented in the paper are partial ones and, thus, were adjusted for all the same potentials confounders included in the generalized linear models. We specified this point in the Statistical analysis paragraph of the Methods section (p.7 lines 140 and 152-153) and added “partial” (the term that was used for adjusted Spearman correlations) when necessary in the text and the tables.

6. Complete the BMI and physical activity stratified analyses using the generalised linear models to examine trends. The numbers would be sufficient for all women; for example BMI >25 n=803 which is comparable to the stratified analysis by menopausal status (sweet food analysis premenopausal n=774 and postmenopausal n=768). Add an interaction term to assess whether there is a difference by menopausal status; this could provide some information on differences in the association and could be discussed even though the statistical power to conduct stratified analysis by menopausal status may not be there.
Answer: The analyses in the additional file were only for an exploratory purpose (please see answer to comment #4b of the Reviewer #1). We do not intent to emphasize further on these results. Moreover, the only results that were strongly statistically significant were
Results:

7. I think this section could be structured and written a little better as at the moment it’s a little confusing. Maybe having separate paragraphs for each exposure would make it easier for the reader.

Answer: We agree that this section was difficult to read. We did some changes in the organisation of this section (please see answer to comment #3a of the Reviewer#1).

8. Again, I think the Spearmans Correlation findings are over-emphasised in this section. Generally, although exposures are significantly correlated with MD, the strength of the correlation is quite low, i.e. all <0.10.

Answer: We did not intend to emphasize the Spearmancorrelations. Spearman correlations were reported at the same level as generalized linear models. We agree that the strength of the correlations were low, but they are presented because we think they may be informative to the reader.

9. An interesting result that I think could be further discussed is the association between sweet foods and MD in premenopausal women; as consumption increases, MD decreases. What are the authors’ interpretations of this result?

Answer: As discussed in the second paragraph of the Discussion section (p. 12 lines 267-271), the sweet foods group was made of foods that contain a lot of sugar but also a lot of fat. The effect of fat consumption on breast cancer risk and MD is still controversial [3-6] and seems different between pre- and postmenopausal women (most of the positive associations were found among postmenopausal women [7-9]). Fat cells are the principal source of estrogen among postmenopausal women but not among premenopausal women. Thus, obesity increases breast cancer risk among postmenopausal women probably because of the increased estrogen secretion by fat cells. This association between obesity and breast cancer risk have not been observed among premenopausal women. Because of this fundamental difference in the fat metabolism among pre and postmenopausal women, the interpretation of the results with sweet foods intake was difficult and can be associated with several parameters. Because the association between sweet foods and MD among premenopausal women was not statistically significant, we did not discuss it.

10. Are all results using quartiles and weekly servings comparable?

Answer: As mentioned in the answer to comment #4 of Reviewer #2, the analysis using servings per week categorization was done for statistically significant results only, for a public health application purpose. The quartiles were chosen “a priori” and we did not make several different analyses for not to be influenced by the results to choose our categorization.

11. As I mentioned above, I think the authors could strengthen the BMI and physical activity sub-group analysis.
Answer: Please see answer to comment #4b of Reviewer#1 and answer to comment #6 of Reviewer #2.

Discussion

12. The discussion section is well-researched and generally well-written.
Answer: Thank you!

13. Sentence below does not make sense, I think you are missing a ‘not’ somewhere.
   In postmenopausal women you would expect MD to be lower – do you mean the
   increased MD associated with increased sweet food intake. What other factors in
   premenopausal women?
   “This discrepancy could lead to the assumption that the effect of increased
   consumption of desserts on breast cancer risk would be explained in part by the
   increase in MD for postmenopausal women but by other factors for
   premenopausal women”
Answer: We agreed that the sense of this sentence was not clear. We changed this part of
the second paragraph of the Discussion section (p.12 lines 262-267) to clarify this point
 to the reader.

Minor Essential Revision

General

14. Spelling errors
   - spoonsful
   - intakes
   - sweets
Answer: Thank you for pointing these errors to us, we did the corrections.

Methods

15. What is personal history of biopsy?
Answer: It refers to the number of all biopsy the women had. We changed “personal
   history” by number of biopsies.

Results

16. Figure 1: Needs a title and foot notes – is this adjusted analysis? Is it possible to
   include 95% CI?
Answer: The title, the footnote and the 95% CI were added to Figure 1 in the new
   version. (see Figure 1 and Figure legend p. 26 lines 684-699).

Discretionary Revision

17. I would like to see the results using the weekly serving exposure measures in a
   table format, so I could directly compare the two methods.
Answer: See answers to comments #4 and #10 of the Reviewer#2.
18. I think the emphasis for the findings relating to sugar-sweetened beverages and MD could be changed; the association found in all women is driven by the relationship in premenopausal women.

Answer: Since we planned our analyses among all women and by menopausal status, we wanted to report all the results we observed at the same level.

References


