Mapping of Government's Communication Strategies in the COVID-19 Era on Social Media

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Article Info

Abstract: This study explores the changing government communication methods throughout the unusual COVID-19 epidemic, with a focus on using social media as the main instrument for engaging with the public. We utilize a bibliometric methodology, examining an extensive dataset of articles obtained from journals indexed in Scopus. Using VOSviewer software, we provide a visual representation of the main theme clusters in this research. NVivo 12 Plus also supports word cloud analysis, which allows for the discovery of commonly used phrases and patterns within the analyzed material. The results of study reveals a range of communication strategies adopted by governments globally in response to the pandemic. These measures involve promoting communication in both directions, utilizing social media platforms to spread information, and using efficient strategies to communicate risks. The data demonstrates a predominance of research that specifically examines risk communication driven by the government, emphasizing its vital role in crisis management. In addition, the VOSviewer mapping reveals the presence of four unique theme clusters. The "government communication" cluster focuses on subjects such as communication strategy, the ongoing epidemic, the challenge of fake news, and the influence on public anxiety. These areas are key to the research and investigation within this cluster. This comprehensive analysis illuminates the complex correlation between social media communication techniques and successful public health actions amidst a worldwide crisis.

Keywords: *COVID-19; government public communication; social media*

INTRODUCTION

In December 2019, officials in Wuhan, China, confirmed the first human case of COVID-19—the disease caused by the novel coronavirus, later dubbed SARS-cov-2 (Global & Alert, 2020). Chinese authorities have reported human cases with the onset of symptoms in early December 2019 after retrospective investigations. Although some of the earliest issues were linked to a Wuhan wholesale food market, others were not. Many of the first patients were either market stall owners, market workers, or casual market guests. Environmental samples collected from this market in December 2019 tested positive for COVID-19, indicating that the market in Wuhan City was either the center of the outbreak or played a part in its initial amplification. On January 1, 2020, the business was closed. Since the beginning of COVID-19 in Wuhan, this virus has spread to almost all countries in the world.

The spread of COVID-19 throughout the world requires the government and all related parties to seek solutions to reduce the number of cases. Inevitably, this virus spread has made information a major urgent need that the government and other mass media must provide. The advancement of social media has dramatically helped the dissemination of information about COVID-19. In pandemic conditions, social media acts as a convenient source of knowledge. As a new necessity in everyday life, knowledge changes the primary attitude of all citizens about the importance of discovering and reviving their insights. In addition, the number of urban villages in Indonesia that are spread over such a wide area requires a long time to convey information about the prevention, mitigation, and risk of COVID-19 directly to the public (Nomaini et al., 2022).

The government needs time to interact with the community. The two-way interaction between the government and society is often known as a communication pattern. Communication refers to the process of delivering information, messages, ideas, or understandings, using symbols that contain meaning, either verbally or non-verbally, from a person or group of people to another person or group of people to reach a mutual understanding or agreement (Ii et al., 2005). Communication patterns can be viewed from one or two directions. However, this study focuses on communication performed by the government. Government communication is the delivery of government ideas and programs to the public to achieve the state's goals (Ii et al., 2005). In this situation, the government is considered a communicator, and the people are communicants. Hence, in a particular environment, the community can express thoughts or ideas, and the government can observe what society wants. For example, during the pandemic, many health agencies, community leaders, and all bodies of the bureaucracy employed social media such as Twitter, Facebook, Weibo, and Instagram to deliver the latest information about COVID-19. It highlights how academics or researchers have studied this phenomenon.

Although there is a significant amount of research on government communication techniques during the COVID-19 epidemic, there is still a lack of comprehensive mapping of these strategies across various social media platforms. Current research frequently concentrates on specialized platforms, such as Twitter in a given country, or examines communication tactics without considering the wider context. Nomaini et al. (2022) specifically emphasize the difficulties of spreading knowledge in geographically scattered areas such as Indonesia. Their research emphasizes the necessity for targeted communication tactics that are suitable for a wide range of situations. However, their research does not explore the diverse communication strategies that governments are implementing across social media platforms as a collective entity.

This research addresses a critical gap in our understanding of government communication strategies during a global health crisis. While existing studies have undoubtedly explored government social media use (reference studies if relevant), this research delves deeper by employing a novel bibliometric approach. By analyzing a comprehensive dataset of articles and utilizing advanced software tools like VOSviewer and NVivo, this research aims to create the first large-scale map novelty of the thematic landscape used in government social media communication during COVID-19. This comprehensive analysis will offer a broader and more systematic understanding of how governments are leveraging social media for communication during such crises.

RESEARCH METHOD

This study was conducted with a focus on digging up information on research on the government's communication strategies during the COVID-19 period on social media. Hence, it belongs to the literature review research—a particular study or research methodology and development carried out to collect and evaluate studies on a particular topic (Triandini et al., 2019).

The data were sourced from articles collected from a Scopus database (www.scopus.com). Scopus is a full-text abstracting and indexing website published by the Elsevier Company (Burnham, 2006). Scopus was named for the bird Hammerkop (Scopus umbretta), having superior navigational abilities. The database, which took two years to develop, was created in collaboration with 21 academic institutions and over 300 researchers and librarians. For keywords in the Scopus search column, it was written as (TITLE-ABS-KEY (((government

communication SOCIAL MEDIA COVID-19))) AND (LIMIT-TO (SUBJAREA, "SOCI")) AND (LIMIT-TO (OA, "all"))). The phrase or keyword open access and registry institutions were searched in the Scopus database using the "Document Search" search area. The publishing years, the publishing organizations, the publishing nations, the names of the journals or publications, the types of text, and the research subjects were all descriptively analyzed. These keywords yielded 60 documents, serving as the main research material. The top ten samples for the results of literature analysis in terms of the number of documents each year, the activeness of the authors on this topic, and countries with dominant references were drawn to help readers understand them.

The data were converted into the RIS file format and were exported to VOSviewer to create a bibliometric map of the research design that focused on the main topic of the government's communication strategies in the COVID-19 era on social media. NVivo 12 Plus was applied to visualize the relationship between the main topic and the latest literature and to identify the frequency of the most frequently mentioned terms. Subsequently, the mapping results were analyzed and explained according to the government's communication issues circulating.

RESULTS AND DISCUSSION

The trend in developing research on the government's communication strategies on social media during the COVID-19 period has fluctuated annually since the beginning of the outbreak. There is a graph demonstrating ups and downs in the last three years. The following chart exhibits the details of the annual development trend of the government's communication strategies in the COVID-19 era on social media.
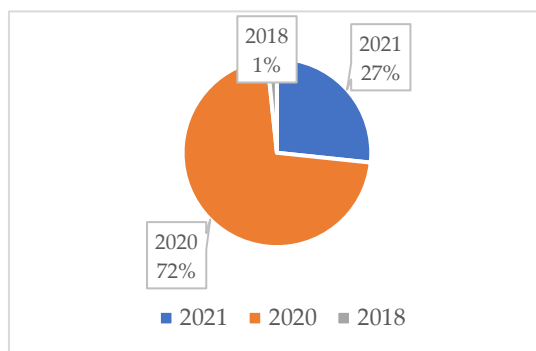

Figure 1. Trend of government's communication strategies in the COVID-19 era on social media
Source: Processed by the author via NVivo 12 Plus

Studies on the government's communication strategies in the COVID-19 era on social media began with the emergence of the COVID-19 outbreak in 2019. However, a document published in 2018 was found to deal with the government's general communication. As displayed in Figure 1, the trend depicts a fluctuating number of publications each year—the highest (72%) occurred in 2020, with 43 articles. In the following year, the number of documents on this topic reached 16 (27%). Additionally, one paper (1%) on this topic was published in 2018. However, no single document on this topic was published in 2019.

Table 1. Author ranking on the government's communication strategies in the COVID-19 era on social media

Country	Publication	Percentage
Barrientos-Báez, A.	7	23%
Caldevilla-Domínguez	5	16%
Lovari, A.	4	13%
Adamu, H.	3	10%
Ades, A.S.	3	10%
Ahad, M.A.	2	6%
Ahmad, R.	2	6%
Ali, D.J.	2	6%

Source: https://scopus.com/

As listed in Table 1, Barrientos (2021), Caldevilla-Domínguez (2021), and Lovari (2020) each contributed to publishing two documents (15%). Meanwhile, the remaining authors, Adamu (2021), Ades (2020), Ahad (2021), Ahmad (2020), Ali (2020), and had solely one publication (8%). Studies on the government's communication strategies in the COVID-19 era on social media emerged. Nevertheless, it was challenging to discover author dominance on this issue. However, three authors with more than one document demonstrated their interest in this topic, prompting other authors to continue to complement the research.

Table 2. Country ranking of the government's communication strategies in the COVID-19 era on social media

Country	Publication	Percentage
US	7	23%
Spain	5	16%
UK	4	13%
Germany	3	10%
Italy	3	10%
Australia	2	6%
Indonesia	2	6%
Poland	2	6%
Singapore	2	6%
Belgium	1	3%

Source: https://scopus.com/

As displayed in Table 1, the trend over the last three years was dominated by one country. The United States contributed seven articles (23%), which were published in the Scopus database. Spain ranked second with five articles (16%). However, ranks one and two could not be declared to be dominating, considering that the COVID-19 pandemic only existed for the last two years. Subsequently, the United Kingdom was third with four documents (13%). Furthermore, Germany and Italy had three papers (10%) published. It was followed by Australia, Indonesia, Poland, and Singapore with two published articles (6%). The last country with minor publications by the top ten samples taken was Belgium, with one publication (3%).

After identifying countries with the most influence on disseminating references regarding the government's communication strategies, the most popular communication strategies, and continents dominating the process were revealed. Figure 2 illustrates the project.
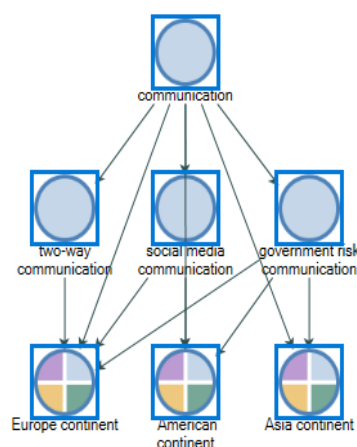

Figure 2. Government's communication strategies in the COVID-19 era on social media
Source: Processed by the author via NVivo 12 Plus

Several communication strategies were employed during the spread of COVID-19, such as two-way communication, communication through social media, and risk communication from the government. Two-way communication is a comprehensive communication process. In this

communication strategy, information goes from the sender to the receiver, and the recipient's answer is returned to the sender. Two-way communication is a key to achieving corporate goals and coping with personal issues. Moreover, this communication strategy was mainly discovered in Europe and America. Its advantages caused it to be prioritized by developed countries in Europe and America. Two-way communication is considered to overcome ambiguity regarding the message because it allows the recipient to convey their response. Europe and America, the nest of many developed countries, demonstrated a better-interwoven communication pattern due to better quality and recipient of the topic compared to Asia. It could prevent meaningful interruptions that usually arise from two-way communication if the recipient is not ready to respond accurately.

Furthermore, communication through social media emerged as the second most adopted strategy during COVID-19. This communication strategy was considered the most effective by almost all countries in the world. European and American countries massively mentioned the effectiveness of social media communication. Meanwhile, Asian countries preferred two other significant communication strategies: two-way communication and government risk communication. The rapid development of social media allows for the extremely fast spread of information. Everyone has access, and interaction is inevitable. In Asia, social media has developed rapidly. However, only some utilized it as the primary communication strategy during the COVID-19 pandemic. This finding indicated a concern for false information spread through social media. Hence, Asian developing countries required an essential component, such as supervision from the authorities, to bridge communication with social media. Therefore, the validity of people with high credibility would eventually dominate the information spread on social media. It is directly related to the subsequent communication strategy.

Finally, the last communication strategy was governance risk communication. In this theme, the focus was on risk communication carried out by the government to break the chain of the spread of COVID-19. Risk communication during the COVID-19 period was performed by three continents, encompassing America, Europe, and Asia. In short, this communication strategy was considered adequate by countries around the world. The government could actively conduct education and warnings for the media to spread information through their official accounts. As the most widely employed communication model, it is elaborated further in the discussion section. The previous discussion alludes to Asian developing countries that need more supervision for the spread of hoaxes in various media. It is common for developing countries to encounter limitations in knowledge and information, causing the governance risk communication strategy to be highly suitable for Asian countries. The government would be the main dominant in information circulation to suppress false news and control society psychologically. In critical COVID-19 times, people tended to need more information to satisfy their curiosity and anger caused by the fear of the spread of the virus.

Moreover, after grouping the focus of statistical Scopus data, they were processed in NVivo 12 Plus to reveal the mapping of trends. These findings are necessary to reference other researchers for the development of science in government's communication strategies during COVID-19. The study's findings are presented in this segment, proving that it is linked to locus superiority. NVivo 12 Plus could unveil the dominance of the study subject through word frequency processing. Word frequency is an essential variable in research on word processing and memory. The availability of the metric, rather than its accuracy, has been the primary criterion for selecting word frequency norms (Brysbaert & New, 2009). This study examined 60 Scopus-indexed articles discussing the government's communication strategies in the COVID-19 era on social media.

Looking at the word frequency feature helps segment the words most frequently employed in previous studies to identify trends. The results of this word cloud feature helped bring out the novelty in studies of the government's communication strategies on social media during the COVID-19 period. Figure 3 displays the word cloud results processed with NVivo 12 Plus.

Figure 3. Word frequency of government's communication strategies in the COVID-19 era on social media
Source: Processed by the author via NVivo 12 Plus

The word cloud uncovered the most employed and stand-out terms among researchers. The most influential words were indicated by the size of the word getting bigger. In this word cloud, 2020 emerged as the most critical word because the majority of mapped articles were published in that year. Additionally, with a relatively large size, the word covid appeared as the cause of this research. Communication was the main focus of the research. Social was an articulation stating that this research belongs to social studies. Moreover, the word government was the main actor in the spotlight. Information was the output of government communication, and several social media were named as strategic plaforms for delivering information.

This explanation provides an overview of the development of the government's communication strategies on social media in the COVID-19 era based on article data obtained from the Scopus database (https://www.scopus.com/search/form). A total of 60 articles discussed this topic. The analysis carried out at this stage visualized the results of data analysis using VOSviewer, depicting the development of the themes addressed in the research on the government's communication strategies in the COVID-19 era on social media.
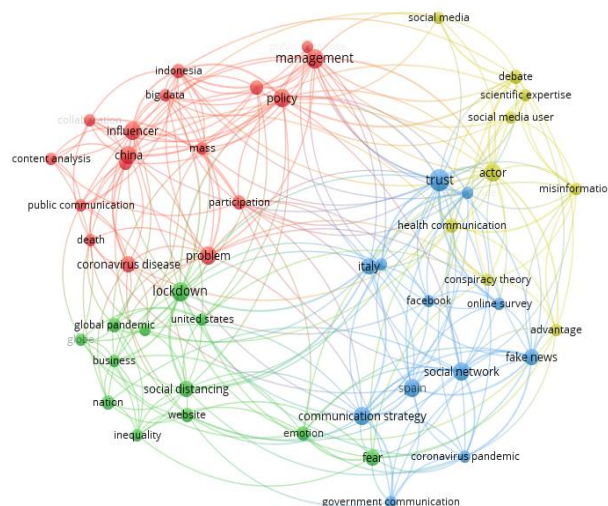

Figure 4. Visualization of the government's communication strategies in the COVID-19 era on social media
Source: Processed by the author via VOSviewer

The visualization of the image mapping in Figure 4 exhibits the patterns of research relevant to the topic of the government's communication strategies in the COVID-19 era on social

media. These studies should be employed as the latest literature for researchers wanting to explore this topic and identify if any trends have emerged or are new ones. Figure 4 illustrates the visualization mapping of correlated generic groupings. VOSviewer mapping classified themes based on four clusters. Cluster 1 dealt with big data, China, collaboration, coronavirus disease, death, Indonesia, influencers, management, mass participation, policy, problems, public communication, public response, stakeholders, and Twitter users. Cluster 2 took a closer look at business, emotion, fear, global pandemic, globe, lockdown, nation, social distancing, United States, websites, and the World Health Organization. Cluster 3 discussed communication strategy, coronavirus, Facebook, fake news, government communication, health issues, Italy, online surveys, risk perception, social networks, Spain, and trust. Cluster 4 concerned actor, advantage, conspiracy theory, debate, health communication, misinformation, scientific expertise, social media, and social media users.

Table 3. Cluster themes in government's communication strategies in the COVID-19 era on social media

Cluster	Concept Name	Total
Cluster 1	big data, China, collaboration, coronavirus disease, death, Indonesia, influencers, management, mass participation, policy, problems, public communication, public response, stakeholders, and Twitter users	17 items
Cluster 2	business, emotion, fear, global pandemic, globe, lockdown, nation, social distancing, United States, websites, World Health Organization	12 items
Cluster 3	communication strategy, coronavirus, Facebook, fake news, government communication, health issues, Italy, online survey, risk perception, social networks, Spain, and trust	12 items
Cluster 4	actor, advantage, conspiracy theory, debate, health communication, misinformation, scientific expertise, social media, and social media users	9 items

Source: Processed by the author via VOSviewer

The mapping of the government's communication strategies in the COVID-19 era on social media could help review the strategies' effectiveness and become a reference for performance evaluation. Public communication in the pandemic era is an element that must be genuinely prime to reduce public fear and doubt. Moreover, topics such as fake news and misinformation were discovered in this mapping. Thus, the government's communication strategies must be highly optimized because the information from the government is valid and reliable. Cluster 1 contained the keywords public communication and public response to show that previous researchers have underlined the trends of communication patterns in response to information provided by the government.
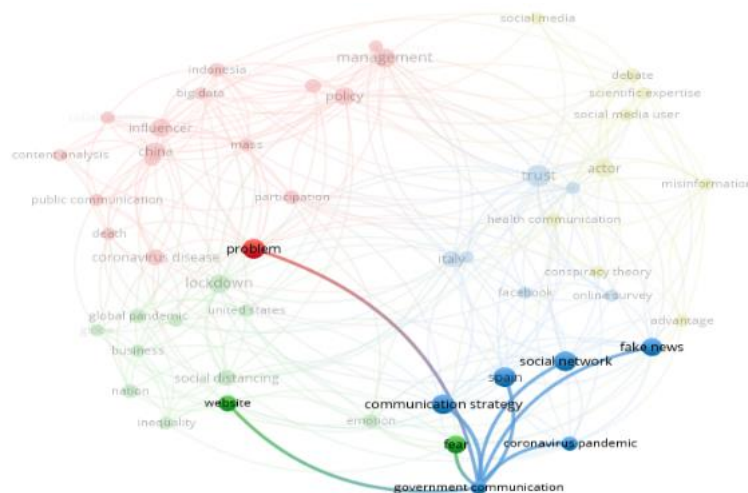
Figure 5. Visualization of the government's communication-focused map network
Source: Processed by the author via VOSviewer

The government communication map yielded several topics, such as communication strategies, the coronavirus pandemic, fake news, problems, social networks, Spain, websites, and fear. Several issues emerged, indicating that many researchers focused on the topic until it became dominant. This mapping disclosed how the government communicated during the pandemic, followed by a social media platform—websites. Besides, many health issues and fake news remained, placing government communication as the correct way to save oneself. Moreover, it could build public trust. During the COVID-19 pandemic, many online surveys were carried out on the mental condition of the community. As a result, the topic of this mapping emerged as a concentration on the social situation in the community. Furthermore, the emergence of Spain on this mapping resulted from the number of articles it produced. Spain was the second most dominant country in research on the government's communication strategies in the COVID-19 era on social media.

Discussion

The government put various programs into action to prevent further transmission of COVID-19, such as working from home, imposing restrictions on community activities, limiting flight activities outside the area, and conducting online schools. However, they became matters of debate in the community, and many still violated the regulations imposed by the government (Herman, 2021). Violations to prevent the spread of COVID-19 in several countries could be due to vital matters related to the government's public communication requiring more attention. As demonstrated by China, public communication played a crucial role in assisting the government's steps in dealing with COVID-19 (Herman, 2021; Wilder-Smith, A., & Freedman, 2020).

Successful government communication has become one of the main approaches to dealing with pandemics. According to (Antwi-Boasiako and Nyarkoh, 2020; and Hood, 1986), the government utilized informational tools to control and guide policy decisions by providing or hiding facts from social actors. The government has constantly been looking for new ways to communicate with people about the war on the virus. One strategy for conveying adequate information was risk communication on social media. Risk communication is essential to provide information and public awareness about risk (Walwema, 2021). Effective risk coordination requires beneficial interactions between specialists and the general public, allowing skills to transcend cognitive function. In times of crisis, the public avoids the ad hoc channels created by the authorities, choosing instead the platforms they are familiar with (Potts, 2014). As a result of its familiarity and openness to people, social media is well suited to foster a sense of community and activate peer-to-peer exchange, promoting information dissemination.

When it comes to complex negotiations, exaggeration is a standard tactic for the "worrying" side of the debate. However, when the "convincing" party wants to use it, it backfires. When the terms "absolutely safe" and "very risky" are employed interchangeably, "very dangerous" usually

wins out. However, in the battle between "slightly dangerous" and "very dangerous," "slightly dangerous" has an edge in risk communication (Sandman, 1993). In addition to words made as pleasantly as possible to raise public awareness, the government in communications tried to attract that trust by taking a much more vigilant stance on "social distancing" to delay the spread of the virus. The government's message continued to emphasize the severity of the threat rather than trying to downplay it in the hope that the public would make the necessary behavioral corrections (Wong & Jensen, 2020).

Essential steps that help officials build an effective communication plan in risk communication activities are situation analysis, assessing information, developing strategies, creating messages, integration, and coordination of input from elected authorities during threats and crises, which must be adequate and regularly published sporadically, not misleading, authoritative, and unambiguous (Barry et al., 2013; Radwan & Mousa, 2021). Ambiguous or even incorrect information causes confusion and paranoia, but reporting from reputable media could help people avoid misunderstandings, rumors, and alternative evidence (Bratu, 2020; Radwan & Mousa, 2021) because health communication refers to a method of disseminating health knowledge to the public and society, and influence their health behavior, practices, and actions. Community education, risk communication, and health training are all aspects of health communication that educate people and prevent them from being confused. For instance, different sources of communication offer interpretations that are at odds with norms and goals, or diverse interpretations are offered by the same source of information (Rulandari et al., 2022). Correct information totally affects people's trust and lowers the possibility of conflict, hoaxes, panic, and other turmoil caused by the lack of relevant and accurate information during the pandemic (Baharuddin et al., 2022).

In other words, risk communication was adopted to improve risk assessment and raise public awareness to educate them about potential government interventions. This expectation is consistent with the results of research on the adoption of risk management behaviors by individuals in Singapore and Hong Kong during the SARS crisis, depicting that people who were more concerned about SARS risks were more likely to adopt risk management behaviors (Leung, at all, 2003; Wong & Jensen, 2020). In the end, risk communication would give birth to a sense of alertness in the community and become a psychological reinforcer in times of crisis with educational information.

After understanding that risk communication was one of the strategies believed to be highly effective in reducing the number of COVID-19 cases, more social media employed by the government to convey information strategies are discussed. The use of online resources for COVID-19 awareness campaigns has become more frequent during the crisis. However, in times of crisis, social media could be misused to spread disinformation and undermine institutional and professional trust (Llewellyn, 2020; van Dijck & Alinead, 2020a) rather than being employed to educate people and spread awareness (Llewellyn, 2020; van Dijck & Alinead, 2020a). As the COVID-19 pandemic unfolds, disease epidemiology has been discovered to be closely linked to accurate knowledge dissemination mechanisms and practices (Bjørkdahl, K., & Druglitrø, 2019; van Dijck & Alinead, 2020b).

The spread of misinformation on social media is most likely caused by all media publishing something without knowing the quality of the evidence, thereby triggering panic. Mass information without social media restrictions could harm public communication. During pandemics, social media adds to the difficulty of maintaining conformity (Herman, 2021; Wilder-Smith, A., & Freedman, 2020). Misinformation and fake news, including content shared via social media, jeopardize evidence-based policy interventions' effectiveness and undermine the credibility of scientific expertise with potential long-term consequences (Hartley & Vu, 2020).

False reports soon spread; for example, advice credited to Stanford University falsely claimed that drinking a few sips of warm water every 15 minutes was sufficient for infection protection. The various warnings to consume pure alcohol, use a particular toothpaste, or drink bleached water was particularly alarming (van Dijck & Alinead, 2020a; Ruiu, 2020). The attitude demonstrated by people should be more significant and fight for a change of attitude from old to new. Still, some public places violated the rules because of conflicting information, and people underestimated the importance of using self-protection tools. This common reaction resulted

from institutional miscommunication, undermining the credibility of the government's recommendations (Ruiu, 2020; Sellnow et al., 2019).

National and European governments immediately initiated concerted (*European Union versus Disinfo*, 2020; van Dijck & Alinead, 2020a). The most prominent social media sites (Facebook, Instagram, Twitter, YouTube, Reddit, and LinkedIn) declared global action to combat the threat of COVID-19 on March 17, 2020 (*NU.Nl, 17 March 2020a*, n.d.). To begin with, Facebook and YouTube teamed up with WHO and RIVM to provide users with official information and specially created video clips from reputable outlets (van Dijck & Alinead, 2020a). Additionally, Facebook and Twitter made a deliberate attempt to refute conspiracy theories and block fake news about "miracle drugs" (van Dijck & Alinead, 2020a). Furthermore, YouTube has vowed to delete all videos demonstrating a connection between COVID-19 and 5G wireless technologies (fifth generation) (van Dijck & Alinead, 2020a).). Several countries took action to pay YouTubers with numerous followers to encourage health education after the COVID-19 pandemic.

In the end, the government's communication strategies with social media will always be the choice of countries worldwide. Because of its simplicity, social media has become part of the particular interest of the community; hence, risk communication can also be instilled there. All forms of education, affirmative words, and policy information could be transparently conveyed to the public. Despite numerous negative things arising from information spreading freely on social media, the government's protective role must be presented further to protect all people in the world.

CONCLUSION

Several communication strategies were employed during the spread of COVID-19, encompassing two-way communication, communication through social media, and risk communication from the government. Two-way communication requires information to move from the sender to the receiver, and the receiver's answer is returned to the sender. Furthermore, this communication strategy was widely applied in Europe and America. The superiority of this two-way communication caused its use to be prioritized by developed countries in Europe and America due to better quality of sending and receiving information. Concerning the second strategy, communication through social media, several European and American countries actively mentioned its effectiveness. In Asia, social media has developed rapidly. Unfortunately, its usage during the COVID-19 pandemic was limited, indicating a concern for false information spread through social media. Therefore, developing countries in Asia required crucial components such as supervision from the authorities to bridge communication with social media.

Regarding the last strategy, this study focused on risk communication carried out by the government to break the chain of the spread of COVID-19. This strategy was employed by all continents (America, Europe, and Asia), which was observed thanks to its efficiency in the communication cycle. The previous discussion has alluded to developing countries in Asia requiring more supervision against the spread of hoaxes in various media. The limitations of knowledge and information in developing countries were undeniable when compared to developed countries on the other two continents. It explains why risk communication by the governance was highly suitable for Asian countries.

Risk communication by the government became the main focus because most continents adopted it as the primary foundation in communication during the COVID-19 pandemic. VOSviewer mapping results were classified into four clusters. The government communication mapping yielded several topics: communication strategies, the coronavirus pandemic, fake news, problems, social networks, Spain, websites, and fears. Several issues emerged, indicating that many researchers focused on the topic until it became dominant. Government communication mapping has provided an overview of how the government communicated during a pandemic by utilizing social media platforms, such as websites. Moreover, many health problems and fake news remained, necessitating government communication to clear them up. The government's communication through social media will always be the choice of countries globally. Because of its simplicity, social media has become part of the particular interest of the community, allowing risk communication to be instilled there. All forms of education and policy information should be conveyed to the public. Even though the information freely spread on social media triggered

numerous negative things, the protective role played by the government must be presented further to protect all people.

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