

International Conference on Public Health, Preventive Medicine & Infectious Diseases (ICPHPMID-2026)

Conference Proceedings

July 22, 2026 - Virtually

AI-Generated Disaster Simulations and Public Engagement with Climate Risk

Hen Friman

Renewable Energy & Smart Grid Excellence Center, Faculty of Electrical and Electronics Engineering, Holon Institute of Technology (H.I.T.), Holon, Israel

Abstract

Climate change communication increasingly seeks effective ways to reduce the psychological distance between individuals and environmental threats in order to strengthen public awareness, emotional engagement, and motivation for action. One emerging approach involves the use of AI-generated audiovisual simulations that create vivid and realistic depictions of climate-related disasters. Such simulations may enhance emotional responses and increase the perceived immediacy and personal relevance of climate risks. The present study examined whether AI-generated disaster simulations influence fear, worry, perceived personal relevance, and willingness to act regarding climate change, and whether these effects are amplified when the simulated disasters are presented in a local rather than distant context. The study was conducted among a representative Israeli sample ($N = 402$). Participants viewed four short AI-generated films depicting climate-related disaster scenarios: wildfires in Israel, wildfires abroad, a tsunami in Israel, and a tsunami abroad. To reduce potential order effects, the presentation order of the films was counterbalanced across participants. Following exposure to the four films, participants ranked each scenario according to its impact on four dimensions: fear, worry, perceived personal relevance, and willingness to take action, where 1 represented the most impactful film and 4 represented the least impactful. The findings revealed a strong and consistent locality effect across all examined outcomes. Disaster simulations framed within the Israeli context were systematically perceived as more emotionally and personally impactful than equivalent scenarios taking place abroad. In the case of fear, the Israeli wildfire and tsunami simulations received substantially stronger impact rankings ($M = 1.98$ - 2.00) compared with the abroad scenarios ($M = 3.00$ - 3.02). Similar patterns emerged for worry, where local scenarios were ranked as significantly more concerning ($M = 1.83$ - 1.95) than distant scenarios (approximately $M = 3.1$). Perceived personal relevance also demonstrated a pronounced locality advantage, with Israeli scenarios receiving lower and therefore stronger impact rankings ($M = 1.70$ - 1.90) relative to the abroad simulations ($M = 3.15$ - 3.25). A comparable trend was observed for willingness to act, where participants reported stronger motivation following local disaster depictions ($M = 1.61$ - 2.01) than after viewing distant events ($M = 3.06$ - 3.32). In addition to the locality effect, several demographic differences emerged. Women consistently reported stronger emotional and behavioral responses than men across the examined variables. Younger participants and respondents with higher levels of education demonstrated greater engagement with the disaster simulations and stronger willingness to act. Differences were also identified across levels of religiosity, with secular respondents reporting higher engagement than traditional and religious participants. Furthermore, regional variations within Israel corresponded with patterns of environmental and hazard exposure, suggesting that geographic proximity and familiarity with risk may shape public responses to climate-related communication. The findings provide empirical support for construal-level theory (Trope and Liberman, 2010), which argues that psychologically proximal events are perceived as more concrete, emotionally salient, and behaviorally relevant than distant events. By demonstrating the effectiveness of AI-generated audiovisual simulations in shaping emotional and cognitive engagement, this study highlights the growing experimental and communicative potential of artificial intelligence technologies in climate change research. The results further suggest that locally anchored and visually vivid climate disaster depictions may serve as powerful tools for increasing public engagement, strengthening risk perception, and encouraging climate-related action.