Research Article

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A "disorder that exacerbates all other crises" or "a word we use to shut you up"? A critical policy analysis of NGOs' discourses on COVID-19 misinformation

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Abstract: Drawing from Carol Bacchi's "What is the problem represented to be?" framework, we analysed discourses within documents from five nongovernmental organizations (NGOs) that have influenced the debate around "COVID-19 misinformation." Through Google Scholar, we identified documents published between 2020 and 2024, selecting 29 reports by the Center for Countering Digital Hate, First Draft, Meedan, Public Good Projects, and the EU Disinfo Lab, and 13 articles authored by their directors or research directors. Across the data, the proposed policy solutions consisted of tracking, managing, and suppressing any COVID-relevant expression perceived as undermining the official policy response. It followed that the "problem" was represented to be these expressions, or rather, individuals producing them, framed as threatening science, democracy, and even human survival. NGOs also positioned themselves as experts in an emerging scientific field, infodemiology, thus equipped to evaluate all forms of communication according to their own or similar experts' standards. Notably, none of the documents engaged with the substance of opposing viewpoints or disconfirming evidence, dismissing them almost entirely via authority, ad populum, or ad hominem fallacies. We conclude that, rather than defending science, democracy, or human survival, these NGOs and their partners are undermining the open, respectful, and inclusive debate essential to support these values.

Keywords: NGOs, misinformation/disinformation/malinformation/conspiracy theories, Covid-19, critical policy analysis, governance, public health discourse

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"Information disorder is a crisis that exacerbates all other crises. When bad information becomes as prevalent, persuasive, and persistent as good information, it creates a chain reaction of harm. Today, mis- and disinformation have become a force multiplier for exacerbating our worst problems as a society. Hundreds of millions of people pay the price, every single day, for a world disordered by lies."

Aspen Institute (2021). "Commission on Information Disorder: Final Report."

"[This] paper explains that the projects and policies now afoot styled "anti-misinformation" and "anti-disinformation" are dishonest, as it should be obvious to all that those projects and policies would, if advanced honestly, be called something like "antifalsehood" campaigns. But to prosecute an "anti-falsehood" campaign would make obvious the true nature of what is afoot—an Orwellian boot to stomp on Wrongthink. To support governmental policing of "information" is to confess one's anti-liberalism and illiberality."

Daniel B. Klein (2023). "Misinformation Is a Word We Use to Shut You Up."

1 Introduction

Since the World Health Organization (WHO) declared COVID-19 a pandemic in March 2020, major social institutions have expressed a burgeoning interest in what they perceive as the problem of COVID misinformation. In partnerships with governments, national and international health agencies, academia, and the media, nongovernmental organizations (NGOs) have emerged as influential centres of misinformation expertise, involved in research and initiatives to counter this perceived societal threat. One illustrative example is the *Commission on Information Disorder*, convened by the Aspen Institute, a Washington DC based NGO founded in 1949 and supported by an array of funders, including corporations (e.g., BlackRock, Johnson & Johnson),

government agencies (e, g., US State Department, US Agency for International Development) and foundations (e.g., John D. and Catherine T. MacArthur, Bill & Melinda Gates) [1]. As noted in the first epigraph, the final report of the Commission – drafted by a team of "experts, community leaders, academics, researchers, tech industry representatives, and lawmakers to…explore the multidimensional attributes of information disorder" – concluded that "bad information" has led to a "chain reaction of harm" that "makes any health crisis more deadly" and "undermines democracy"; thus, the authors' 15 recommendations for "how government, private industry, and civil society can help to increase transparency and understanding, build trust, and reduce harms" [2].

Another illustrative example is the *Global Disinformation Index* (GDI), an NGO established in 2018 in the United Kingdom, and also supported by an array of funders, including foundations (e.g., Ford, Open Society) and governments (e.g., UK government, US State Department) [3]. Self-described as "a nonprofit entity built on the three pillars of neutrality, independence and transparency," the GDI has argued that because "disinformation has become a [potentially harmful] business," leaders in government, industry, and civil society need "data to inform their actions," thus its mission: to assess websites worldwide – over 700 million as of June 2023 – and rank them according to truthfulness, accuracy, and reliability [4]. GDI has also argued that its services have been instrumental for [democratic] governments to "conduct academic studies of the news ecosystems in countries with authoritarian regimes, such as China and Russia," which shows that "combatting disinformation is critical to national security and to protecting democracies" (ibid).

Contrasting the enthusiasm for countering misinformation in order to protect democracy displayed by NGOs and their supporters, critics have argued that counter misinformation initiatives are instead *in tension* with democracy, and that the power dynamics underlying the positive image projected by NGOs and endorsed by most official institutions should be scrutinized [5,6]. In fact, as noted in the second epigraph, critics have gone as far as questioning the framing of "misinformation" as a "policy problem," arguing that the term itself is just "a word that we use to shut you up" – merely the rebranding, under the guise of protecting democracy, of traditional censorship practices deployed by authoritarian regimes, and for this reason should be questioned [7].

Our critical policy analysis heeds the call to scrutinize dominant meanings and uses of "misinformation" and its functional equivalents in the context of COVID-19. Building on our critical scoping review of the medical and social scientific literature [8], we apply Carol Bacchi's "What is the problem represented to be?" analytic framework to appraise the documentary evidence produced by selected NGOs that present themselves as centres of misinformation expertise and have played a significant role in shaping debates around COVID-19 misinformation. Following this introduction, in Section 2, we describe our use of key terminology. Section 3 describes our theoretical lenses and methodological approaches. Section 4 presents our findings and analysis. Section 5 discusses both in light of current debates around misinformation. Section 6 concludes this study and elaborates on its implications for the scientific, democratic, and civilizational values that misinformation experts purport to uphold. This research is part of a larger project examining geopolitics, medicalization, and social control in the COVID era (https://osf.io/84kbr/).

2 Background

2.1 Defining misinformation, discourse, and discourses

Before delving into our research, some clarifications are in order. Multiple terms are currently used, for instance misinformation, disinformation, fake news, infodemics, and conspiracy theory, to refer to all forms of expression – written, verbal, visual, and so on – that obfuscate rather than communicate the truth about an issue. While the concept behind these terms is not new [8], "misinformation" *per se* was popularized in political discourse in 2018 when the Associated Press reported that according to "linguist-in-residence" Jane Solomon, the declaration of "misinformation" as "word of the year" would serve as a "call to action" […] in the battle against fake news, flat earthers and anti-vaxxers" [9]. The following year, the US Department of Homeland Security convened an expert team from the intelligence sector, academia, and the private sector that concluded that a kindred term, "disinformation" – misinformation intended to mislead – had become a "whole-of-society issue" since the 2016 US presidential elections [10] (p. 2), further elaborating that it had exploded with the "unprecedented challenge" of COVID-19 and that "like a virus," it "infect[ed] consumers with contempt for democratic norms" [10] (p. 2).

Subsequently, a little-known body within the Department of Homeland Security, the Cyber Security & Infrastructure Security Agency, added a third term, *malinformation*, defining it as information "based on fact, but used out of context to mislead, harm, or manipulate" [11]. This agency then announced that misinformation, disinformation, and

malinformation – MDM for short – would become the focus of a specialized team that would develop policies to protect the public from "foreign and domestic threat actors [who] use MDM to cause chaos, confusion, and division," threatening to undermine "[US] democratic institutions and national cohesiveness" in electoral, and more recently, COVID matters [11].

In this study, we adopt the acronym MDM to refer to all forms of expression framed as obfuscating rather than communicating, regardless of their truth value (in the case of assertions) or intentionality of claim-makers. Finally, we use "discourse" to refer to a system of knowledge and power that shapes what can be said, by whom, and with what authority, as well as the mechanisms involved in its emergence and reproduction [12]. We take "narrative" to mean stories, ways of making sense of the world by organizing human experiences into a meaningful sequence of events that reflect the intentions, desires, and actions of individuals over time [13]. Because of the overlap between both terms, we will often use them indistinctly.

2.2 A background on NGOs

The terms NGOs and "nonprofit organizations" (hereafter NPOs) are often used interchangeably, because even if specific legal definitions vary by country, both types of organizations resemble each other in that they are expected to pursue the public good, neither operate for profit, and both are independent from government control, despite differences in the scope and scale of their operations, their degree of political involvement and policy influence, and their funding [14,15]. In this study, we use the term NGO to refer to both, except for when quoting from sources, for three reasons: NGO funding often comes from governments, foundations, and international donors, rather than membership fees or local fundraising efforts (as with NPOs); the scope of their activities is often national or international rather than local (as with NPOs); and most importantly, because unlike NPOs, NGOs tend to be less involved in community or service delivery programs and more in political activities such as lobbying and advocacy, so their policy influence tends to be greater [14].

NGOs are integral parts of civil society and as such often draw from the positive connotation of this concept to present themselves as challenging corporate or political interests (hereafter "elite" interests), therefore occupying a unique space in counter-MDM efforts. However, critics have observed that, as noted in the introduction, given the dependence of NGO funding on corporations, foundations, or government agencies, NGOs may in fact *advance* elite power, by helping to sway public opinion in the direction of their donors' agendas [16]. Finally, critics have observed that the benign façade of NGOs effectively conceals the power that private interests exert on these organizations, and have therefore conceived them not as independent actors but as components of a "nonprofit corporate complex," calling attention to the increasing blurring of the boundaries between NGOs and the corporate sector [17]; other critics have proposed the label "nonprofit *state* corporate complex" [18] to highlight the role of the state in creating, legitimizing, and maintaining the legal and regulatory frames that make the existence of NGOs possible [19]. Details aside, this "complex" builds on the seminal notions of "military industrial complex" and "medical industrial complex," coined to underscore the co-optation of the state by elite interests that eventually override those of the public [20]. Governments then become unable to formulate public policy independently from those industries – weapons manufacturers in the case of military policy, or drug or insurance companies in the case of health policy.

This of necessity incomplete list of potential conflicts of interests within NGOs suggests that these organizations may be less independent from elite interests than meets the eye, and so are likely to be their contributions to the public debate around the perceived problem of COVID MDM, especially as more funding – private and public – becomes available to support MDM research and policy initiatives [21], a largesse that has been welcome by social actors in the business. As compellingly noted by the Associate Director of the International Fact-Checking Network at Poynter, a non-profit journalism school and research organization: "We are getting money [...] to do projects that were in our drawers for [...] years [...] but we didn't have money, and now we do" [22]. As NGOs like Poynter become the beneficiaries of major donors – governments, social media companies, and so on – that regularly, and increasingly, fund "fact checking" organizations, the power of NGOs to shape the public discourse around MDM has increased. Taken together, these considerations underscore why a critical investigation of NGOs' discourses on COVID-19 MDM is warranted. The next section outlines the framework and methods guiding our analysis.

3 Methods

Our study draws from the tradition of critical policy studies, particularly the work of Carol Bacchi, who developed the *What is the problem represented to be?* (WPR) framework to guide research on social issues with potential

policy implications [23]. The framework is "critical" because, rather than taking at face value problems as framed by policy authorities, WPR encourages researchers to problematize, i.e., scrutinize and question, dominant problem representations. That said, in contrast to most WPR researchers, who work in the poststructuralist tradition, we adopt a critical realist perspective that assumes a realist ontology, meaning the existence of a world independent from human perception, along with a constructivist epistemology, i.e., an awareness of the limitations of human attempts to gain knowledge [24]. This clarification matters because our object of inquiry, NGO discourses on COVID MDM, and our research goal, to problematize these discourses, presuppose that, despite epistemic limitations, we can, as researchers, assess these discourses against independently verifiable standards of evidence. Put another way, we approach this work not only as critical policy researchers but also with a concern for the epistemic integrity of how scientific knowledge is generated, interpreted, and deployed. We also draw from approaches that share WPR's critical spirit: *studying up*, which invites researchers of social power to study it at its sources [25] guided our choice of NGOs influential in policy debates around COVID MDM to ground our investigation; *critical discourse analysis*, which examines how discourses and social practices interact to reflect, legitimize, reproduce, or challenge power relations [26], informed our analysis of NGO discourses; *document analysis*, which views documents as "social facts" that convey meaning [27], supported our choice of documents as data; and *thematic analysis*, which allows researchers to identify salient themes within the data [28], guided our interpretation and organization of findings. Drawing jointly from these traditions, we developed the following research questions: (1) What is the (policy) problem of COVID-19 MDM represented to be in the NGO literature? (2) What assumptions inform the conceptualization of MDM as a problem? (3) What is left unproblematic by the dominant problem representation?

Our point of entry to the data was the *Report on the Censorship-Industrial Complex: The Top 50 Organizations to Know*, whose authors defined this "complex" as the network of government agencies, academia, corporations, think tanks, and social media companies involved in efforts to track and censor what authorities perceive as COVID-19 MDM and testified about it before the US congress [29]. From within this report, we identified five NGOs – (1) The Centre for Countering Digital Hate (CCDH); (2) First Draft; (3) Meedan; (4) Public Good Projects; and (5) EU Disinfo Lab – involved in counter MDM initiatives, whose missions we deemed most relevant to our research questions. Next, we searched the website of each organization for reports using the keyword "COVID." Subsequently, we used Google Scholar, recognized as a comprehensive research engine [30], reviewing the first five pages of search returns to identify refereed publications between 2020 and 2024 relevant to our research questions and authored by the Directors and/or Research Directors (hereafter "DRDs") of the five NGOs, combining the keyword "COVID" with the names of these DRDs – Imran Ahmed, DRD of the CCDH; Claire Wardle, DRD of First Draft; Scott Hale, DRD of Meedan; Joseph Smyser and Erika Bonnevie, CEO and DRD of the Public Good Projects, respectively; and Maria Giovanna Sessa & Alexander Alaphillipe, senior researcher and DRD, respectively, of the EU Disinfo Lab.

To select our data, we chose purposive sampling, a non-probability sampling approach whereby researchers select specific individuals, cases, or data sources based on predefined criteria – relevance to the research topic, theoretical framework, or expertise [31] – and consider informants experts on the topic being studied [32]. This approach, along with the "study up" approach, guided our selection of reports from NGOs self-identified as centres of MDM expertise and of refereed articles authored by the DRDs of these NGOs. Identification of themes was assisted by Dedoose software. Throughout the data selection and analysis, authors met to discuss the relevance of retrieved articles to inform our research questions, the identified themes, and our interpretation of the data, resolving discrepancies through discussion. Because our data were publicly available documents, no IRB approval was required.

4 Results

The mission statements of the five selected NGOs were easily accessible through their websites, although less so their funding sources. For example, the CCDH describes its mission as protecting human rights and civil liberties online by holding social media platforms accountable for spreading *hate* and *MDM*, concepts that were ill-defined and used indistinctly. While we were unable to access funding information through the website, there is evidence of around $1.1 million from the Schwab Charitable Fund [33] and from an assortment of foundations and trusts, including the Pears Foundation, the Joseph Rowntree Charitable Trust, and the Barrow Cadbury Trust [34]. First Draft, which closed in 2022, described its work as to monitor and verity online information by providing

research, tools, and training; upon its closure, its DRD announced that the Information Futures Lab at Brown University would continue First Draft's work of addressing the challenges posed by "vaccine disinformation, which spills into elections discourse to political polarization that hampers progress in reducing gun violence's brutal toll" [35]. During its operations, First Draft was funded by organizations like Craig Newmark, the Rita Allen Foundation, the Rockefeller Foundation, and Google [29]. Meedan presents itself as an organization that strives to "make online ecosystems safer and more inclusive" and focuses on developing "open-source tools," particularly for supporting "underserved communities," to access critical information and foster "safer" online environments [36]. It has received funding from entities like Omidyar, Twitter, Facebook, Google, Ford Foundation, MacArthur Foundation, IBM, The Carter Center, University of California, Berkeley School of Law Human Rights Center, and the University of Cambridge [29,37]. Public Goods Project focuses on public health through media monitoring, social change interventions, and cross-sector initiatives; it has received funding from entities like the Rockefeller Foundation, Kaiser Permanente, Public Health Communications Collaborative, the New York State Health Foundation, the National Governors Association, UNICEF, Google, and the Biotechnology Innovation Organization [29,38]. Lastly, EU Disinfo Lab researches MDM and leads campaigns targeting the European Union and its core institutions [29]. It is funded by contributions from private individuals or companies and organizations, foundations, such as the Friedrich Naumann Foundation, Omidyar Networks, Microsoft, the Open Society Foundation, and governments, and support from governments in the European Union [39].

Our Google search identified a total of 42 documents, 29 produced outside of traditional refereed channels and published by the 5 selected NGOs, and 13 refereed articles authored by their DRDs, who were located in the United States (Joseph Smyer & Erika Bonnevie, PGP; Claire Wardle, First Draft), the United Kingdom (Scott Hale, Meedan; Imran Ahmed, CCDH), Italy (Maria Giovanna Sessa, EU DisinfoLab), and Belgium (Alexandre Alaphilippe, EU DisinfoLab). Only seven of them reported funding support: Meedan's DRD (Scott Hale) reported funding from the Criminal Justice Theme of the Alan Turing Institute of The United Kingdom Research and Innovation Strategic Priorities Fund [40], the Public Good Projects' DRDs (Joseph Smyser; Erika Bonnevie) reported funding from The New York State Health Foundation [41], the US Centers for Disease Control and Prevention (CDC) [42], and the Rockefeller Foundation [43], and three grey literature reports published by First Draft reported funding from the Rita Allen Foundation [44–46]. Further details on the NGOs, their missions/aims, their partners, and their role in countering COVID MDM, as well as on authors of refereed articles, are provided as appendices 1 and 2. Over the next subsections, we present our findings and analyses, organized around our three WPR-informed questions.

4.1 What is the (policy) problem of COVID-19 misinformation represented to be in the NGO literature?

Across the data, we identified the problem representation from within the proposed policy solutions, which consisted of identifying, tracking, managing, and suppressing any COVID-relevant expression perceived as undermining the position of dominant social institutions, groups, and individuals (hereafter "the establishment"). It followed that the "problem" was represented to be not the content of the claims themselves, but the individuals producing them, whose expressions were discursively framed as threats to science, democracy, and even human survival. NGOs also positioned themselves as experts in an "emerging" scientific field, "infodemiology," thus equipped to evaluate all forms of communication according to their own or similar experts' standards. The leading theme was that, given its magnitude and rapid dissemination through insufficiently monitored social media spaces, the problem of MDM warranted no less than a "whole of society" approach that required surveilling all forms of communication, especially social media platforms. Other proposed approaches included educating the public about MDM, recruiting "trusted leaders" to the cause, and fostering collaboration among health authorities, fact-checkers, traditional and social media, community organizations, civil society, and government. Along with the framing of social media as the most powerful social actor in the dissemination of MDM was the imperative that *social media platforms become proactive in neutralizing MDM spread.* Indeed, authors were unanimous in their perception of social media as an increasingly dangerous place for users and condemned the presumed reluctance of companies to "do their bit" about MDM, this inaction attributed to the profits that MDM helps them to generate. The CCDH was the most vocal in its condemnation of social media, arguing it its report *Will to Act* that "Social media companies have profited lavishly from this crisis and yet, when the time came for them to do their bit, they issued PR-driven claims, yet failed to act…we are judged…on our deeds…their deeds have just not been good enough" [47]. The CCDH also proposed

"deplatforming the most highly visible repeat offenders" as one of the best ways to stop the spread of MDM, asserting that deplatforming "should also include the organizations these individuals control or fund, as well as any backup accounts they have established to evade removal." Similarly, authors affiliated with the Public Good Projects recommended "that [MDM], harassment and unhinged conspiracy theories" be, if not deplatformed, at least "demonetized" [48]. Thus, across multiple documents, the sheer existence of "unmonitored" virtual spaces was presented as responsible for the spread of COVID MDM and justified calls for stronger surveillance.

A related theme was that due to the existential threat represented by MDM, along with the perceived inaction of social media platforms, *government intervention was crucial to respond to MDM.* Using emotional appeals, the CCDH stressed the severity of the situation, cautioning that "social media's failure to act in the pandemic [by facilitating the spread of MDM] *has cost us lives*, government's failure to act in the pandemic's wake *could cost us our society*" [49] (emphasis added). In another report, the CCDH alerted readers that "should social media companies continue their pattern of negligence, *governments must use every power – including new legislation, fines and criminal prosecutions* – to stop the harms being created" [50] (emphasis added). While the CCDH was the most vocal among selected NGOs in calling for swift government action, it was not alone: the EU Disinfo Lab also advocated for government legislation to address MDM, with one EU Disinfo Lab researcher citing its benefits, and reporting that with the "[EU Digital Services Act]… new conditions, along with more specific Codes of Conduct, would give platforms clearer guidance on when and how to deal with content like disinformation" [51]. Similarly, an article authored by another EU Disinfo Lab researcher argued for collaboration between government and "multiple sectors of society," because "responses to the COVID-19 pandemic and the related infodemic require swift, regular, systematic, and coordinated action [52] (p. 6)."

Another salient theme across multiple documents was that, in addition to the need for more social media platforms and government intervention, *health care professionals and the public should do more to prevent the spread of MDM.* Suggestions included to encourage the public not only to *not share* MDM – for instance, by always fact checking information they intend to share against "trusted sources" – but also to *embrace efforts to neutralize it*, by becoming spokespersons of the "scientific consensus" to help counter the "fringe," but vocal and dangerous, minority of "anti-vaxxers" [41]. In a similar spirit, other authors proposed that, given the perceived lack of will of social media companies to embrace the fight against MDM, the second best approach was to rally the public around the cause, and urge users to ignore, block, report, and "drown out" MDM by amplifying "advice from the government, the [National Health Services], and other experts," so that as more people do not encounter MDM, "more will see the correct information rather than the false advice" [53]. Yet other authors called for a "middle ground" that included the general public, who they proposed had been "silent lurkers," to express their position, hinted by the authors to be in support of COVID orthodoxy [54].

An intriguing theme across the data was that of the need to *inoculate the masses against MDM*, a theme that resonated with notions of its "viral spread" [48], and an approach where health professionals were framed as the most qualified to lead. As compellingly put by CCDH Director, "every anti-vaxx message can be boiled down to a master narrative of three parts, namely, "COVID-19 isn't dangerous; vaccines are dangerous; you can't trust doctors or scientists" [55] (p. 366). Therefore, "instead of attempting to rebut every silly conspiracy theory," proposed the author, this "master narrative" unexpectedly made it easier for health professionals to participate in the global crusade against MDM: they could simply "inoculate against those three central claims […] *in every corner of the internet*" (ibid)(emphasis added). Likewise, in urging health professionals "to advocate…passionately for vaccines, and to help all other evidence-based public health measures go viral," Wolynn et al. (2021) argued that "If [health care providers] truly want to honor the Hippocratic Oath, [they] must first do no harm. And [they] must go online." Authors also promoted greater advocacy of vaccines by physicians, proposing that *physicians*, "steeped in science…deeply trusted [and with] direct, intimate access to…patients…*are the ideal antidote*…to clarify both the current public health crisis and the current health *communication* crisis" [48] (emphasis added).

Related to the theme of the role of health professionals in preventing the spread of MDM was that of *the need for expert-led interventions to support various forms of literacy*, with authors essentially framing literacy as the ability to identify, and not be persuaded by, MDM [54]. Many authors, especially from Meedan, also advocated for interventions in non-Western countries, portraying non-Westerners as more vulnerable to MDM because of insufficient literacy, greater religiosity, and "anti-science" beliefs, meaning beliefs contrary to COVID orthodoxy. Examples of Meedan reports discussing problematic beliefs leading to non-compliance with this orthodoxy included one about an Iranian community resisting to "closing down religious shrines …, a contributing factor

to the spread of the disease" [56], one about a South Korean community where "church members were told not to be afraid of [COVID]" [57], or one about claims that "the [African] continent would be used for trials" of COVID vaccines sponsored by the Bill and Melinda Gates foundation [58], the implication being that none of these beliefs had legitimate grounds. We return to the grounds of these and similar beliefs shortly. For now, suffice it to note that in May 2021, the *New England Journal of Medicine* published a Bill and Melinda Gates Foundation funded COVID vaccine trial, launched in June 2020 and involving 2,020 participants, which indicated limited efficacy against the B.1.351 variant, leading to the suspension and redistribution of one million doses [59], which shows that at least some of these "anti-science/religious" beliefs should not be dismissed outright.

4.2 What assumptions inform the conceptualization of MDM as a problem?

As shown so far, the theme running through the data was that COVID MDM, and anyone spreading it, were *the* problem. But the question remains: what counts as COVID MDM and how can ordinary people identify it so as to join in the struggle to neutralize it? Once again, the answer was captured by a theme running through the data: *MDM was any expression that called into question assertions from "trusted sources" about, or could conceivably lead to distrust in, the "scientific consensus" on COVID, especially vaccination.* These "sources" were in turn identified as "trusted" because they were recognized as such by other "trusted sources," including NGOs with expertise in MDM and their affiliated researchers. The circularity of the argument was apparent in quotations like the following: "vaccine opposition was determined [by us, the MDM experts] to be information that contradicted the CDC's Immunization Safety Office" [41] or "some [social media] companies [like] Pinterest limited the results of any search for "vaccines" to what the "consensus" determined to be " trusted sources," like the WHO" [60].

The circularity was also apparent when NGO MDM experts relied on one another to ground the legitimacy of their work. So, for example, in their report on COVID-19 vaccine confidence among racialized communities, the Public Goods Project, an NGO with MDM expertise, relied on fact-checking groups like First Draft, another NGO with MDM expertise, and on their own tool, Project VCTR (Vaccine Communication Tracking and Response), to track COVID vaccine MDM [43]. Marzi and collaborators, also MDM experts, relied on the work of First Draft founder, specifically Wardle's 2017 framework – developed by Wardle to analyse MDM *vis-à-vis* the 2016 US elections – "to understand how [MDM] spreads and the types of inaccuracies involved" [61]. Similarly, the EU Disinfo Lab, a centre of MDM expertise, relied on Agence France Press (AFP) Factuel and on the International Fact Checking Network CoronaVirusFacts Alliance to track "false information" on COVID-19. Of note, by "false" the EU Disinfo Lab meant identified as having violated You Tube "community guidelines" [62] – defined by You Tube as "content that promotes information that contradicts health authority guidance on the prevention or transmission of specific health conditions, or on the safety, efficacy or ingredients of currently approved and administered vaccines" [63]. Put another way, sources assumed that self-identified MDM experts, including MDM fact checkers, were uniquely qualified to distinguish myth from fact on COVID matters.

Conversely, discourses advanced by these NGOs tended to frame *any expression casting doubt on "trusted sources" – regardless of its truth value – as MDM.* Even "personal anecdotes linking vaccines to negative outcomes" were framed as problematic because, as per one MDM expert, while they "may not be outright false…they can still mislead or create fear" and lead to "hesitancy" about public health policy, especially vaccination [60]. The implication was clear: MDM is not about whether an expression communicates something factually accurate, for instance, a negative personal experience upon receiving a medical intervention, but rather about how the communication may impact public *perception* of, and response to, official COVID policy. It was also clear that even those who *had received* COVID vaccines could be "antivaxxers" spreading MDM if they share negative experiences that undermine the "consensus." Related to this theme, *loss of trust in establishment sources was framed as especially undesirable* – and presumably never justified – because, as per one DRD: "decreasing trust in government advice [becomes dangerous] at a time when it is vital for us to listen to official recommendations on how we can reduce the spread of coronavirus" [53]. It followed that if only alignment with the "consensus" is able to reduce the threat of COVID, distrust can have no rational/empirical grounds, thus must be driven by special interests, such as a coherent group of professional propagandists… running multi-million-dollar organizations…far better equipped to reach people than the UK National Health Services and the WHO ([53], p. 366).

Clearly, *that losing trust in expert claims was dangerous was contingent on the assumption that "trusted sources" could never be wrong*, not because they had ever reliably communicated the facts about important public

health issues, or had a track record of trustworthiness – issues that were never discussed – but because they were uniquely qualified to identify MDM. Notably, *relevant qualifications appeared to have no connection with subject matter expertise – as with math, astrophysics, or English literature – but were rather qualifications in an "emerging" discipline, "infodemiology," facilitated by credentials in the behavioural sciences, risk communication, graphic design, and marketing, among others* [54]. So, for example, Bonnevie et al. identified as MDM "themes" within "vaccine opposition" tweets that referred to "ingredients or contaminants found within vaccines, such as toxins, mercury, or lead," or "questions around the safety of vaccines," proposing that they indicated that "vaccine opponents…are leveraging the pandemic as an opportunity to promote their resistance to a COVID-19 vaccine" [64] (p. 15). It was not evident, however, at least from the authors' credentials – for instance, a lead author with a Master's in Human Rights and Social Justice – that the team had qualifications directly relevant to vaccine *safety*. Nevertheless, their work expressed confidence in their expertise to address vaccine *MDM*.

Within the broader theme of the imperative to support "the consensus," *a salient assumption was that it was imperative to support vaccination as the best, and even only, approach to end the perceived threat of* COVID. As a result, expressions deviating from the official narrative that COVID-19 vaccines were/are safe, effective, and necessary were characterized as MDM, and anyone expressing reservations was framed as experiencing a sort of mental health dysfunction – from mild, acceptable, and amenable to change (meaning accepting vaccination), i.e., "vaccine hesitancy," to strong, malicious and morally objectionable rejection of COVID vaccines, dubbed "anti-vaxxer." "Anti-vaxxers" so defined were perceived as especially dangerous because they could recruit "vaccine-hesitant" persons from within "unmonitored" social media spaces. As stated by one author, "the more that uncertainty…about risk is made public, the more it is weaponized by bad actors in the information sphere" [65], a sentiment shared by the DRD of CCDH, who proposed that "anti-vaxxers" have used COVID-19 as an "opportunity to create hesitancy for the [COVID] vaccine and, indeed, for all vaccines," thereby subverting the work of public health authorities and endangering humanity [55] (p. 366).

Yet another assumption was that the spread of COVID MDM via social media is a threat because of its potential to "radicalize" the public, not just about COVID vaccines, but also about political matters. For example, authors described how social actors seemingly motivated by profit or personal power have exploited the versatility of social media to "breathe new life into several forms of extremism, as extremists of different shades recognized its potential to drive social change" [55]. Authors also identified linkages between various types of MDM, such as COVID vaccines and the 2016 US elections, stating that "if a user follows anti-vaxxers, they are fed Q-Anon conspiracism and antisemitic hate; if they engage with conspiracies, they are fed electoral and anti-vaxx misinformation" [50]. *Some document authors also appeared to assume a causal relationship between COVID MDM and politics at large, albeit seemingly only "right wing/conservative" politics*, and proposed that politicians of this ideological orientation could deploy MDM to polarize the electorate, discredit their adversaries, and advance their radical and extremist political objectives [61,66].

Other authors proposed that the rise of anti-China sentiment during 2020 was "linked to the spread of COVID-19 health-related misinformation," which may "reinforce each other, making online spaces deeply unpleasant and potentially even dangerous" [40]; interestingly, authors failed to notice *during that same period* the relentless framing of China by Western leaders as an existential threat to the "free world" [67–70], which could have well fuelled the observed anti-China sentiment [71]. Finally, *MDM was also assumed to have the potential to undermine trust not only in science and health authorities but in democracy itself*, as "the sociopolitical ramifications of the widespread distrust of health authorities and scientific expertise [could] represent the tip of a much larger iceberg" [41] that "can threaten contemporary democracies by the political exploitation of post-truths, alternative facts, and conspiracy theories" [72].

Another salient assumption, *mirror image of the unique qualifications MDM experts were perceived to have, was the unique vulnerability of ordinary people to MDM, and their incapacity to identify it without relying on MDM experts.* For example, some authors framed ordinary people as vulnerable to MDM due to the lack of "health literacy" – implied to be the ability to identify and reject MDM – such that large sectors of the population were unable to "make informed decisions about their health when they are constantly inundated by disinformation" [61]. Others discussed how individuals with "heightened cognitive abilities" can better identify and resist MDM [73], implying that said abilities involved the ability to identify MDM as defined by MDM experts. Similarly, some authors proposed that counter MDM initiatives should partner with community organizations and local influencers to focus on "empowerment, community development, and trust building" [42,43], assuming that "empowerment" via "culturally meaningful health information" would lead to higher rates of vaccination [42].

Yet o*ther authors assumed that the history of bioethical violations that some racialized communities have experienced could be "weaponized,"* not only by outsiders but even by members of those communities, because, either way, in the case of COVID, racialized communities should "trust the science" to protect themselves from a lethal threat. For example, a report by First Draft proposed that histories of medical experimentation and abuse "have not only been weaponized by…non-Black anti-vaccine activists as ways to prey on or even coerce Black communities into rejecting the COVID-19 vaccines [but also by] anti-vaccine members of Black communities" [45], thus the importance of sparing no effort to persuade these communities to accept the "consensus." *Finally, authors discussed "gendered" MDM, meaning MDM concerning COVID-19 vaccines' impact on "fertility, menstruation and pregnancy,"* proposing that MDM reinforced "gender stereotypes" [74] and promoted "invalid science" (Dodson et al., 2021), the assumption being that there have never existed reasons or evidence for concern about the effects of COVID vaccination on pregnant women or women more generally. We elaborate on this and other assumptions in the following section.

4.3 What is left unproblematic by the dominant problem representation?

Multiple issues were left unproblematic by the dominant problem representation and its underlying assumptions. In this section, we elaborate on the three most salient ones. *First*, o*verall and across the body of data, there was no recognition of the abundant scientific evidence that supports challenges to mainstream COVID policy.* This evidence was already available in 2020, yet authors ignored it, downplayed it, or disparaged it by labelling it MDM. An illustrative example was an article in *Nature Immunology*, in which authors asserted that at the onset of COVID "people around the globe bore witness in real time to the horror of the world with a highly infectious lethal disease and no herd immunity," that COVID-19 vaccines had already demonstrated "robust and jaw-dropping effectiveness," and that contrarian views were "science denialism" and "fraudulent" [48]. The authors appeared uninformed about the exceedingly low infection fatality rate for most of the population *in the pre-vaccine era* [75,76], the evidence in support of natural immunity – specifically an early systematic review of the literature that identified a weighted average risk reduction against reinfection among unvaccinated individuals of 90.4%, with protection against reinfection of up to 10 months [77], and the poor record of "vaccine effectiveness" – specifically early evidence of "breakthrough infections," i.e., vaccine failures [78] and a large study of over 51,000 individuals reporting that those with more than three doses of COVID vaccines had about a 2.5 times *higher* risk of contracting COVID-19 compared to those who had received zero doses [79]. As to readers, they were not informed that the lead author of the article had received no less than USD 230,000 from several pharmaceutical companies, including vaccine producers like Pfizer, Moderna, Novavax, Sanofi, and Merck [80], nevertheless declaring in his refereed publication "no conflicts of interest" [48].

Another notable example was a First Draft report, which dismissed as MDM assertions that "challenge the safety, efficacy, and necessity of vaccines, suggesting vaccines could cause infertility, harm children, or be unnecessary for the general population" [81]. The authors appeared unaware of the considerable evidence challenging their assertions. For instance, as late as November 2022, the UK government had admitted to the absence of animal studies testing the reproductive toxicity of the Pfizer vaccine, acknowledging that "sufficient reassurance of the safe use of the vaccine in pregnant [or breast-feeding] women [cannot] be provided at the present time" [82]. They also seemed unaware of research reporting on multiple negative impacts of COVID vaccines on fertility [83] and on the menstrual cycle [84,85], as well as on myopericarditis as one very concerning adverse event post COVID vaccination among not only children and youth [86,87], but also adults [88]. Finally, as mentioned earlier, significant evidence showed early on that the infection fatality rate for the vast majority of population was exceedingly low, calling into question the benefit of mass vaccination on both scientific and ethical grounds [89] – not to mention the existence, also early on, of multiple, sound alternatives to mass vaccination [90–92], although we were unable to find any document that engaged or even reported on these publications.

Second, left unproblematic was that across the data authors appeared less concerned with the veracity of the information than with reliance on a perceived "(scientific) consensus," thus the call to train the public to identify that "consensus" and persuade it to "trust" it, not based on the *evidence* produced by the authorities but on their *claims*. This was the case *even though the authority of scientists comes from the authority of science and not the other way around*, even though scientific inquiry thrives on debate, scepticism, and honest attempts to falsify hypotheses [93], and even though a critically thinking and engaged citizenry is essential in democratic societies to keep authorities accountable [94]. Instead, authors across-the-board insisted on framing "distrust" as an emotional response that could not possibly have rational or empirical grounds; therefore, rather than focusing on how

to better provide evidence-based information for people to evaluate the balance of risks and benefits of proposed medical/public health recommendations and make autonomous, informed decisions, authors *redirected the public to the very institutions responsible for the widespread distrust*. Thus, one refereed article underscored the importance of persuading the masses to seek information from "long trusted scientific institutions" [60], while one report underscored the importance of encouraging the public to trust "accounts that spread trustworthy information about Covid and vaccines" – such as the National Health Service (NHS), British Broadcasting Corporation (BBC), WHO, Gates Foundation, Public Health England, Centers for Disease Control (CDC), UNICEF, and the London School of Hygiene and Tropical Medicine [50]. The authors seemed unaware of the multiple reasons – shifting goalposts, lack of transparency, lack of democratic input, and multiple conflicts of interests – that had given and continue to give the public many reasons to not trust these institutions [95–98].

Third and last, left unproblematic were the multiple logical fallacies across the body of data seemingly having escaped the rigour of reviewers and editors. For instance, authors generally failed to provide evidence supporting their "true" claims, or to refute the "false" claims of presumed MDM spreaders, relying almost entirely on *appeals to authority*, *ad populum,* and *ad hominem* fallacies when framing support for COVID vaccines as the "pro-science" stance held by the majority, and opposition as the "fringe" views of a minority. So, for instance, in a clear case of *authority* and *ad populum* fallacies, Bonnevie, Sittig & Smyser proffered that the "*pro-science, pro-vaccination majority* of the general public has historically been comparatively silent on the importance of immunizations [especially compared to vaccine opponents], and largely disengaged from the work of debunking vaccine-related misinformation" [99]. Therefore, document authors proposed empowering the public to become more vocal in their (assumed) support of vaccination. Similarly, in two textbook examples of *ad hominem* fallacies, a CCDH report proffered that "despite scientific consensus, vaccines are opposed by…*Counter- Enlightenment actors, snake oil salesmen and the misinformed* […]" [100] (emphasis added), while a peer-reviewed article labelled opponents of the establishment narrative "science deniers," emboldened by the growing lack of trust in experts [101].

5 Discussion

Across the body of data, the "problem" in NGO discourses on COVID MDM was represented to be the unchecked spread of expressions that have led the public to distrust and therefore, to not fully embrace, or even reject, official policy *vis-à-vis* COVID-19, especially, albeit not only, vaccination. These expressions were framed as initiated by a small and "fringe," although also very powerful, group of individuals, whether uninformed or too well informed, yet in both cases willing to mislead the public. Expressions from this minority, went the narrative, are spreading "virally," "infecting" society through the "likes" and "shares" in social media produced by an unsuspecting and not "literate" enough public. Therefore, it is imperative to "educate," indeed "inoculate," the public, through multipronged initiatives, developed and implemented by a cadre of experts with unique qualifications to identify MDM in all things COVID.

Because of the magnitude and reach of MDM, and the threat it represents to public health science and policy, democracy, and even human survival, continued the narrative, the full force of the state must be applied to neutralize it – although a "whole of society" approach in which the state partners with the private sector and civil society was preferred. While the measures required to control MDM may look extreme, the global emergency was framed as demanding a "state of exception" that (temporarily) suspends democratic, bioethical, and other principles, in order to protect these principles from an existential threat [102]. Multiple questionable assumptions supported this narrative, although the fundamental one appeared to be that establishment claims were true based on the authority of claims-makers, and that anything that calls them into question was MDM by definition. It followed that distrust in authorities cannot be rational or evidence-based but must result from abnormalities – cognitive, psychological, and behavioural – in those who express loss of trust. In the end, left unproblematic in this remarkably homogeneous problem representation were (1) the lack of recognition of the abundant scientific evidence that supports challenges to mainstream COVID policy; (2) the lack of concern with the veracity of the information, in favour of a reliance on a perceived "(scientific) consensus"; and (3) the multiple logical fallacies across the body of data having escaped the rigour of reviewers and editors.

While the goal of our study was to characterize the dominant problem representation within NGO discourses and identify their assumptions and silences, the question remains: what explains the remarkable homogeneity across the data? A possible explanation could be that the documents analysed contained true claims and valid arguments, so why would any rational person object to them? However, we believe that we have offered strong evidence and reasons to challenge this position. We propose instead

that the alleged "scientific consensus" that supports NGO narratives on COVID MDM is nothing but an illusion [103], explained by at least two factors: first, the "capture" – through conflicts of interest – of dominant institutions that historically and to this day have shaped public policy, especially but not only in medical and public health matters [104–107]; and second, the exercise of forms of power within the system of rewards in academia, that can also be deployed by the NGO sector if only it can draw from the prestige of academic partnerships. This system normatively encourages members of the academic community – instructors, researchers, and especially students – to speak truth to power, but in actuality rewards them for contributing to its reproduction [108]. Therefore, it invests significant resources to police the boundaries of permissible debate by suppressing dissenters, through multiple strategies, when debate becomes uncomfortable to the powers that be. Strategies of suppression may include social and professional isolation, slandering to undermine credibility while avoiding engaging the arguments, misrepresenting the work of dissidents, and so on [109,110].

As applied to our study, we note that while the NGOs in our sample presented themselves as independent and involved in COVID MDM initiatives to prevent harm, in reality, since their inception, they were engaged in discrediting truthful information about the lack of safety, effectiveness, and necessity of COVID vaccines by labelling it MDM [111,112]. Evidence also indicates that in close collaboration with NGOs, the former US administration pressured social media companies to censor true information, for instance, on vaccine injuries – including satire, memes, opinions, and Americans' personal experiences – that may call into question official policy. As revealed by a report from the US Committee on the Judiciary and the Select Subcommittee on the Weaponization of the Federal Government in May 2024, internal July 2021 Facebook emails show that Facebook understood that the Biden White House wanted "humorous or satirical content that suggests the vaccine isn't safe" removed from circulation, and that the "The Surgeon General [wanted Facebook] to remove true information about side effects" [113]. It appears that rather than doing "too little" – as asserted by First Draft founder [60] – social media companies were *all too involved* in censoring factual information, with the ideological and political support of NGOs.

Another illustrative example of an NGO claiming to advance the public good while serving elite interests is the CCDH, which in one of its reports, asserted that about "65% of anti-vaccine content can be traced to the leading online antivaxxers," whom the CCDH dubbed "Disinformation Dozen" [114] – "anti-vaxxers" that included well-known medical practitioners and researchers. As eventually revealed by the #Twitter Files, this report proved very influential on national US policy, when during a press briefing in July of 2021, the then White House Press Secretary referred to it to support their claim that "there's about 12 people who are producing 65% of anti-vaccine misinformation on social media platforms" [115] (p. 12). Of note, these "findings" were quickly amplified by various media outlets [116,117]. However, the public was never informed that the lead author, Imran Ahmed, worked for senior members of the UK Labour Party [29,118] and for the UK Steering Committee of the Commission for Countering Extremism before starting his two non-profit groups: CCDH itself and Stop Funding Fake News [118]. These political connections notwithstanding, in an editorial in *Nature Medicine*, Ahmed declared "no competing interests" while calling for "dismantling the anti-vaxx industry" to liberate the world from the scourge of MDM [55].

At this point, we also note that NGOs have significantly influenced policy debates beyond the COVID-19 MDM landscape, venturing into the territory of "hate speech" legislation across various jurisdictions. While they frame their involvement as part of their mission and goals – commitment to social justice [119], equity in access to social resources [120], and even protection of democracy [121] – critics have argued that all too often, legislation to manage and control speech lacks clear definitions, and that much like with MDM, what constitutes "hate" is often in the eyes of the beholder, such that definitional issues are settled by popularity contests, the ideology "du jour," the relative power of the social actors involved, and so on, leading to the erosion of democratic principles in the name of protecting them [122,123]. Examples of such legislation include proposed amendments to the Canadian Criminal Code to address "hate speech" (Bill C-36, 2021), the European Union's Digital Services Act [124], and the Criminal Code Amendment (Hate Crimes) Bill 2024 in Australia, all with active NGO involvement [125,126]. This legislation has actively contributed to shaping the narrative around the urgency of policing "hate speech," with little transparency concerning their own agendas and those of their funders.

Our study has limitations, including those of our data selection strategy, theoretical and methodological choices, and language limitations – only documents in English were examined. That said, qualitative research is less about universal application than about equipping readers with rich and detailed descriptions – which is what we have strived to provide – to allow them to make informed decisions about the extent to which findings from one research study are transferable to other settings [127]. Our study was also interpretive, thus subject to personal and professional

biases. However, we note that our joint disciplinary background includes the medical sciences, the social sciences, the humanities, and health policy, which is broad by usual standards. And regardless, this limitation is shared by all qualitative research, yet does not prevent this type of research from providing valuable insights into the social world.

Further, we have attempted to offset these limitations by providing a detailed and transparent account of our process, illustrated by quotations, supporting citations, and a detailed description of the articles selected for review. These jointly illustrate the extraordinary homogeneity of NGO discourses on COVID MDM, and their continuing and influential incursions into the policy process. Another limitation is that we have not sought to engage the authors of the selected documents, which may have given us a better understanding of their world views. However, this limitation is shared by NGO MDM experts, who, to our knowledge, have never reached out to, or engaged with, their critics and their world views. Limitations notwithstanding, we believe that our selection successfully captured leading NGO discourses and that our analysis accurately represents the phenomenon we sought to document and appraise.

6 Conclusions

We conclude that, rather than defending science, democracy, or human survival, these NGOs and their partners are undermining the open, respectful, and inclusive debate essential to support these values. Granted, critics may argue our conclusions are unwarranted, and even unfair, given the good intentions of many individuals working in the selected and similar NGOs. And we would agree that this may be true, and that we are in no position, nor do we wish, to deny the good intentions of specific individuals. However, as critical social scientists, our key theoretical contributions go beyond the analysis of subjective dispositions, i.e., what particular social actors claim their intentions to be, to include that of the objective consequences of social action [128], i.e., the functions or dysfunctions that such actions actually perform in the reproduction or disruption of a hierarchical social order [129].

From this perspective, we propose that NGO discourses around COVID MDM, while functional to elite and establishment interests, are dysfunctional to scientific inquiry, which has never been about infallibility and "consensus." This remains as true today as it was in the second-century AD, when Greek mathematician, astronomer, and geographer, Claudius Ptolemy, proposed his geocentric theory of the universe, which informed the collective understanding of the motion of planets and stars for over one thousand years, even if it turned out to be false. Not to mention the countless cases in medical history in which, (mis) led by "experts," millions of innocent people were harmed, disabled, or killed upon being persuaded to accept interventions or products deemed "safe and effective" by these experts. A full account of this history is beyond the scope of our study. Suffice it to mention the cases of opioids [130,131], thalidomide [132,133], DDT [134,135], and even cigarette smoking [136,137], substances whose use was in all cases enthusiastically promoted by experts, regulatory agencies, governments, and establishment scientists that in time proved to be wrong.

We also propose that NGO discourses concerning COVID MDM are dysfunctional to true democratic governance, which requires substantive democracy – not the "low intensity" variety [138] – and commitment to time-honoured bioethical principles, such as bodily autonomy and the right to informed consent [139,140]. Therefore, unless "trusted sources" engage in a good faith effort to demonstrate trustworthiness by making the evidence supporting their assertions readily available for public scrutiny, eliminating conflicts of interests in their midst, and subjecting policy decisions to real democratic debate, the challenge to democracy will likely come not from falsehoods, real or imagined, but rather from initiatives such as "fighting COVID MDM" that encroach on democratic principles under the guise of protecting them. As Daniel Klein compellingly put it, "to prosecute an 'anti-falsehood' campaign would make obvious the true nature of what is afoot—an Orwellian boot to stomp on Wrongthink. To support [the] policing of 'information' is to confess one's anti-liberalism and illiberality" [7].

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Appendix 1 – Peer-reviewed literature

Article ID (Author, year, title)	NGO	Author(s) Role at NGO Education	Country of author	Funding	Conflicts of interest	Standard to assess MDM/Examples of MDM
Ahmed (2021) Dismantling the anti-vaxx industry	CCDH	Imran Ahmed, CEO; MA, Social & political sciences	UK	Not reported	Not reported	Standards Editorial standards of traditional media/Terms of service of social media/Trusted sources (WHO, UK National Health Service) Example COVID-19 isn't dangerous
Allington & Dhavan (2020) The relationship between conspiracy beliefs and compliance with public health guidance with regard to COVID-19	CCDH	Daniel Allington, Researcher/writer; PhD English Studies	UK	Not reported	Not reported	Standards Public health guidelines (UK) Example Virus was created in a lab
Bonnevie et al. (2023) Lessons Learned From Monitoring Spanish-Language Vaccine Misinformation During the COVID-19 Pandemic	Public Good Projects	Erika Bonnevie, Research Director; MA Human Rights & Social Justice Valeria Ricciulli, writer/reporter; MSc, Media Management	USA	Centers for Disease Control and Prevention (CDC)	Reported no conflict	Standards None is made explicit Example Expressions about adverse effects post-vaccination/lack of vaccine effectiveness/ rushed vaccine development
Bonnevie et al. (2021) The case for tracking misinformation the way we track disease	Public Good Projects	Erika Bonnevie, Research Director; MA, Human Rights & Social Justice Jennifer Sittig, VP Communications; MA Public Health Joe Smyser, CEO; PhD, Public Health	USA	Reported no funding	Reported no conflict	Standards International Organizations (UNICEF, WHO) Examples Expressions of vaccine opposition/ hesitancy
Bonnevie et al. (2021) Quantifying the rise of vaccine opposition on Twitter during the COVID-19 pandemic	Public Good Projects	Erika Bonnevie, Research Director; MA, Human Rights & Social Justice Allison Gallegos-Jeffrey, Research	USA	The New York State Health Foundation	Author Brian Byrd, is Senior Program Officer at funding agency	Standards "Professional" fact-checking organizations (e.g., The

		Associate; MA Public Health Joe Smyser, CEO; PhD, Public Health				Poynter Institute); Health Agencies (CDC, WHO) Examples Mentions of negative impacts of vaccination/References to pharmaceutical industry influence/ingredients within vaccines (e.g., mercury)
Calleja et al. (2021) A Public Health Research Agenda for Managing Infodemics	First Draft	Claire Wardle, Director; PhD, Communications	USA	Not reported	Staff at WHO, CDC, and other international agencies; grants from Merck, Pfizer, Moderna, and other drug companies	Standards WHO and "partners" (e.g., fact checkers, academia, experts in the "science of infodemiology," other civil society) Examples "False" information with potential to cause damage
Marzi & Giovanna (2021) If you cannot rule them, misinform them! Communication strategies of Italian radical right-wing populist parties during the pandemic	EU DisinfoLab	Maria Giovanna Sessa, Researcher; PhD, Political science	Italy	Not reported	Not reported	Standards Editorial guidelines (unspecified) Examples Prolonged use of masks causes hypercapnia/COVID-19 was manufactured in a Wuhan laboratory/MDM led to Donald Trump 2016 election & Brexit
Pantazi et al. (2021) Social and Cognitive Aspects of the Vulnerability to Political Misinformation	Meedan	Scott Hale Director of Research at Meedan, PhD, Computer Science	UK	Not reported	Not reported	Standards Unspecified Examples False claims and inaccurate information about the "reality of the pandemic"
Saltz et al. (2020) Encounters with Visual Misinformation and Labels Across Platforms	First Draft	Emily Saltz, Research Fellow, MHCI, Human Computer Interaction Claire Wardle, Director, PhD, Communications	USA	Not reported	Not reported	Standards Iffy Index of Unreliable Sources Examples "Conspiratorial" videos on YouTube/political memes on Instagram/viral protest photos on Twitter"

Tangcharoensathien et al. (2020) Framework for Managing the COVID-19 Infodemic: Methods and Results of an Online, Crowdsourced WHO Technical Consultation	EU Disinfo Lab	Alexandre Alaphilippe, Executive Director; Master's degree Corporate and administration communications	Belgium	Not reported	None declared	Standards WHO/Trusted sources (scientific and public health institutions; editors of medical journals – unspecified) Examples "Fake or questionable cures" (unspecified)/ "Incorrect recommendations about prevention or public behavior" (unspecified)
Vidgen et al. (2020) Detecting East Asian Prejudice on Social Media	Meedan	Scott Hale, Director of Research, PhD, Computer Science	UK	Criminal Justice Theme of the Alan Turing Institute	Not reported	Standards Trained (by the authors) hate speech annotators Examples "Conspiracy theories regarding the origins of the virus" that can lead to hate towards Asians
Wardle & Singerman (2021) Too little, too late: social media companies' failure to tackle vaccine misinformation poses a real threat	First Draft	Claire Wardle, Director, PhD, Communications Eric Singerman, Research Assistant and Policy Analyst, Law student	USA	Not reported	Not reported	Standards Trusted sources (WHO) Examples False claims about the safety, efficacy, ingredients, or side effects of the vaccines (unspecified)/ Personal anecdotes on vaccine harms even if true
WHO Bulletin (2021) Claire Wardle: tackling the infodemic	First Draft	Claire Wardle, Director, PhD, Communications	USA	Not reported	Not reported	Standards First Draft, Google News Lab Examples Efficacy of hydroxychloroquine for treating COVID-19/ vaccine misinformation narratives (unspecified)/ Information leading to the outcomes of the 2016 US presidential elections

Appendix 2 – Grey literature

Article ID (Author, year, title)	NGO	Author(s) Role at NGO Education	Country of author	Funding	Conflicts of interest	Standard against which to assess what counts as MDM/ Examples of MDM as per those standards
Ahmed (2020). COVID-19 misinformation can be as dangerous as the virus itself – we must mobilise to stop its spread	CCDH	Imran Ahmed, CEO; MA, Social & political sciences	UK	Not reported	Not reported	Standards Government and public health officials (NHS) Examples Virus is a hoax/Fake cures/COVID-19 crises is imposing a New World Order
CCDH (2021) Pandemic Profiteers: The business of anti-vaxx	CCDH	Individual authors not reported	UK	Not reported	Not reported	Standards Health experts Examples Anti-vaccine content/ COVID-19 vaccine can destroy your immune system/mRNA vaccines might permanently alter people's DNA/Unvaccinated children are healthier than vaccinated children
CCDH (2020) The Anti Vax Industry: How Big Tech powers and profits from vaccine misinformation	CCDH	Individual authors not reported	UK	Not reported	Not reported	Standards Health authorities and scientific establishment Examples Anti-vaccine misinformation/Bill Gates is using pandemic to pursue medical tyranny/COVID-19 is a bioweapon/Ineffective or dangerous cures for COVID-19
CCDH (2020) The Anti-Vaxx Playbook	CCDH	Individual authors not reported	UK	Not reported	Not reported	Standards Health experts/officials, such as the CDC Examples COVID-19 isn't dangerous/Vaccines are dangerous/Doctors and scientists cannot be trusted

CCDH (2021) Malgorithm: How Instagram's Algorithm Publishes Misinformation and Hate to Millions during a Pandemic	CCDH	Individual authors not reported	UK	Not reported	Not reported	Standards Health authorities such as the CDC Examples There is no pandemic/ COVID-19 vaccine that was approved on false data/COVID-19 tests are inherently faulty/ The pandemic is being used to impose medical authoritarianism
CCDH (2021) Disinformation Dozen: Why platforms must act on twelve leading online anti-vaxxers	CCDH	Individual authors not reported	UK	Not reported	Not reported	Standards Health experts, pro-vaccine researchers and educators Examples Supplements and false treatments as vaccine alternatives. e.g. hydrogen peroxide/ COVID-19 vaccines harm pregnant women/Prolonged mask use harms health by suppressing the immune system/ COVID-19 vaccines cause infertility in women
CCDH (2021) The Disinformation Dozen: The Sequel. How Big Tech is failing to act on leading anti-vaxxers despite bipartisan calls from Congress	CCDH	Individual authors not reported	UK	Not reported	Not reported	Standards Health experts, pro-vaccine researchers, and educators Examples Supplements and false treatments as vaccine alternatives. e.g. hydrogen peroxide/ COVID-19 vaccines harm pregnant women/COVID-19 vaccines cause infertility in women
CCDH (2020) #Will to Act: How social media giants have failed to live up to their claims on the Coronavirus 'infodemic'	CCDH	Individual authors not reported	UK	Not reported	Not reported	Standards Health authorities including the WHO and CDC Examples False cures/5G conspiracies/Vaccines can

						cause COVID-19/ Pandemic is a hoax to justify mass vaccinations
CCDH (2020) Failure to Act: How Tech Giants Continue to Defy Calls to Rein in Vaccine Misinformation	CCDH	Individual authors not reported	UK	Not reported	Not reported	Standards WHO or local health authorities' medical information about COVID-19 (as referenced by social media platforms) Examples Linking COVID-19, 5G, and vaccines to a plot to track and control the world's population/COVID-19 is a "false flag" or "Plandemic" to force compulsory vaccinations/5G mobile networks cause/exacerbate COVID-19 symptoms/Illnesses are a consequence of environmental toxins/ Masks are ineffective in limiting the spread of illness
Giovanna Sessa (2021) 5G, Twitter and Youtube: The Challenge of Moderating Conspiracy Claims on the Origins of COVID-19	EU Disinfo Lab	Maria Giovanna Sessa, Researcher; PhD, Political science	Italy	Not reported	Not reported	Standards Guidance from public health experts regarding COVID-19 (as per social media platform policies). Fact-checking organizations to identify "debunked" conspiracy theories for their data analysis Examples 5G radiation is responsible for COVID-19 symptoms/ Pandemic containment measures are part of a deep state plan to discreetly install 5G antennas
EU Disinfo Lab (2021). COVID-19			Brussels, Belgium	Not reported	Not reported	Standards

and 5G: A case study of platforms' content moderation of conspiracy theories	EU Disinfo Lab	Individual authors not reported				Scientists and fact checkers (BBC Reality Check) Examples 5G alters people's immune system or changes people's DNA, making them more susceptible to COVID-19
EU Disinfo Lab (2020) COVID-19-19 Conspiracy Theories: Comparative trends in Italy, France, and Spain	EU Disinfo Lab	Individual authors not reported	Brussels, Belgium	Not reported	Not reported	Standards Official authorities Examples The origins of the virus (e.g. manufactured in a lab)/Cures and medical treatments for the virus (available but being suppressed by elites)/ Use of the virus to push secret agendas
Giovanna Sessa (2021) COVID-19 Vaccine Misinformation and Facebook	EU Disinfo Lab	Maria Giovanna Sessa, Researcher; PhD, Political science	Italy	Not reported	Not reported	Standards WHO and health authorities are identified as trusted sources of "authoritative information." They also referenced "fact checkers" for reliable information Examples Claims that the vaccine is dangerous/ Vaccine is part of an evil plan/Vaccine is useless to cure COVID-19
Meyer & Alaphilippe (2021) One Year Onward: Platform Responses to COVID-19and US Elections Disinformation in Review	EU Disinfo Lab	Trisha Meyer, Assistant Professor of Digital Governance and Participation, Vrije Universiteit Brussel; PhD Media & Communications Alexandre Alaphilippe, Executive	Brussels, Belgium	Not reported	Not reported	Standards Trusted sources, such as WHO and other public health authorities Examples Information in opposition to "scientific

		Director; Master's degree, Corporate & Administration Communications				consensus" defined as misinformation
Adamczyk (2021) What's the Hold up: How Youtube's Inaction Allowed the Spread of a Major French COVID-19 Conspiracy Documentary	EU Disinfo Lab	Roman Adamczyk, Research Coordinator; Master's degrees in Geoeconomy and Strategic Intelligence	Brussels, Belgium	Not reported	Not reported	Standards French fact-checker AFP Factuel identified MDM for the study Examples Origin of the virus/ Danger of masks/ Hydroxychloroquine, cures, and vaccines/ COVID-19 as a secret plot to control the population
Serrano et al. (2020): COVID-19 Disinformation: Narratives, Trends, and Strategies in Europe	*Eu Disinfo Lab*	*Raquel Miguel Serrano, Senior Researcher;* Máster en Ciberinteligencia Roman Adamczyk, Research Coordinator; Master's degrees in Geoeconomy and Strategic Intelligence Maria Giovanna Sessa, Researcher PhD, Political science *Lauren Hamm, Communications and Advocacy Assistant, MA* Central and East European Studies	Brussels, Belgium	Not reported	Not reported	Standards Fact checkers—they described the sample of "disinformation" they analyse in the report as having been "independently factchecked" Examples Health fears/ Conspiracy theories/ Lockdown fears/False cures/Identity, societal, and political polarisation
Chee (2021) COVID-19 vaccines: A leap of faith and the power of trust among Black and Hispanic communities	First Draft	Vanessa Chee, Research Assistant; PhD, Public Health	USA	Supported by a grant from the Rita Allen Foundation	Not reported	Standards Official institutions and health authorities Examples COVID-19 vaccines will be used to control the population and commit genocide/ COVID-19 vaccines will be used to microchip and track you/COVID-19 isn't dangerous, it's

						just like the common cold/A strong immune system will prevent you from contracting Covid-19/"Big pharma" is only interested in profits, not your health/The COVID-19 vaccine will make women infertile
Dodson et al. (2021) COVID-19 Vaccine Misinformation and narrative surrounding Black communities on social media	First Draft	Kaylin Dodson, Investigative Researcher; BA Journalism and Design Jacquelyn Mason, Senior Investigative Researcher; MSc, Integrated Digital Media Rory Smith, Research Manager; MSc, Computational and Data Journalism	USA	Supported by a grant from the Rita Allen Foundation	Not reported	Standards Health authorities including the American College of Obstetricians and Gynecologists and the CDC Examples Vaccine shedding and negative effects on women's reproductive health/White liberals and the "Black liberal elite" are trying to coerce Black communities into being vaccinated/Vaccine passports are discriminatory and an infringement on rights/COVID-19 vaccine is experimental, rushed, and unsafe
First Draft (2021) A Limiting Lens: How Vaccine Misinformation Has Influenced Hispanic Conversations Online	First Draft	Individual authors not reported	USA	Supported by a grant from the Rita Allen Foundation	Not reported	Standards "Objective third parties" like "academics and researchers" Examples Questioning the safety, efficacy, and necessity of the COVID-19 vaccine/Vaccine is part of a population control effort/Alternative treatments, including ivermectin, promoted as safer than vaccines

Longoria et al. (2021) Disinformation exports: How foreign anti- vaccine narratives reached West African communities online	First Draft	Jaime Longoria, Senior Investigative Researcher; BA, International Relations Daniel Acosta, Researcher; BSc Communications & Media Studies Shaydanay Urbani, Partnerships & Programs Manager; MA Journalism Rory Smith, Research Manager; MSc, Computational and Data Journalism Carlotta Dotto, Senior Data Journalist; MA, Digital Journalism	UK	Not reported	Not reported	Standards Health experts and health institutions Examples Africans are being used as guinea pigs in vaccine trials/Western actors and international organizations are untrustworthy e.g. Bill Gates/Vaccines are part of a depopulation agenda/Challenges to the safety, efficacy, and necessity of vaccines
Cho & Wu Yun (2020) Churches and the COVID-19 misinfodemic in South Korea	Meedan	Taeksoo Cho, news reporter at JTBC (Korea); MA Journalism & Mass Communication Gi Wu Yun, Director, Center for Advanced Media Studies, University of Nevada; PhD, Journalism & Mass Communication	Korea	Not reported	Not reported	Standards Health officials Examples COVID-19 was a "great disaster" predicted in the book of Revelation/ Church members should not worry about the virus/ Spraying salt water in one's mouth would prevent COVID-19
	Meedan		India		Not reported	Standards

Sutaria (2020) Coronavirus misinformation in India is not limited to health misinformation		Sachi Sutaria, Fact checker at BOOM (India); Post graduate, Public health/health administration		Not reported		Fact checkers, particularly BOOM fact checking in India Examples "False information" on the emergence, origin, spread, and cures
Fu (2020) COVID-19 and China's Information Control Policy	Meedan	King Wa-Fu, Professor at the Journalism and Media Studies Centre, the University of Hong Kong; PhD, Journalism and Media Studies	China	Not reported	Not reported	Standards Scientists including virologists and Chinese Center for Disease Control and Prevention scientists Examples Misinformation coming out of China on the origins of the virus, and severity of the virus
Meedan (2020) False health information in Kenya	Meedan	Africa Check (Fact checker). Individual authors not reported	Kenya	Not reported	Not reported	Standards They referenced their own reports/fact checking efforts ("Africa Check" – an African fact checking organization) to identify/confirm MDM Examples Health myths that lead to vaccine hesitancy/ Disinformation around vaccines/False claims about COVID-19 cures/Claims that Africans would be used as guinea pigs for vaccines
Meedan (2020) How a volcanic eruption frames the pandemic in the Philippines	Meedan	VERA Files (Fact checker). Individual authors not reported	Philippines	Not reported	Not reported	Standards They referred to themselves, as fact checkers (VERA Files), as experts in identifying true vs false information. They also referred to the WHO as a source of accurate information during COVID-19 Examples False information about the origins of

						COVID-19/Spread of COVID-19/Necessity of face masks
Alimardnai & Elswah (2020) Trust, Religion, and Politics: Coronavirus Misinformation in Iran	Meedan	*Mahsa Alimardnai, doctoral student at University of Oxford's Oxford Internet Institute* *Mona Elswah, doctoral student at University of Oxford's Oxford Internet Institute*	Iran	Not reported	Not reported	Standards Fact checkers, specifically, they named "AFP Factual," "Fantabyyano," Facebook third-party fact checkers and BBC Monitoring Examples Conspiracy theories about the virus's origins/Virus as an attack by the US against Iran/False cures/Claims downplaying the severity of the disease
Byrd & Smyser (2020). Lies, Bots, and Coronavirus: Misinformation's Deadly Impact on Health	*Public Good Projects*	Brian Byrd, Senior Program Officer; Master of Public Administration Joseph Smyser, Chief Executive Officer; PhD, Public Health	USA	Not reported	Not reported	Standards Their own expertise in identifying MDM, particularly through "Project RCAID" Examples COVID-19 vaccine opposition/Covid-19 is a hoax/Fake cures/Wearing a mask will make you sick/Links between 5G and COVID-19
Wolynn & Hermann (2021) Shots heard round the world: better communication holds the key to increasing vaccine acceptance	Public Good Projects	Todd Wolynn, Shots Heard Around the World (an initiative of the Public Good Projects), Pediatrician Chad Hermann, PhD, English	USA	Not reported	None declared	Standards Physicians/health experts Examples Opposition to vaccines
Wolynn et al. (2023) Social Media and Vaccine Hesitancy Help Us Move the Needle	Public Good Projects	Todd Wolynn, Shots Heard Around the World (an initiative of the Public Good Projects), Pediatrician Chad Hermann, PhD, English	USA	Not reported	Wolynn received funding from Merck Corporation and Sanofi Pasteur Inc. for conference travel, lodging, and consulting but not	Standards Health care providers and trusted health sources such as the WHO, CDC or local health department Examples

		Beth Hoffman, Professor, University of Pittsburgh School of Public Health, PhD, Behavioral and Community Health Sciences			during article preparation. Wolynn and Hermann are cofounders of "Shots Heard Round the World." Hoffman disclosed no conflicts of interest	Anti-COVID-19 vaccines/anti-mask, anti-shutdown/anti-mandates/anti-contact tracing
Bonnevie et al. (2022) Case Study: Using Google's COVID-19 Vaccine Search Insights to Increase Vaccine Confidence and Demand Among BIPOC Communities	Public Good Projects	Erika Bonnevie, Research Director; MA, Human Rights & Social Justice Stacey Meadows, Program Manager; MA Communications & Media Studies Joe Smyser, CEO; PhD Public Health	USA	Rockefeller Foundation	Not reported	Standards Fact checking organizations like First Draft and their own expertise and tool, Project VCTR (Vaccine Communication Tracking and Response) Examples Overstating vaccine myocarditis risk/ Claiming vaccines cause autoimmune disease