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Strategic Research Group

# Fake News Infodemic


## What Are the Key Sources of Misinformation Related to COVID-19?

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## About Nebula Research

Nebula Research is a Community Interest Company formed to provide high-quality research to improve outcomes for all. As a Community Interest Company, any funds received are utilised to improve the business and provide a wider array of services – especially to the public sector, charity sector, and voluntary sector organisations.

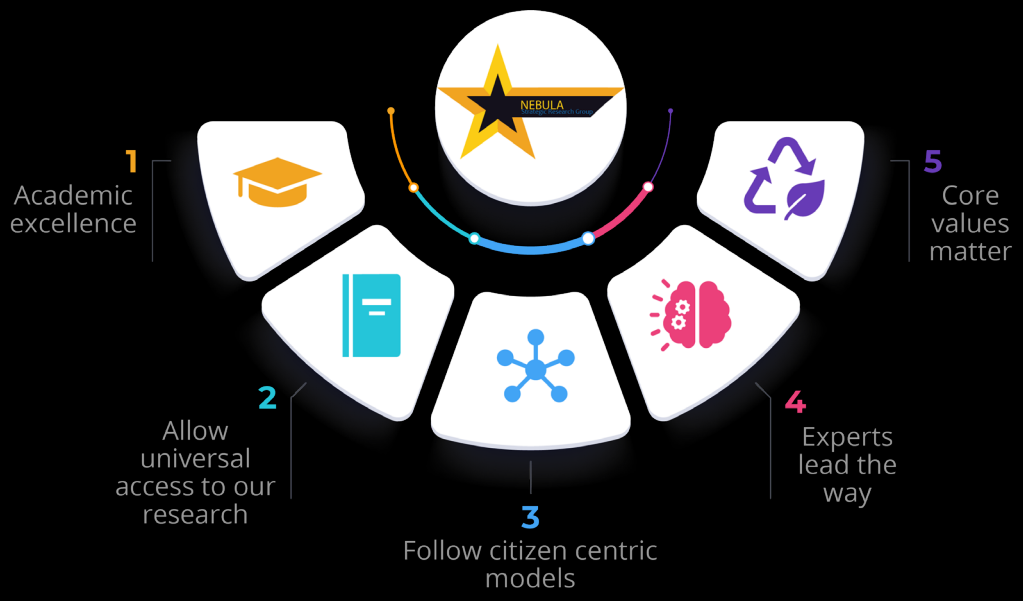
Our mission is to enhance the opportunities available to the public sector and to ensure the best citizen outcomes through research and the application of academic theory in practice.

We seek to develop high-quality research by fostering ideas into realisation to increase the total sum of knowledge for all.

Nebula Research has a simple vision – to be pioneers in research practice. By incorporating real-world practice into our research, we will continue to lead organisations and individuals towards discoveries that enable real change to be implemented for the overall good of citizens right across the globe.

We have five core values which are applied to everything we do:

1. To be academically excellent.
2. To ensure research is published as widely as possible and is easily accessible.
3. To ensure that, where required, all research follows citizen-centric models.
4. To ensure all research is led by only the most suitable expert in the field.
5. To only work with organisations which share our values.



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# About the Authors

## Lead Author – Toby Flannigan BSc

Toby Flannigan is a researcher at Nebula Research who specialises in the public sector. With several years of experience in UK healthcare, especially the NHS, and a wider set of skills regarding the whole UK public sector, Toby conducts market research and data analysis for multiple programmes.

Toby graduated with a degree in Marketing Communications & Advertising and has since transitioned his career into the wider Strategic Consulting domain. Toby has led a number of University Research Group programmes.

## Co-Author – Professor Sanjeev Gupta BSc, MBA, DBA, CITP

Sanjeev Gupta is a Professor of Healthcare Informatics and Technology at Apsley Business School and a part-time lecturer at Kingston Business School. He is also the owner of Nebula Research CIC and Strategic Discourse Ltd.

Sanjeev is a public sector specialist and regularly teaches a number of disciplines linked to public sector service delivery. He is a champion for ensuring services place the citizen at the heart of any delivery model and works to ensure new research is developed which benefits citizens globally.



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## Research Summary

Towards the end of 2019, the SARS-CoV-2 virus (more commonly known as COVID-19) began to spread throughout the population of Wuhan, China and soon after the entire world. The global pandemic caused huge disruption to healthcare services, travel, infrastructure, and economies.

The pandemic was always going to cause substantial disruption, but this was accentuated by widespread misinformation. An "infodemic" is a term used to describe the "out of control" spread of misinformation often referred to as "fake news" or "conspiracy theories".

The misinformation during the pandemic led to disorder, disruption and sometimes even death.

This paper covers some of the main areas of misinformation documented in the existing literature. Specifically, the areas addressed are:

- Herbal Remedies
- Mistrust in Government Interventions
- 5G
- Social Media

Herbal remedies are often seen as an alternative to modern medicine, particularly in Asia and in the early stages of the pandemic. Numerous healthcare workers and a large proportion of the wider population were of the belief that they were useful in fighting COVID-19.

Mistrust in government interventions was more apparent in countries where there was greater animosity and distrust towards politicians. This mistrust caused greater disorder and disruption than in more harmoniously run countries.

The idea that 5G cellular towers caused the spread of COVID-19 amongst populations was debunked swiftly, but not before excessive damage had been done to infrastructure. Some celebrities compounded the issue by publicising their support for the destruction and the overall conspiracy theory. Despite this, therefore, causing broader media coverage, the overall believability amongst the population in this theory was low.

Social media was a hugely influential source of misinformation and acted as a platform for misinformation to spread exponentially. In fact, the majority of misinformation engaged with in relation to COVID-19 was on social networking sites and instant messaging platforms. Official sources of information did use social media as a platform to send out vital communication, and this was engaged with more widely than in the past.

However, the extent to which "fake news" was disseminated on social media was far greater, and there was little regulation to prevent this from occurring. Complex algorithms only compounded the issue by promoting misinformation, considering it to be popular and desired based on engagement and interaction rates.

Future research should establish the factors associated with these drivers (for example, age, gender, ethnicity, education, religious beliefs, industry etc.) and explore ways to nullify their influence.



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## Introduction

Towards the end of 2019, the SARS-CoV-2 virus began to spread throughout the population of Wuhan, China and soon after the entire world. The global pandemic has caused huge disruption to healthcare services, global travel, infrastructure, and worldwide economies. All countries introduced varying measures to tackle the spread of the virus amongst their population, with some approaches proving to be more effective than others. The most pertinent step so far in reducing the ongoing impact and disruption of the virus was the rollout of vaccination programmes worldwide.

While a major breakthrough in the fight against COVID-19, there has been a substantial amount of misinformation regarding various vaccines and their rollouts. That said, the misinformation is not exclusively reserved for the vaccines available. In fact, there have been numerous examples of misinformation regarding COVID-19, which have spread throughout communities causing disorder, disturbance and sometimes death.

What has been referred to by many as an "Infodemic", the main areas of misinformation documented in literature will be highlighted in this paper.

## Herbal Remedies

As the number of hospitalisations due to COVID-19 grew rapidly, panic spread throughout communities as to the severity of the virus. Originating in East Asia, where herbal remedies play a greater role in medicinal healing than in Western cultures, a lack of scientific understanding regarding the virus left a void in which misinformation regarding herbal remedies could fester.

In 2020, Yang commented that there is no evidence to suggest a positive correlation exists between the use of herbal remedies and one's ability to tackle the COVID-19 virus. Despite this, many believe that herbal remedies play a key role. In a survey of healthcare workers and non-healthcare workers in Saudi Arabia, 51% of participants stated that they strongly agreed or agreed with the misinformation that garlic and onions are better than other natural products to protect from COVID-19 infection (Alotiby and Al-Harbi, 2021). Rather worryingly, more than 41% of healthcare workers who responded to the survey also agreed with both this piece of misinformation, while only 20.8% of surveyed healthcare workers indicated that they disagreed or strongly disagreed (Alotiby and Al-Harbi, 2021).

In Indonesia, driven by the claim that some herbal drugs or remedies can effectively treat COVID-19, some patients with flu symptoms who fear quarantine measures are likely to self-medicate with herbal remedies and avoid going to the hospital (Makrufardi, Saputri and Phillabertha, 2021), thus delaying the proper diagnosis and treatment of the disease, and hampering the government's testing, tracing, and quarantining efforts.

Misinformation regarding the use of herbal remedies to tackle COVID-19 has been a contributing factor in the ability of the virus to spread easily throughout populations. Not only that, but it has led to issues regarding vaccine uptake.



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## Mistrust in Government Interventions

Italy is the best example of mistrust in Government-led interventions. As stated by Kata (2012), there has been an increase in anti-science movements that have questioned the value of experts and scientists – something that the government has been keen to nullify.

As a result of socio-cultural transformational changes, Italians have been able to engage with scientific literature more easily in recent years. Furthermore, through recent technological transformations, two-way communicative engagements around scientific information are now more common.

'This change has fostered a demand for non-expert participation in health intervention processes and a less passive attitude towards the professionals' authority. In this respect, the relationship between science and the public has profoundly changed, impacting the credibility of public health institutions (Lovari, 2020).

The shift in communication touchpoints has enhanced this process, challenging the role of governments and institutions. Two-way communication through an increased number of social platforms has enabled different people to make their voices heard by medical experts and health institutions on social media (Lovari, 2017). In the context of the COVID-19 pandemic, Italy suffers from a general lack of trust in public institutions, particularly when it comes to scientific interventions such as vaccine rollouts. In a recent poll, it was found that Italy was one of six countries to register an extreme decline in trust, with an overall decrease of 21 points in one year, and with government and media being the least trusted institutions (Edelman, 2018).

A lack of trust in government lead interventions during the first wave of the pandemic in Italy caused chaos. Uncertainty, distrust and fears were heightened by several Italian physicians who publicly started talking about the virus on their social media profiles or were featured by the mainstream media in their press releases. Such press releases, that by their very design, were simple to access and easy to engage with by a population of non-experts. With high levels of distrust in politicians and uncertainty regarding the virus, the opinions of these physicians gained greater notoriety. The infodemic of fake news and conspiracy theories, therefore, became widely accepted.

The Italian Government had to tackle this and did so through their Facebook platforms, increasing the use of this platform for communication. The Italian Ministry of Health saw the number of likes on their page rise from 61,196 on 30th January to 409,145 on April 3rd, showing the need felt by users to find a reliable source of information. In those two months, the page published 301 posts, 94% of which were about COVID-19 (Lovari, 2020). This approach proved to be successful despite mistrust in government agencies and their interventions. A key reason for this was limiting the presence of politicians (8.9%) (Lovari, 2020).

Other studies concur with the idea that the dissemination of misinformation is far more prevalent in countries where there is mistrust in government agencies and that greater trust in government agencies lead to higher levels of compliance at the start of the pandemic (Lau *et al.*, 2020; Bargain and

Aminjonov, 2020; Devine *et al.*, 2020; Freeman *et al.*, 2020; Goldstein and Wiedemann, 2021; Schmelz, 2021).

## 5G

The conspiracy theory that the Coronavirus pandemic was caused by the introduction of 5G cellular towers grew in popularity when a few celebrities, with an extensive reach, shared their support of this idea (Cockerell, 2020). In a time of mass panic, conspiracy theories like these can often gain widespread support despite seemingly defying all logic.

In line with the prolific misinformation regarding COVID-19, it has been suggested that conspiratorial thinking is far likelier to emerge during times of societal crisis (Prooijen and Douglas, 2017). In a study of COVID-19 conspiracy theories, nearly 85% of individuals believed that at least one COVID-19 conspiracy theory was either "probably" or "definitely" true' (Miller, 2020), confirming the notion that in times of social crisis, conspiracy theories increase in prevalence.

The misinformation regarding 5G caused over 70 towers to be burnt in Canada and Europe – predominantly the United Kingdom. (Reichert, 2020) However, despite seemingly gaining traction as an explanation for the spread of the virus in the eyes of many conspiracists, the actual overall believability of this theory was low. In a study of 660 individuals in the United States who were asked about the believability of five selected COVID-19 narratives, the 5G narrative scored lowest overall on the believability scale. (Agley and Xiao, 2021)

While a key source of misinformation regarding COVID-19, this narrative had a far lower believability than what would be expected to warrant the worldwide media coverage it received. Celebrity involvement was a significant factor in this regard, but the main factor involved in this theory gaining widespread notoriety was the prevalence of social media and its use to disseminate the misinformation quickly and at no cost to a large audience during the pandemic.

## Social Media

Social media platforms have been extremely advantageous during the COVID-19 pandemic. Despite being isolated, social media provides a means for people to interact with one another. Not only that, but due to the sheer volume of social media consumed by individuals each day, Governments and other key bodies have been able to communicate with large audiences simultaneously.

However, while social media has been extremely useful in many ways during this pandemic, there are several major shortcomings. Chiefly, a lack of professional regulation enables misinformation to spread throughout communities rapidly, and highly informed algorithms that highlight popular and desired content can take scattered opinions and turn them into widespread conspiracy theories, thus playing perhaps the largest role in the onset of infodemics (Lee *et al.*, 2020). A study analysing misinformation rated false by independent fact-checkers reported that misleading or false content was mostly spread on social media (88%) (Lovari, 2020), while another found that as a proportion of misinformation published online, COVID-19 content rose from 5% in January to 46% in March

(AGCOM, 2020). On social media, in particular, COVID-19 posts increased to 36% of all messages produced by misinformation sources (AGCOM, 2020). This is an indication of how quickly misinformation can grow and spread and turn into an infodemic.

One study found that misinformation related to COVID-19 is just as likely to spread and engage users online as accurate news is (Kouzy *et al.*, 2020), and despite the best efforts from the World Health Organisation, through anti-misinformation campaigns, conspiracy theories, and fake news is still rife (Pennycook *et al.*, 2020; World Health Organisation, 2020; Tasnim, Hossain and Mazumder, 2020).

A study of South Korean participants revealed that the majority of misinformation engaged with was on social networking sites and instant messaging platforms (Lee *et al.*, 2020) which concurs with findings from Li *et al.* (2020), who identified that official authorities had produced only a few COVID-19 information videos for social media, whereas videos containing misinformation were disproportionately increasing.

As already touched on briefly, algorithms can take isolated instances of misinformation and increase their prevalence. One study found that on the social network site Gab, while the volume of posts from questionable sources is just ~70% of the volume of posts from reliable ones, the volume of reactions for unreliable posts is three times bigger than the volume for reliable ones (Cinelli *et al.*, 2020). Algorithms see this level of interaction and promote the misinformation to a broader audience as it is perceived as being popular and desired. It should be noted that the study found other, more prominent social media platforms, had a better engagement rate with official sources of information.

However, having said that, it is harder to pinpoint interaction with unreliable information as this is often spread by far more sources that have a lower individual reach, yet when reviewed in totality, have a far wider reach than singular official pages with large followings.

Social media platforms can inadvertently encourage the spread of fake news and misinformation through the monetisation of content based on interactions. Several sites have high engagement with fake news stories (Cinelli *et al.*, 2020), thus creating an incentive for certain individuals to grow their interactions and engagement (both monetisable aspects of a social media platform) by spreading misinformation. Especially during the early phases of the pandemic, many clinicians were claiming treatment efficacy on social media without adequate evidence (Love, Blumenberg and Horowitz, 2020).

A number of social media users are susceptible to misinformation, but this susceptibility is not limited to specific demographics and psychographics. Some clinicians even find themselves susceptible to this misinformation (Love, Blumenberg and Horowitz, 2020), as was evidenced by a study involving healthcare workers in Saudi Arabia (Alotiby and Al-Harbi, 2021). While misinformation can be believable because it seems plausible, often the most influential aspect of a fake news story is that of the person disseminating it. If the disseminator is charismatic or famous, their uninformed opinion tends to carry greater pertinence. For example, when the former President of America, Donald

Trump, suggested that the consumption of bleach would help combat the virus in a hosts body, the number of calls to poison centres caused by disinfectant consumption increased (Glatter, 2020).

This links into the wider and extremely dangerous spread of information regarding the consumption of potentially lethal products to cure the virus. One study found that approximately 800 people died, 5,876 were hospitalised, and 60 developed complete blindness after drinking methanol as a cure for the Coronavirus (Islam *et al.*, 2020).

In principle, social media has exceptional potential for clear, concise and validated communication. However, in practice, it creates huge problems surrounding misinformation and uncooperativeness regarding the response to the COVID-19 pandemic, both in the early stages and once again now that vaccines are being rolled out.

## Conclusion

This paper has reviewed the key literature sources regarding infodemics and the misinformation spread concerning the COVID-19 pandemic. While other areas of misinformation are prevalent in this field, the main areas focused on were herbal remedies, mistrust in governments and their interventions, 5G and social media.

Herbal remedies, mistrust in government interventions and 5G are all sources of misinformation regarding COVID-19. While it is also considered a source, social media goes further, acting as a driver of misinformation, allowing individuals to share and popularise inaccurate information with little fear of retribution.

Herbal remedies were seen as alternative cures/ways to manage symptoms of COVID-19 by both healthcare workers and non-healthcare workers, particularly in the early stages of the pandemic. Belief in herbal remedies could have impacted the extent to which people followed advice from governments.

As for these governments, a number struggled to communicate their official information adequately to their populations, with resistance and misinformation encountered in countries where political satisfaction was low.

Misinformation relating to 5G was less believable in studies than many people perceived. Mainstream publicity and celebrity involvement made this misinformation seem more prevalent than it was.

Social media acted as a platform for a considerable number of individuals to share their opinions regarding COVID-19. Numerous studies found that the majority of misinformation was circulated on social media by unofficial sources on impressionable populations. Resistance to government guidance was likely informed by the misinformation engaged with on social media, and these problems faced throughout the pandemic are likely to continue to manifest themselves during vaccine rollouts worldwide.



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## Discussion

This paper has examined the existing literature covering the main drivers of misinformation related to the COVID-19 pandemic. To reduce misinformation and the occurrence of infodemics, future research should seek to establish the factors associated with these drivers (for example, age, ethnicity, gender, education, religious beliefs, industry etc.) and from this, tactics should be devised to reduce the incidence and impact of conspiracy theories, misinformation and infodemics. Moving forward, research of this type would be particularly useful if targeted towards vaccine hesitancy. The impact of social media should be given particular focus.



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