

# AN ANALYSIS OF THE ACADEMIC LITERATURE ON FAKE NEWS DURING COVID-19 PANDEMIC

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**Abstract:** Covid-19-related fake news has brought many negative impacts in the global community in many different aspects. The spread of the novel coronavirus which initially started in 2019, and that later was announced as a pandemic by the World Health Organisation (WHO), has resulted in the emergence of infodemic causing difficulties to governments and subjects. This study was carried out to identify the subject areas of research ever conducted which related to fake news on Covid-19 and the impacts caused by this false information phenomenon. Literature analysis of documents published in the SCOPUS online database has been conducted and it was found that previous research on Covid-19-related misinformation occurred in multiple subject areas of which are prominent in the medicine and social sciences field. The impact of this infodemic ranges from health, political, legal, and other social effects. It can be concluded that in order to minimise the confusion and risks of the infodemic, the digital and health literacy of the citizen has to be improved, apart from the government responsibilities and social media providers monitoring and controlling the dissemination of falsehood and rumours among various parties.

**Keywords:** Covid-19, Fake news, Infodemic, Misinformation, Rumours

## 1. Introduction

Covid-19 pandemic is one of the worst public health crisis in the recent history. It is an unprecedented disease that affected millions of people, disrupting health services and posing a huge social impact to society. Even much has been learned from experience with other infectious diseases like Ebola, Nipah virus and HIV, the Covid-19 pandemic has ushered in a new phase globally (Kumar & Muthuswamy, 2020). Besides fighting on the virus itself, the most challenging action is to manage information regarding the outbreak. The emergence of social media accelerates the dissemination of information from various sources. Commonly, every outbreak will be followed by a kind of tsunami of information. It not only contains accurate information but also contains misleading information and rumours. Infodemic is one of the major issues during Covid-19 pandemic and is defined as a blend of information and epidemic that typically refers to a rapid and far-reaching spread of both accurate and inaccurate information about something, such as a disease (Hua & Shaw, 2020; Naeem & Bhatti, 2020).

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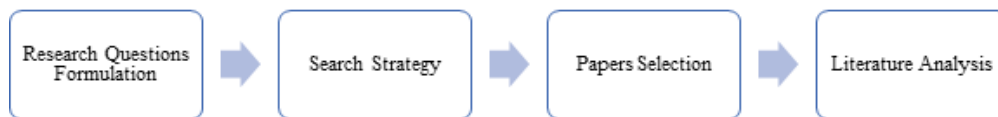
The spreading of inaccurate information leads to the occurrence of spreading fake news. Fake news is a term that is used to define articles that present invented, misleading information, created to misinform and make hoaxes viral through the Internet. In this current digital society, fake news is spreading faster compared to real news (Giordano et al., 2020). This paper will present a study on fake news during Covid-19 based on analysis of the academic literature with the following objectives:

1. to explore research that is related to fake news during Covid-19 pandemic.
2. to determine the subject areas of fake news research related to Covid-19 pandemic.
3. to examine the impact of fake news during Covid-19 pandemic.

## 2. Methodology

This study employs literature analysis of selected articles from a specific online database. The steps that has been performed to conduct this study are demonstrated in Figure 1.

**Figure 1:** The Steps of Literature Analysis Study



This study was conducted based on three research questions. The research questions were developed with the purpose of presenting an overview of the research related to fake news and Covid-19 pandemic, with special focus on the impact caused by the fake news on Covid-19.

Research question 1: Is there any research that is related to fake news during Covid-19 pandemic?

Research question 2: What are the subject areas of fake news research related to Covid-19 pandemic?

Research question 3: What are the impacts of fake news during Covid-19 pandemic?

Searching strategy adopted in this study is literature analysis of UiTM subscribed online SCOPUS database. We decided to search using the keyword “fake news” which resulted in 2,100 hits by excluding non-English language publications. This searching process was done on the 6/9/2020. The search result was further filtered to limit publications to those published within 2015 to 2021 that related to “Covid-19” which turned the result into 53 hits. The details of the following findings in the discussion of result will be based on these 53 documents, as the output of the searching process. There is one duplicate title thus making the number of documents 52 to be analysed. The tabulation of the document sources can be seen in Table 3. The selected papers were being divided among the researchers to be analysed with special focus on the impacts of fake news on Covid-19. The details will be discussed in the following discussion section.

## 3. Result and Discussion

### 3.1. Research related to fake news during Covid-19 pandemic

This section presents the findings and results of the study. Research question one aims to find out if there is any research that is related to fake news during Covid-19 pandemic. From the searching, there is a total of 52 articles found with respective topics or fields. All of the articles are in English language, from the SCOPUS database and were searched based on ‘fake news’ and ‘Covid-19’ terms. Among the 52 articles, only 41 articles were analysed by the researchers as shown in Table 1.

**Table 1: Research Related to Fake News During Covid-19 Pandemic**

No.	Authors	Year	Topic	Type
1.	Abd-Alrazaq et al.	2020	Top Concerns of Tweeters During the COVID-19 Pandemic: Infoveillance Study	Journal Article
2.	Ahmad and Murad	2020	The Impact of Social Media on Panic During the COVID-19 Pandemic in Iraqi Kurdistan: Online Questionnaire Study	Journal Article
3.	Ahmed et al.	2020	COVID-19 and the 5G Conspiracy Theory: Social Network Analysis of Twitter Data	Journal Article
4.	Alvarez-Risco et al.	2020	The Peru Approach against the COVID-19 Infodemic: Insights and Strategies	Review
5.	Apuke and Omar	2020	Fake news and COVID-19: modelling the predictors of fake news sharing among social media users	Journal Article
6.	Apuke and Omar	2020	Fake news proliferation in Nigeria: Consequences, motivations, and prevention through awareness.	Journal Article
7.	Calvillo et al.	2020	Political Ideology Predicts Perceptions of the Threat of COVID-19 (and Susceptibility to Fake News About It)	Journal Article
8.	Casero-Ripollés	2020	Impact of Covid-19 on the media system. Communicative and democratic consequences of news consumption during the outbreak	Journal Article
9.	de Beer and Matthee	2021	Approaches to Identify Fake News: A Systematic Literature Review (Review citation)	Book Chapter
10.	Druml, C.	2020	COVID-19 and ethical preparedness?	Note
11.	Elias and Catalan-Matamoros	2020	Coronavirus in Spain: Fear of 'Official' Fake News Boosts WhatsApp and Alternative Sources	Note
12.	El-Jardali et al.	2020	Amplifying the role of knowledge translation platforms in the COVID-19 pandemic response	Review
13.	Erku et al.	2020	When fear and misinformation go viral: Pharmacists' role in deterring medication misinformation during the 'infodemic' surrounding COVID-19	Note
14.	Giordano et al.	2020	A short review of some mathematical methods to detect fake news	Review
15.	Hua and Shaw	2020	Corona Virus (COVID-19) "Infodemic" and Emerging Issues through a Data Lens: The Case of China	Journal Article
16.	Islam et al.	2020	Misinformation sharing and social media fatigue during COVID-19: An affordance and cognitive load perspective	Journal Article
17.	King	2020	Fast news or fake news?	Note
18.	Kumar and Muthuswamy	2020	Fostering ethical biomedical and health research in India during the COVID-19 pandemic	Journal Article
19.	Laato et al.	2020	What drives unverified information sharing and cyberchondria during the COVID-19 pandemic?	Journal Article
20.	Larrouquere et al.	2020	Genesis of an emergency public drug information website by the French Society of Pharmacology and Therapeutics during the COVID-19 pandemic	Journal Article
21.	López-Pelayo et al.	2020	"The post-COVID era": challenges in the treatment of substance use disorder (SUD) after the pandemic	Review

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22.	Mejova and Kalimeri	2020	COVID-19 on Facebook Ads: Competing Agendas around a Public Health Crisis	Conference paper
23.	Moscadelli et al.	2020	Fake News and Covid-19 in Italy: Results of a Quantitative Observational Study	Journal Article
24.	Naeem and Bhatti	2020	The Covid-19 'infodemic': a new front for information professionals.	Journal Article
25.	Naeem et al.,	2020	An exploration of how fake news is taking over social media and putting public health at risk	Journal Article
26.	O'Connor and Murphy	2020	Going viral: Doctors must tackle fake news in the covid-19 pandemic	Letter
27.	Pelizza	2020	"No disease for the others": How COVID-19 data can enact new and old alterities	Note
28.	Pennycook et al.	2020	Fighting COVID-19 Misinformation on Social Media: Experimental Evidence for a Scalable Accuracy-Nudge Intervention	Journal Article
29.	Pulido et al.	2020	A New Application of Social Impact in Social Media for Overcoming Fake News in Health	Journal Article
30.	Raj & Goswami	2020	Is fake news spreading more rapidly than Covid-19 in India? A representative study of people's perspective on controlling the spread of fake news on social media	Journal Article
31.	Rass	2020	Judging the quality of (fake) news on the internet	Journal Article
32.	Ribeiro et al.	2020	Who is going to pay the price of Covid-19? Reflections about an unequal Brazil	Review
33.	Rodrigues and Xu	2020	Regulation of COVID-19 fake news infodemic in China and India	Journal Article
34.	Rodriguez et al.	2020	Untold false news around COVID-19 circulated less on sina weibo than on twitter. How to overcome false information?	Journal Article
35.	Rovetta & Bhagavathula	2020	COVID-19-related web search behaviors and infodemic attitudes in Italy: Infodemiological study.	Journal Article
36.	Shaw	2020	Invisible Enemies: Coronavirus and Other Hidden Threats	Journal Article
37.	Shimizu	2020	2019-nCoV, fake news, and racism	Letter
38.	Hashim et al.	2020	Students' Intention to Share Information Via Social Media: A Case Study of Covid-19 Pandemic	Journal Article
39.	Tapia	2020	COVID-19 and Fake News in the Dominican Republic	Review
40.	Vasconcellos-Silva and Castiel	2020	COVID-19, fake news, and the sleep of communicative reason producing monsters: the narrative of risks and the risks of narratives	Journal Article
41.	Yusof et al.	2020	Sharing Information on COVID-19: the ethical challenges in the Malaysian setting	Journal Article

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### 3.2. Subject areas of fake news related to Covid-19 pandemic

Research question two aims to determine what are the subject areas of fake news research related to Covid-19 pandemic. This study examined 10 subject areas of past research on Covid-19 related fake news as illustrated in Table 2. The search with most articles is from the ‘medicine’ subject area which is 21 articles, followed by ‘social sciences’ with 14 articles and ‘computer science’ with 7 articles. It should be noted that the total number of subject areas is larger than the total number of the documents themselves because several articles fall under more than two subject areas as being classified by the SCOPUS database. Table 3 demonstrates the types of documents under which the analysed 41 documents fall into as shown below.

**Table 2: Document Subject Areas**

No	Subject Area	Number of Articles
1.	Medicine	21
2.	Social Science	14
3.	Computer Science	7
4.	Arts and Humanities	5
5.	Engineering	4
6.	Psychology	4
7.	Health Professions	3
8.	Environmental Science	3
9.	Economics, Econometrics and Finance	2
10	Immunology and Microbiology	2
<b>Total</b>		<b>62</b>

**Table 3: Document Types**

No	Document Type	Number of Articles
1.	Journal Articles	26
2.	Review	6
3.	Note	5
4.	Letter	2
5.	Book Chapter	1
6.	Conference Paper	1
<b>Total</b>		<b>41</b>

### 3.3 Impacts of fake news during Covid-19 pandemic

Research question three was developed with the purpose of identifying the impacts of fake news during Covid-19 pandemic. The followings are the identified impacts extracted out from the 41 analysed documents retrieved from Scopus:

#### 3.3.1. Health Impact

The declaration of infodemic by the World Health Organisation (WHO) is an evidence that shows the seriousness of the misinformation related to Covid-19 that gives impact to social threat and public health (Rodriguez, 2020). The impact on human health are connected to cases where the chloroquine, cow urine, hot water, whiskey, honey and neat alcohol were consumed by people from diverse places around the globe due to the belief of healing and preventive effect against Covid-19 and which seemed to be untrue and misleading. At the same time, claims by various unverified health experts and medicine practitioners suggested advice, therapies and questionable preventive and healing medications to fight Covid-19 made people confused and been put in alarm (Naeem et al., 2020). There were also cases in Iran where hundreds of people died of methanol poisoning, including a case of a small boy who was visually impaired after drinking the poison. The government was put into a grave position with the struggle to fight the pandemic and the fake news at one time (Vasconcellos-Silva & Castiel, 2020). Another health issue that needs to be addressed during Covid-19 pandemic is cyberchondria or increased anxiety. The disease can strike when a person is faced with a stressful situation that causes excessive anxiety (Islam et al, 2020). Hence, giving a great impact to mental health (Alvarez-Risco et al, 2020). A study focused on the relationship between cyberchondria with unverified

information sharing has been conducted and the result shows that information trust and information overload are associated with increased cyberchondria and unverified information sharing (Laato et al., 2020).

### **3.3.2. Governance Impact**

According to Rodrigues and Xu (2020), governments not only need to find strategies that can better disseminate information but they also need to uncover false information that misleads citizens. The government also needs to promote information that is scientifically-based evidence based, organizes public health campaigns and provides clear guidelines across the country using simple language so the society understands and knows how to react (Ribeiro et al., 2020). Fake news which is considered as deceiving because purposefully crafted to induce false beliefs (Pelizza, 2020), have sparked off anxieties and fear among the public and need to be filtered and controlled by the government authorities. To thwart the spread of misleading information or fake news during the outbreak, the public needs to refer to official sources of information (Yusof, Muuti, Ariffin & Tan, 2020) and urgent measures must be implemented by the government to ensure that the situation does not get even worse. Without congruent guidelines on how to react or what to believe, the spread of fake news and political crisis is something that should be expected (Ribeiro et al., 2020).

### **3.3.3. Social Impact**

Xenophobia towards the Chinese in Japan and Hong Kong were reported to be critical during the pandemic outbreak. It was causing negative social impacts such as humiliation, tension and disgrace that hinder true virus infected persons and carriers from revealing their condition to official bodies and receiving expedient health-care scrutiny (Shimizu, 2020; Mejova & Kalimeri, 2020; Rovetta & Bhagavathula, 2020). Besides that, according to Apuke and Omar (2020) altruism was found to be the strongest predictor of fake news sharing related to Covid-19 among Nigerian population aged 18 and above. Relating this to news sharing, altruism could be described as the act of disseminating news and information without expecting a reward for such an act (Plume & Slade, 2018). Most Nigerians often have this characteristic of helping one another which is evident when sharing information, not minding if it is true or not as far as it contains precautionary measures on certain issues (Apuke & Omar, 2020). Consistent with this view, it has been shown that news sharing on social media is carried out to contribute to social cohesion.

### **3.3.4. Political Impact**

Covid-19 is also a large-scale disaster which contributes to further complicating the political relations between countries. For instance, the two biggest economies in the world, the United States of America and China diplomatic relations are threatened when fake news has become a political tool to discredit other countries (Moscadelli et al., 2020). According to Calvillo et al., (2020), fake news may also increase the political influence. In a study conducted in the United States, it was found that the political conservatism related to threat perception and news discernment was positively correlated with ratings of conspiracy and media exaggeration. However, Pennycook et al., (2020), suggested that partisanship is not, apparently, the key factor distracting people from considering accuracy on social media but the tendency to be distracted from accuracy on social media seems more general.

### **3.3.5. Legal Impact**

Peru is one of the countries that successfully controlled infodemic. This is because Peru has tightened the law which anyone found guilty of creating and disseminating false information will be sentenced to prison. If the fake news sparks off public panic and anxiety, the offenders may be sentenced 3–6 years. The Ministry of Justice and Human Rights of Peru urged people to use the hashtag “Don’t Spread Fake News” every time they share official information (Alvarez-Risco et al., 2020). It was also suggested that the bad impact of the fake news can be minimised if people are more literate in social

media plus the stricter government policy and regulations to control the spread of infodemic in the nation (Raj & Goswami, 2020).

#### 4. Conclusion

In the context of Covid-19 pandemic, the striking concern is on the amount of fake news and misleading information circulating worldwide that critically give impacts especially to public health and other areas including governance, social, political, and legal. Since this study found that the most impactful aspects is health, new strategies must be implemented to deal with fake news concerning legal and illegal drugs and controversial scientific information. When society is in a state of collective panic, they will look for “the truth” but problems arise when science needs more time and greater integrity to provide clear relevant answers (López-Pelayo et al., 2020). To help minimize the impact of fake news on health, digital and health literacy must be improved since better literacy is helpful in fighting the fear and stress related to the pandemic (Moscadelli et al., 2020). Public should be updated with evidence-based scientific advice on vaccines and treatments, offered with counselling service and appropriate information in social media or other appropriate virtual platforms, and guided towards authorized information distribution channels (Erku et al., 2020).

Better informal communication and more organized formal communication must also be taken into consideration. To reduce the impacts to other areas, authorities from many countries have taken action to set up official websites monitored by the government to provide answers and to give clear documented information to the public (Larrouquere et al., 2020). On the other hand, social media providers such as Facebook, Weibo, and Twitter are pressured to ban and prevent further dissemination of fake news once hoaxes and falsehood seem to be actively viral using their platform (Hashim et al., 2020). Studies were conducted investigating Google Trends and Twitter activities to Covid-19 related searches online and it was suggested that the government can use this tool to predict their subject’s web searching behaviours, thus enabling further steps to prevent fake news being circulated in the country (Rovetta & Bhagavathula, 2020).

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