



¹ University of Oxford and Nuffield College, UK

² Finnish Institute for Health and Welfare (THL), Helsinki, Finland

Correspondence to: MC Mills
melinda.mills@nuffield.ox.ac.uk, J Sivelä
jonas.sivela@thl.fi

Cite this as: *BMJ* 2021;372:n272

<http://dx.doi.org/10.1136/bmj.n272>

Published: 17 February 2021

PUBLIC HEALTH

Should spreading anti-vaccine misinformation be criminalised?

The spread of false health information casts a shadow over required vaccine coverage. **Melinda Mills** says that we must, reluctantly, consider criminalising people who deliberately spread false information—but **Jonas Sivelä** argues that the definitions are too murky and that criminalisation may do more harm than good

Melinda C Mills,¹ Jonas Sivelä²

Yes—Melinda Mills

Vaccination is a miracle of medicine and is the proposed way out of covid-19.¹ But not everyone agrees. Some people spread vaccine disinformation—false information with malicious intent—or misleading misinformation, based on incorrect beliefs.

Both of these can increase vaccine hesitancy, which the World Health Organization has listed as one of the top 10 health threats.² And the consequences can be real. Although measles vaccinations saved 23 million lives, misinformation was linked to the disease's resurgence.³

The many faces of false information

False information about vaccines is heterogeneous, spread by groups ranging from anti-vaccine libertarians protecting civil liberties to concerned parents and health conscious people.⁴ It is nothing new—from the Anti-Vaccination Leagues of the 1880s, fighting infringements of personal liberty,⁵ to the persistence of the fraudulent Wakefield study linking the MMR vaccine to autism (despite its retraction).⁶ Spreading falsehoods can be lucrative, and some people allegedly benefit from spreading conspiracy theories and selling coronavirus cures.^{2,7}

Simple, emotive, and compelling disinformation can sow doubt and distrust by exploiting perceived U turns in scientific knowledge or by presenting government or public health decisions as establishment failures. “Merchandising doubt” is effective, from denying a link between cigarettes and cancer to questioning climate change or national election results.⁸ Doubt destabilises, polarises, and erodes trust.

We are also facing an “infodemic”—an overabundance of information, both factual and false. In uncertain conditions people struggle to sort through complex, evolving information: 25% of Americans report having unwittingly shared fake news stories.⁹ A majority (70–83%) of Americans and Europeans use the internet to find health information, often on social media.¹⁰ Over 65% of YouTube's content about vaccines seems to be about discouraging their use—focusing on autism, adverse reactions, or mercury content.¹¹ And search algorithms promote content similar to what users have previously watched, leading people into increasingly narrow echo chambers of

disinformation.¹² A recent UK study found that users who relied on social media for their information, particularly YouTube, were significantly less willing to be vaccinated.¹³

Criminalisation and knowledge voids

On ethical grounds, deliberate intent to spread malicious vaccine disinformation that could result in preventable deaths should be considered criminal. But criminalisation is not straightforward.

Laws against spreading fake news and health disinformation have been passed in France, Germany, Malaysia, Russia, and Singapore. As of 2018, Germany required social media platforms to remove hate speech or fake information within 24 hours, threatening maximum fines of €50m (£43.9m; \$60.4m).¹⁴ The argument for such legislation is that it could force social media companies to self-regulate and to police content. Traditional media (newspaper, TV, radio) are considered “publishers,” being subject to regulation. Social media platforms give the public a voice to exchange information, and the most common sources of vaccine information are often non-experts. But social media companies have argued that they are not publishers and have minimal responsibility to vet posts, although they have agreed to conduct some editorial decisions and fact checking.

Criminalisation, of course, has a cost. Early evaluation of the German law¹⁵ showed that social media companies were risk averse, curtailing freedom of expression and censoring legitimate material. In Russia, criminalisation has stifled criticism of the government.¹⁶

Proposed alternatives to criminalisation include inoculating the public against false information by increasing media literacy. But countering emotional narratives that play to our deepest fears is not only about being media savvy. We need to decide whether social media companies are publishers, and we need legislation to guide them to adjust their algorithms and determine to what extent information should be balanced and fact checked, with users directed to accurate sources. For instance, certification systems could gauge content accuracy in terms of traceable sources, explicit conflicts of interest, ethical compliance, and revenue reporting.

The government, scientists, and health authorities also need to take responsibility. Instead of passive, information laden official websites, communications

need to reach the people on social media platforms—offering content as engaging as their misinformation counterparts and allowing dialogue. This could include more visual information, memes, emotive stories, multiple languages, and involving local community leaders.

But criminalising people who intentionally hurt others through false information should also be considered. The freedom to debate, and to allow the public to raise legitimate vaccine concerns to fill the knowledge void, should not extend to causing malicious harm.

No—Jonas Sivelä

In recent years concern has grown regarding the global spread of misinformation, disinformation, fake news, and conspiracy theories. They constitute a considerable risk for society in general and for many public health matters, particularly vaccination.¹⁷ There is no denying that the world would be a better place without misinformation or that it would be in the public interest for anti-vaccination misinformation not to exist. But should it be criminalised? No.

The strongest arguments against criminalisation relate to the notion of the rule of law and democracy, including freedom of speech and other civil liberties. But criminalising anti-vaccine misinformation could make it grow even stronger.

We should be cautious when we talk about misinformation and disinformation, as there is a difference: misinformation is defined as “incorrect or misleading information”; disinformation as false information deliberately spread with the purpose of influencing public opinion.^{18,19} The crucial difference is the intention to deceive.

Murky waters

The Universal Declaration of Human Rights states that everyone should have the right to freedom of opinion and expression.²⁰ Freedom of speech reinforces and legitimises all other human rights: without them we would have oppression, tyranny, and other extrajudicial practices. It is true that civil liberties, including freedom of speech, can and should be restricted in certain cases—for example, when it comes to inciting lawless activities and violence. But anti-vaccination misinformation is not such a case.

Vaccine hesitancy is a “delay in acceptance or refusal of vaccines despite availability of vaccination services.”²¹ Contrary to how it often appears in the public debate, vaccine hesitancy is affected not only by anti-vaccination lobbying or misinformation but also by the convenience of vaccination services and public complacency. Criminalising anti-vaccine misinformation seems a strong response but does not deal with these issues.

Most importantly, attitudes and perception regarding vaccines and vaccination sit on a continuum including people who have no doubts and accept all vaccines on the one side, and those who vocally refuse all vaccines on the other—as well as a heterogeneous group between these two extremes that can be hesitant to different degrees, depending on the context.

We must also acknowledge legitimate concerns about vaccines that should be allowed to be voiced. It is understandable that vaccines and vaccination, like other public health measures, raise questions. If these are labelled as criminal there is a genuine risk of suppressing legitimate concerns and questions, expressed without the intent to deliberately spread false information.

Failing to consider or answer people’s worries, and instead suffocating relevant discussion, would only result in an increased

lack of confidence in the long run—and an increase in misinformation.

More harm than good?

Anti-vaccine disinformation, conspiracy theories, and fake news can often be considered counternarratives—expressions of resistance.^{22,23} In such cases, they can be born from and fed by distrust in authorities and institutions, expressions of resistance to hegemonic ideologies and rules.²³ Hegemonic legislation that could be seen as criminalising the right to express legitimate worries or pose questions would only trigger more misinformation.

Instead of criminalising communication, other technical solutions for tackling misinformation have proved successful, such as efforts by Facebook and Twitter to deal with false claims through fact checking and labelling misinformation.²⁴

Moreover, trust in authorities, governments, and the healthcare system is key when it comes to ensuring high vaccine acceptance.^{25–27} The only way to sustainably reduce misinformation about vaccination—and to strengthen vaccine confidence and acceptance in the long run—is to increase trust in these institutions and authorities in different countries.

Biographies

Melinda Mills is a professor of demography and sociology at the University of Oxford and director of the Leverhulme Centre for Demographic Science. She is on the UK Scientific Advisory Group for Emergencies’ Scientific Pandemic Insights Group on Behaviour (SPI-B) and Ethnicity subgroups and its Vaccines Science Coordination Group, the Royal Society’s Science in Emergency Tasking COVID-19 (SET-C) group, and the High Level Advisory Group for the European Commissioner for the Economy.

Jonas Sivelä is a senior researcher at the Unit for Infectious Disease Control and Vaccinations at the Finnish Institute for Health and Welfare (THL). He currently leads the work package on vaccine hesitancy and uptake in the ongoing EU Joint Action on Vaccination, is co-principal investigator of the Academy of Finland project Reconstructing Crisis Narratives for Trustworthy Communication and Cooperative Agency, as well as managing other research projects related to vaccine acceptance and crisis communications. Before joining THL he conducted ethnographic research about AIDS related myths and misconceptions in South Africa. He also has a long work experience in communications, media intelligence, journalism, and marketing.

Competing interests: We have read and understood BMJ policy on declaration of interests and declare the following interests:

MCM currently receives research funding from the Leverhulme Trust, Leverhulme Centre for Demographic Science and ERC-2018-ADG-835079 and has received research funding from the ESRC (Economic and Social Research Council)/UKRI (UK Research and Innovation), the NWO (Dutch Research Council), the Social Science and Research Council of Canada, and the European Commission.

JS has received research funding from the European Commission (2018, 2020) and the Academy of Finland (2020). He is a member of the Scientific Committee of the annual Vaccine Acceptance Meeting organised by Fondation Merieux. Travel and accommodation expenses related to these meetings have been paid for by Fondation Merieux (2018, 2019). JS is also an unpaid member of the advisory board for Sabin Vaccine Institute’s Vaccine Acceptance Research Network.

Provenance and peer review: Commissioned, not peer reviewed.

- 1 Mills MC, Salisbury D. The challenges of distributing COVID-19 vaccinations. *EclinicalMed* 2020;100674. doi: 10.1016/j.eclinm.2020.100674. pmid: 33319186
- 2 Mills MC, Rahal C, Brazel D, Yan J, Gieysztor S; Royal Society, British Academy. COVID-19 vaccine deployment: behaviour, ethics, misinformation and policy strategies. 21 Oct 2020. <https://royal-society.org/-/media/policy/projects/set-c/set-c-vaccine-deployment.pdf?la=en-GB&hash=43073E5429C87FD2674201CA19280A8E>.
- 3 Poland GA, Jacobson RM. The age-old struggle against the antivaccinationists. *N Engl J Med* 2011;364:97–9. doi: 10.1056/NEJMp1010594. pmid: 21226573
- 4 Berman JM. *Anti-vaxxers: how to challenge a misinformed movement*. MIT Press, 2020;doi: 10.7551/mitpress/12242.001.0001.
- 5 Wolfe RM, Sharp LK. Anti-vaccinationists past and present. *BMJ* 2002;325:430–2. doi: 10.1136/bmj.325.7361.430 pmid: 12193361

- 6 Godlee F. The fraud behind the MMR scare. *BMJ* 2011;342:d22doi: 10.1136/bmj.d22.
- 7 Williamson E, Steel E. Conspiracy theories made Alex Jones very rich. They may bring him down. *New York Times* 2018 Sep 7. <https://www.nytimes.com/2018/09/07/us/politics/alex-jones-business-infowars-conspiracy.html>.
- 8 Oreskes N, Conway EM. *Merchants of doubt. how a handful of scientists obscured the truth on issues from tobacco smoke to global warming*. Bloomsbury Press, 2010.
- 9 Schaeffer K. Nearly three-in-ten Americans believe covid-19 was made in a lab. Pew Research Center. 8 Apr 2020. <https://www.pewresearch.org/fact-tank/2020/04/08/nearly-three-in-ten-americans-believe-covid-19-was-made-in-a-lab/>.
- 10 Massey PM. Where do US adults who do not use the internet get health information? Examining digital health information disparities from 2008 to 2013. *J Health Commun* 2016;21:118-24. doi: 10.1080/10810730.2015.1058444. pmid: 26166484
- 11 Basch CH, Zybert P, Reeves R, Basch CE. What do popular YouTube™ videos say about vaccines? *Child Care Health Dev* 2017;43:499-503. doi: 10.1111/cch.12442. pmid: 28105642
- 12 Hussein E, Juneja P, Mitra T. Measuring misinformation in video search platforms: an audit study on YouTube. *Proc ACM Human-Computer Interact* 2020;4:1-27. doi: 10.1145/3392854.
- 13 Jennings W, Stoker G, Willis H, et al. Lack of trust and social media echo chambers predict COVID-19 vaccine hesitancy. *medRxiv* [preprint] 2021. <https://www.medrxiv.org/content/10.1101/2021.01.26.21250246v1>.
- 14 Human Rights Watch. Germany: flawed social media law. 2018. <https://www.hrw.org/news/2018/02/14/germany-flawed-social-media-law>.
- 15 Library of Congress Law. Government responses to disinformation on social media platforms: Germany. Sep 2019. <https://www.loc.gov/law/help/social-media-disinformation/germany.php>.
- 16 Amnesty International. Russian Federation: "fake news" bill prompted by covid-19 threatens freedom of expression. 3 Apr 2020. <https://www.amnesty.org/en/documents/eur46/2093/2020/en/>.
- 17 World Health Organization. Ten threats to global health in 2019. Jan 2019. <https://www.who.int/news-room/spotlight/ten-threats-to-global-health-in-2019>.
- 18 Merriam-Webster. "misinformation". 2021. <https://www.merriam-webster.com/dictionary/misinformation>.
- 19 Merriam-Webster. "disinformation". 2021. <https://www.merriam-webster.com/dictionary/disinformation>.
- 20 UN General Assembly. Universal declaration of human rights (217 [III] A). 1948. <https://www.un.org/en/universal-declaration-human-rights/#:~:text=Drafted%20by%20representatives%20with%20different,all%20peoples%20and%20all%20nations>.
- 21 MacDonald NE. Vaccine hesitancy: Definition, scope and determinants. *Vaccine* 2015;33:4161-4. <https://pubmed.ncbi.nlm.nih.gov/25896383/>.
- 22 Abeysinghe S. Vaccine narratives and public health: investigating criticisms of H1N1 pandemic vaccination. *PLoS Curr* 2015;7:ecurrents.outbreaks.17b6007099e92486483872ff39ede178. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4353697/>.
- 23 Bamberg M, Andrews M, eds. *Considering counter-narratives: Narrating, resisting, making sense*. John Benjamins, 2004doi: 10.1075/sin.4.
- 24 Mena P. Cleaning up social media: the effect of warning labels on likelihood of sharing false news on Facebook. *Policy Internet* 2020;12:165-83. <https://onlinelibrary.wiley.com/doi/abs/10.1002/poi3.214>doi: 10.1002/poi3.214.
- 25 Verger P, Fressard L, Collange F, et al. Vaccine hesitancy among general practitioners and its determinants during controversies: a national cross-sectional survey in France. *EBioMedicine* 2015;2:891-7. <https://pubmed.ncbi.nlm.nih.gov/26425696/>. doi: 10.1016/j.ebiom.2015.06.018 pmid: 26425696
- 26 Salmon DA, Dudley MZ, Glanz JM, Omer SB. Vaccine hesitancy: Causes, consequences, and a call to action. *Vaccine* 2015;33(Suppl 4):D66-71. <https://pubmed.ncbi.nlm.nih.gov/26337116/>. doi: 10.1016/j.vaccine.2015.09.035 pmid: 26615171
- 27 Dubé E, Laberge C, Guay M, Bramadat P, Roy R, Bettinger JA. Vaccine hesitancy. *Hum Vaccines Immunotherapeutics* 2013;9:1763-73. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3906279/>.