Reviewer's report

Title: A Global Perspective on Coal-fired Power Plants and Burden of Lung Cancer

Version: 1 Date: 31 Oct 2018

Reviewer: Stefano Parodi

Reviewer's report:

The Authors have not acknowledged my opinion about the risk of ecological bias in their results. On the contrary, they report in the answer to my comments that ecological fallacy in unlikely, because the three criteria highlighted in the pivotal paper by Robinson in 1950 are not fulfilled. In particular (if I have rightly interpreted the Authors point of view), ecological fallacy should be unlikely because:

a) results are not intended to be applied at an individual level;

b) results are consistent with similar findings reported in the scientific literature.

With regard to the first point, I agree with the Authors that one of the major merit of their investigation is that the results can be used to address key policy questions, but this statement implies that estimates obtained at an ecological level should be (at least approximately) similar to those existing at the individual one.

With regard to the second issue, I also agree with the Authors that consistency with findings from independent studies supports their results. However, even if a reverse bias from ecological fallacy is very unlikely, other sources of over- or under-estimation related to the ecological design cannot be ruled out.

The manuscript has improved a lot after the revision. However, I suggest few minor revisions before its definitive acceptance.

1) Study limitations section, page 13, row 4: The sentence "the potential for 'ecological fallacy' is unlikely ... " should be rephrased using less emphasis (e.g., "a strong impact of ecologic bias is unlikely") and without referring to the fact that estimates are not intended to be used at individual level.
2) Table 1. Instead of reporting 95%CI the Authors decided to show the 2.5th and 97.5th quantiles. It sounds good, but in the footnotes 95%CI are still mentioned. Furthermore, in my opinion, mean values should be replaced by median ones, which are more suitable to describe non-Gaussian distributions.

The selected centiles (2.5 and 97.5) are meaningful in that they provide an estimate of the entire range of values for each variable avoiding the effect of outliers. However, IQR is more frequently used in scientific literature, then I would suggest that the Authors add a small sentence to better justify their choice.

3) Page 14, row 5: "we can obtained" should be changed to "we can obtain".

Level of interest
Please indicate how interesting you found the manuscript:

An article of importance in its field

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?
If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal