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Review

Public policy and conspiracies: The case of mandates

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Abstract

Although conspiracy theories are only endorsed by a minority, conspiracy theories can nonetheless compromise public health measures to control the COVID-19 pandemic. Individuals who endorse conspiracy theories were less likely to wear masks, comply with social distancing, or get vaccinated. This poses a challenge to public health policy, in particular because vaccine uptake lags behind targets because of resistance from a relatively small, but highly vocal, number of people. One policy tool is to enact vaccine mandates, which, while controversial, have successfully increased vaccination uptake. In this article, we review the evidence about whether mandates can be successful, and whether they trigger increased opposition and conspiracy beliefs. We discuss the implications for using mandates in public health policy and argue that decisions about mandates need to be weighed against the consequences of alternative measures—which may also increase conspiracy beliefs albeit for different reasons.

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Trust and contrarians: The great bifurcation

The COVID-19 pandemic that turned the world upside down in 2020 also had notable consequences on public attitudes towards science, scientists, and evidence-

based policy making. In numerous countries, the pandemic was accompanied by a striking increase in the public's trust in science and scientists. For example, in Germany the share of people who fully trusted science and research nearly tripled from around 11% in 2017–2019 to over 30% in April and May 2020, and the share of people who trusted science at least partially rose from around 50% to around 70% during the same period [55]. This increased trust slightly declined from that peak over time, but still remained considerably higher than before the pandemic in late 2020 [7] and late 2021 [56]. Similar trends have been observed across the globe: In a survey of the public in 113 countries, overall those who said they trust scientists “a lot” rose from 34% in 2018 to 43% by the end of 2020 [54].

However, this overall trend excluded a relatively small segment of the population which remained entrenched in conspiracy theories and opposition to public-health measures. For example, 10%–30% of the British public expressed belief in a variety of conspiracy theories relating to the virus in 2020 [18,45]. In Germany, declining trust was particularly pronounced among supporters of the extreme right AfD party, which eventually aligned itself with outright deniers of the pandemic [7]. Although the number of people who overtly believe in conspiracy theories falls far short of the majority, the overabundance of misinformation and conspiracy theories [14,36], in particular on social media [2], must not be trivialized. The “infodemic” [58] has had adverse real-world consequences—including for innocent bystanders. For example, in the U.K., the baseless claim that 5G broadband was causing the virus-borne disease led to vandalism against numerous telecommunications installations in early 2020 including attacks on telecom engineers [8,22]. The destruction of telecommunications equipment clearly endangers others, for example, when people are unable to call for help. Individuals who endorse conspiracy theories about COVID-19 are also less likely to accept public health experts' warnings about the severity of the crisis [31]; less likely to engage in social distancing [41]; less likely to vaccinate [16]; more likely to oppose mask wearing [27]; and more likely to believe in ineffective pseudo-scientific “cures” such as chloroquine [4]. As a result, others in the population face more risk from the spread of disease.

In summary, more than two years into the pandemic, a striking bifurcation of public opinion can be observed. On the one hand, a large majority trusts scientists (frequently more now than pre-pandemic) and acts in support of public health (e.g., by wearing masks, being vaccinated, and complying with social distancing). On the other hand, a small but radicalized minority endorses various conspiracy theories and refuses to get vaccinated or comply with behavioural measures.

The challenge for policy makers and public health officials is that the behaviour of the minority remains important to bringing the pandemic under control, because this requires a substantial proportion of the population to engage in a combination of non-pharmaceutical interventions (e.g., mask-wearing) and vaccinations. How can the minority that continues to resist or delay vaccination (e.g., around 20% of the eligible population in Germany as of April 23, 2022; <https://impfdashboard.de/>) be persuaded to receive the vaccination? Several communication strategies, such as providing explanations about new technologies (i.e., mRNA vaccines; [35]), have been found to be effective in increasing vaccine willingness. A particularly promising avenue involves “inoculation,” where people are informed about the rhetorical techniques that disinformers may use to spread false information. When such misleading rhetoric is subsequently encountered, people are demonstrably more resistant to it than in the absence of inoculation [24,25,37]. Inoculation has been found to be effective in the context of misinformation relating to COVID-19 vaccines [26,50]. Numerous other avenues based on current psychological knowledge have been reviewed by Habersaat et al. [20].

There are, however, reasons to suspect that mere communication will be insufficient to sway people who are still unvaccinated. For example, in October 2021, two thirds of unvaccinated Germans completely ruled out that they would get vaccinated and a further 23% considered it unlikely [47]. Actual vaccine uptake meshes well with those self reports: In the 8 months since the survey data were collected (November 2021–June 2022), only 6 million Germans received their first dose, out of 20.5 million unvaccinated but eligible people.¹

An alternative tool that may therefore appear particularly attractive to policy makers involves vaccine mandates, which are relatively easy to establish by regulation. Because mandates are, by definition, coercive, they have always been politically and ethically controversial [38]. In particular, mandates may cause psychological reactance, expressed as anger and other negative emotions and the motivation to reclaim the freedom lost by a mandate [43]. It is therefore not altogether clear that mandates would be effective in

enhancing vaccine uptake, in particular in light of entrenched opposition by a minority.

Vaccination mandates: Another bifurcation

Mandates can be operationalized in several ways. In the context of COVID-19, mandates usually involve the requirement for persons to show proof of vaccination (often a digital pass stored on a smartphone) to gain access to certain privileges, ranging from dining in a restaurant to plane travel or the ability to retain one’s job.

There is considerable evidence that mandates successfully increase vaccine uptake, largely irrespective of location and type of vaccine. For example, across Europe, mandates have been found to increase uptake of common childhood vaccinations [49]. In the context of COVID-19, a comparison of 6 European countries that introduced COVID-19 passes in 2021 to countries that did not showed that passes increased uptake for countries that had below-average vaccination uptake before the passes [30]. In France, COVID-19 vaccine uptake rose to 90% of the eligible population (November 2021) after the introduction of passes in the summer of that year [52]. By contrast, in April of the previous year, nearly one quarter of surveyed respondents indicated that they would not take a future vaccine [51], and before the pandemic France was considered to be a concerning hot bed of vaccine hesitancy [53].

The evidence is more mixed when it comes to other outcome measures, such as people’s attitudes and feelings. Even vaccinated individuals sometimes dislike mandates [44]. In France, even though passes were undoubtedly successful, they have also increased disgruntlement [52]. In laboratory experiments, voluntary uptake (for non-mandated vaccines) and engagement in other protective measures has been shown to be reduced by mandates [5,43]. Mandates may also be polarising in that they strengthen the intention to vaccinate among those whose attitudes towards the vaccine are already positive, while reducing intention for the minority of people who were reluctant to begin with [12]. By contrast, other research has found that mandates increase the intention to vaccinate rather than create reactance. In a series of four studies conducted in the U.S., [1] observed that mandates strengthened intentions across racial and ethnic groups and irrespective of levels of trait reactance. [1] suggest that “fears of a backlash against vaccine mandates may be unfounded and that requirements will promote COVID-19 vaccine uptake in the United States” (p. 1), a conclusion borne out by the fact that notwithstanding grave anticipatory concern in the media, very few people actually quit their jobs when a COVID-19 vaccination requirement was introduced [3].

Nonetheless, experts frequently voice fears that mandates may lead to further radicalization of vaccine hesitant people (e.g., the study by Lévy-Bruhl [23]). As we

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suggest in the following, however, any observed radicalization may arise not from mandates *per se* but may reflect a pre-existing and persistent propensity towards radical or extremist views that, once triggered, will target *any* government or public health measure that requires public cooperation.

Mandates as targets not triggers

Pandemics inevitably create anxiety and uncertainty, which may in turn fuel conspiracy theories [33]. Whereas the medieval plague gave rise to antisemitism, the COVID-19 pandemic triggered a plethora of different conspiracy theories, from outright denial (“it’s a hoax”) to a variety of baseless beliefs about its causes (e.g., “5G causes COVID”). There is evidence that those theories were spawned by a number of pre-COVID conspiracy narratives that then converged and evolved to encompass COVID-19 (e.g., anti-5G and anti-vaccination discourse combining to form a conspiratorial narrative about population control; [11]). Similarly, in Germany, a collection of contrarian individuals and groups emerged at the beginning of the pandemic, known as the “Querdenker” (“contrarian thinkers”) movement, which has consistently opposed all public health measures against COVID, starting with protests that were initially targeting social distancing measures in early 2020 [34] but that quickly expanded to include rejection of vaccinations and vaccine mandates [17].

There are political and psychological reasons for this convergence between different streams of opposition to public health measures. At a political level, most of the opposition originates on the far right, which is routinely instrumentalizing any opportunity to undermine democratic discourse. At a psychological level, conspiracy theories have long been known to form a monological belief system, in which belief in one conspiracy serves as evidence for beliefs in further conspiracies [19]. Accordingly, belief in one conspiracy theory is correlated with belief in other conspiracy theories, even if a “fictitious” theory is constructed for the purposes of the experiment [46]. In the case of COVID-19 there is evidence that conspiracy theories form such a monological belief system [29], for example when the belief that COVID-19 is a hoax is found to correlate with the belief that COVID-19 was human made [21].

Another psychological factor that may glue together different strands of opposition is reactance to any government-imposed public health measure (e.g., the study by Sprengholz et al. [43]). Reactance has long been implicated in anti-vaccination attitudes (e.g., the study by Soveri et al. [42]), and it also been identified as a driver of opposition to mask wearing [57]. Thus, while COVID-19 vaccine mandates may well be associated with disgruntlement [52] or reactance [39,43],

mandates need not be the sole trigger of such adverse reactions. Instead, mandates may be another target for opposition by people who are already radicalized, already believe in conspiracy theories that predate the pandemic, or whose reactance is triggered by any public health measures to control the pandemic.

Implications for policy

Loud protests and media coverage do not always indicate prevailing public opinion.

When a “freedom convoy” of truckers shut down the Canadian capital Ottawa in early 2022 to express their opposition to COVID-19 vaccine mandates, they claimed to represent a broad swathe of public opinion. In actual fact, the vast majority of Canadians (around two thirds) opposed not only the “freedom convoy” but also its goals [10].

When considering uptake alone, mandates have repeatedly been shown to be effective. Mandates seemingly also reach people who initially proclaim that they will not be vaccinated and would rather quit their job—in fact, most people ultimately comply with mandates [3]. Nonetheless, we have shown that there is at least suggestive evidence that mandates can have undesirable side effects. Policy makers should thus mandate with care (for a review, see the study by Omer et al. [32]) and should examine several concrete steps before implementing mandates [28], such as ensuring they are proportionate and accompanied by transparent communication and interventions to address misinformation.

Policy makers should also not lose sight of other avenues to encourage vaccine uptake [6]. On the logistical side, it is crucial to make it easy to get vaccinated. Research has shown that setting up an appointment unannounced increases uptake even though people can opt out of the appointment. This nudging intervention has been shown to be successful for influenza shots [9] as well as COVID-19 [48]. The latter study found a 32% relative increase of vaccination uptake (3% in absolute terms) through scheduling an appointment unannounced.

Conclusions

Even when all those measures are followed, it may well be inevitable that vaccine mandates will be opposed by a small, usually politically extremist, minority. We suggest that this opposition may, at least in part, be a manifestation of a widespread radicalization and polarization that characterizes our times [40].

Decisions about mandates must therefore carefully weigh the alternatives. For example, reactance, distrust, and polarisation are also demonstrably triggered by non-pharmaceutical efforts, such as social distancing and

mask wearing, that would be even more necessary to control the pandemic if vaccination rates remain low [15].

Reluctance to impose vaccination mandates must also be evaluated carefully against the consequences of lower vaccination uptake that may arise from withholding of mandates. Put simply, if uptake is low, more people die. And when more people die, the public will become more fearful and uncertain—fear and uncertainty, however, are known drivers of belief in conspiracy theories [13]. Avoiding vaccine mandates may therefore not only lead to additional deaths, but it may ironically also increase radicalization and belief in conspiracy theories even more than a mandate would have done.

This potential consequence of not introducing mandates is speculative. In fact, a continued realistic threat may also push people away from conspiracy theories towards taking this threat seriously. However, this alternative possibility is equally speculative, and in the absence of further evidence, even if mandates prove ineffective in reducing conspiracy beliefs, they will at least save lives.

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Author contribution

Lewandowsky: Conceptualization, Writing – original draft; Holford: Conceptualization, Writing – review & editing; Schmid: Conceptualization, Writing – review & editing.

Conflict of interest statement

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* of special interest

** of outstanding interest

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Explaining the public health benefits of the mandate reduces reactance to the mandate, and if mandates are supported, reactance to mandates was actually lower than reactance about a voluntary policy. Conversely, when negative attitudes towards mandates are present, reactance is higher for mandated than voluntary vaccination policies (particularly if individuals are not briefed about the importance of high vaccination rates). Reactance carried over to intentions for other vaccines as well that were not included in the mandate. This study importantly shows how reactance might affect vaccination intentions, but highlights how reactance may be mitigated when it comes to implementing mandates.
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