Jurnal Komunikasi:
Malaysian Journal of Communication
Jilid 39(4) 2023: 22-37

Buzzing before the Storms: Infodemic Pattern of COVID-19 in Indonesia

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ABSTRACT

Amid the COVID-19 pandemic that Indonesia has been facing as a country with diversity and a high population, hoaxes and misinformation have become an acute problem. The Ministry of Communication and Informatics recorded 1,600 hoaxes related to COVID-19 from January 2020 to June 2021. By using the concept of infodemic and the theory of uses and gratification, this research attempt to describe and analyze categories of fake news, the types of media used, the description of the issues raised in the fake news, and the frequency of hoaxes spread during the COVID-19 pandemic in Indonesia; and examine the relationship between the number of new COVID-19 cases and the frequency of hoaxes in the early days of the pandemic. This study used quantitative methods, with trend analysis in data processing of 1970 hoax issues released by the Ministry of Communication and Informatics to the number of new cases of COVID-19 patients during the same time frame. The results show no relationship between total COVID-19 cases and real issues. The frequency pattern of hoax issue distribution during the COVID-19 pandemic follows infodemic conditions, with the peak of hoax circulation equal to the start of COVID-19 cases in Indonesia. Although the Indonesia government has made various efforts to address the problem of hoaxes and misinformation during the COVID-19 pandemic in Indonesia, this research shows that further action is still required to reduce the negative impact of hoaxes and misinformation on Indonesian society.

Keywords: *COVID-19, hoax, infodemic, pattern, social media.*

INTRODUCTION

Information is one of many human needs,to ensure humans survive, develop, entertain and retain knowledge. With the development of information technology, there is an explosion of information that can be easily accessed by anyone, anywhere, and anytime (Uran et al., 2022). Easy access and dissemination of information can have both positive and negative impact on people's livesInformation or news disseminated by individuals or groups may be done irresponsibly, intentionally, or unintentionally, which can negatively impact if the information is false or fake. Negative impacts can occur if people do not verify the news they consume (Seran & Ludji, 2022).

Hoaxes and misinformation are complicated problems, especially in Indonesia, with its cultural diversity and high population.. The Ministry of Communication and Informatics of Indonesia stated that there were 1,600 hoaxes related to COVID-19 from January 2020 to June 2021. (Ravelo, 2021). Pandemic have created a new habit of maintaining distance to prevent virus transmission, resulting in more internet usage (Siste et al., 2020; Hidayat et al., 2020). The anti-hoax task force formed by the government and organizations such as Indonesian

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E-ISSN: 2289-1528
https://doi.org/10.17576/JKMJC-2023-3904-02

Anti-Defamation Society MAFINDO) and United Nations Children's Fund (UNICEF) helps confirm and provide information about hoaxes circulating through social media and other digital and online information media. National and international issues are also a source of hoax content in Indonesia (Ravelo, 2021; Garrett, 2020). One example of an international hoax issue is related to the anti-vaccine protests in France. The claim that the uploaded photo is a photo of an anti-vaccine demonstration in France is false. The photo was taken on top of the Arch of Triumph (Arc de Triomphe) in 2018 with an estimated 90,000 fans celebrating France's victory over Croatia in the 2018 World Cup in Russia. This news was declared a hoax and has been clarified by the Indonesian Ministry of Communications and Information Technology (Kementerian Komunikasi dan Informatika, 2021b).

Research shows that the lack of media literacy influences people to produce and disseminate hoax information (Pramono, 2020). The COVID-19 virus pandemic has caused a global crisis, not only in Asia (Dyer, 2021; Susilo et al., 2021). The lack of reliable information from the government and credible organizations leaves room for speculation, mismanagement, and complicates prevention of the effects of racism and stigma on society (Sohrabi et al., 2020; Dharma & Kasim, 2021; Launa, 2020; Dahalan & Abd Kadir, 2022). Most hoax information spread during the COVID-19 pandemic was done unintentionally. Hoax news has manipulated many audiences, so the government needs to take firm action against those who spread and produce hoax news. However, proving the perpetrators who produce hoaxes is not easy (Yuliarti, 2018). Indonesia was considered slow to respond and consistently disseminate information at the beginning of the pandemic (Olivia et al., 2020; Farizi & Harmawan, 2020; Almuttaqi, 2020). Hoaxes arise due to the public's unlimited access to social media, where they voice an opinion and share information without filter of the information accuracy (Nasir et al., 2020). In addition, people's habit of trusting information quickly causes the perpetrators to spread hoax news more intensively.People are inclined to believe information that is consistent with their existing worldview (Masrudi, 2019).

Research on the types, sources, and issues of fake news about COVID-19 has been conducted in the UK and findings indicated many issues and forms of misinformation found on Twitter, Youtube, and Facebook (Brennen et al., 2020). Research in Indonesia on misinformation was conducted in the early days of the pandemic (Nasir et al., 2020; Djalante et al., 2020). Some have continued research from the pandemic's beginning until May 2021 (Bahri, 2021). This research was expected to provide a new perspective on the correlation between new cases and the number of fake news clarified by the Ministry of Communication and Informatics and explore the issues that emerged and were popular during the explosion of new COVID-19 cases in Indonesia from the beginning of 2020 to the end of 2021.

Previous research on the DKI Jakarta's people's perceptions regarding the handling of COVID-19 outbreak in the DKI Jakarta area (Aminudin, 2022) concluded that people tend to follow information about COVID-19 from mass media that are considered highly credible. In addition to credible mass media, people in middle and upper economic circles use the COVID19.go.id portal to fulfill their COVID-19 information needs based on research in the Starbucks coffee environment in the Tangerang area (Nurianna & Suraya, 2022; Djalante et al., 2020). Individualized information checking increases as hoaxes increase (Brennen et al., 2020). The past studies on COVID-19 hoaxes from 2020 to 2021 found 16 journal articles related to the spread of hoaxes during the COVID-19 pandemic through the media in Indonesia (Faturohmah & Salim, 2022). These studies indicated that the spread of hoaxes causes anxiety, doubt and confusion among the public. The situation is made worse when the information is disseminated without fact checking. Several international studies have been

referenced regarding hoax news during the COVID-19 pandemic. According to Stanley et al. (2021), people who rarely make an effort to search, digest and think seriously are more likely to believe that the pandemic is a hoax; and less likely to take COVID-19 prevention measures such as keeping their distance, wearing masks and washing their hands in March 2020 . The research results in Germany show that public trust in the government reduces the effect of public belief that the COVID-19 virus is a conspiracy. The study also stated no relationship between social concern and COVID-19 prevention habits (Bruder & Kunert, 2022).

Another study with a mixed method research method using 100 samples of hoax news circulating on Twitter social media in 2020-2021 shows that more original hoaxes are not circulated (not retweeted) by accounts with many followers or verified (blue tick). More disinformation was circulated by accounts created between 2013 and 2020. Verified accounts and accounts with more followers than following accounts were more likely to oppose false information than approve of it (Noguera-Vivo et al., 2023). The study also concluded that similar behavioral patterns of anti-vaccine discourse correspond to behavior-related indicators from the Twitter account pattern category. These sample patterns and techniques can be a comparative study of disinformation related to health issues or other phenomena in social media (Noguera-Vivo et al., 2023).

Research in Peru using content analysis during the pandemic (March-June 2020) concluded that WhatsApp was the leading platform for spreading hoaxes. Misinformation stories were mostly photos or text, and the content was related to the health crisis, economic bonuses for vulnerable families, pandemic restrictions, and health myths (Pichihua Vegas, 2022). In the context of increasing uncertainty due to the spread of the COVID-19 virus, the circulation of fake news on social networks and messaging applications has mushroomed, resulting in what is known as 'infodemics' (López-García et al., 2021). A mixed methods study in Spain concluded that quantitatively, more fact-checking is done during emergencies. Qualitatively, hoaxes have become more complex as the pandemic has progressed, such that disinformation engineering has occurred and is expected to continue until a vaccine is found.

This infodemic concept follows the *uses and gratification* theory, where the premise states that people, as media consumers, have a playful nature in using and choosing their media (West & Turner, 2010). Humans have an awareness of the use of media. They have special interests and motives for choosing media to satisfy their needs, which in this pandemic phenomenon is about the spread of the COVID-19 virus. Research related to hoaxes and the social media platforms used for their distribution has been conducted during the pandemic. This includes research on the use of social media platforms such as Twitter (Noguera-Vivo et al., 2023), WhatsApp (Pichihua Vegas, 2022), and YouTube (Brennen et al., 2020). Studies have also investigated the behavior of spreading hoaxes in Indonesia (Masrudi, 2019; Yuliarti, 2018), revealing a close relationship between hoax dissemination and the low level of digital literacy among the Indonesian population (Bintarti et al., 2022). The implications of this infodemic can exacerbate the spread of the COVID-19 virus. Research conducted in the United States has shown that many Americans do not accept the pandemic's reality and believe it to be a hoax (Stanley et al., 2021). However, no previous studies have explored the correlation between hoax-related issues during the pandemic (infodemic) and the number of COVID-19 cases. It is worth noting that the complexity of hoaxes has grown during the pandemic, as information has been continuously reshaped, especially in the absence of a discovered vaccine (López-García et al., 2021). Therefore, referring to the problems that exist in the spread of fake news (hoaxes) and disinformation during the COVID-19 pandemic, researchers

analyzed several problems that had not been disclosed in previous studies and made their questions in this study:

1. What are the primary categories of fake news circulated during the COVID-19 pandemic in Indonesia?
2. Which social media platforms were most frequently used for disseminating hoax information during the COVID-19 pandemic in Indonesia?
3. What overarching themes emerge from the discussions surrounding hoax information during the COVID-19 pandemic in Indonesia?
4. How does the frequency pattern of hoaxes, disinformation, and misinformation evolve throughout the COVID-19 pandemic in Indonesia?
5. Is there a correlation between the peak of COVID-19 transmission and the frequency pattern of hoaxes pertaining to the COVID-19 virus in Indonesia?

The hypothesis tested in this research is whether there is a relationship between the climax point of COVID-19 transmission time and the spread of hoaxes about COVID-19 in Indonesia. This correlation can be used to prevent infodemic in the future. This research will add to the repertoire of looking at the effects of exposure to information on cases faced in real life, especially in the pandemic crisis.

LITERATURE REVIEW OR RESEARCH BACKGROUND

In this study, we try to examine the spread of false information, misleading content, and deliberate misinformation. The analytical framework used for data analysis involves the categorization of hoaxes, misinformation, and disinformation. Additionally, the study utilizes the uses and gratification theory to analyze how information serves the public during the pandemic. The news and information circulated through various media channels. We also categorize the issues into three divisions according to where the source is about. Firstly, the issues from international countries. Secondly, issues that originated within Indonesia. Lastly, the issues with neutral subjects which are unrelated to information from either Indonesia or an international / foreign country, and also not directly associated with the COVID-19 pandemic.

a. Uses and Gratification Theory

The Uses and Gratifications Theory is a theory of communication between humans and media that offers a concept in understanding how people choose media that meets their information needs (Rahmadhany et al., 2021; Prisgunanto, 2020). This theory sees humans as active in choosing, evaluating, and determining the best media to meet their communication goals' satisfaction and needs (West & Turner, 2010; Samani & Guri, 2019). The reasons for using media are diverse, but during a pandemic, there are three main reasons when people seek information related to the spread of the virus, namely 1) to seek information, 2) to learn specific content (i.e., information about the spread of the virus, prevention, and causes), and 3) to facilitate social interaction and relate to the pandemic situation together.

The theory has five assumptions. First, the audience is an active party, using the media to achieve specific goals. Second, the initiative of the audience to choose certain media to satisfy their needs is entirely determined by the audience itself. Third, the media compete with each other to satisfy the needs of their audiences. Fourth, everyone has self-awareness in using the media. They have specific interests and motivation that can be measured. Finally, the assessment of the media content can only be done/assessed by the audience. The

premises and assumptions of this theory were used to analyze the existence of infodemics, an explosion of information dissemination that is not necessarily true and may be misleading at a point where information related to the COVID-19 virus is needed and sought by the public (West & Turner, 2010).

b. Hoax, Misinformation, and Disinformation

Hoaxes spread quickly, disguised as the absolute truth. The spread of hoaxes is often carried out by parties close to the recipient of the hoax information (Bintarti et al., 2022). For example, hoaxes are spread through broadcasts to WhatsApp (WA) groups, Telegram groups, and posts on Facebook, Instagram, Twitter, TikTok, and other social media. Lies are often covered with seemingly accurate data, so people need help distinguishing between fake news, lies, and trustworthy information (Syam & Nurrahmi, 2020). The ease of sending information received without confirming the truth has caused hoaxes among internet and social media users to explode.

In its publication, Journalism, Fake News, and Disinformation, released in 2018, UNESCO divided hoaxes, a.k.a fake news, into three categories: misinformation, disinformation, and misinformation. The explanation is as follows: 1) Misinformation is untrue or inaccurate information, but the person who spreads it believes that the information is valid and reliable. There is no malicious purpose for those who spread misinformation content other than to "remind" or ask people to "be on guard" 2) Disinformation is information that is also untrue but is fabricated in such a way by parties who intend to deceive the public, deliberately want to influence public opinion, and then gain certain benefits from it. 3) Misinformation (hoaxes) is information that does have enough elements of truth, either based on fragments or whole objective facts (UNESCO, 2018). Misinformation is produced in such a way as to cause harm to other people or parties; it is not oriented toward the public interest. Misinformation can take the form of harassment, hate speech, discrimination, and dissemination of information resulting from violations of privacy and personal data (Kementerian Komunikasi dan Informatika, 2019)

The spread of misinformation, both intentionally and unintentionally, is exacerbated by anonymity of senders as well as fast,cheap and mass production of information. Content editing softwares is making it easy for people to change contents without the original author's confirmation. Reflecting on how hoaxes spread massively during the presidential or legislative elections in Indonesia, the MAFINDO report shows that the number of hoaxes spread in July-September 2018 was 230 hoaxes whereas the highest spread was in September 2018 circulating 52 hoaxes (Sujono, 2020). Social media is not only a medium for producing misinformation but also increases the effect of misinformation circulation. The need for information due to uncertainty during the pandemic caused an explosion of creation, distribution and consumption of COVID-19 related information (Sujono, 2021).

c. Infodemic

Infodemic is defined as a state of flooding information about a problem that complicates the certainty of the problem, a condition that also occurs during the COVID-19 virus pandemic (Sujono, 2020). The first study shows that the pandemic has caused an 'infodemic,' defined as an overabundance of information but not all of the information that occurred is accurate/true, making it difficult for people to find reliable sources when everyone also needs information (WHO, n.d.). The heavy flow of information makes many policies related to

preventing and handling the spread of the virus fail to run smoothly, as evidenced by the low vaccination rates in several regions. It can be seen from the Ministry of Health data on January 24, 2022, that the 2nd dose vaccination rate has reached 125,106,842 or 60.07% of the total vaccination target. However, the vaccination rate in Indonesia is unevenly distributed in each province. The lowest 2nd dose vaccination rate comes from the eastern region of Indonesia (Katadata.co.id, 2022).

METHODOLOGY

The research method used in this study was a descriptive quantitative method to interpret hoax data released through government information channels related to the COVID-19 pandemic in 2019-2022. Descriptive data analysis was used in reading data taken from MOCI (Ministry of Communication and Informatics) releases related to hoaxes and data from the Ministry of Health related to the number of COVID-19 patients. Comparing the two data was used to see the infodemic conditions related to the spread of COVID-19 from 2020 to 2022. This research used 1970 hoax data published by MOCI related to the COVID-19 issue from 2019 to 2021. The data on COVID-19 issues and cases were processed using descriptive statistical processing using diagrams, inference statistics using normality tests, and Spearman's rank correlation nonparametric tests. The correlation test was intended to see the relationship between the fundamental issues related to COVID-19 and the number of cases each month. The normality and correlation tests were conducted using Minitab 18.

RESULTS AND DISCUSSION

From the COVID-19 hoax issue data released as of November 3, 2021, at 06.00 WIB by MOCI, there are a total of 1970 confirmed issues (Kementerian Komunikasi dan Informatika, 2021a). The first confirmed issue began its spread on May 06, 2019, regarding bats as the spreader of the Coronavirus. The last release report was as of November 1, 2021, regarding the issue of students in South Africa who died after COVID-19 vaccination.

a. Misinformation, Disinformation, and Hoaxes

The 1970 issues in total reviewed by MOCI can be described in the following figure 1.

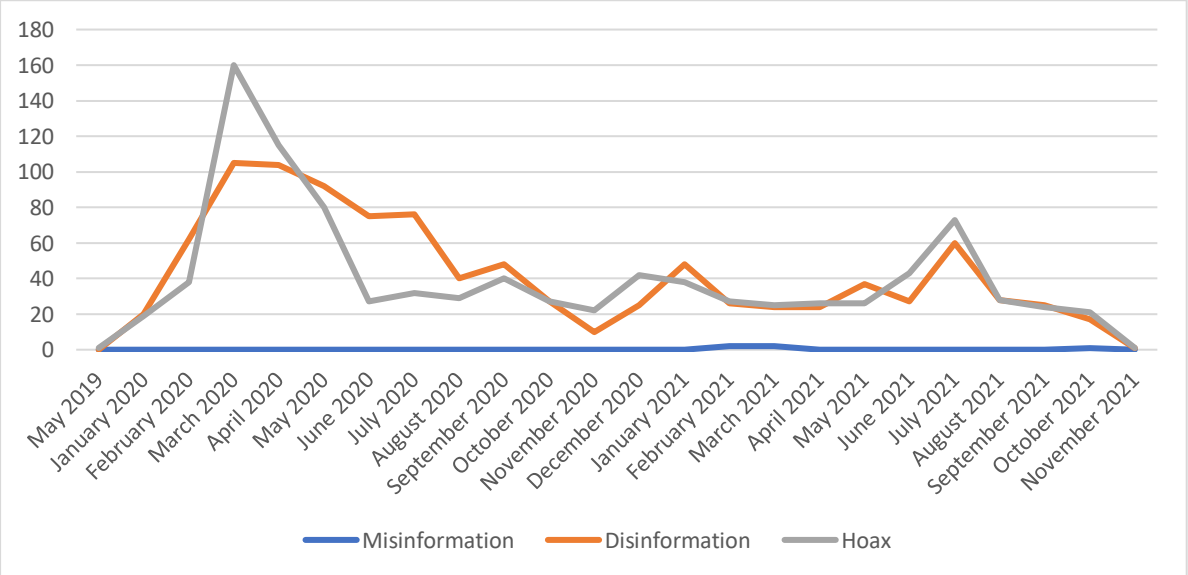

Figure 1: Data on issue releases from MOCI in 2019-2021

Based on the data from the graphic (Figure 1), the number of total issues of misinformation and hoaxes are quite balanced. From a total of 1970 issues throughout 24 months from 2019 to 2021, there were 1001 issues related to misinformation and 964 issues related to hoaxes, indicating that between information that is believed to be accurate and information that is false and packaged by cornering or injuring other parties is distributed in a balanced manner. MOCI clarified only 5 disinformation issues in 2021.

The basic assumptions of the uses and gratification theory can explain the issue of misinformation and hoaxes during the COVID-19 pandemic. Public awareness of social media users is high to maintain health and safety. They disseminated information with various motivations in addition to save themselves and their families and acquaintances (in social media networks), so that information that is considered true (accompanied by statements that appear to be facts) and information that is false but seems to aim for good things is still shared and eventually consumed by social media users in Indonesia (Syam et al., 2020). The total issue data in March 2020 shows an explosion. In line with research results, people who rarely try to search, digest and think seriously are more likely to believe that the pandemic is a conspiracy (Stanley et al., 2021). In Indonesia, it can be seen in figure 1 that the total issue of hoaxes about COVID-19 increased sharply in March 2020, along with the start of the COVID-19 virus patients in Indonesia.

b. Social Media in the Spread of Hoax Issues

There are nine types of media used in the spread of hoax information during the COVID-19 pandemic in Indonesia according to the release from MOCI, namely WhatsApp, Facebook, Instagram, Youtube, Website, Telegram, Tiktok, Twitter, and SMS. The lowest use of media in spreading is by SMS and Telegram. These two media are considered the lowest because the use of SMS uses fees (paid) in disseminating the information. In contrast, the use of Telegram is still limited to users in Indonesia, fewer than other social media users. Facebook is the highest use in spreading hoax issues, 41%, with 818 issues spread through Facebook. While the second highest media used is WhatsApp, which is used to spread 513 issues

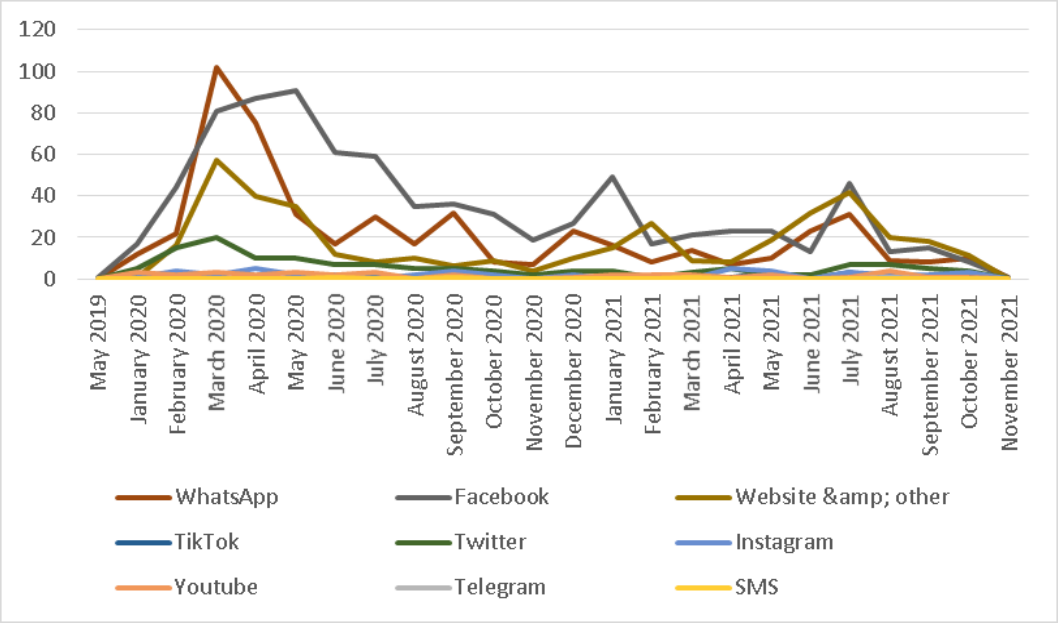

Figure 2: Media spreading COVID-19 hoax issues

The data findings in Figure 2 concurs with research in Peru regarding content analysis during the pandemic outbreak from March to June 2020, where WhatsApp media was the leading platform used to spread hoaxes and several other social networks (Pichihua Vegas, 2022). Whatsapp is also considered manageable and can be immediately adopted by cross-generational groups (Muhamad Adzmi et al., 2021). The infodemic that began in early 2020, along with the global spread of the COVID-19 virus, was accompanied by an explosion of information from the nearest network (Syam & Nurrahmi, 2020). Restrictions on sharing chain information through WhatsApp were then tightened, which also explains why the spread of hoax issues through WhatsApp media declined after the peak in March 2020. According to the MAFINDO Report, there is a change in people's preference for graphic and visual content, so the use of text as a medium for spreading and producing hoax issues has decreased significantly (MAFINDO, 2023). Using too long text is also becoming less effective given the low literacy rate of Indonesians who are not fond of reading.

In Figure 3, it can be seen that the majority of media used in spreading hoaxes is Facebook. Although the number of WhatsApp users was the most widely used social media by Indonesians (usage reaches 88.7%), the highest spread of issues using Facebook media, which is used by 81.3% of Indonesians (Kemp, 2022). The data findings on using Facebook as a medium for spreading COVID-19 hoax issues in 2019-2021 were also followed by the results of MAFINDO's January 2023 Edition Hoax Mapping Report, which states that hoaxes in January 2023 were mostly found on Facebook. According to the report, images and videos are most widely used as evidence of hoax issues supported by captions in the form of text.

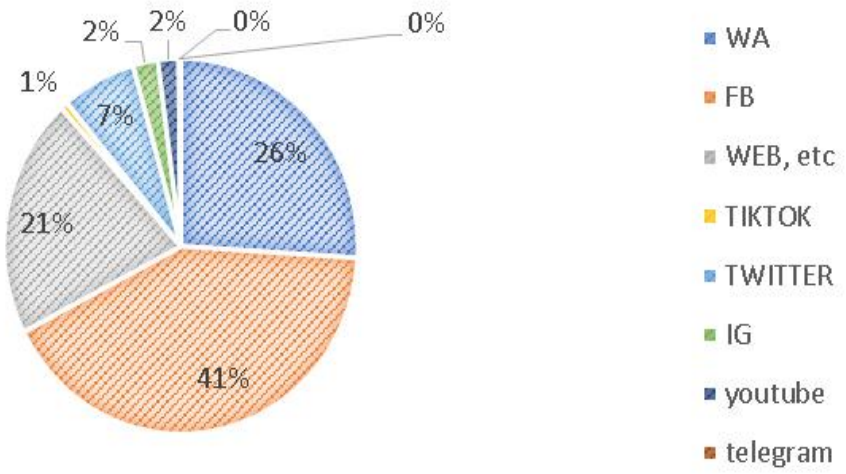

Figure 3: Types of media in spreading COVID-19 hoax issues

The dominance of evidence in images and videos is considered more convincing to readers/viewers (MAFINDO, 2023). It can be concluded that the trend of using images and videos continued from the beginning of the pandemic in 2020 to 2023. It is easier to share information through images, videos, and captions to many people through Facebook rather than WhatsApp. People are prefer using facebook to share this audio visual contents rather than using Whatsapp because there are restrictions on Whatsapp for sharing information (forward messages) as anticipation and supervision in spreading hoax information.However, Facebook has no restrictions on resharing posts, but it tightens supervision of posted content and restrictions on accounts suspected of sharing hoaxes and violating community rules.

c. Issues Raised in Hoaxes

The data findings from the division of the types of issues raised in the COVID-19 hoax release conducted by MOCI can be divided into three categories of issues, namely issues that raise content about foreign countries, issues originating from within the country and neutral issues that more directed towards science without information on their origin. The total issues of the three categories are dominated by issues that raise domestic themes as many as 1404 issues (71.27%), while issues from abroad are 510 issues (25.89%) and neutral issues are only 56 issues (2.84%). Figure 4 below shows that at the beginning of the pandemic period from January to February 2020, foreign and domestic issues developed in harmony. It shows that the outbreak of the infodemic in the early days of the pandemic had an equal diversity of issues both from within and outside the country. The issue's theme is equivalent to the variety of sources because the spread of the virus and information sources is carried out globally. The need for information and clarity on new conditions is the reason for using the media, in line with the community's need to seek information to save themselves, facilitate social interaction, and relate to the pandemic situation together.

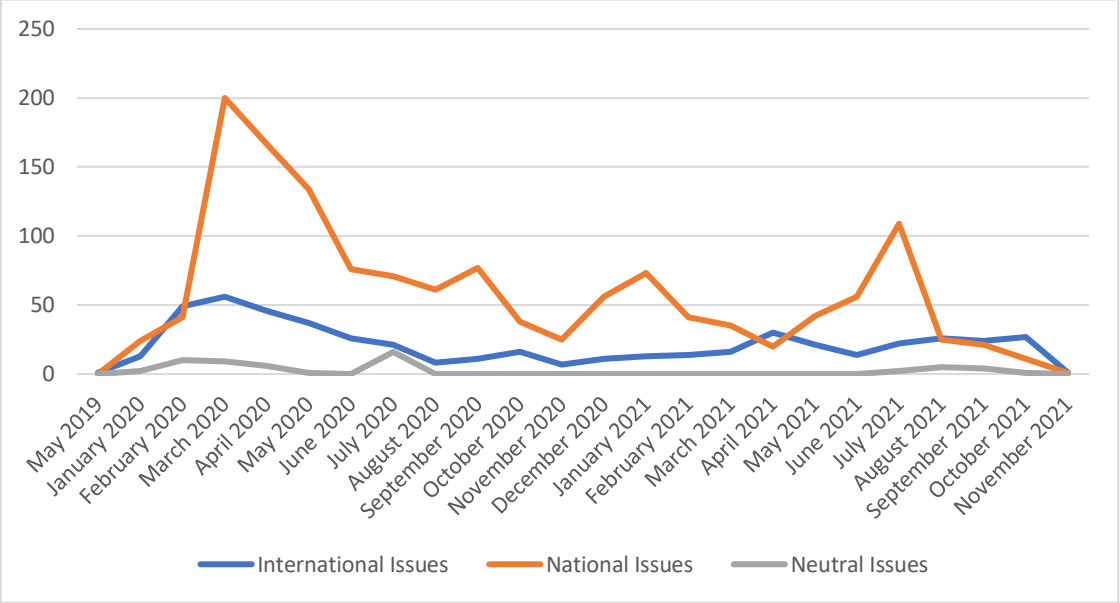

Figure 4: Issues raised in the COVID-19 hoax

The content of national issues in March 2020 was dominated by issues related to areas exposed to the virus and tracking virus contamination (61 issues out of 200 originating from within the country). After that, the issues raised on the COVID-19 hoax from within the country raised themes related to *lockdowns* and virus spread prevention measures such as the closure of vital community locations (48 issues), issues related to national figures (24 issues), circulars/compensation policies from the government (21 issues), patient handling (20 issues), deaths due to the COVID-19 virus (16 issues) and related to preventive drugs/vaccines as many as 10 issues. Meanwhile, issues from abroad / international, with a total of 56 issues in March 2020, were dominated by issues related to virus explanations and antiviral drugs, as many as 14 issues, international figures (12 issues), patient handling (10 issues), exposed areas and patient tracking (8 issues), lockdown (6 issues), death (5 issues) and conspiracy theory 1 issue.

The issue of *lockdowns* or restrictions on movement in specific communities/areas is prevalent because it is an unnatural condition carried out by the community and can directly impact the movement of the community's economy. Meanwhile, national and international figures are easier to create in hoax content because they are needed to attract the attention of those who consume hoax news. The issue of using figures and governments is in line with research findings that this category dominated fake news in early 2020 in the UK (Brennen et al., 2020). This finding is in line with the research results that hoaxes are getting more complex as the pandemic develops (López-García et al., 2021).

d. The Relationship Test between Hoax Issues and the Number of New COVID-19 Cases

In Figure 1, there is a pattern of the frequency of hoaxes and disinformation increasing significantly in March and decreasing after that until the lowest is reached in November 2020. The next point of increase was raised again at its highest in July 2021. The pattern of issues distribution of both disinformation and hoaxes goes hand in hand with the dominance of hoax distribution higher than disinformation, except in June and July 2020, where the frequency of disinformation issues is much higher than hoax issues. The infodemic pattern can be seen in this frequency graph 6. The definition of infodemic as an explosion of a variety of information that is overwhelming and not necessarily true, making it difficult for people to find reliable sources when everyone also needs information related to the COVID-19 virus, is illustrated starting in February and the peak point of the information explosion is in March 2020. The wave of fake news distribution is at its highest peak in March and April 2020, with 265 and 219 issues, while another peak appeared in July 2021.

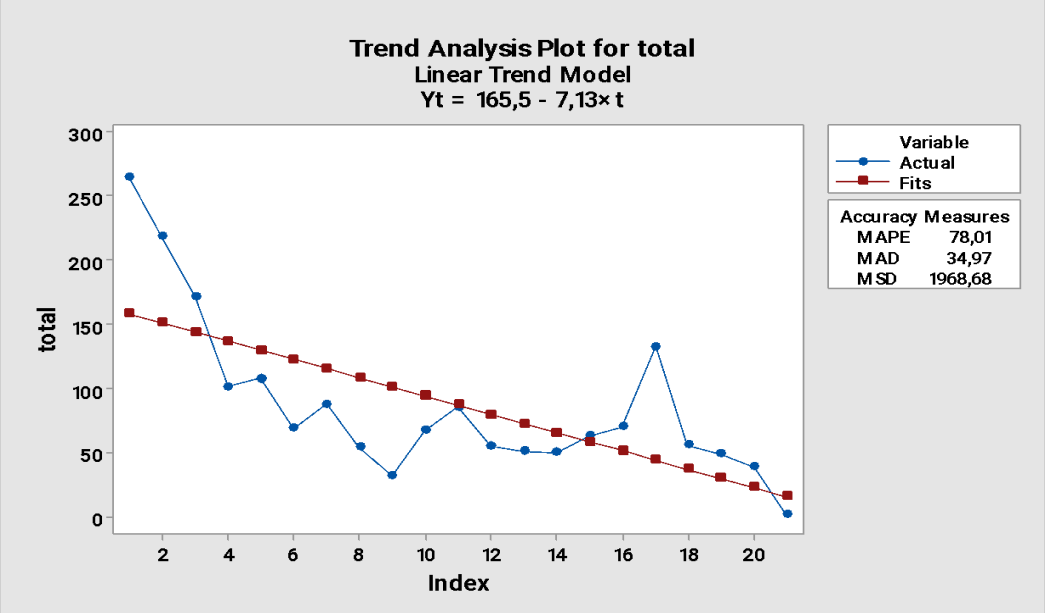

Figure 5: Trend analysis

The highest total issue occurred in March 2020 at the beginning of the COVID-19 infection case. The real issues tend to decrease until November 2021, based on the trend analysis in Figure 5. The downward trend of the fundamental issues is reflected in the linear trend analysis equation, which has a negative gradient. The equation is $Y_t = 165.5 - 7.13t$. This trend decreases along with the latest information from World Health Organization (WHO) and the government regarding the virus and policies to prevent transmission of the

virus. There have been many movements from the government and the community to counteract hoaxes, as well as scientific research on the C ovid-19 virus and vaccine research that makes the pandemic situation clear. Data transparency and disseminating factual information from the government to prevent virus transmission during a pandemic is one way to combat hoaxes (Farizi & Harmawan, 2020).

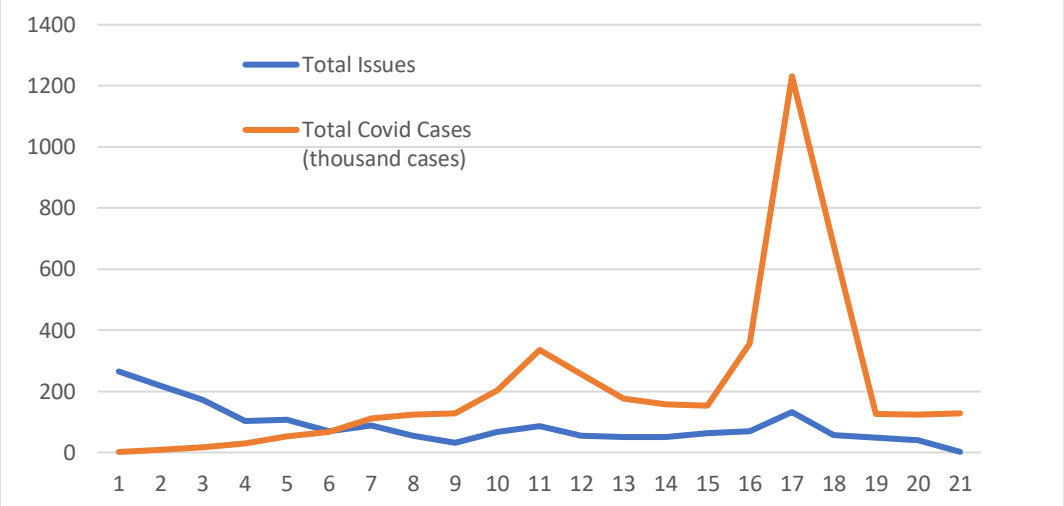

Figure 6: The line between new COVID-19 cases (in thousand) and total issues

Figure 6 shows that the infodemic pattern can be seen in the frequency pattern of hoax issues. The pattern of increasing COVID-19 cases has also increased along with the official announcement from the Indonesian government about patients infected with the COVID-19 virus in March 2020. The graphic pattern of the case explosion shown in Figure 6 has several peak points, namely in 1) January and February 2021; and 2) July and August 2021, the peak of the Delta variant explosion (Faisal & Arisanti, 2022). The pattern of increase in the total case graph is only confirmed following the increasing frequency of COVID-19 hoax issues in July 2021. Meanwhile, in February 2021, there was no significant increase in the frequency of circulation of hoax issues. However, in January 2021, there was an increase in hoax issues before finally starting to level off again in February 2021, where this pattern was inversely proportional to COVID-19 cases. Thus, the development of the number of cases of COVID-19 sufferers is not related to real COVID-19 issues because the infodemic is only reflected at the beginning of the pandemic.

The absence of a relationship between the number of cases of COVID-19 and the real issues is also indicated by the Spearman correlation nonparametric test. This correlation analysis is due to the non-normality of the total issue data. The results of the Kolmogorov-Smirnov normality test obtained $a\ p - value < .01$, which means that the total issue data spread abnormally with a confidence level of 95%. Furthermore, the Spearman correlation test results obtained a correlation coefficient of -0.362 and a correlation coefficient of -0.362. $p - value = .107 > .05$ which means there is no relationship between the two modifiers.

From the issue frequency pattern, it can be concluded that the infodemic in Indonesia appeared at the beginning of the uncertainty of the COVID-19 case, as evidenced by the climax of the issue starting in March 2020 while the spread of the COVID-19 virus only broke out in March 2020. The community at the beginning of the pandemic played an active role, using the media to find and get the information needed to satisfy the needs in the midst of

an infodemic (Samani & Guri, 2019). Each person also has their preferences in choosing the media used in obtaining information, so that when an infodemic occurs, the community also not only consumes information from the media they like but also shares this information with others in the hope of sharing views, knowledge, and appropriate information on the conditions of the COVID-19 pandemic.

The government's efforts to address hoaxes and misinformation during the COVID-19 pandemic in Indonesia need to be continuously improved. Educational campaigns that actively and continuously involve the community can help raise public awareness about the importance of reliable and accurate sources of information. In addition, strict law enforcement against perpetrators of hoaxes and misinformation also needs to be improved to provide a deterrent effect and reduce the number of spreading hoaxes. The government can cooperate with mass media to combat hoaxes and misinformation by disseminating accurate information and verifying facts before broadcasting. Sanctioning or terminating cooperation with media proven to spread hoaxes and misinformation will be an effective measure to reduce the spread of hoaxes in society. Another preventive action is improving the digital literacy of the community, especially the younger generation as well as opinion leaders to lead the people can be more critical and wise in sorting out the information obtained from social media and other digital platforms. This prevention hopefully can reduce the number of hoaxes spread therefore people can avoid the negative impacts caused by hoaxes and misinformation. We hope that this research can illustrate how to handle hoaxes in crisis conditions if they occur in the future.

CONCLUSION

This study supports previous research findings by providing authentic results from Indonesia and adding data until the end of November 2021. The frequency pattern of hoax issue distribution during the COVID-19 pandemic follows infodemic conditions, with the peak of hoax circulation coinciding with the start of COVID-19 cases in Indonesia. This study proves that the distribution of hoaxes during the pandemic is not related to the number of new COVID cases. The issues that emerged and were popular during the explosion of new COVID-19 cases in Indonesia from the beginning of 2020 to the end of 2021 were diverse and dominated by national issues.

This study implied that there was no relationship between the number of hoaxes circulating and the number of new cases during the COVID-19 pandemic, so transparency and clarification of information can be carried out to deal with hoaxes on an ongoing basis by the government and all levels of society. The COVID-19 infodemic are interrelated with the discovery of a vaccine, open and comprehensive information by the government and WHO, as well as the active involvement of the community in filtering information. We hope this research will provide an overview of handling hoaxes in crisis conditions if they occur in the future.

ACKNOWLEDGEMENT

The researcher expresses its gratitude and sincere appreciation for the data published by the Ministry of Communication and Informatics of the Republic of Indonesia as the main material for this research. This research was funded privately without grant from any party.

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E-ISSN: 2289-1528
https://doi.org/10.17576/JKMJC-2023-3904-02

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