

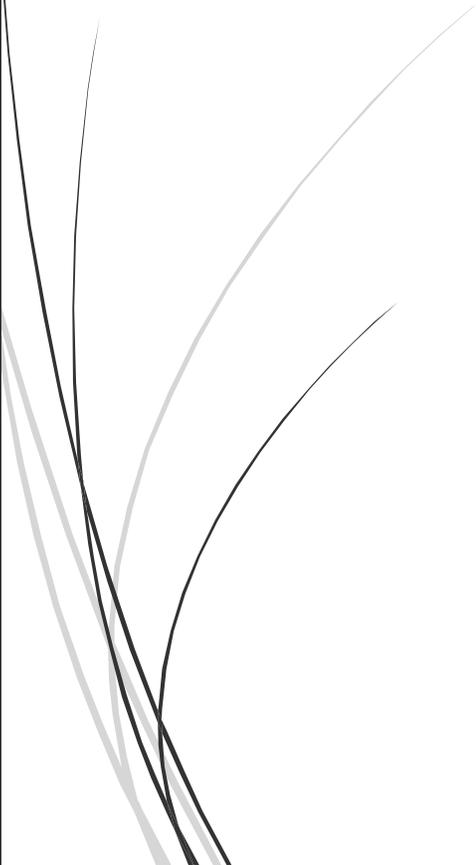


3/15/2021

# COVID-19 Literature Review Group

Prepared by The Ohio State University

## COVID-19 Anti-Vaccine Misinformation and Vaccines & Social Media



**ODH Literature Review Group**  
THE OHIO STATE UNIVERSITY

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## COVID-19 Literature Review

Prepared by Eliana Burlotos, The Ohio State University

March 13, 2021

### Topic: COVID-19 Anti-Vaccine Misinformation

**Title:** Should spreading anti-vaccine misinformation be criminalised?

**Source:** The BMJ

**Publication Date:** February 17, 2021

**Link:** <https://www.bmj.com/content/372/bmj.n272>

**Study Period:** N/A

**Study Location:** N/A

**Sample Size:** N/A

**Summary:** This review presents two contrasting viewpoints of well-established professionals in regard to the question if spreading anti-vaccine misinformation should be criminalized? Melinda Mills, a professor of demography and sociology at the University of Oxford and director of the Leverhulme Centre for Demographic Science, argues for criminalization. Jonas Sivelä, senior researcher at the Unit for Infectious Disease Control and Vaccinations at the Finnish Institute for Health and Welfare, argues against the criminalization. Mills discusses how people spread vaccine disinformation, false information with malicious intent, and misleading information, which is based on incorrect beliefs. Both of these increase vaccine hesitancy, which is one of the top 10 health threats listed by the World Health Organization. Mills argues that deliberate intent to spread malicious vaccine disinformation that could result in preventable deaths should be considered criminal. Mills states that in France, Germany, Malaysia, Russia, and Singapore laws against spreading health disinformation have been passed. Social media companies should self-regulate content, she argues. An alternative to criminalization Mill's proposes is to increase media literacy to protect the public against false information. On the contrary, Sivelä argues that criminalization goes against freedom of speech. Sivelä describes that there are legitimate concerns about vaccines that should allowed to be voiced. Not allowing relevant discussions would lead to an increase in misinformation. Sivelä concludes that the only way to reduce vaccine misinformation is to strength vaccine confidence in the government and healthcare system.

**Key Findings Relevant to Ohio's Response:** Social media allows for the vast spread of misinformation regarding vaccines. Scientists, health authorities, and the government need to take responsibility and reach people on social media platforms with engaging vaccine information to overcome the false information out there.

**Title:** 'We are going to have to save ourselves,' Black community fights deadly COVID vaccine conspiracy theories

**Source:** USA Today

**Publication Date:** March 10, 2021

**Link:** <https://www.usatoday.com/story/tech/2021/03/10/covid-vaccine-facebook-youtube-instagram-black-misinformation-fight/6943180002/>

**Study Period:** N/A

**Study Location:** N/A

**Sample Size:** N/A

**Summary:** Katrina Randolph is a hairstylist focused on eliminating her clients' fears and misconceptions about COVID-19 vaccines. Randolph is a part of a network of barbershops and beauty salons working with Dr. Stephen Thomas, who runs the Maryland Center for Health Equity. The Health In-Reach and Research Initiative

(HAIR) used to focus on educating people about chronic diseases but now focuses on addressing viral misinformation about COVID-19 vaccines that is contributing to Black Americans getting vaccinated at a much lower rate than white Americans. Randolph said that originally 75% of her clients were saying they were not going to get vaccinated, but now after sharing her knowledge of vaccinations, 90% of her clients cannot wait to get vaccinated. In addition to social media misinformation, vaccine hesitancy in the Black community also stems from the historically racially biased health-care systems in the US. In addition, there are fewer spots to get vaccinated in predominately Black communities.

**Key Findings Relevant to Ohio's Response:** It is important for the State of Ohio to recognize the valid mistrust the Black community has with the US health-care system. Allocating more vaccination resources in Black communities should be of focus to increase Black Americans' vaccination rates.

## **COVID-19 Literature Review**

**Prepared by Elena McGoey, The Ohio State University**

**March 10, 2021**

### **Topic: Vaccine misinformation**

**Title:** Measuring the impact of COVID-19 vaccine misinformation on vaccination intent in the UK and USA

**Source:** *Nature*

**Publication:** February 5, 2021

**Link:** <https://www.nature.com/articles/s41562-021-01056-1>

**Study Period:** September 7, 2021 to September 14, 2021

**Study Location:** UK and USA

**Sample Size:** 8001 respondents (4000 from UK, 4001 from USA)

**Summary:** In both the UK and USA, the proportion of respondents that would 'definitely' receive a SARS-CoV-2 vaccination (54.1% and 42.5%, respectively) is less than required for herd immunity. More respondents in both countries, 63.7% in the UK and 54.1% in the USA, would 'definitely' get vaccinated if it meant protecting others (family, friends, or at-risk groups). Recent vaccine misinformation resulted in a decline in intent to receive vaccination by 6.2% in the UK and 6.4% in the USA from respondents who would 'definitely' get a vaccine. Vaccine misinformation that sounds scientific in nature is more strongly associated with these decreases in vaccination intent. Additionally, certain sociodemographic groups are more resistant to misinformation and less likely to reject a vaccine: males, lower-income, ethnic minorities other than white, unemployed, religious affiliations other than Christians.

**Key findings most relevant to Ohio's response:** Estimates state that SARS-CoV-2 vaccines will need to be accepted by at least 55% of the population to provide herd immunity. Altruistic messaging by policymakers may be necessary to increase vaccine uptake, since more people are willing to receive the vaccine to protect others. Hesitancy to COVID-19 vaccines is perpetuated by misinformation concerning the vaccines' importance, safety, and effectiveness, so all three areas of misinformation need to be addressed by healthcare systems in lay terms. Willingness to accept a vaccine is highly influenced by current information online and offline. Group-specific interventions are needed to reduce impact of misinformation in sociodemographic groups that are more likely to reject vaccination.

**Title:** Vaccine misinformation on social media – topic-based content and sentiment analysis of Polish vaccine-deniers’ comments on Facebook

**Source:** PubMed

**Publication:** January 30, 2021

**Link:** <https://pubmed.ncbi.nlm.nih.gov/33517844/>

**Study Period:** May 1, 2019 to July 31, 2019

**Study Location:** Poland

**Sample Size:** 18,685 comments

**Summary:** Out of 18,685 comments analyzed from a Polish vaccination opponents’ Facebook page, 4,042 contained content within categories that the researchers were looking for: 28.2% conspiracy theories, 19.9% misinformation and unreliable premises, 14.0% related to safety and effectiveness of vaccinations, 13.2% noncompliance with civil rights, 10.9% own experience, 8.5% morality, religion, and belief, and 5.4% alternative medicine. Out of 1,223 pro-vaccine comments, 15.2% were either offensive/mocking or non-substantive. Sentiment analyses were performed, finding that when comments fit within the alternative medicine or misinformation categories, these comments more both more positive and less angry than comments made that fit within other categories mentioned. A gender bias observed in the study suggests that women have more concerns relating to children’s vaccination than men.

**Key findings most relevant to Ohio’s response:** The findings from this study can then be applied to SARS-CoV-2 vaccination attempts. The conspiracy theory and misinformation categories contained high proportions of comments. This may point out that the writers of such comments may have a lack of trust in scientific medicine and its modern achievements, which should then be addressed by policymakers and healthcare systems in SARS-CoV-2 vaccination campaigns. Sentiment analyses can also be performed on similar types of anti-vaccination groups on Facebook and other social media platforms (specifically, anti-COVID-19 vaccination groups within the US) to determine which approach will be the most cost-effective for providing accurate vaccine information to hesitant and critical groups. Also, to combat anti-vaccination misinformation that is highly emotionally charged (such as comments on adverse reactions, particularly autism), an approach could use equally emotionally charged storytelling with “narratives about unvaccinated children who suffered from vaccine-preventable diseases.”

## COVID-19 Literature Review

Prepared by Anjali Prabhakaran, The Ohio State University

March 12, 2021

### Topic: COVID Vaccine Misinformation

<b>Title</b>	Inoculating against COVID-19 vaccine misinformation
<b>Source</b>	The Lancet
<b>Publication Date</b>	02/26/2021
<b>Link</b>	<a href="https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(21)00052-3/fulltext">https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(21)00052-3/fulltext</a>
<b>Study Period</b>	n/a
<b>Study Location</b>	n/a
<b>Sample Size</b>	n/a
<b>Summary</b>	<p>As COVID vaccine distribution continues, vaccine misinformation continues to be a serious threat against achieving herd immunity. According to a 2020 Gallup poll, 40% of Americans stated that they would not get the COVID vaccine, and it has been shown that COVID-19 misinformation has significantly reduced public willingness to get the vaccine. Research has shown that attempting to debunk false vaccine claims can exacerbate the negative effects of misinformation due to the “continued influence effect,” and by triggering psychological resistance. Therefore, the best strategy has been shown to involve preemptive messaging by exposing the public to a ‘weakened dose’ of misinformation to help them resist that misinformation when they encounter it in the future. Additionally, highlighting the medical consensus about vaccine safety has also been found to increase public support for vaccines.</p>
<b>Key Findings Relevant to Ohio’s Response</b>	<p>Given that social media has become an important source of news for much of the American public, is it important that policymakers act preemptively to prevent COVID-19 misinformation to continue spreading and stalling immunization progress. This Lancet article uses evidence from psychology literature to determine the best strategies for policymakers to employ to combat vaccine misinformation.</p>

<b>Title</b>	<b><i>Black and Hispanic Communities Grapple With Vaccine Misinformation</i></b>
<b>Source</b>	New York Times
<b>Publication Date</b>	03/10/2021

<b>Link</b>	<a href="https://www.nytimes.com/2021/03/10/technology/vaccine-misinformation.html">https://www.nytimes.com/2021/03/10/technology/vaccine-misinformation.html</a>
<b>Study Period</b>	n/a
<b>Study Location</b>	n/a
<b>Sample Size</b>	n/a
<b>Summary</b>	COVID-19 presents a dual threat to Black and Hispanic communities. Not only were these communities hit harder by the virus, but these communities also have much lower vaccination rates than the population as a whole. Research has shown that the vaccination rate for Black Americans is half that of white people, and the gap for Hispanic Americans is even larger. Both exposure to vaccine misinformation and lack of access to vaccination sites play a role in perpetuating this disparity. Furthermore, historical malpractice and discrimination by the medical establishment have also led to cultivating distrust in communities of color.
<b>Key Findings Relevant to Ohio's Response</b>	The COVID-19 pandemic has highlighted and exacerbated several different types of healthcare disparities, including racial and socioeconomic disparities, which can often overlap. In order to prevent these disparities from persisting during vaccine rollout, it is important that policymakers understand the specific challenges and barriers minority groups face when trying to access a vaccine. This article provides policymakers with the information they need to better understand these challenges so they are better equipped to improve COVID-19 outcomes for all.

## COVID 19 Literature Review

Prepared by Amanda Seifferth, The Ohio State University

March 12, 2021

### Topic: Vaccine Misinformation

**Title:** Addressing COVID-19 Misinformation on Social Media Preemptively and Responsibly

**Source:** CDC Morbidity and Mortality Weekly Report

**Publication Date:** 01/04/2021

**Link:** [https://wwwnc.cdc.gov/eid/article/27/2/20-3139\\_article](https://wwwnc.cdc.gov/eid/article/27/2/20-3139_article)

**Study Period:** 05/04/2021-05/12/2021

**Study Location:** Minnesota

**Sample Size:** 1,596

**Summary:** Researchers created an experiment to evaluate the efficacy of infographics designed by the World Health Organization to debunk Covid-19 misinformation. In order to do so, they exposed participants to the non-scientific notion that hot baths increase body temperature, subsequently preventing coronavirus. Some participants were then exposed to an infographic explaining why hot baths do not prevent Covid-19 according to science. The graphic was colorful, simple, easily understood, focused on the fact rather than the myth, and conveyed that its information came from an expert source. Researchers also tested the impact of sharing the graphic preemptively vs. in response to misinformation. Additionally, they investigated whether the source of the information affected misconceptions. One group believed the graphic to be shared by an anonymous Facebook user, while another group believed it to be shared by WHO. Researchers found that exposure to the corrective infographic did reduce misconceptions, and this correction in beliefs persisted throughout the follow-up period of 1 week. They also concluded that misperceptions were reduced no matter who shared the post (anonymous Facebook user vs. WHO) and no matter when it was shared (preemptively vs. in response to misinformation).

**Key Findings Relevant to Ohio's Response:** Researchers concluded that the dissemination of infographics via social media effectively reduces misperceptions about Covid-19. Such graphics should comply with the 5 c's of information correction: is consensus-based, includes corroborating evidence, is consistent, is coherent, and is credible. Moreover, it is advisable that infographics be created and distributed acknowledging vaccine misinformation. The sooner potential misinformation is debunked the better, and it is helpful for users of all backgrounds to share corrective information. Thus, individuals should be encouraged to help spread corrective information through re-posts, as the anonymous Facebook user was equally effective in correcting misinformation as WHO.

**Title:** Correcting Covid-19 Vaccine Misinformation

**Source:** EClinicalMedicine

**Publication Date:** 03/06/2021

**Link:** [https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370\(21\)00060-2/fulltext](https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(21)00060-2/fulltext)

**Study Period:** N/A

**Study Location:** N/A

**Sample Size:** N/A

**Summary:** Authors provide an outline of various prominent misinformed beliefs regarding the Covid-19 vaccine. First, many believe vaccine development was rushed. This belief stems from the widespread idea that countries were in a "race" to develop the first Covid-19 vaccine. In reality, U.S. vaccine trials employed 30,000-60,000 participants, similar to the size of previous vaccine trials. Additionally, although most vaccines require

an average of 10.7 years of development, the Covid-19 vaccine was backed by decades of research on similar coronaviruses, reducing the necessary research period. The use of mRNA and adenovirus technologies as well as the construction of new vaccine manufacturing factories also accelerated the pace of Covid-19 vaccine development. Secondly, there is a conspiracy among anti-vax groups that the insertion of an mRNA vaccine will alter one's genes, thus qualifying as genetic modification. However, this idea is not backed by evidence, and the mRNA vaccine only enters the cytoplasm of a cell, not the nucleus. Thirdly, some believe the vaccine will insert a microchip by which they may be tracked. Others hold that the Covid-19 vaccine contains human fetal cell lines retrieved from aborted fetuses. Although some Covid-19 vaccines do contain fetal cell lines, they have been propagated for centuries and no longer include any real fetal tissue.

**Key Findings Relevant to Ohio's Response:** This article demonstrates the range of misbeliefs harbored by Americans, some more far-fetched than others. The conspiracies discussed in the article show that people will believe unscientific claims, indicating the need for corrective information. Moreover, a misinformation campaign should be launched debunking various Covid-19 myths with scientific facts in order to increase vaccine acceptance.

### **COVID-19 Literature Review**

**Prepared by Greta Warmbier, The Ohio State University**

**March 10, 2021**

#### **Topic: Vaccines and Social Media**

**Title:** Instagram's Search Results for Vaccines are a Public Health Nightmare

**Source:** Huffpost

**Publication Date:** February 3, 2020

**Link:** [https://www.huffpost.com/entry/instagram-promoting-anti-vax-anti-vaccine\\_n\\_5e347c50c5b69a19a4aede0c](https://www.huffpost.com/entry/instagram-promoting-anti-vax-anti-vaccine_n_5e347c50c5b69a19a4aede0c)

**Study Period:** n/a

**Study Location:** n/a

**Sample Size:** n/a

#### **Summary:**

"By promoting anti-vax misinformation, the platform legitimizes distrust in vaccines." HuffPost created a new, unbiased Instagram account and searched for the term "vaccines." Almost all the top results were anti-vax pages. The top profile had 74,000 followers and posted falsehoods regarding the "Wuhan coronavirus." When HuffPost followed that account, Instagram recommended similar accounts to follow. This promotes dangerous medical misinformation. Instagram has 1 billion users and more than 1/3 of American adults who use the app get news there. Anti-vaxxers spread debunked conspiracy theories and Instagram hosts and actively amplifies their content.

Anti-vaxxers make up a small percentage of the population. Platforms like Instagram give them a "digital microphone." Even some Instagram accounts with vaccine-neutral usernames still feature anti-vax content. Multiple posts claim that vaccines cause autism, although this has been medically disproven. Other posts suggest that vaccines have been infecting people with coronavirus, or that Bill and Melinda Gates are behind the outbreak. Social media algorithms are designed to show you content that will keep you engaged for as long as possible. "This is causing real damage to public health," said Vish Viswanath, a professor of health communication at the Harvard T.H. Chan School of Public Health. "Most people who use Instagram are younger — people who may not have children yet but could be ready to have children. Their opinions about vaccines are still being formed."

Instagram moderates its search results for different keywords and hashtags. Instagram has blocked #VaccinesKill and #VaccinesCauseAutism, however, intentionally distorted hashtags like #VaccinesKillAndInjure are still active on the platform. Instagram and Facebook have also directly profited from anti-vax messaging. In January, the platforms ran paid ads suggesting that the vaccine for whooping cough is ineffective.

**Relevance to Ohio's COVID-19 Response:**

It is important that the state works to get out accurate information regarding the vaccine because any false information could be further amplified by social media.

**Title:** Too little, too late: social media companies' failure to tackle vaccine misinformation poses a real threat

**Source:** The BMJ

**Publication Date:** January 21, 2021

**Link:** <https://doi.org/10.1136/bmj.n26>

**Study Period:** n/a

**Study Location:** n/a

**Sample Size:** n/a

**Summary:**

Major social media companies are facing criticism for failing to deal with vaccine misinformation on their platforms. Facebook, Twitter, and Google have vowed to act against misinformation regarding the COVID-19 vaccine. However, it is difficult to decide what should or should not be taken down for violating guidelines. For example, "Take a mother's recent post on a public Facebook group: "Prior to her 6-week vaccinations, my daughter was perfectly fine," but afterwards "she was having major seizures . . . has anyone else had this happen after their 6-week vaccinations?" Should this post be removed, be labeled as potentially misleading, demoted, or left alone? That is the ethical question, as things become even more complicated when narratives are posted.

Disinformation and misinformation are not the same thing. When someone deliberately creates or shares false or misleading content, and they intend to cause harm, that's disinformation. When they do so unwittingly and do not intend harm, it is misinformation. Both are difficult to quantify. The problem in addressing this is that all of this is legal. The issue with arguing for First Amendment rights is that it struggles to realize that not all legal speech deserves the same "freedom of reach" on the internet.

As pressure on social media companies from governments, scientists, doctors, and the public hits breaking point, that they have changed their health misinformation policies. Facebook, Twitter, and YouTube all took a more assertive and expansive view of "harm." Facebook, for example, targets "false claims about the safety, efficacy, ingredients, or side effects of the vaccines." Previously these types of claims would have been flagged by factcheckers and demoted in people's newsfeeds. Now, they are being removed. The new policies also target claims that are only misleading, as well as those designed to spread confusion, by adding labels and demoting them. Repeat offenders could have their accounts disabled, sometimes permanently.

However, social media companies are still hesitant to accept responsibility. They are not, they claim, "arbiters of truth," merely middlemen providing a platform to their users, the public. If misinformation were only a problem of falsehoods, this case would be simpler. But misinformation includes well-intentioned but misleading headlines.

**Relevance to Ohio's COVID-19 Response:**

What is required is more innovative, agile responses that go beyond the simple questions of whether to simply remove, demote, or label posts. We need responses that acknowledge the complexity of defining misinformation, of relying on scientific consensus, and of acknowledging the power of narratives.

