Peer Review Report

Review Report on The association between humidex and daily outpatient visits for pediatric respiratory diseases in Shijiazhuang, China: a time series analysis

Original Article, Int. J. Public Health

EVALUATION

Q 1 Please summarize the main findings of the study.

The study aims to evaluate how respiratory health in children is related to temperature and humidity as well as a novel metric called Humidex.

Thank you for submitting a revised version of the manuscript. As handling editor of your manuscript, I reviewed it myself after 3 reviewers who had agreed, cancelled. You had replied to my comments in the attached response to reviewers, and I refer to the same numbering in my response below.

Along with reviewer #2, I then reviewed the revised manuscript again when you resubmitted on 30 November 2024 (1st resubmission) and after your resubmission on 6 January 2025 (2nd resubmission). Unfortunately, I do not think my comments to the version from 30 November were transmitted by the system. I therefore try to provide them again during this 3rd round, and hope they may help you improve the manuscript further.

Q 2 Please highlight the limitations and strengths.

Limitations highlighted in the next point.

Q 3 Please provide your detailed review report to the authors. The editors prefer to receive your review structured in major and minor comments. Please consider in your review the methods (statistical methods valid and correctly applied (e.g. sample size, choice of test), is the study replicable based on the method description?), results, data interpretation and references. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.

1) Your conclusion that humidex has a significant influence on respiratory hospitalizations seems correct. However, still I seriously doubt your conclusion that humidex is significantly superior to temperature. In other words: Is a 13.96% increase [95% CI = 7.81% –19.33%] (as you observed for humidex) significantly different from a 11.89% increase [95% CI = –2.90%, 25.11%] (as you observed for temperature)? Figure 2 does not show the confidence intervals, but it would seem that they overlap substantially. I suggest to add confidence intervals to all bars in Figure 2. Considering the substantial size of the CI's, I do not believe the difference between 13.96% and 11.89% is significant at the 95% confidence level, so you cannot conclude that humidex is superior to temperature.

2) It is not clear on what finding the authors base the claim that girls are more susceptible than boys. (See point above, they did not test the significance of this difference, and I would again suspect substantial overlap in the confidence intervals.)

3) The text in the Figures 1 and supplement is unfortunately still very small. Authors should carefully look at and interpret the lag plots in Figure S2, and I suggest putting the disease again in the panel, not put "A", "B" and "C" and then refer. While the plots for high humidex make sense (increased RR on day 0, which gradually reduces. There also seems to be a "harvesting effect" which I am not sure is typical for children's respiratory diseases? The lag-plots for low humidex do not make sense. I am sorry I did not realize this in your previous version, but I think it is important to mention as it affects your conclusion. The RR is significantly lower than 1 when there is low humidex today (day 0). However, there is a significantly elevated risk when it was cold 14 days ago (lag ~14). So as a public health intervention, we should encourage people to go out on days with low

humidex because it is protective for their health, but we should issue warnings when there was a low humidex 14 days ago?!? This does not make sense.

4) This comment has been addressed in the last version (submitted 6 January 2025).

5) Thank you for adding the methods for the Monte Carlo simulation. The terms L, $L0$ and l were introduced but not explained. What do these terms symbolize in these formulas?

6) My comment has been addressed in the previous version (submitted 30 November 2024).

7) See points 1 and 3 above. I suggest to revise the conclusion, unless (1) you can show that girls are really more at risk than boys, and (2) the lag structure for low humidex makes sense.

PLEASE COMMENT

Q 4 — **Is the title appropriate, concise, attractive?**

Yes

Q 5 — **Are the keywords appropriate?**

Yes

Q 6 — **Is the English language of sufficient quality?**

Moderate, can be improved.

Q 7 — **Is the quality of the figures and tables satisfactory?**

No.

Q 8 — **Does the reference list cover the relevant literature adequately and in an unbiased manner?)**

OK

QUALITY ASSESSMENT

Question		Rating (out of 5)
Q 9	Originality	3 / 5
Q 10	Rigor	2 / 5
Q 11	Significance to the field	2 / 5
Q 12	Interest to a general audience	3 / 5
Q 13	Quality of the writing	2 / 5
Q 14	Overall scientific quality of the study	2 / 5

REVISION LEVEL

Q 15 — **Please make a recommendation based on your comments:**

Major revisions.