

# Investigating Social Media Discourse Over the Health-Related Impacts of Climate Change

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Despite a decrease in the cost of low-emission technologies and an expansion of policies addressing climate change mitigation, current commitments to climate change mitigation remain insufficient to keep global temperature warming below 2°C in the 21st century. Critically, a lack of political frameworks and financing makes adaptation difficult and inhomogeneous; current financial investment would need to increase by a factor of three to six to limit warming to 1.5 - 2°C<sup>1</sup>.

Public support for climate policy has been shown to be one of the most impactful variables toward climate policy adaptation in the United States, but increasing public pressure remains difficult<sup>2</sup>. Specifically, framing climate change through health and environmental lens has been shown to increase public support for climate action<sup>3</sup>. Social media plays an outsized role in how people get information about climate change, where nearly half of Americans get at least some of their news from social media<sup>4</sup>.

This paper aims to investigate how the health-related impacts of climate change are discussed on social media sites such as Facebook, Twitter, Instagram, and TikTok. Using data collected from Meltwater and a manually labelled dataset, I first built a classifier to identify social media posts related to health-related narratives on climate change across multiple social media platforms using BERT sentence embeddings and ensemble models. From this set of posts, I conducted additional investigation into the topic of narrative, the accounts that produced the majority of interactions, and the timing of posts throughout 2023. Across all platforms, posting frequency exhibited a strong seasonality, where a surge of posts surrounding heat consistently occurred in the hottest summer months, but health-related discourse constituted only around 14% of all climate change discourse. They also exhibited high stratification, where nearly 40% of interactions were produced by the 0.05% most popular accounts despite constituting, at most, of

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<sup>1</sup> IPCC, "IPCC, 2023: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (Eds.)]. IPCC, Geneva, Switzerland,," July 25, 2023, <https://doi.org/10.59327/ipcc/ar6-9789291691647>.

<sup>2</sup> Armin Jeddi Yeganeh, Andrew P. McCoy, and Todd Schenk, "Determinants of Climate Change Policy Adoption: A Meta-Analysis," *Urban Climate* 31 (March 2020): 100547, <https://doi.org/10.1016/j.uclim.2019.100547>.

<sup>3</sup> Dasandi, Niheer, Hilary Graham, David Hudson, Slava Jankin, Jennifer vanHeerde-Hudson, and Nick Watts. "Positive, Global, and Health or Environment Framing Bolsters Public Support for Climate Policies." *Communications Earth & Environment* 3, no. 1 (October 20, 2022). <https://doi.org/10.1038/s43247-022-00571-x>.

<sup>4</sup> Pew Research Center, "Social Media and News Fact Sheet," Pew Research Center, November 15, 2023, <https://www.pewresearch.org/journalism/fact-sheet/social-media-and-news-fact-sheet/>.

7% of posts surrounding health-related climate change narratives. The most common topics, disease, mental health, and heat, remained prevalent across all platforms, but platforms with younger demographics, such as TikTok and Instagram, discussed mental health more frequently than platforms like Facebook. Established organizations such as UNICEF South Asia, the BBC, and National Geographic remained popular across all platforms. However, individual content creators dominate interactions in platforms such as Twitter and TikTok, with right-wing commentators being especially popular on Twitter.