Author's response to reviews

Title: Socioeconomic status and exposure to disinfection byproducts in drinking water in Spain

Authors:

- Gemma Castaño-Vinyals (gcastano@creal.cat)
- Kenneth P Cantor (cantork@exchange.nih.gov)
- Cristina M Villanueva (cvillanueva@creal.cat)
- Adonina Tardon (atardon@uniovi.es)
- Reina Garcia-Closas (reinagc@gmail.com)
- Consol Serra (consol.serra@upf.edu)
- Alfredo Carrato (acarrato@telefonica.net)
- Nuria Malats (nuria@cnio.es)
- Nathaniel Rothman (rothmann@exchange.nih.gov)
- Debra Silverman (silvermd@exchange.nih.gov)
- Manolis Kogevinas (kogevinas@creal.cat)

Version: 3 Date: 22 October 2010

Author's response to reviews: see over
Dear editor,

The reviewer’s comments were again very helpful. We attach the revised manuscript with ‘track changes’ to show what was done. Responses to the reviewers are below.

Sincerely,

Gemma Castaño-Vinyals

REFEREE 1
Reviewer’s report
Title: Socioeconomic status and exposure to disinfection byproducts in Spain: a cross-sectional study
Version: 2 Date: 25 August 2010
Reviewer: cristina bosetti
Level of interest: An article whose findings are important to those with closely related research interests
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.

REFEREE 2
Reviewer’s report
Title: Socioeconomic status and exposure to disinfection byproducts in Spain: a cross-sectional study
Version: 2 Date: 11 August 2010
Reviewer: Sylvaine Cordier
Reviewer’s report:
Mention of the type of study in the title should be deleted, it is not needed.
Response: We agree with the reviewer and we have deleted the type of study in the title. We added in the study the source of the disinfection byproducts. The title now reads: Socioeconomic status and exposure to disinfection byproducts in drinking water in Spain:

Statistical analysis
Page 8, line 5 (revised version): “average THM levels in the area”. Is this the “current residential THM level” in the area? Please be more precise.
Response: we have clarified this sentence: “average municipal THM level for all residences over age 15.”

Page 8, lines 6-8. Why should the analyses be restricted to subjects with known history of exposure for at least 70% of the exposure window when the analysis focuses at the current THM levels and water sources?
Response: we are adjusting our analyses for average municipal THM level for the residences over age 15, and are also examining changes in time in consumption of drinking water by source (e.g. bottled). We are using information from subjects with 70% or more known exposure of the time window examined so as to avoid misclassification of exposure.

Results
Most results that are reported on page 8 are no longer in Table 1 (water source, swimming in pools...). Variations across regions are extensively described (educational level, source of drinking water, average THM etc...) and I suggest that Table 1 would include a description by region, it would make it easier to follow.
Response: We have modified the first paragraphs of the results section. Including a description by region in Table 1 is not possible, we would have to add a new table. Since a description by region is not the main aim of the study, we think including this new table is not necessary. The results reported in the former Table 1 are now reported in Table 2.

Page 9, lines 11-13: average THM levels are not in Table 2 anymore and should be added.
Response: in Table 2 we present the Lifetime average residential THM levels, also with current average residential THM levels

Page 9, line 15: I think the reference category is “the use of bottled water among the illiterate” and not “the use of public supply water among the illiterate”
Response: the reference category for this multivariate analysis is correct, considering illiterate subjects that drink from the public supply water.

Pages 10-11: paragraph before last in the Results section. There are redundancies: temporal increases of consumption of bottled water by education are described both at the beginning of the paragraph and at the end. The interpretation of parallel trends (or not) with average THM levels (now figuring on the graph Figure 1) should be presented. Response: the temporal increases at the beginning of the paragraph refer to all the population. Then the results presented are stratified by educational level. We have re-phrased the paragraph in order to make it clearer: An increase in the consumption of bottled water from 1980 to 2000 was observed overall, from 18% in 1980 to 20% in 1990 and 23% in the year 2000. When stratifying by socioeconomic categories as defined by education (Figure 1), among subjects with lower levels of education, there were no changes over time in the use of water from public supplies (66% during 1980-1990 and 65% during 2000). A decrease from 63% to 56% was observed for the same time period among subjects with higher education. In the same period there was an increase of bottled water use from 17% to 21% among subjects with a lower educational level and from 26% to 33% among the more highly educated subjects, along with an increase in the levels of THMs, only observed in the latest category of education (Figure 1).

Discussion
A discussion should be added about the possible influence of the population characteristics (elderly, males, hospitalized) on the generalization of the results.

*Response:* we have modified a sentence in the conclusions section in reference of the generalization of the results for elderly and male subjects. Hospitalization of subjects is unlikely to influence results because we examined water related habits during lifetime and not only at time of interview.

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

**Quality of written English:** Acceptable

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

**REFEREE 3**

**Reviewer’s report**

**Title:** Socioeconomic status and exposure to disinfection byproducts in Spain: a cross-sectional study

**Version:** 2 **Date:** 10 September 2010

**Reviewer:** Elena Righi

**Reviewer’s report:**

I thank the authors as they have made important revisions and the paper has been greatly Improved. Therefore I am satisfied with the authors’ responses to my review; there are only a few essential revisions that authors has to consider.

1. According to table 2 overall use of bottled water is 13%, however when describing fig.1 and in the discussion authors declare that the overall consumption of bottled water is 23%; please clarify this point
   
   *Response:* the reviewer is right; there was a mistake in Table 2 that has been corrected. The overall percentage of people drinking bottled water is 23%.

2. Title: please do not include the type of study in the title
   
   *Response:* We agree with the reviewer and we have deleted the type of study in the title.

3. Chlorination by product exposure please check as in this section the region "Sabadell/Manresa" is reported instead of "Valles/Bages"
   
   *Response:* We have changed the region Sabadell/Manresa in this section for Vallès/Bages, to make it uniform along the manuscript.

Results

4. Third paragraph, last sentence: I suggest to report OR and 95%CI for primary school level as well
   
   *Response:* we have reported the OR and 95%CI for the primary school level (OR=2.1; 95%CI=1.2-3.7).

5. Fourth paragraph second sentence: please check as the changes you suggested in response to my previous comment are not present. (see the 16th comment in my previous review)
Response: we have changed the sentence: Subjects with high school education have a three fold higher probability (OR=2.7, 95%CI 1.6-4.6) of taking bath/showers longer than 7 min/day than illiterate subjects and a 1.6 (95%CI 1.0-2.6) higher probability than subjects with primary school education.

6. Last paragraph: I suggest to modify the sentence as follow: “The trend of water consumption at work according to educational level was similar to that observed in the home, with a decrease in water consumption from public supplies along with an increase in education level “
Response: we have made some slight changes in this last sentence and it is a follows: The trend of water consumption at work according to educational level was similar to that observed in the home, along with a decrease in water consumption from public supplies

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