World Health Organisation

The question of combating the spread of medical misinformation and disinformation



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Introduction

Following the rise of the digital age, information has never been easier to access. With so many facts at the population's fingertips, especially now with the rise of artificial intelligence and social media, it has become increasingly difficult to differentiate between correct and false information. Misinformation, and especially disinformation, can lead individuals to misconception, and this misconception of data spreads like wildfire. The dissemination of information of any kind has these risks, however the risk to public health and safety is unmatched when it comes to medical misinformation and disinformation. If medical misconceptions become widespread, it can lead people to make incorrect or unhealthy medical decisions, influencing those around them along with those in their online space as well.

In the context of worldwide medical events, such as the COVID-19 pandemic, the interpretation of medical misinformation is exacerbated by the high emotional stress on the population, and misconceptions easily turn deadly in an environment wrought with fear. In times such as these, it is essential for critical medical information to get out to the public, but if it simply gets lost in a sea of misinformation, such important knowledge can be obscured.

In order to avoid this, there are a few actions that can be taken. One would be to implement measures to increase the media literacy of the population, so that the individuals themselves can make more valid interpretations from the data. Another would be to implement fact checking on videos that may be spreading health misinformation. A third action would be to make reliable and accurate sources on health be at the forefront by increasing the visibility of valid sources on health related search queries and increasing awareness on how to find said reliable sources, so that individuals looking for information come across the most correct and up-to-date information.

Definition of Key Terms

Misinformation

Misinformation is defined as false or inaccurate information. It is information generally disseminated without any manipulative or malicious intent, but the facts are incorrect.

Disinformation

According to UNESCO's 2018 handbook of journalism and disinformation, disinformation is "a deliberate, intentional lie, and points to people being actively disinformed by malicious actors". What this essentially means is that disinformation, similarly to misinformation, is incorrect information, however the disseminator has knowledge about the facts being false, and is intentionally manipulating these in order to deceive/misinform the receiver.

Fact check

A fact check is the act of verifying that the information spread in a piece of content or media is accurate/correct. This often involves verifying data that has already been published, such as on social media or the news.

Media literacy

According to the National Association for Media Literacy Education (NAMLE), media literacy is the ability to access, analyze, evaluate, create, and act using all forms of communication. It is derived from the word literacy, which refers to one's ability to read, write and understand words and phrases, and is applied to the context of media. It measures one's ability to use their critical thinking to create and understand/parse content.

Infodemic

An infodemic (stemming from the words information and epidemic) is an excessive amount of information about a problem that is typically unreliable, spreads rapidly, and makes a solution more difficult to achieve. The term was coined in 2003 in the context of the 2002-2004 SARS outbreak.

Gell-Mann amnesia effect

The Gell-Mann amnesia effect, coined by novelist Micheal Crichton in 2002, refers to a cognitive bias in which one may more critically assess media of which they have a greater level of

knowledge on, but continue to trust the reporting in other areas of which they are less informed. He states in a speech to the International Leadership Forum that “in ordinary life if somebody consistently exaggerates or lies to you, you soon discount everything they say” however examines that this does not seem to apply in the context of media.

Confirmation bias

A type of cognitive bias which refers to the tendency to search for, interpret, favor and recall information in a way that confirms or supports one's prior beliefs or values.

Echo chamber

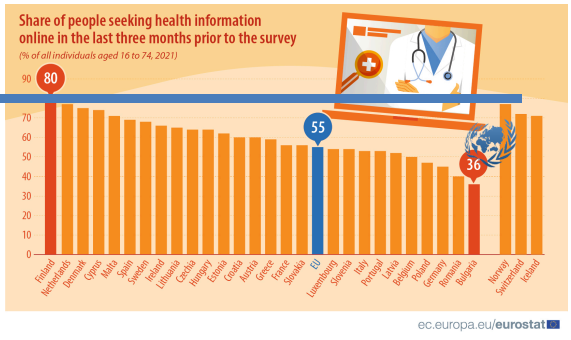
An environment in which a person only encounters information that confirms/reinforces their own pre-made beliefs, and alternative beliefs are not taken into account.

General Overview

The dangers of medical misinformation lie in the sensitive subject matter portrayed in the content shared. Often when it comes to health and illness, emotions run high, and not only does this mean that people who share medical disinformation can take advantage of that fact to manipulate information, it means that people are less likely to use their critical thinking to properly consider the reliability and accuracy of the information. This lack of consideration also means that the false/misleading data can spread faster and undermine genuinely critical and correct information. According to a report on medical misinformation by the American Psychological Association, people are more likely to share misinformation when it aligns with personal identity or social norms, when it is novel, and when it elicits strong emotions.

Algorithms and their role in cognitive bias

Cognitive bias is a natural human tendency, and thus cannot be avoided. It is in human nature for one to deviate from rational judgment , and so people cannot be expected to view everything objectively all the time. However, with the entry into the digital age, the flood of information, biased or not, all specifically curated for each specific user, can greatly aid in obscuring rational judgment even more than usual.



In a 2022 survey conducted by the European Union, it was revealed that on average 55% percent of people in the EU had sought out medical information online in the last three months, with Finland peaking at a share of 80% of people having looked medical information up online in said time period. Furthermore, according to a 2019 study, it is estimated that some 90% of Americans use social media sources for health information, including searches related to serious conditions, general information searches, and searches for minor health problems. Social media and general browser algorithms use previous user data and searches to curate specific posts and results targeted to the user (including targeted advertisements). A study from 2020 examining how algorithms contributed to health misinformation used Amazon's recommendation of vaccine books as a case study. The study found that the number of vaccine-hesitant books outnumbered vaccine-supportive books two to one, and that books sharing similar views of vaccines were recommended together. This means that, when a user views a vaccine-hesitant book, many other vaccine-hesitant books are further recommended for the user. Finally, the three most frequently recommended books were vaccine-hesitant ones. It is important to note the potential consequences of blindly applying commercial algorithms used on such websites under such crucial and often wrongly disputed medical topics such as vaccines.

Confirmation bias already acts in favour of these sorts of algorithms, as constantly seeing content catered to you can often mean that there is a lack of alternative. This can be especially dangerous for people in more extremist online spaces, where the information displayed to them may often be falsified, or largely exaggerated. A hazardous pipeline in these sorts of user-centric algorithms is the formation of echo chambers, where all the content displayed to a user aligns with their own interests, with little to no alternative views. The implications of these types of algorithms on users who search for medical information are that people may only come across information that already aligns with their pre-existing beliefs, therefore obscuring access to factual medical information that doesn't happen to align with the user's views. This situation is prominent in conspiracy theorist spaces, and with vaccine hesitant communities. These echo chambers, as they are called, are prominent issues in the discussion of misinformation, and must be avoided at all costs.

The case of COVID-19

The COVID-19 pandemic, officially beginning in March of 2020, sparked a dangerous surge of medical misinformation and health disinformation, labelled by WHO as an "infodemic". Such false information was spread on social platforms not only by the public but also by influential and powerful people such as government figures. For example, the U.S. President Donald Trump publicly suggested

injecting disinfectant as a possible treatment in April 2020, a statement widely condemned by medical experts. In Brazil, President Jair Bolsonaro consistently downplayed the virus and promoted the use of unproven treatments like hydroxychloroquine, likewise ignoring guidance from health experts. These high-profile cases fueled global distrust, delayed vaccine rollouts, and undermined public compliance with safety measures. The increased use of the internet during the prolonged period of isolation also led to the increased spreading of disinformation and misinformation online. For example, conspiracy theories claiming that Bill Gates was using vaccines to microchip the population spread rapidly online, especially through platforms like Facebook. Although sounding outlandish, a YouGov poll in May 2020 showed that around 28% of Americans believed the microchip theory was “plausible”. Despite having zero scientific basis, it fed into wider vaccine hesitancy and anti-tech sentiment, especially in countries already distrustful of government or pharmaceutical companies.

Other notable cases of the effects of misinformation and disinformation

A famous case of medical disinformation includes the 1998 study published in the Lancet by Andrew Wakefield and some of his associates claiming that the MMR (measles mumps and rubella) vaccine causes autism and behaviour regression in children. The study was soon retracted due to there being insufficient data to suggest any link between the two. It was also revealed that Wakefield and his colleagues had failed to disclose their financial interests in the study, including that they had been funded by lawyers who had been engaged by parents in lawsuits against vaccine-producing companies. Furthermore, the study had neglected various ethical practices, going against any guidelines that were set in place for that matter. By the end, it was revealed that the study was a complete fraud, with the group picking data that would align closer with their conclusion, and falsified facts. Despite the various controversies behind the study and the many attempts to assure the public that the study was false, it was enough for people to create misconceptions about the safety of the MMR vaccine, leading to parents not vaccinating their children. It is believed that various measles outbreaks, including the 2008 outbreaks in the United Kingdom, can be attributed to the non-vaccination of children following this falsified study.

This case clearly displays the fatality of disinformation, especially medical and in such sensitive areas in which the public may already have some level of ignorance or unrest over. It is important to educate the public so that they do not fall victim to such manipulation of data and are

able to infer from the study whether it is reliable or not. It is also up to the publishers of studies to verify the validity of the text, and this is where peer review plays a vital role.

Major Parties Involved

This issue applies to all parties, as it is a global problem. However, there are a few groups working to mitigate the effects, and there are also some countries which have greater influence and have had experiences with medical disinformation and misinformation in the past. It is important to use these experiences as case studies on how to solve the issue in the future.

WHO (World Health Organisation)

The World Health Organisation commonly acts as the primary international health body. Because of this, the role has fallen to it to coordinate many responses to the threat of health misinformation, some including the “Infodemic Management” programme which aims to educate and prevent the spread of medical disinformation.

UNESCO (United Nations Educational, Scientific and Cultural Organisation)

UNESCO has an often overlooked role in this matter as its contributions against misinformation are not merely restricted to the subject of health. It promotes media literacy as a solution to the problem, and works with governments and tech platforms to implement ethical frameworks for Artificial Intelligence and digital regulation, which plays a part in the spreading of misinformation through social media algorithms. It has also launched many campaigns against misinformation in the past, notably the “#ThinkBeforeSharing" campaign in the COVID-19 pandemic to raise awareness about the dangers of misinformation.

United States

The United States plays a major global role in the issue of medical misinformation, due to its widespread influence, control and recent politicisation of medical information. The US is home to some of the most influential medical groups, such as the Centre for Disease Control (CDC) and the Food and Drug Administration (FDA), which help shape global health policies. It is also the base of many of the world’s largest social media platforms, including YouTube and X (formerly Twitter). The decisions made about data management and algorithm design on these sites paves the way for how

misinformation is regulated. Furthermore, due to its sway in international media, the politicisation of medicine presented in American media and influencers is often mirrored in other countries. For example, during the COVID-19 pandemic, American political leaders and media outlets framed health recommendations as either science-based safety or government overreach, depending on their ideology. The divide in information often led to safety measures being avoided and a lower vaccination rate, leading to more deaths, which due to the country's immense media outreach, spread to other countries.

Brazil

Brazil has been both a spreader and a victim of medical misinformation, especially during the COVID-19 pandemic. Under the former president, Jair Bolsonaro, the government repeatedly downplayed the severity of the virus, questioned vaccine safety, and promoted unproven treatments such as hydroxychloroquine and ivermectin, despite there being scientific evidence going against their effectiveness. These statements, often made in public speeches and on social media, directly contradicted guidance from Brazil's own Ministry of Health and WHO, causing public confusion and division. Bolsonaro also discouraged mask use and lockdowns, labelling them as threats to personal freedom and the economy. As a result, Brazil experienced widespread public unrest, increased vaccine hesitancy, resulting in one of the highest COVID-19 death tolls globally. Brazil's experience highlights how government-led disinformation can undermine public health efforts and exacerbate polarisation.

Timeline of Key Events

The issue of misinformation, especially in medicine, has no set time frame, however with the recent "infodemic" and the COVID-19 pandemic there are a few specific events that may prove useful in understanding the scope and details of the issue.

Date	Description of event
February 28th 1998	A false study is published in the Lancet by Andrew Wakefield and his colleagues claiming that the MMR vaccine causes autism in children, leading to the basis of the anti vax movement with many rejecting the MMR vaccine out of fear.
April 2009	The H1N1 Swine Flu was declared a pandemic by WHO. Misinformation about vaccine dangers and conspiracy theories about the virus's origin spread on social media.
March 11th, 2020	WHO declares COVID-19 a pandemic. Rapid misinformation begins circulating globally about the virus, its origin, and prevention.
August 2021	Major social media platforms Youtube, Facebook and Twitter (now X) update their policies to remove COVID-19 misinformation, including posts promoting false claims about vaccines.
February 22nd 2022	WHO launched its first Infodemic Management course, aiming to provide an introductory course to managing the effects of the infodemic, its effects on public health and how to mitigate them.

UN involvement, Relevant Resolutions, Treaties and Events

- "Countering disinformation for the promotion and protection of human rights", December 2021, A/C.3/76/L.7/Rev.1
- Dissemination of information during public health crises (UN Committee on Information), May 2021, A/AC.198/2021/L.3
- Ensuring access to accurate scientific information amid COVID-19, May 2022, A/AC.198/2022/L.3
- Promoting global information integrity and combating disinformation, May 2023, A/AC.198/2023/L.4
- Addressing misinformation risks posed by AI and digital platforms, May 2024, /AC.198/2024/L.4

Previous Attempts to solve the Issue

There have been various previous attempts to solve the issue, some of which have had significant effect. However it is important to note that it is impossible to fully solve this issue, as most misinformation issues stem from the decisions of the individual on how to interpret and interact with the information, e.g. whether to spread it or not.

Public health campaigns organised by governments and health organisations have been successful in educating the public and spreading accurate medical information. For example, campaigns promoting vaccination safety (like those for polio and measles) have been vital in improving public trust and immunization rates. Some examples of this include the CDC's "Vaccines Work" campaign in the US and the "Know Your Facts" campaign run by the National Health Service (NHS) in the UK.

Another effective method that has been used has been putting in place fact-checking organisations and initiatives to determine the validity of shared medical information. Starting around

the 2010s, various fact-checking organisations (e.g. FactCheck.org) and health bodies like the WHO with its 2020 “Mythbusters” campaign actively debunk false claims during health crises. These initiatives use websites and social media to counter false narratives quickly.

From around 2018 onwards, social media giants like Facebook, Twitter, and YouTube have introduced policies to flag, limit, or remove misinformation related to health topics. This has particularly been implemented during the COVID-19 pandemic, as mentioned in the timeline, where they updated their policies to disallow the posting of content which spreads misinformation about the pandemic and vaccine claims. They also partnered with health authorities to promote verified information. One case of monitoring the spread of medical misinformation on social platforms was Twitter’s community notes. Implemented in 2021 under the name Birdwatch, contributors could add context such as fact-checks under a post, image or video. It is a sort of community-driven content moderation program, intended to provide helpful and informative context. Notes are applied to potentially misleading content by a bridging-based algorithm not based on majority rule, but instead agreement from users on different sides of the political spectrum as a method of countering propaganda and misinformation on the platform. This was especially useful in the context of the COVID-19 pandemic, and as of November 2023, it had approximately 133,000 contributors. However, according to various studies, the system is quite flawed, with most users not seeing notes correcting content, and actually aiding in the spread of disinformation since it is very susceptible to manipulation. As it is a community backed system, a coordinated attempt by multiple users to add a false or misleading note can often be successful. The way the system works also ends up being a challenge as a note only passes if enough users from different political sides vote for it, with the goal of reaching a perfectly neutral context. However, the divide between opinions can lead to correct notes being obscured, or no notes being added to misleading posts at all due to either side not agreeing with each other.

Some countries have proposed or enacted legislation targeting the spread of medical misinformation. For example, Singapore’s Protection from Online Falsehoods and Manipulation Act (POFMA) allows authorities to order corrections or removal of false information online, including health-related falsehoods. It is important to consider the balance between monitoring falsehoods and censorship, and make sure that such legislation is not used to negative effect. Often such legislation which seeks to monitor and dispose of content that is deemed misinformation is a very slippery slope, which must be monitored with the utmost care to avoid impeding freedom of expression. After all, any corrupt body overseeing said legislation may have a conflict of interest when it comes to the

truth, and if given the power to deem content as misinformation, could lead to the concealing of said corrupt activity and make it even harder for whistleblowers to cast light on the situation.

Some groups have also enacted courses in order to help users combat the spread of misinformation, as well as promoting media literacy. The WHO's Infodemic Management training courses launched in 2022 are designed to train health professionals worldwide on managing misinformation through evidence-based communication and rapid response strategies. Today, the course has been taken by 22,000 individuals worldwide. Various countries, namely Finland, France and the Netherlands have also integrated media literacy into their school curriculums. Finland has a strong focus on media literacy education, with initiatives dating back to the 1950s and a national policy established in 2014.

Possible Solutions

The main ways to solve the issue of medical misinformation and disinformation are to focus on the individual. By promoting media literacy, creating public health campaigns to give reliable information, and limiting visibility of false or misleading data, each person can be equipped with the tools and knowledge to counter the spread of misinformation and to know not to believe it.

As previously mentioned, a few countries have already implemented media literacy into their curriculum, however with the increased capabilities of Artificial Intelligence and the recent infodemic, it is important that more countries do so in order to teach young people from the start on how to interpret data. The increased use of AI means that more content can be fabricated, which can be incredibly dangerous in the context of health-related media. Countries must have measures to inform the public on how to watch out for such content and not aid in spreading it.

Twitter's idea for a community driven fact-check feature is a step in the right direction, however such systems need to be more robust, with impartial moderation. It could be wise in order to have larger health and fact-checking organisations monitor the notes submitted by the community under medical content and make sure there is no manipulation or further disinformation. If this would be successful it could be a very helpful tool in helping users pick out the truth from the piles of potentially false medical information present on such platforms.

Another way to help users to pick out false information would be through educating them on correct and up-to-date information on health matters, from reliable sources. By increasing the outreach and presence of reliable medical sources such as global health organisations, and making sure more of the public has a sense of awareness on such matters, it will be easier for individuals to distinguish false content from the truth. This is a way of using the Gell-Mann amnesia effect in order to aid in mitigating the issue. By having the general public be, as a whole, more informed, they will be more likely to pick out untruths in pieces of information, and therefore be more likely to mistrust sources which have spread information they personally know to be false in the past, decreasing their susceptibility to misinformation in the future.

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