Limited effects of exposure to fake news about climate change

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Read our paper here: https://iopscience.iop.org/article/10.1088/2515-7620/abae77/pdf
Preregistration, data and materials available here: https://osf.io/pvnkj/
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Introduction:

- The spread of fake news poses potential threats to public health and democracy. [1] Fake news on climate change is prevalent. [2-3]
- Further research is needed to understand how exposure to fake news impacts policy-relevant beliefs and attitudes
- We draw on the psychological literature on misinformation to examine the effects of exposure to fake news on climate change and test interventions to reduce those effects. [4-5]

Research Question:

How does exposure to fake news on climate change affect belief in climate change, perceptions of the scientific consensus on climate, and trust in scientists?

References:
[1] Lazer D M J, Baum M A, Benkler Y, Berinsky A J, Greenhill K M, Menczer F and Zittrain J L 2018 The science of fake news Science 359 1094–6
[2] Oreskes N 2011 Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to global Warming (New York: Bloomsbury Press)
[3] Farrell J, McConnell K and Brulle R 2019 Evidence-based strategies to combat scientific misinformation Nat. Clim. Change 9 191-195
[4] Lewandowsky S, Ecker U K H, Seifert C M, Schwarz N and Cook J 2012 Misinformation and its correction: continued influence and successful debiasing Psychological Science in the Public Interest 13 106–31
[5] Lewandowsky S, Ecker U K H and Cook J 2017 Beyond Misinformation: understanding and coping with the post-truth era Journal of Applied Research in Memory and Cognition 6 353-69
[6] Mercier H 2020 Not Born Yesterday: The Science of Who We Trust and What We Believe (Princeton: Princeton University Press)

Poster Session: Friday Dec. 11, 2:30- 3:30ET (leaving early due to faculty meeting). Zoom: https://asu.zoom.us/j/86329296943

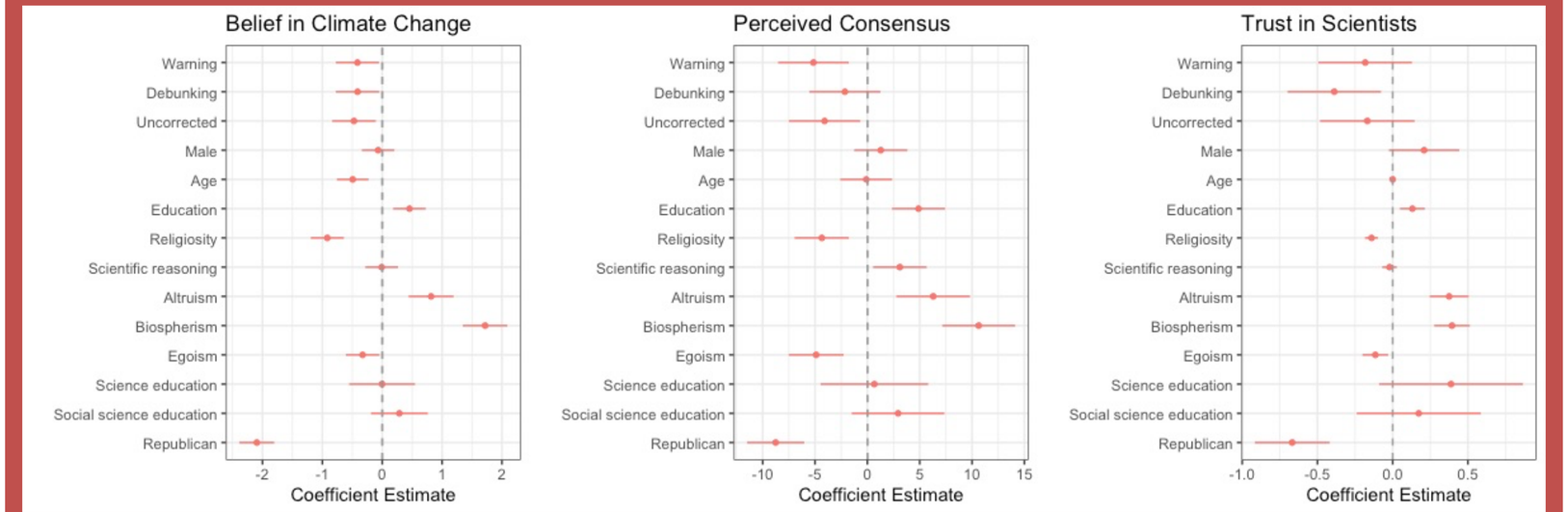
Method:

- *N* = 1269 participants recruited from Qualtrics Panels (41% male; mean age = 45 (SD = 14); 39% had a Bachelor's degree or higher; 39% Republican, 56% Democrat).
- Participants were randomly assigned to read 6 fake news headlines on either climate change or pop culture (**control** condition). They answered a distractor question for each headline.

Sample Climate Change Headline	Sample Pop Culture Headline
'Nearly All' Recent Global Warming Is Fabricated, Study Finds	Melania Trump Hired Exorcist To 'Cleanse White House Of Obama Demons'

- Participants who read climate change headlines were randomly assigned to receive either a **pre-exposure warning** that the headlines were false, a **post-exposure debunking**, or **no correction**.
- In a second section of the survey, portrayed as unrelated to the first, target DVs on **belief in anthropogenic climate change, perceived scientific consensus on anthropogenic climate change,** and **trust in scientists** were included in a larger battery of questions about sociopolitical beliefs and attitudes.

Results:



Note: Coefficient estimates from linear regressions (belief in climate change and perceived consensus) and ordered logistic regressions (trust in scientists). Effects of condition estimated relative to control (pop culture headlines) condition. N = 1269. R^2 values of 0.42, 0.20, and McFadden's pseudo-R^2 of 0.16, respectively.

Discussion:

- Participants who were exposed to fake climate news reported lower levels of belief in climate change and perceived less scientific consensus on climate change, but effect sizes were small. Trust in scientists was not impacted by exposure.
- The warning and debunking interventions were largely ineffective at reducing the effects of exposure.
- Fake news is unlikely to strongly influence climate skepticism. Creating and sharing fake news may signal identity and (political) group membership [6], suggesting the importance of future research unpacking the relationship between political conservatism and skepticism of climate change.