Appendix A - Additional Detail for Methods

*Qualitative approach and research paradigm*

The guiding theoretical framework for this work was Tourangeu’s analytic model of the survey response process.1 This model divides the survey response process into four stages: 1) comprehension of the question, 2) retrieval of relevant information from memory, 3) judgment and estimation process of the retrieved information, and 4) response processes.2

Retrospective follow up probes, such as “What were you thinking when you answered this question?” or, “What led you to answer the way that you did?” were used to help researchers understand participants’ interpretative processes and help uncover interpretive and elusive errors through textual verification.

*Sampling strategy*

Our strategy intentionally over-sampled (up to 50%) those with Black and/or African American racial, biracial or multiracial identities as a novel strategy to combat racial data bias and develop a survey based on the population with the greatest demonstrated disparity for disaster-related assessment outcomes at the household level.3,4 Cognitive interviewing is generally conducted with 10 participants.2 We intentionally doubled this sample size in order to include a full cognitive interviewing sample size panel of those with Black and/or African American racial identities. These factors, along with the vast geographical variability of hazards/disasters, were considered when determining a sample size of 20 respondents.

*Data Processing and Analysis*

The cognitive interviewing portion of the first 18 interviews consisted of: 1) questions about Experts’ personal and professional experiences with 60 different types of hazards/disaster, and 2) Demographics. Using standard cognitive interviewing methodologies, participants were asked to think out loud to tell the interviewer the story of why they answered the way that they did. The interviewer actively considered participant comprehension, recall, judgment, and response and applied standard probes where more information was needed to clarify the participant’s cognitive processes. The final two respondents were interviewed using a finalized instrument draft to assess the need for additional reparative procedures. The survey was modified in two rounds of content validity indices not covered in this initial manuscript and to be reported elsewhere.

We utilized secure project Google docs, Google Sheets, and QNotes as software to complete these analytic steps. QNotes is a publicly available software application maintained by National Center for Health Statistics designed specifically for cognitive interview methods.5

Using the audio-visual recorded interview as the data source, analysis was conducted as follows: key text summaries were extracted for each respondent about how they interpreted the hazard/disaster term and generated an answer. This within-participant analytic step includes ascertaining the participant’s explanation of their thinking process and problems the participant experienced with the question-answer process. Next, we synthesized these textual terms and summaries across all respondents for each hazard/disaster term to inductively generate and map emerging thematic codes. These theme codes were visualized into a figure as a schema as tree branches across participants and for each disaster/hazard term. Pattern coding was used to compare the responses (yes/no) to ever experiencing the hazard/disaster in the participant’s lifetime. The pattern coding was utilized to ascertain differences between those who identify their race as Black/African American (inclusive of biracial/multi-racial) and those who did not identify their race as Black/African American at the time of the interview. We utilized the analytic findings from each of the previous steps listed here to draw conclusions about the performance of each item across all participants and elucidate potential for racial data bias in the content validity performance of the individual items.

Appendix A References

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