Facade of media and social media during COVID-19: A review

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ABSTRACT

A novel coronavirus (COVID-19) arose in Wuhan, China, in December 2019. Soon it spread to other countries worldwide to become a pandemic. Globally, governments enforced quarantine and social distancing measures to prevent the spread of the infection. Mass media and social media platforms played a crucial role in providing information regarding the Coronavirus. Since little is known about COVID-19, various fake news, misinformation and rumours spread across the digital media that panicked people into making panic decisions. The rapid spread of misinformation and stories via social media platforms such as Twitter, Facebook and YouTube became a vital concern of the government and public health authorities. Medical misinformation and unverifiable content about the COVID-19 pandemic are spreading on social media at an unprecedented pace. Mitigating the advent of rumours and misinformation during the COVID-19 epidemic is crucial, since misinformation and fake news creates panic, fear and anxiety among people, predisposing them to various mental health conditions. Instead of considering social media as a secondary medium, it should be utilised to convey important information. Besides, it allows citizens to address their queries directly. Several governments across the world have taken actions to contain the pandemic of misinformation, yet measures are required to prevent such communication complications.

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INTRODUCTION

Coronavirus disease 2019 (COVID-19) first reported in early December in Wuhan province of China spread worldwide to become a global pandemic (?Pan *et al.*, 2020). Governments across the world implemented social distancing and isolation measures taken to reduce the risk of infection (Zhai and Du, 2020). Self-quarantine and isolation posed a threat to the mental health of the people (Brooks *et al.*, 2020). Since little is known about the novel Coronavirus, it is essential to provide the correct information obtained from an authentic source (Hua

and Shaw, 2020).

It is difficult to collect the current data of the affected, recovered and casualties, for, the rapidly changing data on Coronavirus. It is reported that the elderly and immunocompromised individuals are more at risk for COVID-19 infection (Hua and Shaw, 2020). Currently, we lack pharmaceutical aids to manage the outbreak. The tools to combat COVID-19 are quarantine and social distancing. Besides, social media platform can be used to encourage people to follow the quarantine rules, to reduce panic among people and to reinforce public trust in supporting public health measures (Depoux et al., 2020). The COVID-19 pandemic can be considered unique (Farooq et al., 2020).

On the one hand, the healthcare officials tried to determine and constrain the extent of the infection, and the medical misinformation continuously spread over social and mass media platforms at an alarming rate (Kouzy et al., 2020). The size of misinformation was so disturbing on the individual and community levels that governing bodies began to acknowledge its impact and made efforts to limit them (Kouzy et al., 2020).

Usually, an outbreak of infectious disease can not be predicted in a particular community, region, or period (Oh et al., 2020). The misinformation, misapprehension, or rumours can significantly hamper the communication response and escalate panic amongst the people. Since the information increases rapidly through social media, it is necessary to monitor media and manage rumour (Frost et al., 2019). Social media is one of the primary source proliferating the information regarding the virus (Gao et al., 2020).

The major drawback of social media amid a problematic situation as COVID-19 pandemic is that social media has been conveniently used as an approach to convey misinformation and fake news (Park et al., 2020). After the advent of social networking platforms such as Twitter, Facebook and YouTube, the information transmission in disaster contexts has increased globally at various levels (Park et al., 2020).

Social media gives a platform for sharing public opinion and perceptions, which can be volatile and sensitive during a grave situation as COVID-19 pandemic (Han et al., 2020). Misinformations on COVID-19 are spreading rapidly through media and the internet, thus altering public behaviour during the epidemic. These misinformations need attention for enhancing sentiment awareness, improving emergency responses and supporting decision making (Han et al., 2020).

Visualising Media And Social Media As Assets During A Pandemic

Social media is a crucial source of information nowadays; twitter has the potential to provide real-time content analysis acknowledging the public health authorities to answer the queries of the people quickly (Ahmed et al., 2020).

During COVID-19 pandemic, social media have offered immediate disease-related information to exchange among the people in real-time (Oh et al., 2020). It was found in a study that the H1N1 flu outbreak was also first accounted in social media. (Jang and Baek, 2019) Consequently, government organisations such as the Centers for Disease Control and Prevention (CDC) began using social media to notify people of the apparent infections like the Zika and Ebola outbreaks (Oh et al., 2020). The continually evolving social media has become a key platform for communication during a crisis. Social media platforms are increasingly used by public health departments and individuals to communicate and exchange information during public health emergencies (Zhao et al., 2020).

Popular social media platforms such as Twitter, Tik-Tok, YouTube and Facebook have contributed to educating people regarding the measures to avoid misinformation during COVID-19 pandemic. However, their roles remain questionable (Li et al., 2020).

The social media platform can be used to overcome mental strains during the mass quarantine (Depoux et al., 2020). However, social media should be used for wiser reasons, since it provides an opportunity to acknowledge the measures to be undertaken, and to advice to prevent misinformation and panic (Depoux et al., 2020).

Emotional Turmoil During The Pandemic Due To Social Media

Usually, an epidemic outbreak threatens the health of a large number of people, thereby requiring immediate measures to cease the infection at the community level (Würz et al., 2013). Studies have shown that fear and anger resolve the correlation between social media access, danger perception at the personal level and protective behaviours (Oh et al., 2020).

Some researchers have proposed that these emotions influence the association between risk perception and mass media and (Oh et al., 2020). Besides, anxiety is displayed by people prevalently on social media as a relevant negative emotion during the COVID-19 pandemic (Oh et al., 2020). When inaccurate or false information passes on to the public,

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they tend to panic and respond to such misinformation in several ways, which includes making a panic purchase and trying out excessive or even harmful drug regimens (Liu *et al.*, 2020).

The urgent requirement to alleviate the panic due to social media has become a priority (Depoux *et al.*, 2020). When the outbreak started, the public was keen to find appropriate online resources and information for their own protective needs (Zhao *et al.*, 2020).

Researchers also found that the public's interest in infections and pandemic on social media has been related to the current newscast and global events, and they continue to pay attention and search terms relevant to disease (Zhao *et al.*, 2020). WHO conveyed that determining the primary causes of fear, anxiety and anger igniting the misinformation, primarily via social media, is of grave concern (Gao *et al.*, 2020). Several studies have shown that incidental media exposure to mass trauma may intensify the initial symptoms of post-traumatic stress disorder (PTSD) (Gao *et al.*, 2020).

During the outbreak of COVID-19, misinformation, and misleading news about COVID-19 raided social media and fuelled baseless panic among many cybercitizens that can create confusion and hamper mental wellbeing of citizens (Ha *et al.*, 2020).

Misinformation And Its Consequences In Pandemic

Misinformation creates confusion and panic (Depoux *et al.*, 2020). False information became a significant problem across social media sites during COVID-19 pandemic. Facebook introduced a new update, which will warn users if they are engaged with incorrect information (Ahmed *et al.*, 2020).

Some studies reported that verified Twitter accounts and healthcare accounts had least unverifiable information in comparison with others (Kouzy *et al.*, 2020). Some tweets or features of Twitter accounts were found to tend to convey false and unverifiable intelligence. Some researchers demonstrated that the 'humour effect', in which the users joins the discussion to ridicule the conspiracy theory unintentionally draws more attention to it, posing as a threat for misinformation (Ahmed and Lugovic, 2019).

Since misinformation is spreading continuously on social media sites, awareness and appropriate preventive measures are of utter importance for public safety (Kouzy *et al.*, 2020). Misinformation on Facebook about possible medications, including hydroxychloroquine to treat COVID-19, inspired many people to buy such medicines without medical approval, resulting in the inadequacy of these medications for patients who required them (Abdelhafiz *et al.*, 2020).

There must be caution for using these platforms to prevent the spread of misinformation and rumours (Abdelhafiz *et al.*, 2020). Delivering fast, accurate information that addresses critical issues of infection control is significant (Chan *et al.*, 2020).

Infodemiology

Infodemiology is a flourishing field of research aimed at educating public health agencies and designing public policies to evaluate electronically created and consumed health data (Eysenbach, 2009). The benefit of infodemiology is its ability to collect health-related data in real-time from unstructured, written, picture or user-generated information that is shared through digital media such as websites, blogs, and social network sites (Eysenbach, 2011).

However, the reliability of user-generated data is doubtful (Zhao and Zhang, 2017). Often on social media, user-created and shared health information regarding the COVID-19 can act as an effective method for public health surveillance (Park *et al.*, 2020). Investigating the online interpretation of and responses to health problems by the public as seen on social media offer insights into the public's perceptions of and self-disclosure of symptoms related to the infection (Park *et al.*, 2020). Studies indicate that network analyses are significantly useful for monitoring shared networks between various stakeholders, and also the appropriate distribution of sources during national disasters or emergencies (Park *et al.*, 2020).

Cyberchondria

Cyberchondria and information overload were observed from excessive internet use during COVID-19 pandemic. Cyberchondria is characterised as obsessive online searching for information related to health, usually about specific symptoms. Information overload is a situation in which all communications and information inputs can not be processed, resulting in the process of gathering information being terminated or the whole process becoming ineffective (Farooq *et al.*, 2020).

Both cyberchondria and information overload have been found to impair human cognitive reasoning (Achanccaray *et al.*, 2018; Fergus and Russell, 2016; Starcevic and Berle, 2013).

During the novel, atypical and potentially lethal pandemic circumstances such as COVID-19 pandemic, a

lack of clear communication can lead to confusion and even panic among people (Farooq *et al.*, 2020). Social media usage as a source of information raises both cyberchondria and information overload that can be clarified by the fact that social media news is more sensitive to individual biases and lacks the impartial and comprehensive approach unlike the reports of journalists (Farooq *et al.*, 2020).

Social networking sites and search engine developers should take steps to ensure users as transparent and understandable information as possible to prevent the adverse effects of information overload and cyberchondria, while also communicating the seriousness of the pandemic and suggested health measures to citizens (Farooq *et al.*, 2020). Educating people on the responsible and safe use of social media may, therefore, help to mitigate the negative impacts observed (Farooq *et al.*, 2020). Among those who used social media as an information source, both cyberchondria and information overload were found to raise.

Influence Of Mass Media Regarding Covid-19

Media coverage and public opinion can have a significant effect on both the public and private sectors in deciding with regards to suspending programs, like airline programs, compared to the actual need for public health (Depoux *et al.*, 2020). Mass media have long been regarded as critical sources of public perceptions of risk (Oh *et al.*, 2020).

Through the media, people are acknowledged as a chance that offers the risk warnings and interprets the risk issues regarding the pandemic (Oh *et al.*, 2020). The information regarding risk is presented in a manner that influences people's perception of risk, especially sensational media reporting of a pandemic crisis (Chong and Choy, 2018). In particular, it is believed that anxiety and anger mediate the effect of media exposure on the perception of personal-level danger and therefore increase beneficial preventive behaviours. The outbreak of COVID-19 is a negative occurrence, resulting in an unpredictably high number of illnesses and mortalities, eliciting negative self-relevant emotions from the public (Oh *et al.*, 2020).

People usually express their concerns about the pandemic outbreak through social media (Oh *et al.*, 2020). In some instances, however, the mass media are unable to capture the epidemic on time, and thus fail to become the prime indicator (Liu *et al.*, 2020). Since mass media news reports fall behind real-time coronavirus trends, it does not play a useful pre-warning role in communicating and sensitising about public health (Liu *et al.*, 2020). However, as the virus is new and there is not enough research on it, misinformation may have been transmitted by the mass media leading to adverse psychological effects among people such as anxiety, rage or sadness (Liu *et al.*, 2020).

Considerations For The Public Health Authorities To Mitigate Pandemic

A carefully designed study of global online discussions will include a prompt evaluation of the spread of COVID-19 and potential improvements in public perceptions and behaviours (e.g. self-isolation, access to health care), recognition of the infection and its symptoms, and the effect of significant epidemic decisions (e.g. quarantine measures, production of new vaccines) (Depoux *et al.*, 2020).

Establishing an interactive platform to provide real-time alerts of globally spreading misinformation and rumours about Coronavirus would allow public health officials and relevant stakeholders to respond quickly with an engaging and proactive narrative that can resolve the false information (Depoux *et al.*, 2020). This would also reduce community panic (Depoux *et al.*, 2020).

Public health authorities ought to advise people against exchanging and engaging with incorrect information on social media. Instead, such incorrect information should be flagged as inappropriate to the social media companies as many social media platform enable users to report inappropriate content. (Ahmed *et al.*, 2020).

Another way of counteracting disinformation is to seek support from prominent public officials and organisations such as elected figures, government accounts, relevant medical experts, physicians or journalists (Ahmed *et al.*, 2020).Startups also developed voluntary and privacy-conscious tracking apps like Safe Paths in the USA and GeoHealth in Germany to obtain and store GPS location data of individuals for 28 days for collecting more personalised data with health officials if they test positive for the virus (Kummitha, 2020).

Public health organisations should identify the threat regarding COVID-19 misinformation and take decisive steps to ensure the truthfulness of information circulating on social media sites (Kouzy *et al.*, 2020).

In addition to the efforts of public health organisations to encourage evidence-based research during this crucial time, the physicists, medical societies and science journals play vital roles in combating misinformation (Kouzy *et al.*, 2020). False information could be contained, debunked, and replaced by evidence provided by medical journals and reliable information of the subject through global coop-

eration and multidisciplinary collaborations (Kouzy et al., 2020).

Medical misinformation and unverifiable content about the COVID-19 pandemic are spreading on social media at an unprecedented pace. (Kouzy et al., 2020). Using social media in this way has shown potential as a speedier alternative.

Considerations For The Government To Mitigate Pandemic

Social media functions such as mentions and hashtags allow the Government agencies to convey information precisely and quickly. They can post and answer people's queries to enhance interactions with the public and improve their level of engagement (Chen et al., 2020).

The government should strengthen its potential to handle rumours by monitoring and evaluating response to decide if the conduct has changed or stories have been stopped (Frost et al., 2019) Furthermore, being overfed with news and information can cause mass communication exhaustion, which will dampen the influence of the media. The government and the mass media should find out the right news themes and numbers to prevent harmful mental pressure about the outbreak (Liu et al., 2020).

Governments that follow a comprehensive approach to incorporate public engagement in political processes, such as debates on public policy, increase transparency and facilitate transparent decision-making (Chen et al., 2020). Because of its openness, dialogue and participatory nature, social media offers prime advantages in providing synchronous and collaborative contact between governments and people, giving new impetus to interaction among people. (Chen et al., 2020).

Government organisations still consider social media as a complementary medium for circulating information, rather than a resource for fostering interaction among the people. They use their websites to release alerts and guidance information, but few employ participatory approaches to promote cooperation and communication between people and government (Chen et al., 2020). The government agencies will, therefore, thoroughly understand the information needs of people to facilitate their involvement when implementing official social media platforms (Chen et al., 2020).

According to the research by Ji et al. (Ji et al., 2019), emotional strength, emotional presence, and emotional valence affect citizen engagement through social media differently (Chen et al., 2020). The government should make available only the appropriate information and censor the misinformation. Misin-

formation censorship and information concealment will mitigate the misinformation spreading potential of digital technologies (Kummitha, 2020). Furthermore, the government should strengthen the public opinion response and epidemic prevention at the province level, and devise effective response countermeasures following the public's demands in controlling the crisis (Han et al., 2020).

Mitigation Actions Taken By Several Government Bodies

Globally, government organisations have used social media for creating awareness and encouraging citizen during the crisis (Chen et al., 2020). Local government officials in the United Kingdom used Twitter features, such as hashtags and mentions, to communicate with the general public to explain rumours and identify perpetrators during the 2011 riots (Chen et al., 2020).

Indonesian government agencies used Twitter to convey early warning communications with people during the 2012 Tsunami, increasing their performance in public information services (Chen et al., 2020). In the United States, government officials used Twitter during the 2012 Hurricane Sandy crisis to involve people in the creation of public services. However, they primarily engaged stakeholders, including individuals, peer government departments, and media outlets (Chen et al., 2020). The Chinese government has provided mental health services across many platforms, including hotline, online counselling, online course and outpatient counselling, but depression and anxiety should be given more attention (Gao et al., 2020).

In response to public concern, the Chinese government released a series of updates on the "official" Weibo accounts to explain the disease, including a formal warning to hospitals on December 30th, 2019 on how to handle possible cases and a subsequent announcement on January 8th, 2020, identifying a new coronavirus as the causative agent (Li et al., 2020). These events show that the government, media, and users (who reposted content) used social media as an outbreak communication tool and contributed to the distribution and user reaction to information about an outbreak whose trajectory would take it global (Li et al., 2020). Whenever false news was released, or any mismanagement occurred with the emergency provisions and food supplies, the Chinese authorities took swift corrective action (Hua and Shaw, 2020).

In Egypt, the Ministry of Health (MOH) started using different forms of communication to inform the public about the epidemic, including television and street advertising, as well as text mes-

sages (Abdelhafiz *et al.*, 2020). MOH has also recently started using supported ads on Facebook, which reflects policy-makers' recognition of this platform's value (Abdelhafiz *et al.*, 2020).

How Media Can Be Used As A Shield

Social media must be used to reinforce the public health response (Depoux *et al.*, 2020). Public media, newspapers and radio stations put the information to fighting false news by addressing theories of conspiracy circulating at the time (Ahmed *et al.*, 2020).

Timely monitoring of risk networks and public social media interactions will help promote awareness of stakeholder views and assist in developing the policies needed for successful risk mitigation and resilience, thus ensuring efficient management of catastrophic events (Park *et al.*, 2020). Social media analytics should help government authorities to exchange and comment on real-time information about ongoing infectious disease threats. People use different news sources and social media to exchange information (Park *et al.*, 2020).

A further critical remedial measure against false information should take place on the platform where it arises because people don't visit a website to study the counteracting report. Still, they will go through the false facts sent and/or posted on a social media platform (Ahmed *et al.*, 2020). Since successful public health interventions are needed to prevent the collapse of the health system, the media can play a crucial role in transmitting updated policies and regulations from authorities to the people. (Liu *et al.*, 2020) Effective communication between the citizens and the public health authorities and/or governments through the media and social media platforms are among the essential components of successful pandemic responses.

A communications plan with toolkits requires to be built immediately as a contribution to the public health response needs in the face of future global outbreaks (Depoux *et al.*, 2020). It is particularly significant for countries that lack advanced media communication strategies or require more efficient and "controlled transparency" about the epidemic, and for communities that are more vulnerable due to lack of information during the outbreak (Depoux *et al.*, 2020).

Risk communication is also now part of the regional emergency response preparedness program for health emergencies. Strengthening the capacity of risk communication is an essential component of global efforts to enhance global health security (Frost *et al.*, 2019). For the current COVID-19 pandemic, the development of a real-time informa-tion sharing system is must, which analyses the data from a variety of social media platforms in several languages globally (Depoux *et al.*, 2020).

CONCLUSIONS

Since the announcement of COVID-19 as a pandemic, the mass media and social media has been flooded with information. Some information is directed to educate people about the new virus, whose management is yet to be known. On the contrary, misinformation regarding the pandemic and treatment are alleviating fear, anger and panic amongst people. The Government bodies and public health care authorities should utilise the media in teaching awareness among the people and narrowing panic. The several countries' government has used social media in informing the citizens about the upcoming hazard, thus making the best use of the resource. The media should also be obliged to ensure the reports' accuracy.

Authors contribution

All the authors led the creation and design of the study. All the authors read and approved the final manuscript for publication.

Conflict of interest

The authors declare that they have no competing interests.

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