

Response to RC1 – Submission NHESS-2023-64

Dear Reviewer,

Thank you for taking the time to review our manuscript "*Better prepared but less resilient: the paradoxical impact of frequent flood experience on adaptive behavior and household resilience.*" We appreciate your evaluation and insightful comments to improve the quality of our work. In the following section, we address each of your comments and suggestions point by point. The green written text indicates how we would incorporate the proposed adjustment in the final manuscript.

Comment: *Paragraph 145: The sample of the first wave (2020) contains 1833 individuals; the sample from the second wave (2021) contains 1319 individuals, from which 690 are part of both waves. Instead of using first wave, second wave why not use first survey and second survey. Comment: I had to reread the paragraph a second time to understand what you really meant. You could rewrite the sentence as " The sample of the first survey (2020) contains 1833 individuals; the sample from the second survey (2021) contains 1319 individuals, from which 690 are part of both surveys."*

Answer: We agree with your suggestion and will add the word "survey" to the manuscript. We would like to retain the word "wave" as it is a technical term in panel data analysis.

The sample of the first survey wave (2020) contains 1833 individuals; the sample from the second survey wave (2021) contains 1319 individuals, from which 690 are part of both survey waves.

Comment: *Paragraph 145: Therefore, the panel structure applies to 28.03% (690) of the 2462 respondents. Comment: Instead of panel structure, why not say longitudinal data or panel data. I feel panel structure is a bit confusing.*

Answer: We delete the sentence and include it in the sentence before.

The sample of the first survey wave (2020) contains 1833 individuals; the sample from the second survey wave (2021) contains 1319 individuals, from which 690 (28.03%) are part of both survey waves.

Comment: *Paragraph 190: The correlation analyses of the relationships between FFE and the outcome variables show that households with more floods experienced have implemented more*

likely adaptive measures in the past. Comment: I think "Floods Experienced" should be flood experience. The sentence should read as households with more flood experience have implemented.....

Answer: We agree that, concerning readability, another wording would be beneficial. However, as we already wrote "flood experience" in the subsequent sentence, we prefer another term. We decide to change "floods experienced" into "(...) households that have experienced more flood events have (...)." We will change the wording throughout the text.

The correlation analyses of the relationships between FFE and the outcome variables show that households that have experienced more flood events were also more likely to have implemented adaptive measures in the past.

Comment: *Paragraph 290: To conclude, FFE has a statistically significant negative impact on resilience by lowering self-reported resistance during and recovery from the last flood event. Comment: Contrarily, a previous study concluded that Flooding experience (FE) showed a significant positive correlation with flood risk adaptation, indicating that perceived increase in the severity of flood experience could result in a corresponding increase in flood risk adaptation behaviour. Reference: Chati Jerry Tasantab, Thayaparan Gajendran & Kim Maund (2022). How the past influences the future: flood risk perception in informal settlements, Environmental Hazards, DOI: 10.1080/17477891.2022.2130854*

Answer: In this part (4.2.2) of the manuscript, we only present the regression analysis results that test the influence of frequent flood experience on self-reported resilience. In the discussion part (section 5), we further elaborate on the obtained results and bring into relation the results regarding the impact of frequent flood experience on adaptive behavior and the impact of frequent flood experience on household resilience. As Tasantab et al. (2022), we find that flood experience positively influences adaptive behavior. However, we did not test if the perceived severity of the last flood event influences if people have undertaken protective measures. The reason is that it is not known if people have adapted before or after their last flood event. Therefore, any judgment on the effect direction would not be based on empirical data from our dataset.

Comment: *Paragraph 375: Linking the results of the first and second research questions reveals that, even though individuals indicate that they perceived their first flood event as severe and felt powerless, only the share of people that have adapted the most low-threshold*

behavior of storing essential goods more save changes substantially. Comment: I feel that save in the sentence should be safely. The sentence should read aspeople that have adapted the most low-threshold behavior of storing essential goods more safely changes substantially....

Answer: You are right. We change the spelling throughout the manuscript.

Linking the results of the first and second research questions reveals that, even though individuals indicate that they perceived their first flood event as severe and felt powerless, only the share of people who have adapted the most low-threshold behavior of storing essential goods more safely changes substantially.

Comment: *The same applies to paragraph 390: The empirical analyses show that undertaking property-level adaptation and storing essential goods more **save** (replace with **safely**) have a statistically negative impact on feeling helpless.*

Answer: You are right, we change the spelling.

The empirical analyses show that undertaking property-level adaptation and storing essential goods more safely was negatively associated with feeling helpless.

Comment: *Paragraph 395: The feeling of helplessness might be rather influenced by the fear of losing personal belongings. Comment: A previous study confirmed that those who experience severe flooding or lost property and valuables during previous flooding events believe that future flooding and its impacts could be worse due to the fear or dread from that experience. Reference: Chati Jerry Tasantab, Thayaparan Gajendran & Kim Maund (2022). How the past influences the future: flood risk perception in informal settlements, Environmental Hazards, DOI: 10.1080/17477891.2022.2130854*

Answer: In this paragraph, we discuss the results regarding the influence of adaptive behavior in the past (undertaking building-level adaptation, storing important goods more safely, and taking out insurance) on felt helplessness regarding future flood events. The sentence "The feeling of helplessness might be rather influenced by the fear of losing personal belongings" discusses the outcome of our study that people who have taken out insurance in the past feel statistically significant more helpless compared to people who have not taken out insurance, ceteris paribus. However, your comment does not refer to the influence of past behavior on perceived future resilience but puts into relation coping experience during a flood in the past to

individuals' assumptions about the severity of future floods. Whereas the influence of coping experience during past flood events on assumptions about future performance during floods and their severity is an interesting and important field to study, it is not what we intend to measure with our study and not what we discuss in the paragraph. Therefore, we would not support your suggestion of adding the cited paper to this paragraph. However, the cited paper is already discussed in the literature part of the manuscript (line 99), as we also think the paper contributes valuable outcomes that should be presented in our paper.

Thank you again for your valuable input and critical assessment of our manuscript. Your comments and constructive feedback are valuable for further improving our manuscript.

Sincerely,

Lisa on behalf of the co-authors