Reviewer's report

Title: Exposure Assessment of Dietary Cadmium: Findings from Shanghainese over 35 years, China

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Reviewer: Maryka H Bhattacharyya

Reviewer's report:

GENERAL COMMENTS: The authors have estimated cadmium intake from environmental sources in a subset of the general population of Shanghai and determined cadmium concentrations in blood and urine of each study participant. The environmental sources include individual food items, tobacco, and water. While the results are worthwhile, the methods are described with too few details, providing the reader with few insights into how accurate the results may be. Finally, the concentrations of cadmium in blood and urine are so low that the possibility needs to be considered that there is a mistake in the reporting of results.

SPECIFIC COMMENTS:

NOTE: Each specific comment is labeled MCR (major compulsory revision), MER (minor essential revision), or DR (discretionary revision).

1. Abstract.
   a. MER Weekly cadmium exposure values and % PTWI values have too many significant figures. The chemical analyses do not warrant that level of accuracy or precision.
   b. MCR Mean values of cadmium in urine and blood are VERY low, e.g., 0.0052 µg Cd/L for BCd in total population. There appears to be a mistake. For example, mean values for cadmium in western countries are in range of 0.5 µg Cd/L for urine and blood in non-smokers and can be 1.5 µg Cd/L and higher in smokers.
   c. DR Conclusions. Should say, “there was no increase in health risk”

2. MCR Sentence structure throughout the manuscript needs the attention of an editor.

3. P5, Methods. Additional information is needed regarding the methods, for example:
   a. MER A reference should be given for the food frequency questionnaire from the National Nutrition Survey, so the reader can gain insight into the questionnaire.
   b. MCR Methods should be described regarding the approach taken to estimate cadmium intake from tobacco.
   c. MCR In addition to the code number for the cadmium analyses, details of the methods used for analyzing urine and blood for cadmium need to be described to
give the reader confidence that the results are accurate.

d. MCR Were certified standards of human blood and urine analyzed along with the subjects' samples to validate the analytical methods? These standards are needed for this kind of study.


a. MCR The statement, “Moreover, we collected tobacco and water consumption to calculate the total cadmium exposure.” is very general and gives little insight into how intakes from tobacco and water were determined. The authors need to provide more detail on methods here.

b. MCR “Tobacco cadmium was detected as 1.5mg/kg[12].” The meaning of this sentence needs to be clarified. I think the authors mean: “Tobacco cadmium concentrations were assumed to be 1.5 mg Cd/kg, based on Qian et al. [12].

5. MCR Table 2. This table provides cadmium intake values with little insight into how these values were derived. The data would be strengthened if two additional endpoints were presented. For each food item, it is suggested you provide the dietary intake value that you obtained from your subjects, along with a measure of uncertainty. Along with these intake values, the cadmium concentration used for each food item should be provided, with a measure of uncertainty. The latter two sets of data will allow the reader to compare the intake levels you obtained from your study subjects to others, and to compare the food cadmium concentrations you used from the SCDC dataset to others. As is, the results in Table 2 are presented with no insight into the datasets used to determine the cadmium intake values.

6. MCR Table 3. As indicated in comment 1a. above, the units of UCd and BCd in this table look wrong. The values given appear to be too low to be correct.


a. MCR “The smoking cadmium of male and female were 12.11µg/day and1.26µg/day.” Again, the methods used to get these values and what they mean needs to be clarified. Do these values indicate amounts of inhaled cadmium?

b. MCR “The tobacco cadmium exposure was 3.93±8.99 µg/ day.” What was the route of intake of this tobacco cadmium? Chewing tobacco? Again, methods are missing.

8. P8. MER Assessment of the Cadmium Exposure. The authors use too many significant figures for the results. For example, total cadmium exposure is not known to 5 significant figures (125.51 µg/week).

9. Figure 1.

a. MER The figure legends should give the meaning of Certainty, Certainty Max and Certainty Min.

b. MER The x-axis needs to be labeled.

c. MER P9, end of 1st paragraph. It is not clear why the value of 93.13% given in the text differs from the Certainty value shown in Fig 1A of 97.65%. It seems
these two values should be the same. This question applies to follow-on paragraphs on P9 also where values for % of population below the PTWI are quoted in the text and differ from values in Figure 1.

a. DR Para2. Good comparison of your results to those of other countries.
b. DR Para3. It would be good to also express here the Shanghai results from this report in the same units as those quoted for other countries (μg/kg bw/week), to provide for easier comparisons.

11. MER P11, para 2. The authors should compare their values for cadmium intake from tobacco to those reported by others in the literature.

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

**Quality of written English:** Not suitable for publication unless extensively edited

**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.