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Comment on nhess-2021-177

Anonymous Referee #2

Referee comment on "Multiple hazards and risk perceptions over time: the availability heuristic in Italy and Sweden under COVID-19" by Giuliano Di Baldassarre et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2021-177-RC2>, 2021

The paper "Multiple hazards and risk perceptions over time: The availability heuristic in Italy and Sweden under COVID-19" investigates public perceptions of different hazards in Italy and Sweden during the COVID-19 pandemic using the results of two freely available nationwide surveys collected in August 2020 and November 2020. The hazards included in the study are natural and non-natural ones: epidemics, droughts, wildfires, terrorist attacks, floods, earthquakes, domestic violence, economics crisis, climate change. The authors found that, in both countries, people are more worried about risks related to experienced events. This is in line with the availability heuristic cognitive process: individuals assess the risk associated with a given hazard based on a past experience. People in Italy and Sweden are highly concerned about climate change and they rank it as the most likely threat. The issues they proposed are current and of highly importance, the paper is well written and the figures are of good quality. The analyses the authors performed are at national scale. They compared the results of the two surveys using, for each hazard, the perceived impact, likelihood of occurrence and direct experience. To assess the actual impacts of most of the hazards in the two countries they used a global database of disaster.

The broad spectrum of topics the authors investigated, which are too briefly described in my opinion, have stimulated many questions and some doubts which are listed below and that could be discussed in the paper.

My first comment is about the broad spectrum of hazards of different nature, frequency and severity the authors analyzed. These hazards require very different prevention (e.g. economic crisis and flood) and preparedness (e.g. earthquake and terrorist attack) measures and they are not homogeneously distributed in the national territory. People living in urban areas are more aware of specific type of hazards (e.g. technological, environmental, criminality) than those they do not experienced or they completely ignore. The geographical distribution of respondents may allow the authors to examine the difference between objective and perceived impacts.

The knowledge the public has of the different hazards is another important issue. For example, floods are easily recognizable, the domestic violence often remains hidden. Some hazards can be easily related to the season, or the weather conditions, or the geological and geomorphological assets of the territory, others are dependent on variables that people can ignore or not understand (economic crisis).

Another question I would like to ask the authors is: Are people able to distinguish the climate change hazard from floods and drought? How did they experience the climate change? The survey considered natural hazards directly or indirectly related with climate change (wildfires, floods and droughts). Have the authors considered the possible dependence between the hazards and how the relation was handled in the responses analysis?

Most of the hazards differently impact the population based on their income, gender, employment, residence, etc. This can have strong implications in how these hazards are perceived across the population and a deeper analysis of the multiple variables can increase the quality of the work.

A major concern is the global database the authors used to quantify the objective impacts. To compare the occurrence of disasters in Italy and Sweden, they analyzed the global EM-DAT archive that is the world's most comprehensive disaster database. The problem in using this type of data is that it lacks systematic information on low to medium intensity and high frequency events. If the heavy impact of a low frequency disaster can modify the public perception, how does the public respond to minor, but extremely frequent and not recorded in the global database, damaging events? Can this gap influence the proportion between the perceived impacts and the likelihood of occurrence? The hazard classification used in the EMDAT is quite different from the list of hazard the authors investigate. How did they handle with this mismatch?

I would also like to briefly mention the issue of sharing experiences through new digital mode, so current under covid-19. Tools such as social media can have influenced the answers on the impacts and on the likelihood. In recent years even during minor damaging events (natural and non-natural) images and videos, from social media and news reports, quickly reach the widest audience leaving a trace. Even though they did not have direct experience of the damaging event, they share it through images, videos and stories. Can this influence the public perception of the actual impacts?

To provide a richer interpretation of the results for three of the numerous hazards investigated, the authors compared the results of their surveys with two recent surveys about perceptions of scientists, collected in the 2020 Future Earth's Survey, and of decision makers, described in the 2020 Global Risks Report by the World Economic Forum. The results are reported in the supplementary material. If I centered the importance of the matter, in the comparison there are no major differences between risk judgements of scientists (from the two recent reports) and lay people (from the two surveys). I think it

could be very interesting to deepen this point of discussion adding possible reasons for their findings inside the paper and not in the supplementary materials.

Line 91: responses to the three following questions. The sentence is written twice