

Interactive comment on “Factors of subjective heat stress of urban citizens in contexts of everyday life” by T. Kunz-Plapp et al.

Anonymous Referee #1

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Dear authors,

Thank you very much for this scientifically and societally highly relevant paper on subjective heat stress of urban citizens in daily life. I very much enjoyed reading it. For further improvement of the paper I have some major suggestions:

1) I would suggest better specifying your definition of heat stress in the introduction and clarifying how far your empirical study is related to heat stress or heat waves. I understand that you did your survey immediately after a heat wave. It would be interesting to include a discussion on how do you see your findings in terms of transferability to other heat stress events or heat stress in general?

2) Moreover, I would suggest including a definition of the frequently and very differently

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used terms of risk, vulnerability, coping, adaptation to avoid confusion in the manuscript and to go inline with the recent concepts and theories.

3) The paper would improve from precise research questions, objectives or hypotheses. In the present version the aim is described twice in a rather general way (4621, ll 25; 4627, ll 7). You have collected a lot of interesting material with your survey. Precise research questions would help to guide the reader and to structure the discussion of your findings in the light of other studies.

4) Chapter 3 (Methods) and subchapters are very extensive and not easy to follow at the moment, restructuring with another subchapter (e.g. Study area, Concept, Data collection and sample, Data analysis) would probably help to make it easier to read: You start with a description of the study area at the beginning of chapter “3.1 Concept of the study”. I would suggest better changing the title to “Study area”. In ll 24 on 4628 I could imagine to insert the subheading “concept”, before you are mainly describing the study area.).

Some more specific comments in detail:

- How you define heat waves in you study area should be explained earlier than on p4628 (ll 14).

- It would be interesting to include the question you asked for the outcome variable in the text as well besides presenting it in the figure.

- Was the survey distributed in German language only? Is there a bias because of language barriers/cultural barriers? It's relevant in other cities I am not sure about Karlsruhe though.

- In 3.3 you introduce the different scores that you use. Could you perhaps explain in more detail or refer to other studies how you approached the scores? In general I would find it easier to have a table with all variables you use in the statistical analysis.

- At the moment it is not exactly clear how you use the meteorological data that you

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explain in 3.1.

- "The mean of 2.40 on the health impairments score (SD = 0.60, score range 1 to 4) indicates that the number and frequency of health symptoms suffered during the heat resulted on average in a modest health impairment rate." => Can you explain this in more detail?

- In the results section you present the multiple regression analysis but in the methods chapter there is hardly any information on e.g. measures of goodness, how you deal with multicollinearity. Please explain in more detail.

In the discussion I would be interested in your critical reflection of your findings in the light of other studies on:

- are there possible differences between the online survey and printed survey?

- do you see a difference in your findings for heat stress or heat events?

- how you estimate the self-reported heat stress (impairment) and what this may mean for the results that "the health impairments from the heat and the feeling of being helplessly exposed" explain a lot? Could this be due to the respondent's behaviour?

- how do you think about the studies that combine individual measurements and assessments throughout the day to assess perceived heat and measured heat?

- In the conclusion you refer to the "expressed-preferences approach" in your study. Since the readers of NHESD come from very different fields I would suggest to explain this already in the concept section of your study.

- The figures are very good and support the text. Is there any reason why you present figure 3 in colours and 4 in black and white?

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 3, 4619, 2015.