Author's response to reviews

Title: Assessment and prevention of acute health effects of weather conditions in Europe. The PHEWE project: background, objectives, design

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Author's response to reviews: see over
To the Editors
Philippe Grandjean and David Ozonoff
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Re: Revised manuscript “Assessment and prevention of acute health effects of weather conditions in Europe. The PHEWE project: background, objectives, design” and point-by-point responses to the referees’ comments

With regards to your email from 22nd October 2006, our responses to the referees’ comments are as follows:

Referee 1: Marc Saez

General: None.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1.- The authors define maximum apparent temperature (Tappmax) as 'an index of thermal discomfort based on air temperature and dew point temperature [22]' (p. 6). They also provide a formula to compute it (p. 6).
   a.- However, as many combinations of temperature and dew point are possible and not only that provided in the formula, the authors should explain why they use, precisely, that formula and, also, they should explain the implications of the use of that particular formula.
   b.- The authors could explain some alternative formulas and/or some alternatives to the formula (i.e., categorical variable based on the percentile)
Response:
   Several discomfort indexes have been proposed in the literature (cited in the revised paper). The apparent temperature is the one which is used more frequently in recent studies on the effect of temperature on health (e.g. Smoyer, 2000; O’Neill, 2003, 2005; Michelozzi, 2004; Choi, 2005; Stafoggia, 2006).
   About the implication of using apparent temperature, the effect of apparent temperature is expected to be similar to including temperature and a quadratic term for dew point temperature. However, with apparent temperature, there is a gain in efficiency, as only one coefficient needs to be estimated (see further explanation in the Discussion chapter of the revised manuscript).
   Comparing results obtained using different exposure variables was not part of the study; however, sensitivity analysis was performed with minimum apparent temperature as exposure variable, and consistent results were obtained.

2.- The authors should explain the implications of using a different meteorological variable for Barcelona (p.6). I think that they should explain it in 'Discussion', as a limitation, better than here.
Response:
In the Discussion chapter the implications of using a different exposure variable for Barcelona was explained and it was specified that a sensitivity analysis was done excluding Barcelona from the combined analysis.

3.- The authors point out that 'Dynamic regression models were combined with a genetic algorithm for the semiautomatic regression of the best model over a large model space, covering different specifications of the correlation structure within a cluster [26]' (pp. 7 and 8). The authors should provide the maximum number of lags allowed for the explanatory variables, the number of explanatory variables with zero lags, one, two, and so on. Maybe, it would be better a table explaining the lag (dynamic) structure of all the explanatory variables.

together with

4.- The genetic algorithm is also used to determine the dynamic structure of the dependent variable. In the paper, however, authors point out that 'a first order autocorrelation structure (...) resulted to be appropriated' (p. 8). The authors should explain that if they also used genetic algorithm for this choice or (what is more likely given the simply autocorrelation structure) they decided the autocorrelation structure of the dependent variable by other more simple procedures. Which? (if any)

Response:
We used dynamic models only for exploring the correlation structure within season to be used in GEE. The first autocorrelation structure was suggested by this exploratory analysis. We modified the statement to better explain this point.

In this protocol paper we avoided to provide more detail about dynamic models specification, due to the notation complexity does not appear compatible with a not methodological paper. However, in the Methods and Discussion chapters, reference papers where dynamic models are introduced in the context of epidemiological time series analysis (Chiogna, 2003, 2005) are cited.

We agree with the referee that the specifications of the systematic and error components in the dynamic models is relevant and briefly included this information in the paper.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct): None.

Discretionary Revisions (which the author can choose to ignore): None.

Referee 2: Mathilde Pascal

General
“This article is a general overview of the European project PHEWE and do not detailed the method and results used in the different sub-project. It should be published to introduce more detailed articles focusing on each of the studies quoted in this article : temperature - mortality and morbidity relationship, HHWWS, health impact assessment, public health actions. The discussion could be further developped to focus on the organisation of the project and on its outcomes, especially regarding the discussion on the HHWWS and on the policy and preventive actions.”
Response:
The present article is tailored in order to give an overall overview of the project with all its components. As there is a broad number of issues included, it is not possible to go into detail for each single point. Major details will be reported in the specific publications on the single aspects.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached): None.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct): None.

Discretionary Revisions (which the author can choose to ignore)
“In the background chapter, data on cold impact should be added. There is a large discussion of the impact of the heat but nothing about cold.”
Response:
A summary of the state of the art on cold effects were added in the Background chapter.

“Regarding heat impact, the population at-risk should be checked to add workers and infants.”
Response:
In PHEWE, data were broken down by age-groups which did not allow for a detailed analysis of the impact of heat on infants (ages 0-14 were grouped all together). The decision of not collecting infant data was due to the small numbers related to the outcomes selected for the study.
Focus on other than the general population was not among the objectives of the PHEWE project and consequently, no information on workers was collected.

“In the methods: why using maximal apparent temperature for all cities, and mean apparent temperature for Barcelona?”
Response:
For Barcelona, 3-hourly meteorological data were not available, and consequently, the maximum apparent temperature could not be calculated, and the mean apparent temperature was used instead (included in the Methods and Discussion chapters)

“Exposure modeling: results of previous studies are quoted, without giving the reference.”
Response:
The references were added (see revised manuscript).

“HHWWS: the objectives of the HHWWS are not stated. Therefore, it is meaningless to speak of a warning system. Please state clearly the objectives of the system that was developed.”
Response:
More detailed information was included in the Discussion chapter. Regarding the HHWWS, a specific publication will follow, giving further information.
“Discussion: the discussion on the interest of standardized protocol for HHWWS is unclear.”

Response:
When the PHEWE project was designed, no experiences of warning systems were available in Europe, except for Rome, which was a pilot city of the WMO. At that time it seemed very useful to develop a standardized protocol which allows for comparison between different locations and also in order to guide the spreading of such systems over Europe.

“References:
Additional references that can be of interest:

Response:
The suggested articles refer to the 2003 heat-wave impact in France. The PHEWE project started in 2002 and did not include 2003 data. The statistical approach used in PHEWE was time series analysis and not heat wave episode analysis, therefore the suggested publications seem not to fit in this context.

Looking forward to receiving news,
Best regards,
Paola Michelozzi

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