

MISINFORMATION IN THE COVID-19 ERA

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ABSTRACT

Misinformation in the digital era has the potential to undermine the efforts of health authorities and professionals to keep the public informed. This is evident in the slew of misinformation around COVID-19 prevention, treatments and vaccines. Mis- and disinformation in the field of allergies is also prevalent. The consequences include harm to the public and increased healthcare costs.

Keywords: COVID-19, misinformation

INTRODUCTION

Early in the COVID-19 pandemic, the World Health Organization (WHO) recommended that the public should not wear cloth masks.^{1,2} Healthcare professionals challenged this advice, citing studies that masks could reduce viral transmission. On 30 July 2020 the Western Cape Department of Health issued an appeal to the public always to wear a mask when in public and healthcare spaces.³ Subsequently the National Government made mask-wearing when in public spaces compulsory:

The wearing of a face mask is mandatory for every person when in a public place, excluding a child under the age of six years, and any person who fails to comply with a verbal instruction by an enforcement officer to wear a face mask, commits an offence and is, on conviction, liable to a fine or a period of imprisonment not exceeding six months, or to both such fine and imprisonment.⁴

The WHO changed its guidance on mask-wearing during 2020, and currently states:

Make wearing a mask a normal part of being around other people. The appropriate use, storage and cleaning or disposal are essential to make masks as effective as possible.⁵

These changing guidelines are not examples of misinformation, but a reflection of our rapidly changing knowledge during a devastating global pandemic. However, the mixed messaging contributes to the spread of misinformation and fake news.

Recently, a study purporting to show that potentially dangerously high carbon dioxide levels are present in children wearing masks was retracted by the *Journal of the American Medical Association*, citing poor science.^{6,7} Again, this contributes to inconsistent advice to the public.

The COVID-19 pandemic has provided many examples of unproven therapies and misinformation, given its global impact, the impact on the healthcare system and healthcare workers,

and the numerous fatalities. Conflicting advice regarding mask-wearing was prevalent in Western countries; in the East, there is a longstanding tradition of wearing masks in public. The WHO website includes a host of 'mythbusters' – 5G mobile networks, bleach, disinfectant tunnels, ultraviolet radiation – to name but a few.⁵

The pandemic has also spawned two new terms, 'infodemic' and 'infodemiology'. The 'infodemic' is the flood of information on the COVID-19 pandemic; 'infodemiology' is the study of that information and how to manage it. The WHO has declared the 'infodemic' – 'an overabundance of information and rapid spread of misleading or fabricated news, images and videos' – as one of the greatest threats to global health.⁸

It is not surprising that unproven treatments would be used in desperate attempts to prevent or treat severe cases of the coronavirus disease. Early on in the pandemic, hydroxychloroquine was hailed as a miracle drug. Ex-president Donald Trump also touted its use, therefore affording it scientific credibility! The latest so-called 'miracle' drug, for which there is currently also no scientific evidence, is ivermectin. Contrast this with the excellent trial of dexamethasone in severe COVID-19 disease, which showed a reduction of approximately 25% in mortality in these patients.⁹ The concern, however, is that people with mild disease are using corticosteroids early on in the disease course.

INFORMATION AND TYPES OF FALSE INFORMATION

Froehlich calls the age of information 'the Age of the Anti-enlightenment'.¹⁰ He writes,

One of the consequences of the age of information is that the growth and advent of the internet, particularly in the growth of communication and social media, has not only promoted the growth of information and potential knowledge, but also the growth of ignorance in its various forms and guises: misinformation, disinformation, fake news, and attacks on

credible news sources Parallel to a right to information, we have created in practice a right to ignorance. Not only that: we, whether as individuals, groups or institutions like the government, have the legal right in the United States to disseminate ignorance and to block venues of facts and truth, and smugly claim to present 'alternative facts'.¹⁰

DEFINITIONS:¹⁰

- *Ignorance* is 'lacking knowledge or awareness, being uninformed about a specific subject or fact'.
- *Misinformation* is 'offering information that is incorrect or inaccurate'. It may be because of an error, negligence or unconscious bias, but there is no intention to deceive.
- *Disinformation* is 'supplying misinformation with the deliberate aim to mislead'.
- *Missing information* refers to the situation where information that should be known or provided to make decisions or comprehend facts is not included. This may be because of 'negligence, incompetence or the desire to mislead'.

HEALTH-RELATED MISINFORMATION ON SOCIAL MEDIA AND THE INTERNET

A recent systematic review of health misinformation assessed 69 studies covering the following six main areas:

- vaccines (32%)
- drugs or smoking (22%)
- non-communicable diseases (19%)
- pandemics (10%)
- eating disorders (9%)
- medical treatments (7%).

Health misinformation was most prevalent in studies related to smoking products and drugs such as opioids and marijuana, with social media posts containing misinformation reaching 87% in some of the studies. Misinformation about vaccines was also very common (43%), particularly concerning the human papilloma virus vaccine.¹¹ For their study, the authors defined 'health misinformation' as

a health-related claim that is based on anecdotal evidence, false, or misleading owing to the lack of existing scientific knowledge. This general definition would consider, on the one hand, information that is false but not created with the intention of causing harm (ie, misinformation) and, on the other, information that is false or based on reality but deliberately created to harm a particular person, social group, institution, or country (ie, disinformation and malinformation).¹¹

Currently, misinformation and disinformation relating to COVID-19 vaccines are prevalent on social media and the internet.

ALLERGY-RELATED MISINFORMATION AND DISINFORMATION

Members of the Allergy Society of South Africa (ALLSA) have played an important role in combating misinformation, particularly regarding unproven allergy tests and treatments. We have used the scientific literature and official position statements to try to protect the public from being exploited by

the proponents of these tests. The ALCAT test was discredited by rigorous scientific testing¹²⁻¹⁴ and a letter to the editor of the *South African Medical Journal*.¹⁵ A position statement regarding IgG4 testing for food intolerance is available on our website.¹⁶ However, despite the latter and significant literature negating the usefulness of these tests, companies continue to offer these tests that cost a few thousand rand and purport to identify foods to which the person is supposedly sensitive. The harms that may result from IgG4 testing are unnecessary elimination diets which may cause malnutrition and poor growth in children, increased anxiety regarding food choices, increased healthcare costs, and possible increased risk of IgE-mediated food allergy in young children due to false information regarding food avoidance.¹⁷

We recently became aware of a 'new' allergy test for food intolerance (<https://www.allergytests.co.za/allergy-intolerance-tests/>) that can be done on blood as well as on hair.¹⁸ The Allergy Foundation of South Africa (AFSA) reported the company to the Advertising Regulatory Board (ARB). The ARB agreed that the claims made by the advertiser are false, but they are unable to take any action as the advertiser is not a member and therefore not under their jurisdiction.¹⁹

Murdoch et al studied the websites of complementary and alternative medicine (CAM) practitioners in Canada for claims relating to the diagnosis and treatment of allergy and asthma.²⁰ Their data showed that a significant portion of CAM clinics advertised that they offered services relating to the diagnosis and/or the treatment of allergy and/or asthma. Naturopath clinic websites had the highest advertising rate for at least one of diagnosis, treatment or efficacy for allergy or sensitivity (85%) and asthma (64%), followed by acupuncturists (68% and 53%, respectively), homoeopaths (60% and 54%) and chiropractors (33% and 38%). According to the authors, 'these claims raise ethical issues, because evidence in support of many of the tests and treatments identified on the websites studied is lacking'.²⁰ For example, food-specific IgG testing was commonly advertised, even though the Canadian Society of Allergy and Clinical Immunology (CSACI) has advised against this test due to the absence of a body of research supporting it:²¹

Live blood analysis, vega/electrodiagnostic testing, intravenous vitamin C, probiotics, homeopathic allergy remedies and several other tests and treatments offered all lack substantial scientific evidence of efficacy. Some of the proposed treatments are so absurd that they lack even the most basic scientific plausibility, such as ionic foot bath detoxification.

In addition, some of the treatments, such as intravenous hydrogen peroxide and spinal manipulation, are potentially dangerous.²⁰

O'Connor and Murphy reviewed online misinformation and conspiracy theories regarding atopic dermatitis (AD).²² They identified numerous areas of misinformation, including dietary manipulation to cure AD (eg, raw food and vegan diets and avoidance of various foods such as eggs and dairy), without any evidence, and the causation of AD being attributed to chemicals, vaccines and steroid-containing topical treatments. 'Natural'

remedies touted for AD include apple cider vinegar, calendula and witch hazel, as well as Chinese herbal ointments used by steroid-phobic parents that have been found to contain high concentrations of corticosteroids.²²

PUBLIC HEALTH AND MISINFORMATION

Suarez-Lledo and Alvarez-Galvez write that

at present, the propagation of health misinformation through social media has become a major public health concern. The lack of control over health information on social media is used as evidence for the current demand to regulate the quality and public availability of online information. In fact, although today there is broad agreement among health professionals and policy makers on the need to control health misinformation, there is still little evidence about the effects that the dissemination of false or misleading health messages through social media could have on public health in the near future.¹¹

The consequences of mis- and disinformation can be dire for health systems, both in the sense of morbidity and mortality and in the cost to the healthcare system. As an example, the measles outbreak in the United States in 2019 was largely a consequence of low vaccination rates influenced by misinformation about a link between the measles, mumps and rubella (MMR) vaccine and autism.²³ The authors point out that although the anti-vaccine community is small in numbers, they have a strong online presence and a disproportionately great influence. They also explain that the anti-vaccine websites use 'scientific evidence' and personal testimonies to strengthen the view that vaccines are dangerous. In addition, bots – 'automated social media accounts that use artificial intelligence to mimic the appearance and manner of a human user to promote specific narratives – are being used to amplify anti-vaccine views'.²³

USING RESEARCH TO INFORM POLICY AND PRACTICE

Chou et al outline five areas of research priorities for health misinformation on social media:²⁴

- Enhance surveillance, especially across lesser-known social media platforms.
- Understand psychological drivers (emotions such as fear and anxiety; cognitive bias).
- Assess real-world consequences (health behaviours, attitudes, provider–patient relationships, decision-making).
- Focus on vulnerable populations.
- Develop effective responses (standards for determining when and how best to respond; innovative approaches to penetrating silos; health/science/media literacy initiatives; and policy measures).

They believe that this research should

inform and improve policy and practice aimed at addressing health misinformation on social media, such as content moderation standards used by platforms and rumour mitigation efforts undertaken by public health agencies.

Once these policies and interventions are in place, their impact will need to be assessed.²⁴

ROLE OF AUTHORITIES IN COMBATING MISINFORMATION AND FAKE NEWS

Professionals and institutions have an important role to play in providing reliable information to the public.¹⁰ How do we determine which approaches to employ to counteract health misinformation 'without reducing the inherent communicative potential to propagate health information with these same tools'?¹¹

Chou et al write:

Additionally, targeted approaches for reaching misinformed individuals with corrective information are needed. Public health practitioners and health care providers could attempt to identify and penetrate online information silos where misinformation is rampant to offer evidence-based information, direct users to credible sources, or provide counter-messaging. Finally, system-level preventive efforts are also needed, such as legislation requiring social media platforms to remove potentially harmful misinformation or incentives to increase their adoption of practices that make it more difficult for users to find and share misinformation. Increasing the public's health, science, and media literacy to decrease vulnerability to misinformation is another important prevention strategy. Such efforts could raise awareness of the techniques (eg, cherry-picking data) used by agents of misinformation and increase the public's understanding of the inherent uncertainty and complexity of health and science information to induce a healthy scepticism toward claims that are overly simplistic or sensational.²⁴

One strategy would be to increase the scope of advertising regulations and enforcement, and to explore the potential of applying evidence-based standards and restricting practitioners' ability to offer unproven tests and treatments. In addition, since allergy and asthma disproportionately affect younger generations, policymakers should consider strategies that consider parents and guardians who may forego the public healthcare system in favour of using questionable CAM providers, potentially exposing minor children to harm.²⁰

CONCLUSION

Misinformation and disinformation are prevalent in the COVID-19 era, and are easily spread by social media. The advocacy roles played by ALLSA and AFSA, other advocacy groups and individuals are vital in providing credible information to the public regarding allergy, asthma and primary immunodeficiency. However, we also need legislation and policy development to protect the South African public from harm and economic exploitation. It really makes no sense to have a structure such as the ARB which has jurisdiction only over its members. This is a possible area for future development and expansion for the ALLSA Executive Committee and the Allergy Foundation of South Africa.

DECLARATION OF CONFLICT OF INTEREST

The author declares no conflict of interest.

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