

**IN PRESS AT *CURRENT OPINION IN PSYCHOLOGY*****Misinformation and the epistemic integrity of democracy**

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**Abstract**

Democracy relies on a shared body of knowledge among citizens, for example trust in elections and reliable knowledge to inform policy-relevant debate. We review the evidence for widespread disinformation campaigns that are undermining this shared knowledge. We establish a common pattern by which science and scientists are discredited and how the most recent frontier in those attacks involves researchers in misinformation itself. We list several ways in which psychology can contribute to countermeasures.

*Keywords:* integrity of democracy; attacks on scientists; climate science; misinformation

### **Misinformation and the epistemic integrity of democracy**

*“I’ve won two Elections, the second far bigger than the first (it was Rigged!)”*

— Donald J. Trump, 22 May 2023

*“Despite having lost, the Defendant was determined to remain in power. . . . the Defendant spread lies that there had been . . . fraud in the election and that he had actually won. These claims were false, and the Defendant knew that they were false. But the Defendant . . . disseminated them anyway.”*

— Federal indictment of Donald J. Trump, 1 August 2023

Democracy relies on the public agreeing on a body of reliable knowledge and information [1]. Two aspects of shared knowledge are particularly important: First, confidence in the processes by which power is distributed, foremost among them the electoral process. Second, reliable information about the evidence in support of different policy options. We argue that both aspects have been eroded by the widespread dissemination of misinformation.

#### **1 Attacks on procedures and processes**

Citizens must know that power will be transferred peacefully if an incumbent is voted out of office [1]. The facts that 28% of American conservatives do not support a peaceful transfer of power [2], and that more than half of Republican voters continue to question the legitimacy of President Biden’s electoral win in 2020, must therefore cause concern. A CNN poll in August 2023 [3] found that 69% of Republicans questioned the legitimacy of President Biden’s electoral win, with more than half of those (57%) believing that there was solid evidence for their view.

However, no such evidence exists and the widespread doubt about the integrity of the 2020 election is primarily the result of an extensive disinformation campaign by the loser of the election, Donald Trump, and his supporting infrastructure [4]. The origins of this campaign can be traced back to 2016 [5]. Several scholars have noted that the “big lie”

that the 2020 election was “stolen” from Donald Trump attacks the core of American democracy and puts pressure on Republican lawmakers to cater to antidemocratic forces [4, 5].

## 2 Attacks on evidence-informed policy making

Democracy also requires reliable shared knowledge to ensure normatively good outcomes. From the perspective of an epistemic theory of democracy [6], democracy is legitimated not only by the recognized fairness of its procedures and institutions, but also by delivering decisions and outcomes that are “better” than those offered by alternative forms of governance, such as autocracy [6, 7]. Dating back to the 18th century, Condorcet’s Jury Theorem has provided mathematical justification for majority-rule voting by showing that collectively, members of a group who have imperfect but above-chance information about competing alternatives are more likely to choose the “correct” alternative than any one member of the group [8, 9]. Proponents of epistemic democracy can point to much empirical support for the “wisdom of crowds”, which in many (but not all) circumstances can deliver superior decisions [10]. However, epistemic democracy is not without its vulnerabilities [6, 11]. One concern is that the idealized conditions under which democracy can yield “correct” decisions are undermined when the citizenry is pervasively misinformed [7].

This concern is particularly acute when decisions require consideration of scientific evidence, such as in public health or regarding climate change. The ongoing organized dissemination of misinformation about scientific issues thus arguably undermines democracy<sup>1</sup> in much the same way as a “big lie” about an election, albeit in a more indirect manner. We consider two domains, climate change and the COVID-19 pandemic, in which misinformation has played a crucial, and adverse, role.

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<sup>1</sup> This argument is most easily sustained under an epistemic view of democracy. However, many other views of democracy, such as deliberative theories, must also presume that citizens are adequately informed to contribute constructively to decision making and that they are equipped to do so [6].

It is well documented that disinformation about climate change is being strategically disseminated to the American public through well-funded networks [12]. Over 90% of environmentally skeptical books published in the U.S. have been linked to conservative think tanks [13]. The fossil fuel industry is providing donations to members of Congress in direct proportion to their propensity to vote against environmental policies [14]. A content analysis of 16,000 documents produced by such think tanks has revealed that the relative prevalence of statements casting doubt on mainstream science has increased between 1998 and 2013 [15].

This campaign has undoubtedly been successful: At a macro level, a computational content analysis has shown that major US news reporting and presidential speeches have become more similar to the outputs of “skeptical” organizations from the 1990s to 2010s [16]. At the micro level, disinformation demonstrably undermines the public’s knowledge and reduces acceptance of the reality of climate change. Exposure to misleading numbers from the “skeptic” arsenal lowers acceptance of climate change [17]. Misinformation can also cancel out the impact of accurate information [18].

Organized disinformation about climate change has therefore contributed to the delay of climate mitigation by several decades: the fossil fuel industry was aware of the anticipated consequences of climate change at least as early as 1965 [19], and more than 80% of internal documents and peer-reviewed articles produced by Exxon acknowledged the reality of human-caused climate change between 1977 and 2014 [20]. Throughout that period, however, Exxon was also funding central nodes in the American climate-denial network [16].

Climate change is no isolated case: the recent COVID-19 pandemic was similarly characterized by an “infodemic” [21]; that is, a preponderance of low-quality information including misinformation and conspiracy theories. It has been estimated that up to 20% of engagements on Facebook by the U.S. public was captured by untrustworthy sites [22]. Some of the misinformation targeted the nature of COVID-19 itself, such as the baseless

claim that 5G broadband installations were responsible for the virus-borne disease [23], whereas other misinformation targeted the effectiveness of non-pharmaceutical measures such as lockdowns and masks [24], and the safety of vaccines [25,26].

As with climate change, much of the disinformation surrounding COVID-19 was strategically deployed. It has been estimated that the “anti-vax” online industry accumulates annual revenues of \$35 million, and that their audience of 62 million followers may be worth upward of a billion dollars a year for the big social media platforms [27]. Significantly, there are known links between political operatives in the climate-denial arena and COVID-19 disinformation. One such connection involves the American Institute for Economic Research (AIER), a libertarian free-market think-tank that has a history of disseminating misinformation about climate change (e.g., by denying the scientific consensus) and has engaged in similarly misleading argumentation about COVID-19 [28]. A central plank of the AIER’s anti-scientific activities relating to COVID-19 is the “Great Barrington Declaration”, a petition that advocated a “herd immunity” strategy by letting the pandemic spread through the population—by avoiding lockdowns—while protecting those who are most vulnerable in an unspecified manner. This position has been strongly opposed by the majority of experts [29,30] and was identified as “simply unethical” by the World Health Organization.<sup>2</sup> The Great Barrington Declaration echoes the earlier so-called Global Warming Petition Project, which used the same strategy of a pseudo-scientific online petition to cast doubt on the scientific consensus position on climate change [31].

Moreover, again paralleling climate disinformation, it was mainly right-leaning media outlets that gave prominence to misinformation and conspiracy theories from the early stages of the pandemic [32]. Fox News generally [33], and particularly the show by Sean Hannity, who consistently downplayed the risks from the pandemic early on [34], have been causally linked to changes in behavior and health outcomes. The long-term effects of

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<sup>2</sup> <https://www.nbcnews.com/health/health-news/who-says-herd-immunity-strategy-simply-unethical-n1243009>

misinformation targeting a mainly conservative audience have been brought into tragic focus by several recent findings: COVID-19 infection and fatality growth rates were higher in U.S. counties that predominantly voted for Trump in 2016 than those that voted for Clinton [35], and the excess mortality for Republicans exceeded that for Democrats early during the pandemic and increased even further once vaccinations became universally available in April 2021 [36]. By the end of 2021, the difference in excess death rates between the parties exceeded 10%, with most of that difference arising in counties with low vaccine uptake.

### **3 Attacks on the messengers**

There is one further parallelism between climate denial and COVID-19 misinformation, and indeed denial of the 2020 election results: In all arenas, individuals have been subject to a range of personal attacks. To illustrate, two election workers in Georgia were subject to baseless claims by supporters of Donald Trump, including his lawyer Rudy Giuliani, that they committed election fraud. This led to a campaign of harassment against the election workers that forced them to go into hiding and to change their appearance. Giuliani ultimately admitted to making false statements and, in August 2023, was found liable by a judge for defaming the election workers [37].

In the case of scientists, personal attacks range from abusive emails to threats of physical harm or harassment through frivolous freedom-of-information requests [38–40]. Hate mail, such as accusations of “mass murder” directed at climate scientists, tends to peak after the posting of scientists’ email addresses on websites run by political operatives [41]. Those public attacks are often paralleled by complaints to scientists’ host institutions with allegations of research misconduct. In the case of tobacco research, there is evidence that complaints about academics are not random but organized by or on behalf of the tobacco industry [42].

Contrarian efforts have also focused on quote-mining scientists’ emails to construct conspiratorial narratives about alleged malfeasance, for example during the scandal arising

from the release of stolen emails between climate scientists in 2009 [43]. The response to the COVID-19 pandemic similarly involved increasingly personalized attacks on public-health officials, such as Anthony Fauci, who was chief medical adviser to the president during the pandemic and became a central figure in the far-right imaginary [38]. Leaked or subpoenaed emails and Slack messages have also featured prominently in attempts to impugn the integrity of scientists who were discussing the possibility that the COVID-19 virus escaped from a Chinese research lab [44].

#### **4 The common denominator**

Why are the same political operatives involved in denying climate change and in undermining the science as it evolved during the COVID pandemic? Why is the same playbook being used against climate scientists and, now, virologists (and indeed other scientists whose work has implications for policy or politics, such as tobacco researchers)?

There are two entwined drivers that determine opposition to science, and the spreading of misinformation more generally, across all those domains. First, the actors involved always view state-sponsored measures with great suspicion. Whether it is a price on carbon or social distancing, contrarians frequently suspect that there is a “Deep State” [45] or “cartel” [46] that is conspiring against citizens to increase taxes and limit people’s liberties. Second, almost without exception, the main actors are adherents of right-wing libertarianism—a worldview closely aligned with conservatism that rests on a “preference for minimal government, plus voluntary association, the primacy of individual autonomy and of course the maximization of individual freedom” [47](p. 288)—and they frequently operate within an ecosystem of conservative and free-market “think tanks” and “institutes” that engage in the denial of any science that, if taken seriously, entails the need to infringe on “liberty” through regulations or policy.

The link between libertarian attitudes and the denial of inconvenient science—i.e., evidence that might be used in support of regulatory initiatives—has been established in



numerous surveys (for a summary, see [48]), and the common “playbook” that underlies attacks on scientists has been known for quite some time [49].

The asymmetric role of ideology extends beyond the rejection of scientific facts to misinformation more generally. There have also been numerous large-scale studies based on a variety of methods, from big-data analysis to text processing, that converge on the conclusion that the dissemination [50], consumption [51, 52], and acceptance of [53, 54] disinformation is politically highly asymmetric and far more prevalent on the political right than the political left.

### **5 Attacks on scientists — the new frontier**

It is perhaps unsurprising, therefore, that the latest target of conservative lawmakers and media operatives in the U.S. are misinformation researchers themselves. In 2023, Representative Jim Jordan, Republican Chair of the House judiciary committee and supporter of the “big lie” that the 2020 election was stolen from Donald Trump, was leading the charge against misinformation scientists. Jordan demanded records and communications from several scientists and institutions in search of evidence for his claim that disinformation researchers, in collusion with social media platforms, have sought to censor conservative voices [55]. A quantitative analysis of the purported anti-conservative bias on social media has found no evidence of bias, and concluded instead that social media facilitated the violent insurrection on 6 January, 2021 [56].

The campaign led by Jordan has caused several prominent researchers in the field to curtail public engagements and has had a chilling effect overall on research on misinformation, at a time when the U.S. is preparing for another bruising presidential election [57]. In response to similar pressure, the Biden administration back-tracked on its commitment to develop measures to safeguard elections and election workers against disinformation [58].

Outside the political domain, at the time of this writing Elon Musk’s Twitter (now known as X Corp), has launched a law suit against the Center for Countering Digital Hate

(CCDH). The CCDH is a non-profit organization that has published reports detailing the increase in hate speech on Twitter after Musk's takeover. X Corp claims that the reports cost the corporation tens of millions of dollars in lost advertising revenue. CCDH claims that the lawsuit is part of an authoritarian playbook and that it seeks to stifle unbiased research in the public interest [59].

## **6 Conclusions and recommendations**

The toxic effects on democracy of misinformation and the associated attacks on scientists call for corrective political action. We can briefly point to two ways in which psychological research can contribute to the design of such solutions: First, in the European Union, psychological research has contributed to recent legislative efforts such as the Digital Services Act and the Code of Practice Against Misinformation for online platforms, as part of the European Union's efforts to curtail misinformation and hate speech online [60]. The platforms submitted their first baseline reports to the European Commission in early 2023. The reports detailed the ways in which the platforms were complying with their commitments under the Code of Practice such as determining whether political ads are eligible for monetization and whether they are clearly labeled as political. An audit of the reports by independent academics [61] found that, with the exception of X/Twitter, the platforms by and large expressed compliance with the Code although their overall performance fell short of being satisfactory. Notwithstanding, the baseline reports confirmed the feasibility of a regulatory accountability process and the large platforms will continue to report their compliance every 6 months.

Second, psychological research can illuminate public attitudes, for example people's discomfort with use of personal data for targeted political advertising [62] and their endorsement of moderation to remove online misinformation and hate speech under certain circumstances [63]. Specifically, notwithstanding partisan differences, the majority of American respondents polled by [63] preferred quashing harmful misinformation over protecting free speech, in particular if the misinformation was presented as having severe

harmful consequences and if it was disseminated by repeat offenders. The results suggest that the U.S. public broadly endorses moderation policies that remove harmful content and in extreme cases deplatform individuals who repeatedly post misinformation.

Third, there are a number of scalable interventions that demonstrably boost the public's resistance to misinformation, such as media literacy tips [64], accuracy "nudges" [65], and inoculation [66]. To illustrate, inoculation involves presenting people with brief educational materials, such as videos, that explain rhetorical techniques (e.e., appeal to emotion, scapegoating, and incoherent arguments) that are used to mislead and disinform people. Participants are far better at detecting such misleading argumentation after exposure to inoculation videos than after exposure to unrelated material [66]. The effectiveness of inoculation at a large scale was demonstrated in a study conducted by Google in Eastern Europe in 2022, which exposed 38 million citizens to brief videos that anticipated misleading arguments against Ukrainian refugees and explained why they were wrong. The campaign generally increased people's ability to identify misleading rhetoric [67].

Whether or not those precedents and research findings will be put to use in the U.S. remains to be seen. At the time of this writing, it is difficult to avoid the realization that one side of politics—mainly in the U.S. but also elsewhere—appears more threatened by research into misinformation than by the risks to democracy arising from misinformation itself.

## **7 Acknowledgements**

SL acknowledges financial support from the European Research Council (ERC Advanced Grant 101020961 PRODEMINFO), the Humboldt Foundation through a research award, the Volkswagen Foundation (grant “Reclaiming individual autonomy and democratic discourse online”), and from UK Research and Innovation (through the Centre of Excellence, REPHRAIN). UKHE acknowledges support from the Australian Research Council (grant FT190100708). JR acknowledges support from the British Academy (#PF21-210010), Google Jigsaw, IRIS Coalition (UK Government, #SCH-00001-3391), the Economic and Social Research Council (ESRC, #ES/V011960/1), and the Global Engagement Center (US Departmentt of State).

## **8 Competing Interests**

SL, JR, and SvdL have received funding from Google Jigsaw for empirical work on inoculation against misinformation and continue to collaborate with Jigsaw. The remaining authors declare no competing interests.

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**“Epistemic democracy” is the concept in political theory that holds that democracy works in part because ordinary people can and do make good decisions, what Aristotle called “the doctrine of the wisdom on the**

**multitude.” But do ordinary people make good decisions? The author argues that the claims of epistemic democracy have been more often asserted than tested, and that, for various reasons, they often do not hold. The author advocates for strengthening institutions that could promote good judgments by citizens, an important suggestion in the face of active institutions of disinformation.**

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**issued by the company at that time told a different story: one of high uncertainty. While journalists had noted the gap between the company's public and private statements, this study was the first study to analyze the scale, scope and character of ExxonMobil communications on climate change in an academically robust way.**

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