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From COVID-19 Treatment to Miracle Cure: the role of influencers and public figures in amplifying the hydroxychloroquine and ivermectin conspiracy theories during the pandemic.

Medical misinformation and conspiracies have thrived during the current infodemic as a result of the volume of information people have been exposed to during the disease outbreak. Given that SARS-CoV-2 (COVID-19) is a novel coronavirus discovered in 2019, much remains unknown about the disease. Moreover, a considerable amount of what was originally thought to be known has turned out to be inaccurate, incomplete or based on an obsolete knowledge of the virus. It is in this context of uncertainty and confusion that conspiracies flourish. Michael Golebiewski and danah boyd's work on 'data voids' highlights the ways that actors can work quickly to produce conspiratorial content to fill a void. The data void absent of high-quality data surrounding COVID-19 provides a fertile information environment for conspiracies to prosper (Chou et al.).

Conspiracism is the belief that society and social institutions are secretly controlled by a powerful group of corrupt elites (Douglas et al.). Michael Barkun's typology of conspiracy reveals three components: 1) the belief that nothing happens by accident or coincidence; 2) nothing is as it seems: The "appearance of innocence" is to be suspected; 3) the belief that everything is connected through a hidden pattern. At the heart of conspiracy theories is narrative storytelling, in particular plots involving influential elites secretly colluding to control society (Fenster). Conspiracies following this narrative playbook have flourished during the pandemic. Pharmaceutical corporations profiting from national vaccine rollouts, and the emergency powers given to governments around the world to curb the spread of coronavirus, have led some to cast these powerful commercial and State organisations as nefarious actors–'big evil' drug companies and the 'Deep State'–in conspiratorial narratives. Several drugs believed to be potential treatments for COVID-19 have become entangled with conspiracy.

At the start of the pandemic scientists experimented with repurposing existing drugs as potential treatments for COVID-19 because safe and effective vaccines were not yet available. A series of

antimicrobials with potential activity against SARS-CoV-2 were tested in clinical trials, including lopinavir/ritonavir, favipiravir and remdesivir (Smith et al.). Only hydroxychloroquine and ivermectin transformed from potential COVID treatments into conspiracy objects. This paper traces how the hydroxychloroquine and ivermectin conspiracy theories were amplified in the news media and online. It highlights how debunking processes contribute to amplification effects due to audience segmentation in the current media ecology. We conceive of these amplification and debunking processes as key components of a 'Conspiracy Course' (Baker and Maddox), identifying the interrelations and tensions between amplification and debunking practices as a conspiracy develops, particularly through mainstream news, social media and alternative media spaces. We do this in order to understand how medical claims about potential treatments for COVID-19 succumb to conspiracism and how we can intervene in their development and dissemination.

In this paper we present a commentary on how public discourse and actors surrounding two potential treatments for COVID-19: the anti-malarial drug, hydroxychloroquine, and the anti-parasitic drug, ivermectin, became embroiled in conspiracy. We examine public discourse and events surrounding these treatments over a 24-month period from January 2020, when the virus gained global attention, to January 2022, the time this paper was submitted. Our analysis is contextually informed by an extended digital ethnography into medical misinformation, which has included social media monitoring and observational digital field work of social media sites, news media and digital media such as blogs, podcasts and newsletters.

Our analysis focuses on the role that public figures and influencers play in amplifying these conspiracies, as well as their amplification by some wellness influencers, referred to as "alt. health influencers" (Baker), and those affiliated with the intellectual dark web, many of whom occupy status in alternative media spaces. The Intellectual Dark Web (IDW) is a term used to describe an alternative influence network comprised of public intellectuals including the Canadian psychologist, Jordan Peterson, and the British political commentator, Douglas Murray. The term was coined by the American mathematician and podcast host, Eric Weinstein, who described the IDW as a group opposed to "the gated institutional narrative" of the mainstream media and the political establishment (Kelsey). As a consequence, many associated with the IDW use alternative media, including podcasts and newsletters, as an "eclectic conversational space" where those intellectual thinkers excluded from mainstream conversational spaces in media, politics and

academia can “have a much easier time talking amongst ourselves” (Kelsey). In his analysis of the IDW, Parks (2020) describes these figures as "organic" intellectuals who build identification with their audiences by branding themselves as "reasonable thinkers" and reinforcing dominant narratives of polarisation. Hence, while these influential figures are influencers in so far as they cultivate an online audience as a vocation in exchange for social, economic and political gain, they are distinct from earlier forms of micro-celebrity (Senft; Marwick) in that they do not merely achieve fame on social media among a niche community of followers, but appeal to those disillusioned with the mainstream media and politics. The IDW are contrasted not with mainstream celebrities, as is the case with earlier forms of micro-celebrity (Abidin *Internet Celebrity*), but with the mainstream media and politics. A public figure, on the other hand, is a “famous person” broadcast in the media. While celebrities are public figures, public figures are not necessarily celebrities; a public figure is ‘a person of great public interest or familiarity’, such as a government official, politician, entrepreneur, celebrity, or athlete.

Analysis

In what follows we explore the role of influencers and public figures in amplifying the hydroxychloroquine and ivermectin conspiracy theories during the pandemic. As part of this analysis, we consider how debunking processes can further amplify these conspiracies, raising important questions about how to most effectively respond to conspiracies in the current media ecology.

Discussions around hydroxychloroquine and ivermectin as potential treatments for COVID-19 emerged in early 2020 at the start of the pandemic when people were desperate for a cure, and safe and effective vaccines for the virus were not yet publicly available. While claims concerning the promising effects of both treatments emerged in the mainstream, the drugs remained experimental COVID treatments and had not yet received widespread acceptance among scientific and medical professionals. Much of the hype around these drugs as COVID “cures” emerged from preprints not yet subject to peer review and scientific studies based on unreliable data, which were retracted due to quality issues (Mehra et al.). Public figures, influencers and news media organisations played a key role in amplifying these narratives in the mainstream, thereby, extending the audience reach of these claims. However, their transformation into conspiracy objects followed different amplification processes for each drug.

Hydroxychloroquine, the "game changer"

Hydroxychloroquine gained public attention on 17 March 2020 when the US tech entrepreneur, Elon Musk, shared a Google Doc with his 40 million followers on Twitter proposing, "Maybe worth considering chloroquine for C19". Musk's tweet was liked over 50,200 times and received more than 13,500 retweets. The tweet was followed by several other tweets that day in which Musk shared a series of graphs and a paper alluding to the "potential benefit" of hydroxychloroquine in vitro and early clinical data. Although Musk is not a medical expert, he is a public figure with status and large online following, which contributed to the hype around hydroxychloroquine as a potential treatment for COVID-19.

Following Musk's comments, search interest in chloroquine soared and mainstream media outlets covered his apparent endorsement of the drug. On 19 March 2020, the Fox News programme, *Tucker Carlson Tonight,* cited a study declaring hydroxychloroquine to have a "100% cure rate against coronavirus" (Gautret et al.). Within hours another public figure, the former US President Donald Trump, announced at a White House Coronavirus Task Force briefing that the FDA would fast-track approval of hydroxychloroquine, a drug used to treat malaria and arthritis, which he said had, "tremendous promise based on the results and other tests". Despite the Chief Medical Advisor to the President, Dr Anthony Fauci, disputing claims concerning the efficacy of hydroxychloroquine as a potential therapy for coronavirus as "anecdotal evidence", Trump continued to endorse hydroxychloroquine describing the drug as a "game changer":

> HYDROXYCHLOROQUINE & AZITHROMYCIN, taken together, have a real chance to be one of the biggest game changers in the history of medicine,' and said that the drugs should be 'put in use IMMEDIATELY. PEOPLE ARE DYING, MOVE FAST, and GOD BLESS EVERYONE!

Trump's tweet was shared over 102,800 times and liked over 384,800 times. His statements correlated with a 2000% increase in prescriptions for the anti-malarial drugs hydroxychloroquine and chloroquine in the US between 15 to 21 March 2020, resulting in many lupus patients unable

to source the drug. There were also reports of overdoses as individuals sought to self-medicate with the drug to treat the virus.

Once Trump declared himself a proponent of hydroxychloroquine, scientific inquiry into the drug was eclipsed by an overtly partisan debate. An analysis by Media Matters found that *Fox News* had promoted the drug 109 times between 23 and 25 March 2020 with other right wing media outlets following suit. The drug was further amplified and politicised by conservative public figures including Trump's attorney Rudy Giuliani, who claimed on 27 March 2020 that "hydroxychloroquine has been shown to have a 100% effective rate in treating COVID-19", and Brazil's President, Jair Bolsonaro, who shared a Facebook post on 8 July 2020 admitting to taking the drug to treat the virus: "I'm one more person for whom this is working. So I trust hydroxychloroquine". In addition to these conservative political figures endorsing hydroxychloroquine, on 27 July 2020 the right-wing syndicated news outlet, Breitbart, livestreamed a video depicting America's Frontline Doctors–a group of physicians backed by the Tea Party Patriots, a conservative political organization supportive of Trump – at a press conference outside the US Supreme Court in Washington. In the video, Stella Immanuel, a primary care physician in Texas, said "You don't need masks…There is prevention and there is a cure!", explaining that Americans could resume their normal lives by preemptively taking hydroxychloroquine. The video was retweeted by public figures including President Trump and Trump's son, Donald Trump Jr, before going viral reaching over 20 million users on Facebook. The video explicitly framed hydroxychloroquine as an effective "cure" for COVID-19 suppressed by "fake doctors", thereby, transferring it from potential treatment to a conspiracy object. These examples not only demonstrate the role of prominent public figures in amplifying conspiratorial claims about hydroxychloroquine as an effective cure for COVID-19, they reveal how these figures converted the drug into an "article of faith" divorced from scientific evidence. Consequently, to believe in its efficacy as a cure for COVID-19 demonstrated support for Trump and ideological skepticism of the scientific and medical establishment.

Ivermectin, the "miracle cure"

Ivermectin followed a different amplification trajectory. The amplifying process was primarily led by influencers in alternative media spaces and those associated with the IDW, many of whom

position themselves in contrast to the mainstream media and politics. Despite scientists conducting clinical trials for ivermectin in early 2020, the ivermectin conspiracy peaked much later that year. On 8 December 2020, the pulmonary and ICU specialist, Dr. Pierre Kory, testified to the US Senate Committee about I-MASK: prevention and early outpatient treatment protocol for COVID-19. During the hearing, Kory claimed that "ivermectin is effectively a 'miracle drug' against COVID-19", which could end the pandemic. Kory's depiction of ivermectin as a panacea, and the subsequent media hype, elevated him as a public figure and led to an increase in public demand for ivermectin in early 2021. This resulted in supply issues and led some people to seek formulations of the drug designed for animals, which were in greater supply and easier to access. Several months later in June 2021, Kory's description of ivermectin as a "miracle cure" was amplified by a series of influencers, including Bret Weinstein and Joe Rogan, both of whom featured Kory on their podcasts as a key public figure in the fight against COVID

Conspiratorial associations with ivermectin were further amplified on 9 July 2021 when Bret Weinstein appeared on *Fox Nation's* Tucker Carlson Today claiming he had "been censored for raising concerns about the shots and the medical establishment's opposition to alternative treatments." The drug was embroiled in further controversy on 1 September 2021 when Joe Rogan shared an Instagram post explaining that he had taken ivermectin as one of many drugs to treat the virus. In the months that followed, Rogan featured several controversial scientists on his podcast who implied that ivermectin was an effective COVID "cure" suppressed as part of a global agenda to promote vaccine uptake. These public figures included Dr Robert Malone, an American physician who contributed to the development of mRNA technology, and Dr Peter McCullough, an American cardiologist with expertise in vaccines. As McCullough explained to Rogan in December 2021:

> …it seemed to me early on that there was an intentional very comprehensive suppression of early treatment in order to promote fear, suffering, isolation, hospitalisation and death and it seemed to be completely organised and intentional in order to create acceptance for and then promote mass vaccination.

McCullough went on to imply that the pandemic was planned and that vaccine manufacturers were engaged in a coordinated response to profit from mass vaccination. Consequently, whereas

conservative public figures, such as Trump and Bolsonaro, played a primary role in amplifying the hype around hydroxychloroquine as a COVID cure and embroiling it in a political and conspiratorial narrative of collusion, influencers, especially those associated with alternative media and the IDW, were crucial in amplifying the ivermectin conspiracy online by platforming controversial scientists who espoused the drug as a "miracle cure", which could allegedly end the pandemic but was being suppressed by the government and medical establishment.

Debunking

Debunking processes refuting the efficacy of these drugs as COVID "cures" contributed to the amplification of these conspiracies. In April 2020 the paper endorsing hydroxychloroquine that Trump tweeted about a week earlier was debunked. The debunking process of hydroxychloroquine involved a series of statements, papers, randomised clinical trials and retractions not only rejecting the efficacy of hydroxychloroquine, but suggesting it was unsafe and had the potential to cause harm (Boulware et al.; Mehra; Voss). In April 2020, the FDA released a statement cautioning against the use of hydroxychloroquine for COVID-19 outside of the hospital setting or a clinical trial due to risk of heart rhythm problems and in June the FDA revoked its emergency use authorisation to treat COVID-19 in certain hospitalised patients. The debunking process was not limited to fact based claims, it also involved satire and ridicule of those endorsing the drug as a treatment of COVID-19. Given the politicisation of the drug, much of this criticism was directed at Trump, as a key proponent of the drug, and Republicans in general, both of whom were cast as scientifically illiterate.

The debunking process of ivermectin was similarly initiated by scientific and medical authorities who questioned the efficacy of ivermectin as a COVID-19 treatment due to reliability issues with trials and the quality of evidence (Lawrence). In response to claims that supply issues led people to seek formulations of the drug designed for animals, in April 2021 the FDA released a statement cautioning people not to take ivermectin to prevent or treat COVID-19:

> While there are approved uses for ivermectin in people and animals, it is not approved for the prevention or treatment of COVID-19…People should never take animal drugs…Using these products in humans could cause serious harm.

The CDC echoed this warning claiming that 'veterinary formulations intended for use in large animals such as horses, sheep, and cattle can be highly concentrated and result in overdoses when used by humans'.

Many journalists and internet users involved in debunking ivermectin reduced the drug to horse paste. Social media feeds debunking ivermectin were filled with memes ridiculing those consuming "horse dewormer". Mockery of those endorsing ivermectin extended beyond social media, with the popular US sketch comedy show, *Saturday Night Live*, featuring a skit mocking Joe Rogan for consuming "horse medicine" to treat the virus. The skit circulated on social media in the following days further deriding advocates of the drug as a COVID cure as not only irresponsible, but stupid. This type of ridicule, visually expressed in videos and internet memes, fuelled polarisation. This polarisation was then weaponised by influencers associated with the IDW to sell ivermectin as a "miracle drug" suppressed by the medical and political establishment, thereby, embroiling the drug further in conspiracy (Baker and Maddox). This type of opportunistic marketing is not intended for a mass audience. Instead, audiences are taking advantage of what Crystal Abidin refers to as "silosociality" wherein content is tailored for specific subcommunities, which are not necessarily "accessible" or "legible" to outsiders (Abidin *Refracted Publics* 4). This dynamic both reflects and reinforces the audience segmentation that occurs in the current media ecology by virtue of alternative media with mockery and ridicule strengthening in and out group dynamics.

Conclusion

In this paper we have traced how hydroxychloroquine and ivermectin moved from promising potential COVID-19 treatments to objects tainted by conspiracy. Despite common associations of conspiracy theories with the fringe, both the hydroxychloroquine and ivermectin conspiracy theories emerged in the mainstream, amplified across mainstream social networks with the help of influencers and public figures whose claims were further amplified by the news media commenting on their apparent endorsement of these drugs as COVID cures. Whereas hydroxychloroquine was politicised as a result of controversial public figures and right-wing media outlets endorsing the drug and the conspiratorial narrative espoused by America's Frontline Doctors, notably much of

the conspiracy around ivermectin shifted to alternative media spaces amplified by influencers disillusioned with the mainstream media. We demonstrate how debunking processes, which sought to discredit these drugs as potential treatments for COVID-19, often ridiculed those who endorsed them, further polarising discussions involving these treatments and pushing advocates to the extreme. By encouraging proponents of these treatments to retreat to alternative media spaces, such as podcasts and newsletters, polarisation strengthened in-group dynamics assisting the ability for opportunistic influencers to weaponise these conspiracies for social, economic and political gain. These findings raise important questions about how to effectively counter conspiracies. When debunking not only refutes claims but ridicules advocates, debunking can have unintended consequences by strengthening in-group dynamics and fuelling the legitimacy of conspiratorial narratives.

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