

How does communication format impact heatwave concerns?

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Abstract

Extreme heat events are increasing in frequency and intensity due to climate change. Effective communication of these risks is critical for fostering concern and motivating adaptive behaviors. This pre-registered experiment (N=885 U.S. participants) examined how communication format in likelihood (e.g., “X times more likely”), frequency (e.g., “X times every 10 or 1,000 years”), or temperature (e.g., “X°F higher peak temperature”) affects the threshold at which people report feeling more concerned about a moderate or a severe heatwave. The results showed that for people to feel more concerned, the heatwave would have to be a lot worse when communicated in the temperature format compared to frequency or likelihood formats, with likelihood eliciting the lowest concern threshold. Thresholds were higher for the severe than the moderate heatwaves, consistent with diminishing sensitivity to already-extreme events. Participants also underestimated heatwave peak temperatures at baseline, and concern thresholds were predicted by baseline concern, political orientation, and initial peak temperature estimates. These findings highlight format-specific effects in climate communication and emphasize the need for likelihood or frequency statistics over temperature increases to better align public concern with scientific projections of escalating heat risks.

Keywords: bias, numeracy, framing, statistics, climate communication