



Published by  
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## COVID-19 Infodemic: Underlining the importance of digital literacy skills

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The COVID-19 pandemic is currently the most significant public health emergency worldwide and has impacted many sectors, including in Indonesia. The number of COVID-19 cases in Indonesia has continued to increase since the first case identified on 1 March 2020. The massive impacts of COVID-19 pandemic are not merely related to the fast transmission of the disease itself, but also with the fast spread of various information, both accurate and inaccurate, which have raised confusion in the community. The epidemic of information, which is called “infodemic” is defined by World Health Organisation as too much information including false or misleading information in digital and physical environments during a disease outbreak.<sup>1</sup>

In early May 2020, The Indonesian Ministry of Communication and Information Technology (*Kominfo*) found more than 1,400 hoaxes and disinformation with regard to COVID-19 in the community. The false information were mostly related to the prevention and treatment of COVID-19, and to the issue of COVID-19 as a conspiracy and hoax.<sup>2</sup> A social media analysis that investigated rumors, stigma and conspiracy theory, which spread through the online platforms such as organisations’ websites, Facebook, Twitter and online newspapers from December 2019 to April 2020 identified 2,311 reports on rumors, stigma and conspiracy theory in 25 languages from 87 countries, including Indonesia as one of the main contributors. Most claims were about mode of transmission and deaths (24%), prevention efforts (21%), treatment (19%), and the origin of the virus (15%), with 82% of the claims were false.<sup>3</sup>

During the pandemic, the use of social

media and electronical messages tend to increase in line with the decrease of face to face and outdoor activities. Most people were also more eager to search information on the internet because very little was known about COVID-19 as a novel disease. The Global Digital 2020 data<sup>4</sup> shows that 59% of the 7.75 billion global population were internet users and 49% were active users of social media, implying a 7% and 9.2% increase of internet users and active social media users in 2020 compared to 2019, with most used social platforms were Facebook, Youtube and Whatsapp. Similar for Indonesia, the report shows higher proportions of both internet and active social media users which were respectively 64% and 59% of the total Indonesian population. Compared to the proportions in 2019, there were 17% and 8.1% increase in 2020 in the respective groups. It was also reported that there were 94% internet users aged 16-64 years who had smartphone and 66% who had laptop or desktop computer. Average daily time spent by Indonesian internet users aged 16-64 years on the internet was almost 8 hours, on social media alone around 3.5 hours and on television was 3 hours. Almost similar to the global trend, the three main social platforms used by internet users aged 16-64 in Indonesia were Youtube, Whatsapp and Facebook. The increased number of internet and social media users has supported the growth of infodemic as internet can quickly and intensively connect people with similar ideas, perception and interest. As the result, infodemic will influence decision making process in particular behaviors due to the very limited time available during crisis for analyzing or evaluating the accuracy of information.<sup>5</sup>

Several studies reveal how COVID-19 infodemic influenced the perception and behaviors of people, and led to the emergence of social stigma with different degree across countries. An infodemiological study which used a meta-analysis approach shows that infodemic has resulted in perception bias and stigma towards China that mentioned to be the cause of COVID-19.<sup>6</sup> Some reviews and research articles also show that too much information can decrease the community risk perception and prevention efforts. Rumors and disinformation stimulate the unexpected behaviors in prevention and treatment, COVID-19 vaccination refusal, mental health disorders, and self and social stigma among COVID-19 patients.<sup>7-9</sup> During the early period of COVID-19 pandemic in Indonesia, a study in 530 respondents found that 27.7% of them believed that SARS-CoV-2 is a biological weapon made by a particular country, and 19.6% of respondents believed that gargling with salty water can kill the virus.<sup>10</sup>

The significant impacts of COVID-19 infodemic have urged the need for good digital literacy skills in the community. UNESCO defined digital literacy as the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technologies. Digital literacy also referred to as computer literacy, information-communication-technology (ICT) literacy, information literacy and media literacy.<sup>11</sup> Through good digital literacy skills, people will be able to search information and perform fact-checking before sharing the content to others. An Editorial written by Sutarsa N et al<sup>12</sup> suggests that COVID-19

pandemic has increased the demand of e-health technologies in health care provision, which also emphasizes the need for adequate digital literacy for public to be able to use the technologies in accessing health care and accurate health information. A survey conducted in 34 provinces in Indonesia that measured the digital literacy using a “Global Framework of Reference on Digital Literacy Skills” developed by UNESCO consisting seven pillars and 4 sub-indexes found the digital literacy in Indonesia had not reached the intended level.<sup>13</sup> With the highest index score of 5, the Indonesian digital literacy index was only 3.47. The survey also found that 30-60% of respondents had ever exposed to hoaxes and only 21-36% were admitted that they are able to identify hoaxes. Despite 40-55% of the respondents said they would never share hoaxes to others, 11% reported they had ever shared hoaxes to others. Specific on COVID-19 pandemic prevention and treatment, 35.7% respondents had ever received hoaxes regarding garlic as the treatment for COVID-19 and 53.7% respondents said that they had an intention to share the garlic hoaxes to others.<sup>13</sup>

The massive spread of online information, high access to internet and social media, and inadequate digital literacy among Indonesian have been a combination to accelerate the spread of infodemic that indicates the need for a better approach in countering COVID-19 infodemic. Collaboration between the community, social media platforms and the government is required to improve Indonesian digital literacy. The government, both at the national and sub-national levels, need to start a digital literacy campaign by actively involve the community to educate and empower them in searching, checking and spreading

various information available in digital platforms. Community involvement should be started from family level as first gatekeeper to prevent spread of incorrect information as well to filter the correct one before circulating it inside and outside their family circle. Family members can be reached through local community organisations or programs such as *Karang Taruna* and *Pemberdayaan Kesejahteraan Keluarga (PKK)*. Schools also need to get involved by including digital literacy in the current national curriculum starting from the early years of primary school. Social media platforms and official websites of both governmental and non-governmental organisations have currently responded to COVID-19 infodemic by taking several actions such as flagging, filtering, blocking and removal content or accounts, etc, which are identified or reported suspicious. Nevertheless, those efforts must be supported by the government regulation to combat disinformation, particularly for the digital media companies in Indonesia. Strong and sustainable collaboration between the community, social media platforms and the government is important to achieve the good level of Indonesian digital literacy skills and to tackle the COVID-19 infodemic.

## REFERENCES

1. World Health Organization. Infodemic [Internet]. World Health Organization. Geneva; 2020. Available from: [https://www.who.int/health-topics/infodemic#tab=tab\\_1](https://www.who.int/health-topics/infodemic#tab=tab_1)
2. Ardi R. Infodemic di saat pandemi [Infodemic during pandemic] [Internet]. Indonesian Psychologists Association; 2020. Available from: <https://himpisi.or.id/blog/materi-edukasi-covid-19-5/post/infodemic-di-saat-pandemi-124>
3. Islam MS, Sarkar T, Khan SH, Kamal AM, Hasan SMM, Kabir A, et al. COVID-19–Related Infodemic and Its Impact on Public Health: A Global Social Media Analysis. *Am. J. Trop. Med. Hyg.* 2020;103(4):1621–1629.
4. Hootsuite. Digital 2020: Indonesia [Internet]. Hootsuite; 2020. Available from: <https://datareportal.com/reports/digital-2020-indonesia>
5. Pan American Health Organization. Factsheet: Understanding the infodemic and misinformation in the fight against COVID-19. Pan American Health Organization [Internet]. USA; 2020. Available from: [https://iris.paho.org/bitstream/handle/10665.2/52052/Factsheet-infodemic\\_eng.pdf?sequence=14](https://iris.paho.org/bitstream/handle/10665.2/52052/Factsheet-infodemic_eng.pdf?sequence=14)
6. Hu Z, Yang Z, Li Q, Zhang A, Huang Y. Infodemiological study on COVID-19 epidemic and COVID-19 infodemic [Preprint]. 2020. DOI: [10.20944/preprints202002.0380.v3](https://doi.org/10.20944/preprints202002.0380.v3)
7. Roozenbeek J, Schneider CR, Dryhurst S, Kerr J, Freeman ALJ, Recchia G, et al. Susceptibility to misinformation about COVID-19 around the world. *R. Soc. Open Sci.* 2020;7: 201199.
8. Tagliabue F, Galassi L, Mariani P. The “Pandemic” of Disinformation in COVID-19. *SN Comprehensive Clinical Medicine.* 2020; 2:1287–1289
9. Tasnim S, Hossain MM, Mazumder H. Impact of rumors or misinformation on COVID-19 in social media. *J Prev Med Public Health.* 2020; 53(3): 171–174
10. Nasir NM, Baequni, Nurmansyah MI. Misinformation related to COVID-19 in Indonesia. *Jurnal Administrasi Kesehatan Indonesia.* 2020; 8(1).
11. UNESCO. A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2. Information Paper No. 51. UNESCO. Canada; 2018.
12. Sutarsa N, Astuti PAA, Choy M, Moore M. COVID-19 Pandemic: Opportunity to Accelerate e-Health in Indonesia. *Public Health and Preventive Medicine Archive.* 2020;8(1):1-3.
13. Katadata Insight Center and The Indonesian Ministry of Communication and Information Technology. Status Literasi Digital Indonesia 2020: Hasil Survei di 34 Provinsi [The 2020 Indonesian Digital Literacy Status: Results of a Survey in 34 Provinces]. 2020. Available from: [https://katadata-s3-public.s3.ap-southeast-1.amazonaws.com/media/kic/kominfo/Status%20Literasi%20Digital\\_Nasional.pdf](https://katadata-s3-public.s3.ap-southeast-1.amazonaws.com/media/kic/kominfo/Status%20Literasi%20Digital_Nasional.pdf)



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