Author’s response to reviews

Title: Associations of ambient air pollutants with regional pulmonary tuberculosis incidence in the central Chinese province of Hubei: a Bayesian spatial-temporal analysis

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Associations of ambient air pollutants with regional pulmonary tuberculosis incidence in the central Chinese province of Hubei: a Bayesian spatial-temporal analysis

Dear Editor Jan Semenza and Philippe Grandjean,

Thank you for your letter and review of our manuscript. Your comments are very precious and helpful for us to improve our manuscript. We have carefully revised as your suggestions. A response to editors and reviewers’ comments is detailed below.

We appreciate your positive comments, and hope our revised version to be published in Environmental Health. If there are additional changes that we should make, please let us know.

Sincerely yours,

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Response to editor’s and reviewers’ comments

Editor's comments:

When revising the manuscript, please stick to the journal’s instructions and change superscript reference numbers to the square bracket style that we require.

Response: Thanks for your comments.

We have changed all superscript reference numbers to the square bracket style in our revised manuscript.

Reviewer #1:

The paper has greatly improved from the original version with the authors addressing most of my initial comments and suggestion on looking at lags. However, the manuscript may still need another look, especially on language.

Response: Thanks for your positive comments and critical suggestions. We have changed as your suggestions. See below for details:

Please see some of my comments and suggestions on language below:

collection 1

abstract:

rewrite the sentence

line 11 :“Pulmonary tuberculosis (PTB) is a complex disease caused by environmental, socioeconomic and other risk factors. These are factors that increase the risk of ptb but don't cause it. Ptb is caused by mycobacterium bacteria, make this clear.

Line 13: Instead of saying "and regional PTB notification incidence" may be just ptb incidence is enough?

Response: Your view is very scientific. PTB is caused by mycobacterium bacteria. To avoid the misunderstanding, we have replaced it with a new sentence “Air pollution and pulmonary tuberculosis (PTB) are still serious worldwide problems, especially in areas of developing countries” in the revised abstract. In line 13, we changed “and regional PTB notification incidence” to “and PTB incidence, adjusting for socioeconomic covariates”.

Introduction
Page 2 Line 11: 98% cities should 98% of cities

Page 2 line 22: "In China, due to the rapid development of urbanization and transportation infrastructure", please rewrite to make clear

The use of ptb incidence/ptb notifiable case should be consistent, better just use PTB incidence

Methods

Line 39: "TB case notifications in each city were received from the system" should be "TB case notifications in each city were retrieved from the system"?

Results

Line 21 "increase in SO2 concentration may cause a 4.6% increased risk in regional PTB case notifications" should be rewritten, for example to "increase in SO2 concentration increases the risk of regional PTB case notifications by 4.6%"

Response: Good suggestions. We have reworded the sentence in these place in the revised manuscript. And we have also used the word “PTB incidence” instead of “PTB notifiable case” to keep consistent in our revised paper.

Discussion

Line 32 "increased the risk of TB from 1993 to 2007", did you mean between 1993 and 2007 and by what margin?

Line 22: please explain clearly how smoking could explain the sex disparity observed

Response: Thanks for your suggestions.

Line 32: "increased the risk of TB from 1993 to 2007", it means that the period of investigation in the reference research is during 1993–2007. To avoid the misunderstanding, we have replaced as "increased the risk of TB during 1993–2007"

Line 22: We have added a new sentence “The relative increased risk degree of PTB incidence by air pollution exposure may be obscured or weaken partially by heavy smoking in men” to explain it clear in the revised paper.

Smoking is an important risk factor on PTB. A significant gender difference in PTB incidence (male 122.96/100000 vs female 58.98/100000) has been showed in our result section, which may be partially due to the gender differences such as heavy smoking in males. We think that the
increased relative risk degree of PTB incidence by air pollution exposure may be obscured or weaken partially by the impact of heavy smoking in men. However, the smoking interference effect in women is litter because of their fewer smoking. So, the effect of air pollution on the PTB incidence in women may be more sensitive than men. It is a possible explanation for the sex disparity observed.