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COVID-19 Infodemic in Indonesia: Impacts on National Security and Government Responses

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Abstract

The infodemic, characterised by widespread misinformation and disinformation about COVID-19, including its transmission and vaccines, was a significant issue in Indonesia from 2020 to 2023, during and after the pandemic. This research aims to analyse the impact of the infodemic on Indonesia's national security during this critical period, emphasising the importance of understanding how infodemic can influence national security. This article presents a rigorous literature review and process tracing method, collecting data from various stakeholders, journal articles, news media, and reports from international organisations to explore the correlations between infodemic and national security. It argues that Indonesia's extensive social media landscape and low public health literacy levels have intensified the spread of viral misinformation, undermining the pandemic response. The government's initiatives to combat the infodemic were successful, as evidenced by increased compliance with COVID-19 protocols and vaccination participation. The article is organised into four sections. The first discusses misinformation in Indonesia and offers a literature review. The second explores theoretical arguments regarding the infodemic's impact on national security. The third examines government responses and stakeholder involvement. The final section analyses the effectiveness of these efforts.

Keywords:
infodemic; COVID-19; Indonesia; government; misinformation and disinformation

Introduction

Access to information during a health crisis like the COVID-19 pandemic is crucial, but without proper verification, it can lead to confusion. Inaccurate information falls into two categories: misinformation and disinformation (Pranata et al., 2022). The former involves false or inaccurate information shared unintentionally (Scheufele & Krause, 2019), and the latter intentionally (Adams et al., 2023). Although similar, misinformation and disinformation are distinct terms. Their combined spread is referred to as an infodemic (Chen et al., 2020), which encompasses fake news, conspiracy theories, myths, and even racist narratives (Rathore & Farooq, 2020). The spread can instill fear and anxiety in the community, potentially resulting in misguided responses to the pandemic (World Health Organization, n.d.).

Research highlights several prevalent infodemic phenomena in Indonesia (Nasir et al., 2020). Misinformation about COVID-19's facts, causes, transmission, and vaccines was widespread (Pratiwi et al., 2022). The Ministry of Communication and Informatics (Kominfo) reported that from January 2020 to July 2021, there were 1,763 instances of misinformation related to COVID-19's basic facts and transmission across 3,817 social media posts. Over 50% of these cases originated from Facebook, disseminated further via

Twitter, Instagram, YouTube, and TikTok. Approximately 27.7% of respondents believed that COVID-19 was a biological weapon aimed at destroying humanity and advancing national interests. A study conducted by Kominfo in DKI Jakarta found that 18% of respondents believed the virus was man-made, despite the consensus that it was a natural virus with no evidence supporting the idea of human origin (Yakubu et al., 2021).

The impact of misinformation and disinformation continues into the post-COVID-19 era. Globally, this began with the WHO lifting the pandemic status on May 5, 2023, followed by President Joko Widodo's declaration of Indonesia's transition to the endemic phase on June 21, 2023. This decision was made in light of the sharp decline in daily COVID-19 cases and the fact that 99% of the Indonesian population now has COVID-19 antibodies (Kementerian Sekretariat Negara, 2023). Nevertheless, this announcement did not receive an entirely positive reaction from the public. Many doubted the government's decision to lift the pandemic status, as shown on social media, which likely stemmed from the government's failure to manage the infodemic during the pandemic. Previously, the government was perceived as lacking transparency, sharing inconsistent information, and exhibiting double standards in applying COVID-19 restrictions. The government also faced criticism for spreading misinformation in its COVID-19communications, leading to its label as the "biggest hoax spreader" (Sastramidjaja, 2023). The situation was worsened by the rise of conspiracy theories, accusations of politicisation and racialisation, and debates about the end of the COVID-19 pandemic. This suggests that the infodemic persisted even after the official end of the pandemic was declared.

This research is essential for examining how Indonesia's infodemic threatens national security, particularly political and economic stability. Infodemic undermines the government's capacity to develop effective public health policies for prevention and response (Gradoń et al., 2021). International law enforcement agencies, such as Interpol and Europol, consider infodemic a form of cybercrime combining information overload with pandemic-induced panic (Europol, 2020; Interpol, 2020). During the pandemic, there was a shift in cybercrime, from targeted individuals and small businesses to large companies, governments, and other critical infrastructure (Interpol, 2020). The European Union and the United States also reported that during the pandemic, intelligence activities by foreign actors increased, resulting in weakened government legitimacy, heightened racial sentiment, and the politicisation of social and economic issues. In this situation, COVID was weaponised to create new conflicts or reignite existing ones, which could threaten national security (Buckley et al., 2020; Moy & Kacper, 2020).

This article examines the Indonesian government's approach to tackling the infodemic and evaluates its effectiveness. It is structured into four parts: (1) an overview of four years of misinformation and disinformation in Indonesia; (2) arguments linking the infodemic to national security; (3) a review of government and stakeholder responses; and (4) an analysis of the effectiveness of those efforts.

Literature Review

Hansson et al. (2021) found that exposure to harmful information during the COVID-19 pandemic made individuals more vulnerable in six ways: (1) it discouraged appropriate protective actions against the virus, (2) it promoted false or harmful remedies, (3) it misrepresented the virus's transmission mechanisms, (4) it downplayed the pandemic's risks, (5) it deceived people into purchasing fake protection or sharing personal information, and (6) it targeted alleged spreaders of the virus with

harassment or hate speech. Chowdhury et al. (2023) noted that infodemic is common during major pandemics like Ebola and COVID-19, with women and younger individuals being particularly susceptible to misinformation due to scepticism toward government information. Accordingly, Sługocki and Sowa (2021) argued that disinformation during COVID-19 could be addressed through policies that support national security. Pomeranz and Schwid (2021) agreed with this, emphasising the critical role of governments in combating the infodemic. Meanwhile, Sell et al. (2021) highlighted the urgency of collaboration among news organisations, social media platforms, the public, scientists, and the government.

Clemente-Suárez et al. (2022) examined the long-term impact of misinformation on vaccination programs and proposed various strategies to counter false information. Similarly, Galhardi et al. (2022), studying the case in Brazil, revealed that misinformation was spread mainly through social media, exacerbated by the country's political climate and government policies. Kundhalini et al. (2023) expanded the scope by framing the infodemic as a contemporary non-military threat to national security, influencing public health behaviours. Jang et al. (2023) added that the speed of message dissemination and short public attention spans limit efforts to correct falsehoods, underscoring the importance of media literacy. In the Indonesian context, Sastramidjaja (2023) explored how social media contributed to the spread of COVID-19 misinformation in Indonesia, while Ronny (2023) focused on the role of Indonesia's COVID-19 Task Force in addressing it. Both concluded that policymakers should align their strategies with community needs and enhance public discourse opportunities.

This study identifies several research gaps to be addressed. Firstly, there is a lack of research examining the direct impact of infodemic on national security, particularly in Indonesia, where studies often treat these concepts separately despite their close relationship. Secondly, there is an opportunity for new discussions regarding the government's response and public reactions to the infodemic in Indonesia. This article also explores the sources of COVID-19 misinformation and disinformation and analyses the negative effects of infodemic on public opinion and behaviour, highlighting how they can undermine government efforts to respond to the pandemic. Lastly, the study will propose strategies for mitigating the threats of infodemic, emphasising the importance of government roles in promoting accurate information, transparency, and public trust. The analysis focuses on 2020 to 2023 to ensure a comprehensive and accurate examination.

Theoretical Framework

This study draws on national security theory and perception theory to examine the misperception behaviour, as discussed by Stein (1988). Security encompasses the "absence of threats to established values" and the "absence of fear that those values will be endangered." In the context of health security, Rushton (2011) proposed two distinct radical formulations: statist/national security, which centres on the state as its primary reference point and focuses mainly on preventing diseases from infiltrating or destabilising states and societies. In contrast, globalist/human security considers the individual its main reference object and is receptive to broader issues that pose risks to personal health and well-being. The World Health Organisation (WHO) echoed this connection in 2005 by highlighting the link between pandemics and national security. National security is considered at risk when a health crisis disrupts social, economic, or political stability (Nakić & Matijević, 2022; Tatalović & Malnar, 2021)

Nevertheless, the pandemic shifts public perception, making something seem dangerous

not solely because of the actual threat, but because of how information shapes the perception of danger (Tatalović & Malnar, 2021). Stein (1988) proposed four factors that may have contributed to misperceptions, which can affect misinformation and disinformation: (1) limited or biased central cognitive framework regarding threats; (2) the people's interests, worries, and perception of threats; (3) anarchy structure of international order; and (4) regime applied by the countries.

Meanwhile, Wang et al. (2022) found that misinformation spreads both top-down—through politicians and celebrities—and bottom-up. Although these influential figures produce only about 20% of false content, they are responsible for 69% of misinformation circulating on social media. A related study of over 812,000 Facebook and Twitter posts in early 2021 showed that just 12 individuals, including a former physician and anti-vaccine advocates, generated 65% of anti-vaccine content. Additionally, foreign states engage in disinformation campaigns; for example, China promoted its pandemic narrative in major media outlets like *The Economist* and *The Wall Street Journal*, while also amplifying conspiracy theories to influence global political discourse (Cheng et al., 2022).

The chaotic information landscape during the COVID-19 pandemic has had severe repercussions. The public's urgent search for medical knowledge led to the rapid spread of misinformation and disinformation, fuelling stigma, false theories, rumours, and discrimination. To counter this, governments and medical institutions must prioritise disseminating accurate, evidence-based information (Islam et al., 2020). Disinformation not only undermines public trust but also polarises society, weakens government strategies, and hinders pandemic response efforts. It poses broader security risks, contributes to crime and human rights violations, and erodes public trust in authorities, experts, and the media (Bilal et al., 2023). With approximately 3.5 billion people seeking information daily, social media algorithms often exacerbate the spread of specific misinformation (Gisondi et al., 2022).

Methods

This study employs a qualitative literature review to explore the COVID-19 infodemic in Indonesia and its implications for national security and government response. We systematically collected and analysed existing research and official sources to develop a comprehensive understanding of the issue. The literature review included 59 peer-reviewed journal articles and three conference papers, mostly published between 2013 and 2024, ensuring both depth and relevance. These sources were selected using the following inclusion criteria: (1) Relevance, prioritising publications addressing the COVID-19 infodemic, national security, and governmental responses in Indonesia; (2) Credibility, focusing on peer-reviewed journals and reputable conferences to ensure validity and reliability; (3) Timeliness, emphasising studies published within the last decade to capture contemporary insights; and (4) Impact, evaluating the breadth and significance of each publication's contributions to the topic.

Additionally, journal articles, conference papers, reports from international organisations, and official government documents were included to supplement the academic literature and provide real-world context. These additional sources were selected based on their relevance and credibility in explaining how the infodemic affected national security by fuelling political and economic instability and contributing to COVID-19 vaccine hesitancy, which hindered efforts to achieve herd immunity. The literature further offers insights into the government and the public responses to these issues.

Data Analysis

We used the process tracing (PT) method to investigate the causal relationships between the COVID-19 infodemic and national security in Indonesia. Process tracing involves iteratively moving between theoretical frameworks and empirical data to develop a process theory explaining the link between cause and outcome (Beach, 2017). We traced the infodemic's effects from 2020 to 2023, focusing on the pathways through which misinformation influenced national security and governmental actions. We applied the framework proposed by Beach and Pedersen (2019) to analyse the collected data, involving (1) the systematic collection of relevant literature and official documents; (2) thematic coding to extract key information; and (3) integration of findings to construct a coherent explanation of the infodemic's impact (Beach & Pedersen, 2019). The Sankey diagram is also provided to visualise the relationship between national security (political and economic insecurity and vaccine hesitancy), the government and public response and the relations between improved herd immunity and reduced vaccine hesitancy. This layered approach enhances analytical validity and reinforces the connection between theory and empirical findings.

Results

Political Insecurity

Political insecurity focuses on how political actors characterise and redefine perceived dangers while proposing possible solutions (Béland, 2024). The level of societal trust has been linked to how governments managed the pandemic, citizens' health behaviours, compliance with preventive measures, and COVID-19 fatality rates (Rump & Zwiener-Collins, 2021). Disinformation can erode public trust in the government, experts, and the media (Bilal et al., 2023). It may also serve political aims by fostering the perception that the government cannot protect its citizens. This often stems from the government's portrayal of misleading information and inconsistent COVID-19 policies across central, regional, and local levels (Wazier et al., 2023). Around 53% of comments of public dissatisfaction with the government in dealing with the pandemic on the Twitter platform in 2020 (Satria & Azmi, 2022).

According to data from the Indonesian Ministry of Health (*Kementerian Kesehatan*/ Kemenkes), 13% of individuals did not think the vaccine was effective, and 30% of people were unsure about the vaccine's safety (Kementerian Kesehatan, 2022). In addition, some people rejected the use of masks and the implementation of multilevel community activity restrictions or *Pemberlakuan Pembatasan Kegiatan Masyarakat* (PPKM) through demonstrations in several cities, such as Jakarta, Bandung, Yogyakarta, and Ambon. In addition, on Twitter, there were 21,349 tweets, including the terms "demo," "reject," and "cancel," exchanged between users. Additionally, 1,355 news items echoed or followed these Twitter discussions in online media (Ummahati & Sihidi, 2022). Uncertainty and the assumption that the Indonesian government is unable to handle COVID-19 from the start encourage the public to trust the information that other parties provide more without considering its truth.

Economic Insecurity

According to a study in mid-2020 by Patiro et al. (2022), misinformation and disinformation can lead to erratic behaviour in financial markets. For instance, rumours of economic collapse, bank instability, or shortages can trigger panic buying and selling, increase stock market volatility, and destabilise economies. Some individuals began stockpiling supplies immediately. Panic buying extended to items believed to protect against COVID-19, such as hand sanitiser, milk, essential foods, and herbal ingredients. This behaviour also drove up commodity prices as of June 2020, such as face

masks (from IDR 20.000 to IDR 300.000/box), hand sanitizer (from IDR 40.000 to IDR 150.000/box), ginger (from IDR 20.000 to IDR 40.000/kg), lemongrass (from IDR 6.000 to IDR 10.000/kg), and turmeric (from IDR 5.000 to IDR 12.000/kg) (Patiro et al., 2022). This situation exacerbates socio-economic insecurity, making it more difficult for communities to meet their basic needs, particularly as the prices of essential goods continue to rise.

Discussion

There is a significant relationship between misinformation, disinformation, and national security in the context of the COVID-19 pandemic. Grizold (1994) defines national security as a complex interaction of political, economic, social, and other internal and external factors. Sługocki and Sowa (2021) stated that, during the pandemic, people frantically searched for information, trying to improve their medical knowledge. Furthermore, the spread of COVID-19 misinformation and disinformation in this information chaos can lead to stigma, false theories, rumours, discrimination, and the formation of beliefs and attitudes. This confusion ultimately hinders the progress of individual and public health during the crisis.

The Sankey diagram (Figure 1) illustrates how political, economic, and public health factors interact, along with government and public responses. It shows the key links between vaccine hesitancy and Indonesia's challenge in reaching herd immunity during the COVID-19 pandemic. Since the diagram focuses on the flow between variables, the x and y axes are not relevant. It reflects how the infodemic has affected national security through political and economic instability, and growing vaccine hesitancy.

Vaccine hesitancy became the primary barrier, while political insecurity was the main driver. We identified a lack of trust in institutions that led to public scepticism and resistance to vaccination efforts. Economic insecurity,

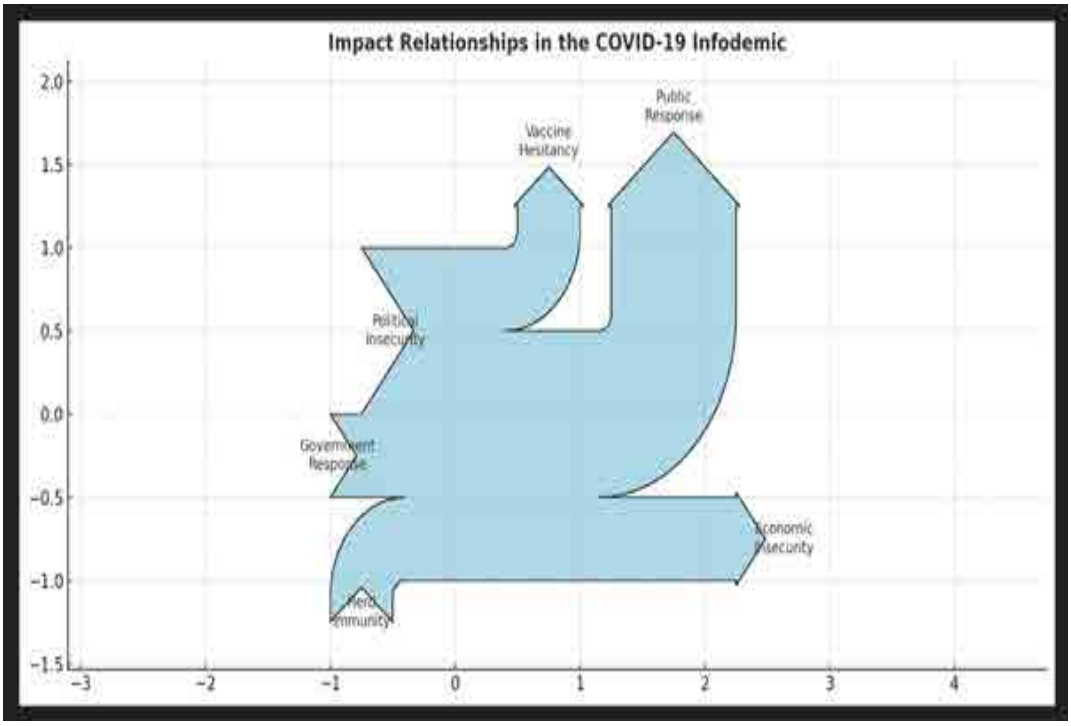

Figure 1. Sankey Diagram Illustrating the Key Themes of the COVID-19 Infodemic in Indonesia

Source: Authors, 2024

shaped by unequal access to health services and misinformation, hindered participation in vaccination programs and affected herd immunity. Additionally, government response played a dual role in fighting misinformation and addressing public health concerns, as evidenced by targeted educational vaccination campaigns and communication strategies. Lastly, public response functions as a feedback mechanism. Viral misinformation on social media regarding vaccines threatens to undermine public confidence, affecting the effectiveness of government initiatives and broader pandemic strategies. Nevertheless, public sentiment has gradually shifted toward vaccine acceptance, influenced by peer influence and more transparent communication.

By mapping these interconnections, the diagram shows how the COVID-19 infodemic creates complex challenges for national security, particularly through political and economic instability. This study offers a way to understand how misinformation affects these areas and how the government responds. It also points to the need for better policies and communication strategies that build public trust in vaccines and adherence to health protocols.

Political Insecurity and Distrust

Political security relates to how political elites shape public perception to gain support, which can create divisions among communities and weaken national cohesion (Moniz, 2022). In Indonesia, the government was slow to recognise the threat of COVID-19, lagging behind other countries that imposed early lockdowns. Misleading statements from community leaders and political elites further fuelled public confusion and distrust. For instance, Indonesia's Minister of Health, Terawan Agus Putranto, advised the public not to panic and to "just enjoy" the virus (Chairil, 2020). This downplayed the seriousness of the pandemic and spread misleading information. The lack of clear, accurate guidance made it harder for Indonesians to access reliable information, further complicating the public health response.

Groups with low trust in the government often perceive lockdowns and large-scale social restrictions (PSBB) as detrimental, a belief shaped by misleading narratives that downplay the severity of COVID-19 and the importance of prevention measures (Wazier et al., 2023). The infodemic illustrates that information is vital, which directly affects economic, social, and cultural life (Sługocki & Sowa, 2021). The fast spread of media content—often inconsistent or inaccurate, such as false reports of COVID-19 deaths—has made it difficult to identify trustworthy sources. Consequently, individuals began seeking information from alternative sources, many lacking credibility or scientific grounding compared to mainstream media (Serrano-Puche et al., 2023).

As a result, a decline in public trust in mainstream media led to fewer individuals relying on fact-checked information. For instance, conflicting reports from mainstream media regarding the severity of COVID-19 or government responses prompted individuals to turn to fringe websites and social media. These alternative platforms, often lacking credibility or scientific grounding, further contributed to the dissemination of misinformation, reducing public reliance on fact-based reporting from established media outlets and exacerbating confusion about the pandemic. Misinformation can easily mislead individuals, particularly those who rely on intuition, diverting them from national interests and health protocols aligned with WHO guidelines (Ifdil et al., 2021). This infodemic fuels public speculation and perception, posing a significant threat to Indonesia's national security by spreading fear and undermining efforts to enhance public welfare (Grizold, 1994).

The public began to question the government's capability to manage the

pandemic, especially regarding the spread of infodemic, because hoaxes and misinformation circulating in society were not met with appropriate responses from the government (Rahmawati et al., 2021). The government's information was perceived to be weak, prompting many individuals to seek information independently. Furthermore, the government struggled to counter misinformation concerning its responses effectively, such as a lack of transparency in budget allocation and selecting partners for procuring pandemic measure equipment (Abhipraya et al., 2020). Consequently, this situation undermines the government's credibility in the eyes of the public, thereby deepening societal distrust.

The public's distrust of the government's performance is evident through the trending keywords "whatever Indonesia" or #IndonesiaTerserah on Twitter and Google search (Riefky et al., 2021). This distrust arose due to disappointment with the limited availability of PCR tests, the minimal disclosure of information regarding COVID-19 cases, and the widespread confusion stemming from misinformation. Moreover, COVID-19 misinformation can distort public perception of future government policies (Rahardi, 2020). When false narratives dominate public discourse, they undermine official communication efforts and reduce their effectiveness. Over time, repeated exposure to misinformation erodes trust in government messages and lowers compliance with health directives. For instance, widespread misinformation about vaccine safety undermined efforts to promote vaccination campaigns, resulting in vaccine resistance in various regions of Indonesia (Ida et al., 2024).

Attack on Cyber Security

Furthermore, misinformation during the COVID-19 pandemic also emerged as a powerful instrument for cyber warfare and disinformation campaigns, using digital platforms to manipulate public perception and destabilise societies. Cybersecurity involves safeguarding the computer systems and data processing infrastructure of the government and its citizens from malicious interference, whether originating from external or internal sources (Holmes, 2015). Social media played a crucial role in amplifying distrust through algorithms that created echo chambers, exposing users to content that reinforced false beliefs. Influencers and non-experts with large followings often legitimise misinformation, frequently gaining more credibility than official sources. The emphasis on virality over accuracy allowed false information to spread quickly, outpacing factual corrections. Additionally, cyberattacks exploited pandemic-related misinformation to disrupt critical infrastructure, with phishing schemes and ransomware attacks targeting healthcare systems and supply chains. In 2020, Indonesia recorded the highest ransomware attacks among ASEAN countries, with 1.3 million incidents detected (INTERPOL, 2021). These campaigns also manipulated public opinion by portraying authoritarian regimes as more effective in managing the pandemic, thereby challenging the legitimacy of democratic governance (Susanto, 2021). Collectively, these mechanisms demonstrate how infodemic can be weaponised to undermine national stability, public trust, and cybersecurity.

Economic Insecurity and Disruption

As a critical component of national security, economic security faces significant threats during the COVID-19 pandemic. Reduced consumer demand can lead to price spikes and increased unemployment, forcing companies to cut back on spending and slowing economic growth. Misinformation has also fuelled panic buying, illustrating the public's response to perceived scarcity. Two primary concerns drive this behaviour: the fear that

prices will rise if they postpone shopping and the worry that essential goods will become unavailable. During social restrictions, individuals hoarded necessities such as rice, oil, and sugar, resulting in soaring prices for staple goods, medicines, and health equipment. The implementation of large-scale social restrictions (PSBB) introduced a new way of life, leaving many people economically and physically vulnerable. Uncertainty about short-term survival heightened anxiety, with potential long-term effects on the economy, public financial management, and consumer behaviour (Wijaya, 2020; Yunus & Rezki, 2022). Strategic plans for resource allocation were also delayed or disrupted as misinformation created uncertainty regarding the availability and distribution of critical goods. This uncertainty strained logistical networks and hindered the government's ability to implement long-term strategic solutions.

Surveys by UNICEF, UNDP, Prospera, and the SMERU Research Institute in late 2020 found that 74.3% of households saw a decline in income compared to January 2020 (UNICEF et al., 2021). Additionally, 24.4% reported increased expenditures due to rising prices of food and essential goods. Panic buying, driven by misinformation and media sensationalism, led to social panic, shortages, price hikes, and higher household spending (Aprilia, 2021). As a result, around 70 million households were significantly impacted by the pandemic. Statistics Indonesia (*Badan Pusat Statistik*/BPS) data indicate that 5 million people lost their jobs, while 24 million faced reduced working hours (Badan Pusat Statistik, 2020). The poverty rate increased by 10.2%, adding 2.8 million individuals to those living below the national poverty line, bringing the total to 27.6 million, with the poverty threshold set at IDR 458,947 per capita per month (Badan Pusat Statistik, 2021).

Subsequently, a survey conducted from December 2020 to January 2021 revealed that more than half of households experienced at least one member losing their job (UNICEF et al., 2022a). Only three out of ten individuals had sufficient savings to last at least one month, leading many to pawn belongings, take out new loans, or cut back on food to make ends meet. In the second quarter of 2021, Indonesia's economy began to recover, with a GDP growth rate of 7.07%, surpassing pre-pandemic levels. However, the emergence of the Delta variant caused growth to decline by half in the third quarter before rising again towards the end of 2021 and into early 2022. By March 2022, the number of people living below the poverty line had fallen to 26.16 million, a decrease of 1.39 million from the peak in September 2020 (UNICEF et al., 2022b). Despite this improvement, the economic recovery was attributed to many households resorting to negative coping strategies, such as pawning goods or taking loans from banks or loan sharks, leading to increased debt and asset loss.

The infodemic served as a multiplier effect in this regard. In many ways, the spread of misinformation and disinformation about online lending services led many individuals to turn to illegal online lenders for emergency financial needs. According to data from the Financial Services Authority (*Otoritas Jasa Keuangan*/OJK), the total losses incurred by the public due to illegal online investments and loans reached IDR 120.79 trillion in 2022 (Puspandini, 2023). This figure indicates a significant increase from the IDR 2.54 trillion reported in the previous year. Additionally, declining incomes compelled households to reduce food spending, leading to around 1.47 million households facing moderate to severe food insecurity (UNICEF et al., 2022b).

From 2023 through early 2024, Indonesia's economy showed signs of recovery, primarily driven by the lifting of pandemic restrictions that allowed people to return to work and resume normal business activities. However, this decision initially faced public scepticism due to

widespread distrust in the government, which had been criticised for spreading misinformation and inadequately addressing the infodemic (Sastramidjaja, 2023). Misinformation about the safety of returning to work further complicated the situation, leading businesses to delay reopening and resulting in cautious consumer behaviour, inconsistent business practices, and ongoing job losses. Amid these challenges, the 2024 election preparations helped stimulate the economy, mainly through increased government spending and revenue for related industries, such as event organising, accommodation, and the food and beverage sectors (Purwanti, 2024). The economic recovery was further strengthened by Ramadan, which boosted government spending on personnel through salary raises and religious holiday allowances (*Tunjangan Hari Raya*/THR). By February 2024, the workforce had grown by 3.55 million people, reaching 142.18 million. This growth contributed to reduced unemployment, with 7.2 million people (4.82% of the workforce) unemployed, a decrease of 0.79 million compared to the previous year (Badan Pusat Statistik, 2024).

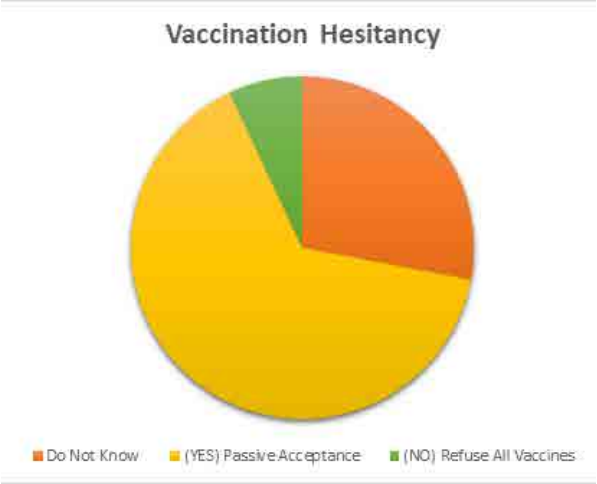

Figure 2. Vaccination Hesitancy
Source: (Kementerian Kesehatan et al., 2020)

Vaccine Hesitancy and Public Health Challenges

As the pandemic progressed, COVID-19 vaccines were developed and distributed to the public. However, misinformation and hoaxes about the vaccines—much like those about the virus itself—led many Indonesians to question their effectiveness and refuse vaccination. A UNICEF survey found that a significant number of people were hesitant, with some rejecting all types of vaccines.

Some of the fake news spread includes: (1) the vaccines given contain microchips so that a global surveillance network can be formed; (2) pharmaceutical companies and other interest groups exaggerate the benefits of vaccines and hide their risks; (3) vaccines can cause infertility; (4) vaccines can change human DNA; and (5) vaccines can cause death (Lee et al., 2022). This is especially concerning, as vaccination is key to ending the pandemic (Hartono et al., 2022). Due to vaccine-related misinformation, Indonesia's vaccination rollout has been relatively slow compared to other countries.

Contradictory information and false claims, such as those questioning the severity of COVID-19 or promoting ineffective treatments, diminished the credibility of health institutions and created widespread confusion. This erosion of trust led individuals to reject official guidelines on vaccination, mask-wearing, and social distancing, contributing to higher infection rates and strained healthcare systems. Pseudoscientific claims and disinformation campaigns further discredited experts and public health leaders, deepening scepticism toward legitimate scientific recommendations (Boutros, 2020). By promoting unsafe practices and amplifying conspiracy theories, misinformation weakened public health responses and delayed efforts to control the pandemic, ultimately hindering the government's ability to implement effective, evidence-based strategies.

The Indonesian government implemented several policies to prevent the further spread of COVID-19 and treat patients. These include the COVID-19 protocol, vaccination programs,

Figure 3. Common Reasons for Not Accepting Vaccines
Source: (Kementerian Kesehatan et al., 2020)

PSBB, and other recommendations to achieve herd immunity within the community. Herd immunity refers to the indirect protection from an infectious disease that occurs when a population becomes immune, either through vaccination or by developing immunity from previous infections (World Health Organisation, 2020). However, the infodemic made achieving herd immunity difficult. Widespread belief in COVID-19 hoaxes and distrust in government policies undermined public compliance, reducing policy effectiveness and complicating efforts to control the pandemic (Hartono et al., 2022). As a result, the government was forced to adopt a more acceptable approach. The impacts of the COVID-19 infodemic in Indonesia were interrelated and risked triggering a domino effect. It emphasises the importance of evaluating the Indonesian government's efforts to combat the infodemic and assessing its effectiveness.

The Linkage to National Security

National security is considered at risk when social, economic, and political stability is disrupted (Nakić & Matijević, 2022; Tatalović & Malnar, 2021). The infodemic contributes to this by fuelling political distrust, economic insecurity, vaccine hesitancy, and cybersecurity vulnerabilities. Together, these factors pose a direct threat to national security. There are at least three reasons to support this argument. First, political insecurity and public distrust—driven by criticism of the government's pandemic response—shaped public behaviour and weakened the state's legitimacy. The infodemic contributed to this instability, disrupting Indonesia's political environment during the crisis. Second, economic insecurity, which leads to panic buying and the massive use of online lending services, could weaken the societal economy and impact the state's economic instability. Third, cybersecurity threats and vaccine hesitancy driven by the infodemic pose a serious risk to Indonesia's national security, as both undermine the government's ability to develop effective public health policies for prevention and mitigation. Cyberattacks, including phishing schemes and ransomware, can disrupt critical infrastructure, particularly in healthcare and supply chains, making it even more difficult for the government to respond effectively. The vaccine hesitancy and people questioning the

severity of COVID-19 or promoting ineffective treatments diminished the credibility of health institutions and created widespread confusion, also threatening Indonesia's national security.

Indonesian Government Responses

The Indonesian government has initiated various measures to combat the spread of hoaxes, including implementing the Information and Electronic Transactions (ITE) Law, which predates the COVID-19 pandemic. Law Number 11 of 2008, amended by Law Number 19 of 2016, serves as the country's primary cyber legislation, addressing issues related to information technology and governing offences such as hoaxes and fake news (Yunus & Rezki, 2022). Under this law, individuals found guilty of spreading COVID-19-related misinformation that causes harm can face penalties of up to six years in prison or fines of up to one billion rupiah. Specifically, perpetrators may be charged under Articles 28, 32, and 35 of the ITE Law (Lutfiyah, 2020).

In the early stages of the COVID-19 pandemic, the government focused on enforcing legal regulations as an initial response. Through collaboration between Kominfo and the police, 89 individuals were identified as suspects by early 2020—14 were detained, while 75 remained under investigation. To deter and prevent these suspects and others from repeating such harmful behaviours, criminal legislation regarding fake news cases seeks to impose penalties on those who spread misinformation and disinformation (Davina et al., 2021). Some have even been detained under Article 35 in conjunction with Article 51, paragraph 1 of the Law. Republic of Indonesia Law No. 19 of 2016 concerns amendments to Republic of Indonesia Law No. 11 of 2008 regarding Electronic Information and Transactions, which imposes a maximum imprisonment of 12 years and/or a maximum fine of IDR 12 billion.

However, the sheer number of social media users and the complex spread of hoaxes limited the effectiveness of legal enforcement. As a result, various stakeholders stepped in to support the government's efforts with alternative approaches to combat the infodemic. More precisely, Kominfo positioned itself as a key actor in promoting community-based initiatives to tackle the infodemic. This is evident in the establishment of the AIS team in 2018 and the active role of the Directorate General of Informatics Applications (Aptika). During the pandemic, the AIS team was responsible for verifying and validating online content circulating in Indonesia. One notable initiative was Kominfo's collaboration with WhatsApp to launch an anti-hoax chatbot designed to verify and debunk misinformation (Triwardani, 2021). Additionally, Kominfo introduced a chatbot hotline that compiled relevant information sourced from Kemenkes (the Ministry of Health).

A key strategy involved featuring medical professionals to counter misinformation and ease public fears. Furthermore, Kominfo provided a user-friendly website with accurate data on the distribution of COVID-19-positive cases, recoveries, and deaths. A distinctive feature of the site was the Hoax Buster Button, which linked to multiple fact-checking resources (Triwardani, 2021). Kominfo and Kemenkes also made the most of Instagram, through @lawancovid19_id and @kemenkes_ri handles, respectively. Kemenkes collaborated with the Indonesian Doctors Association (IDI) to identify sources of misleading information and address specific concerns. Kominfo used three strategic approaches—upstream, middle stream, and downstream—to combat the infodemic in Indonesia (Prianto et al., 2022). Increasing digital literacy is upstream's focus. It equipped the general population with the information and skills needed to respond appropriately to hoaxes. The government and social media platform owners in the middle stream to combat the flow of false information. A type of direct action known as "downstream"

provides technical support for tracking the spread of hoaxes. Regarding misinformation related to the COVID-19 vaccine on the official website covid19.go.id, Kemenkes issued a clarification made available through a website developed by Kominfo (Udhany & Sylvia, 2022).

Local governments participated to ensure comprehensive outreach; for instance, West Java's Kominfo Service created the @ jabarsaberhoaks account to work with local organisations in verifying information and encouraging the public to combat false claims about vaccinations and the coronavirus (Darmawan et al., 2022; Fardiah et al., 2022). The central government also launched the National Digital Literacy Movement (GNLD) SiBerkreasi, a collaborative effort (through webinar and podcast) between Kominfo and various non-governmental entities, including academics and civil society (Wulandari, 2020). The impact of the infodemic highlighted the urgent need for digital literacy skills so that individuals could effectively use e-health technology and perform fact-checking before sharing information. GNLD featured four flagship programs: School of Influencers, Digital Pandu, Kreator Nongkrong, and literasidigital.id, all aimed at enhancing digital literacy and generating positive social media content. The emergence of fact-checking initiatives, such as turnbackhoax.id and CekJadi.com, responded to the widespread dissemination of false information (Rahmawan et al., 2023). These platforms helped debunk numerous political, crime, and health hoaxes.

The spread of hoaxes significantly affected the public acceptance of government policies, particularly vaccination, which received an initially poor reception (Baharuddin et al., 2022). To counter this, President Joko Widodo received the vaccine first, countering misinformation about its safety. Subsequently, medical professionals were prioritised for vaccination to help reduce community mistrust and prevent vaccine refusal (Putri & Rafly, 2021). To issue halal certification for the vaccine, the government collaborated with the Indonesian Council of Ulama (*Majelis Ulama Indonesia*/MUI). Additionally, the government coordinated with the National Agency for Drug and Food Control (BPOM) to ensure the vaccine's safety, which was ultimately confirmed to have no significant adverse effects.

The government aimed to provide a safe and effective vaccine for all citizens. Those

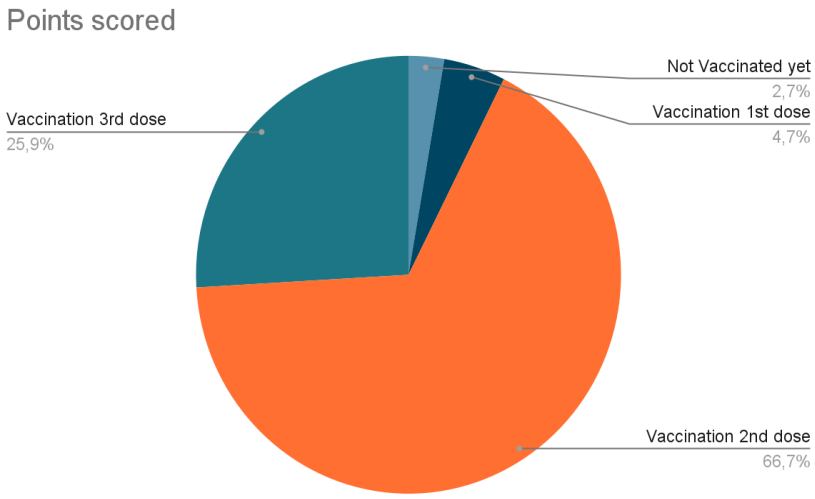

Figure 4. Respondents' Vaccination Acceptance Status
Source: Badan Pusat Statistik (2022)

willing to be vaccinated believed that doing so would help protect both themselves and their families. Approximately 97.3% of respondents to a BPS survey conducted from February 16–25, 2022, which collected data from 254,817 participants, reported participating in the COVID-19 vaccination program.

The perception that vaccines are a relatively safe and effective way to combat COVID-19 also contributed to respondents' increased willingness to get vaccinated promptly. Data from Satgas COVID-19 on November 5, 2021, indicated that Indonesia had administered 204.913.735 shots to over half of the target immunisation recipients (Kementerian Komunikasi dan Informatika, 2021b). This achievement was driven by the Mutual Cooperation Vaccine program, a collaboration between the public and private sectors. According to the Ministry of Health (Kemenkes), the immunisation effort reached approximately 40% of the population overall, with 60% receiving at least the first dose.

The distribution of the infodemic during the COVID-19 pandemic continues to fluctuate. Table 1 concludes the chronology of the

Table 1.
Infodemic in Indonesia 2021-2023

No	Year	COVID-19 Hoax/ Misinformation	Impacts	Responses
1.	2020	a. The COVID-19 virus cannot live in a humid and tropical country b. The COVID-19 virus is a weapon made by a particular country c. Viruses can spread through the air d. Viruses can be prevented by consuming herbal medicines	a. People experience excessive fear and panic, resulting in taking harmful steps b. Other parts of society are ignorant and do not believe in COVID-19 virus c. Excessive stress from too much negative information d. The pandemic is getting worse; the number of positive confirmations and the death rate are increasing	a. The government, through Kominfo, has opened official information channels that the public can access b. Opening the Hoax Buster feature will make it easier for the public to identify facts/ hoaxes. c. Removing hoax content in mass media and social media
2.	2021	a. Vaccines are unsafe and non-halal b. Vaccines can cause further dangerous complications c. Vaccines are not proper and are just an attempt at capitalism d. The second wave of COVID-19 occurred because of vaccinations and harmful government programs	a. The public's trust in the government has decreased b. Rejection of the vaccination program c. Rejection of social restriction policies d. The second wave of COVID-19 is exacerbated and uncontrolled than the previous wave	a. Incessantly socializing the vaccination program through government social media b. The president was the first to receive the vaccine, becoming an example and proof of vaccine safety c. Continue to improve the Hoax Buster service
3.	2022	a. The new variant, omicron, is a dangerous mutation of the COVID-19 vaccine b. Vaccines contain chips for specific political and scientific needs c. Booster vaccines are not free d. The pandemic is over. There is no obligation to implement health protocols	a. A few people are still reluctant to be vaccinated, and others refuse booster vaccines b. The community began to carry out everyday activities and was unaware of the dangers of COVID-19	a. Relaxing social restrictions while continuing to socialize health protocols b. Continue to remove hoax content and disseminate important information about the pandemic c. Retrieve to carry out the vaccination program
4.	2023	COVID-19 vaccines could cause mutation in new variants, causing the next wave of COVID-19	People who start to live normally, experience doubts and confusion	Intensify the Hoax Buster to help the public filter information and remove the spreading of hoaxes

Source: Authors (2023)

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infodemic phenomenon in Indonesia during the COVID-19 pandemic.

On June 21, 2023, President Joko Widodo officially revoked Indonesia's COVID-19 pandemic emergency status through a presidential decree: Keputusan Presiden RI No. 17 Tahun 2023. This decision marked a turning point in the country's infodemic situation, as the spread of misinformation on social media significantly declined. This improvement was driven by the government's increased efforts to clarify information through official channels and eliminate misleading content. As a result, the public has become more discerning about pandemic-related information. Data from covid.go.id shows that only five hoaxes were addressed after the emergency status revocation, while the Kominfo reported four clarifications since June 2023. This reflects a gradual decrease in the infodemic, which had surged from 2020 to early 2023, coinciding with the decline in COVID-19 cases and the lifting of the national emergency. While some hoaxes still circulate, their impact has been minimal due to heightened public and government vigilance in tackling misinformation.

Public Responses to Government Efforts

Initially, low digital literacy and poor discernment on social media led many people to ignore official government information, allowing hoaxes to spread rapidly. However, over time, the public has become more discerning and more receptive to information shared by the government. Most now recognise false or misleading content as a serious issue, reflecting growing awareness of the government's efforts to address the infodemic. As a result, initial panic and anxiety among the population have begun to subside. Access to accurate information also became more manageable in line with the significant decline in the presentation of hoax news on the Facebook platform from 71.9% in 2020 to 55.9% in 2022, and WhatsApp, which experienced a significant decrease from 31.5% in 2020 to 13.9% in 2022. The practice of verifying the accuracy of information obtained from a website also saw a rise from 3.05 in 2021 to 3.25 in 2022 (Kementerian Komunikasi dan Informatika, 2022).

Second, although the infodemic initially took a toll on people's psychological well-being during the height of the pandemic, a sense of normalcy had begun to emerge. Communities had adapted to the changing conditions and became better equipped to manage ongoing challenges. Third, the panic buying triggered by the infodemic had started to decline, as the public gained confidence in the government's efforts to ensure the steady availability of essential goods and medical supplies. From 2022 to 2023, data indicates a positive trend, with more people in Indonesia expressing confidence in vaccines (Pahlevi, 2022). Some of these developments arose from the growing public trust in government information updates, with the most reliable information focusing on health education, particularly that endorsed by the WHO.

By early 2021, positive changes had begun to take place, and people were gradually starting to comply with health protocols, as seen

Table 2.
Average National Health Protocol Compliance Score during PPK*M*

Period	Wearing Mask	Keeping Distance	Washing Hands
20 August - 3 September	7.88	7.75	7.86
3 August - 19 August	7.84	7.72	7.83
18 July - 2 August	7.81	7.67	7.76
3 July - 17 July	7.72	7.53	7.64

rating scale 1-10

Source: Satuan Tugas Penanganan COVID-19 (2021)

from the COVID-19 Task Force or Satuan Tugas Penanganan COVID-19 (Satgas COVID-19) data. It shows an increase in compliance using a 1-10 scale for each aspect of 3 M. Following the covid.go.id page data, the compliance score for wearing masks increased from 7.72 in July to 7.88 from August to September (Satuan Tugas Penanganan COVID-19, 2021). The compliance score for maintaining distance rose from 7.53 in July to 7.75 from August to September. In addition, the hand-washing compliance score improved from 7.64 in July to 7.86 in the same period.

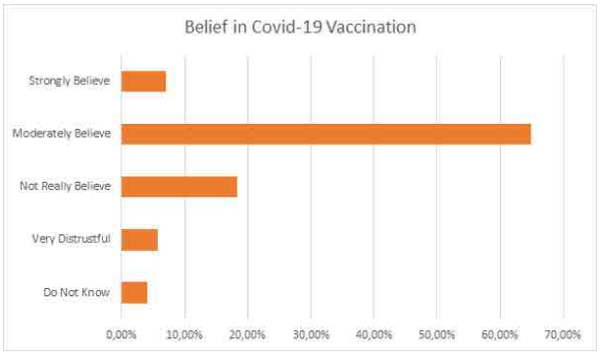

Figure 5. Belief in Covid-19 Vaccination
Source: Pahlevi (2022)

The figure illustrates that during the second year of the COVID-19 pandemic, trust in information about COVID-19, vaccines, and government policies among the public grew significantly. In 2020, there were 57 cases clarified, which peaked at 74 in 2021 but fell to 26 in 2022, down to six in 2023, and only one at the start of 2024 (Kementerian Komunikasi dan Informatika, 2024). This rising public trust in government policies related to COVID-19 and the reduction of misinformation is evident in an increased awareness of healthy living. A 2023 survey by Herbalife, titled the Asia Pacific Health Priority Survey, revealed that 77% of respondents in the Asia Pacific region have become more health-conscious due to the pandemic, with 92% of Indonesian respondents emphasising the importance of their health in the wake of the pandemic (Herbalife, 2023).

Conclusion

This study has shown that misinformation undermines the government's ability to enforce public health measures, straining healthcare systems and prolonging socio-economic instability. This fragmented information landscape exposes Indonesia to exploitation by malicious actors who use disinformation to weaken democratic governance, heighten societal divisions, and erode public trust. Consequently, the country is confronting increased internal and external security threats, jeopardising its long-term stability and resilience, while posing a significant threat to national security. The article discusses the rise of false and misleading information on the Internet and social media, which has disrupted societal stability and impacted national security.

The article highlights the adverse effects of infodemic on public opinion and behaviour, potentially hindering government response to the pandemic. It also suggests strategies for mitigating the threat of misinformation and disinformation, emphasising the role of governments in promoting accurate information, transparency, and public trust. The infodemic made it difficult to filter information, leading to a decline in public trust and threatening economic security through rising unemployment, price increases, and instability. These challenges slowed the pace of vaccinations in Indonesia compared to other countries. The government implemented policies to curb the virus and stabilise the economy. However, the pandemic's impact required continued assessment so that the government, through various innovative approaches, as outlined in this article, could increase vaccination rates and improve public compliance with COVID-19 health protocols.

Further research could include comparative studies of legal and policy frameworks adopted in other countries to deal with health emergencies and the ensuing infodemic, as

well as machine learning innovations for the early detection of health misinformation. Advancing knowledge in these areas will help develop integrated governance for resilient public health security systems. It requires an interdisciplinary perspective, including law, public policy, political communication, emergency management, sociology, and computer science. With continued vigilance and preparedness, Indonesia can turn the challenge of the COVID-19 infodemic into an opportunity to build a resilient society against multidimensional security threats.

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