Author's response to reviews

Title: A study protocol to evaluate the relationship between outdoor air pollution and pregnancy outcomes

Authors:

Manuel C Ribeiro (manuel.ribeiro@ist.utl.pt)
Maria J Pereira (maria.pereira@ist.utl.pt)
Amilcar Soares (asoares@ist.utl.pt)
Cristina Branquinho (cmbranquinho@fc.ul.pt)
Sofia Augusto (s.augusto@fc.ul.pt)
Esteve Llop (ellv66@gmail.com)
Susana Fonseca (susanafonseca@yahoo.com)
Joaquim G Nave (joaquim.g.nave@gmail.com)
Antonio B Tavares (antonio.tavares@insa.min-saude.pt)
Carlos M Dias (carlos.das@insa.min-saude.pt)
Ana Silva (ana.silva@alentejolitoral.min-saude.pt)
Ismail Selemane (ismael@csgrandola.min-saude.pt)
Joaquin de Toro (jdetoro@cssantiagooc.min-saude.pt)
Mario J Santos (lince@cssantiagooc.min-saude.pt)
Fernanda Santos (fernanda.santos@alentejolitoral.min-saude.pt)

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Author's response to reviews: see over
Dear Natalie Pafitis,
Editorial Team for BioMed Central,

Please find enclosed the re-revised version of the manuscript incorporating the suggestions by the reviewer. Edits in re-revised manuscript are highlighted in yellow, and are discussed below on a point-by-point basis.

Major compulsory revisions pointed by Reviewer

1. “… it is important that additional information be provided on the relative contrasts of air quality at the spatial and seasonal scales within the study area. Data from the previous studies conducted by the same authors should be used to provide this information. They should also discuss this issue more deeply.”

We added a paragraph in Settings Section to provide information on contrasts of air quality in space. Unfortunately there are no articles available on air pollution seasonality in the study region. We also add a paragraph in the Discussion Section to stress that, despite seasonal patterns cannot be assessed using lichen index, air pollution emissions are relatively constant along the year.

Minor essential revisions pointed by Reviewer

2. “… Please provide estimates of the baseline outcome rate so that the reader can assess what the declared 4% expected difference represents in regards to these rates.”

We replaced the paragraph to give an adequate description of factors considered to calculate the statistical power of the study: “Outcome rates for low birth weight and preterm birth in the region for year 2009 are 7% and 8%, respectively. Estimated outcome rates (both low birth weight and premature birth) in pregnant exposed to lower and to upper quartile of LDV are 9% and 5%. Based on these assumptions, the study has statistical power of 80% (with significance criterion level set at 0.05) to detect 4% difference between outcome rates in pregnant exposed to lower and to upper quartile of LDV.”

3. p 12 (Methods, first line): Please explain how both night and day-time addresses of mothers during pregnancy are incorporated to construct the personal exposure variable.

We changed the first paragraph of Methods section to clarify this point, we added the following statement: “geographical coordinates on night-time and day-time addresses
during pregnancy are linked to simulated Lichen Diversity Values. Exposure during pregnancy is a weighted average for exposure at day-time and night-time addresses, where we assume 15 hours per day spent at night-time addresses and 9 hours per day at day-time addresses.”

4. p 13 (Selection bias section, last sentence): do the authors plan to collect information about the study outcome on non participating mothers so as to evaluate whether participation relates to the outcome?

We do not plan to collect information about the study outcome on non participating mothers. We will not be able to assess if participation relates to the outcome. We modified the last sentence of Selection bias section to clarify what is collected and why is collected.

Minor revisions

5. 5th line before the end: correct the sentence: "... since no Quercus suber trees were not available for analysis"

Corrected.

Regards,
On behalf of all co-authors
M C Ribeiro