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Comment on nhess-2021-37

Anonymous Referee #3

Referee comment on "Risk perception of local stakeholders on natural hazards: implications for theory and practice" by Mihai Ciprian Mărgărint et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2021-37-RC3>, 2021

General comments:

The authors present a case study from Iași, in Romania, where they explored local stakeholders' risk perception concerning multiple natural hazards. They conducted 118 surveys with five different types of stakeholders (school heads, priests, police officers, mayors, and farmers). They found that different stakeholders show different perceptions of risk, also due to the geographical location of their community. The idea behind the paper is interesting and relevant, as often these groups work as a bridge between authorities and local communities and play a fundamental role during disasters. However, there are some concerning aspects that the authors should address before this paper can be considered for publication in NHESS. I will list them here, together with some minor/technical corrections.

Specific comments:

1) Article structure – Section 2.1-2.2-2.3 are very detailed, so much so that the reader loses sight of what the paper is about. I think it is relevant to provide information on the geomorphology, climate and natural hazards history of the area, but this can be done more concisely. Instead, I would give more space to literature on risk perception and stakeholders role in communities during disaster, which are now confined to the short introduction and should be expanded (this is the core of the paper, after all).

2) Background – The paper is about risk perception, but very little literature is presented in this regard. The authors mention that the lay public "demonstrated a low perception

and readiness”, but where does this information come from? The stated aim of the paper is to “investigate stakeholders’ level of knowledge and cognitive appraisal of natural hazards in order to understand if they think and act differently from the lay public [...] and understand their role during emergencies”. Yet the paper only focuses on the perception of the stakeholder, and no lay person was interviewed, making it impossible to detect any differences in perception. Second, it seems from the introduction (lines 62-75) that the role of the local stakeholders during emergencies is already known and understood.

The authors investigate perceptions of seven natural hazards but divide all the communities assayed according to only three of these hazards (floods, landslides, soil erosion). How are the other hazards distributed across the communities examined? Do they affect them all with the same frequency, intensity?

3) Data collection – The authors mention dominant, discretionary, and dormant stakeholders, but these terms are not defined, nor used anywhere else in the paper. Figure 2 would be easier to read if it were a table. It would also be good to know the % of respondents in the HUA and FUA (e.g. priest 21% of the total, of which 60% in HUA and 40% in FUA). All this info plus that in Fig.2 plus lines 253-261 can be nicely summarized in a table. Line 251 “some stakeholders inviting other members of the community (especially the mayors) into the dialogues”, do the authors mean that the mayor was invited to the interview? I think this could cause some issues as the answer of the interviewee could have been influenced by the presence of the mayor. Lines 262-272 should go in the introduction/background.

It is unclear whether the authors conducted questionnaire surveys or semi-structured interviews. It seems to me that they conducted questionnaire surveys (considering that all the questions were close-ended), as they specify in line 246. If they also conducted semi-structured interviews, they should report the questions that were asked (at least the initial ones, but the follow-up ones should be reported too), whether the interviews were recorded, how was consent acquired, whether they were transcribed, and how data from the interviews were analysed.

Table A1 in the appendix should also report the minimum and maximum value for every question asked on a scale. What does “low-high” that sometimes appear in the second column of the table mean? Are those the extremes of the scale?

Q13 asks two questions in one, this can be an issue for those respondents whose answer may change depending on the question part (reduce negative consequences of natural hazards vs it should be taken as a priority where you live)

4) Statistical analysis – The analysis of the data is rather shallow, often just a comparison of percentages. The contingency table tests results would be clearer if presented in the form of Chi-square values, rather than with Correspondence Analysis (CA) graphs. In my opinion, they are hard to read, not intuitive, and a distracted reader

may even draw wrong conclusions from them. In addition, I don't think it is an appropriate way to represent your results. Running some ordinal logistic regressions would add some depth to the analysis and would give additional insights on the role of type of stakeholder and geographical characteristics in influencing risk perception.

5) Results – The results of the statistical analysis are reported only in terms of %, and the correlations are reported through CA graphs (such as in Fig. 5-9-10). I think a much more meaningful representation of the data would be plotting the mean responses for Q2 (perceived impact) and Q4 (perceived likelihood) for each hazard by stakeholder type. This would immediately show potential differences in risk perception and it's more intuitive to read.

6) Discussion – The discussion should go more in depth, and this would be facilitated by a deeper statistical analysis. It would also help to have the discussion structured following the three research questions/themes. No limitations of the study are discussed, even though there are quite some (e.g. sample size, not surveying any lay person, statistical analysis). The discussion does not tie the results to the literature, and it is therefore hard to generalize the results and compare them with previous (and potentially future) studies.

67 Research question – Q1 what do the authors mean with "dependency relationship between the threats of different natural hazards"?

Technical corrections:

The manuscript needs *in-depth proofreading*, some sentence constructs are hard to follow, and there are few typos throughout the paper (I provide some examples below, but the list is not exhaustive).

Line 23: "some stakeholders", communities and authorities are stakeholders too, so I would use "other stakeholders"

Line 162: I think there's a repetition in the sentence.

Line 164: it should be "is", not "if"

Line 203: "persons" can be removed, it's superfluous