

Interactive comment on “Influence of heat index on regional mortality in Europe” by D. Lee and T. Brenner

Anonymous Referee #2

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This paper seeks to examine the relationship between heat index and mortality in Europe. While the dataset is interesting, the authors should do a bit more work in order to show scientific significance (defined by NHESS as representing a substantial contribution to the understanding of natural hazards and their consequences). Examining each of the hypotheses:

Hypothesis 1: High HI and extreme HI events significantly increase mortality.

While the question is appropriately examined, it is unfortunately not novel. It is common knowledge that the heat index and mortality are correlated. The authors could show this as a sanity check within the methods or the appendix, but it is not novel and therefore should not be one of the main findings of the paper.

Hypothesis 2, 3: Those who are more elderly or poorer are more likely to suffer.

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This hypothesis suffers from a lack of literature review in this area. It is well known how demographic variables (a much larger number than those examined in the paper) are related to vulnerability. Bradford et al. paper contains a review of literature demonstrating the relation between heat death/ illness and demographics/ other characteristics; it may be useful for the authors to review this information (as well as all of the ~100 papers cited therein) and revisit a more appropriate set of hypotheses.

Bradford, K.; Abrahams, L.; Hegglin, M.; Klima, K. A Heat Vulnerability Index and Adaptation Solutions for Pittsburgh, Pennsylvania. *Environmental Science & Technology*. 2015, 49(19), 11303–11311. PMID: 26333158

Hypothesis 4: High mean levels of HI reduce the population's response to extreme events.

This might make for an interesting hypothesis. I would suggest that instead of regressing simply on the mean, that one use a combination of the mean and standard deviations in order to redefine extreme events at each location. Note, Table 7 is unclear; the variable names are unintelligible, the asterisks are not defined, and the R values are missing.

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