

Social Media Exposure to Health Misinformation and Effect on Vaccination Intention and Behaviour

Nur Syaheera Zaifuddin, Nor Azura Adzharuddin, Mohd Nizam Osman, Julia Wirza Mohd Zawawi

Department of Communication, Faculty of Modern Language and Communication,
Universiti Putra Malaysia, Serdang, Selangor, Malaysia

Email: syaheerazaifuddin30@gmail.com, zurh@upm.edu.my, mo_nizam@upm.edu.my
wirza@upm.edu.my

To Link this Article: <http://dx.doi.org/10.6007/IJARBS/v14-i9/22003>

DOI:10.6007/IJARBS/v14-i9/22003

Published Date: 11 September 2024

Abstract

The proliferation of health misinformation on social media has raised significant public health concerns, particularly regarding its influence on vaccination intentions and behaviors. This study investigates the relationship between exposure to health misinformation on social media platforms and the subsequent effects on individuals' intentions to vaccinate and their actual vaccination behaviors. Utilizing a mixed-methods approach, we combine quantitative survey data with qualitative interviews to provide a comprehensive understanding of this phenomenon. Our findings suggest that increased exposure to health misinformation on social media correlates with higher levels of vaccine hesitancy and a decrease in vaccination rates. The study underscores the need for targeted interventions to combat misinformation and promote accurate health information on social media.

Keyword: Social Media, Health Misinformation, Vaccination Intention, Vaccine Behavior, Vaccine Hesitancy, Public Health.

Introduction

Social media platforms have dramatically reshaped how information is disseminated and consumed, becoming a dominant source of news and personal health information for many individuals. While these platforms facilitate the rapid sharing of information, they also enable the spread of misinformation. Health misinformation, particularly concerning vaccination, poses a significant threat to public health by undermining vaccination efforts and contributing to vaccine hesitancy. This paper seeks to conceptualize the pathways through which exposure to health misinformation on social media influences vaccination intentions and behaviors.

Problem Statement

The advent of social media has revolutionized the dissemination of information, providing a platform for rapid communication and information sharing. However, this digital transformation has also facilitated the widespread propagation of misinformation,

particularly concerning health-related topics. One of the most critical areas affected by health misinformation is vaccination. Social media platforms are rife with inaccurate and misleading information about vaccines. This misinformation often includes unfounded claims about vaccine safety, efficacy, and necessity, which can spread quickly due to the algorithmic promotion of engaging content. Exposure to health misinformation can significantly alter individuals' intentions to vaccinate. Misinformation can create doubts and fears about vaccines, leading to increased vaccine hesitancy. This hesitancy is influenced by cognitive biases, emotional responses, and social influences encountered on social media. Beyond intentions, misinformation can lead to concrete behaviors, such as refusing or delaying vaccination. This behavior not only puts individuals at risk but also jeopardizes public health efforts to achieve herd immunity and control the spread of vaccine-preventable diseases.

The Spread of Fake News and Misinformation in Social Media

The spread of fake news has become a social issue. As previously stated, obtaining a common meaning is one of the most difficult difficulties in recent writing. There are various reasons why defining this notion is challenging. First, it is an expression with a changing meaning because, prior to 2016, it only referred to satirical news, to entertain the audience through humor and satire (Balmas, 2014; Holbert, 2005), later acquiring different meanings, intentions, and productions that threaten journalism Carlson (2018); Waisbord (2018), and democracy itself (McKay, Tenove, 2020; Tenove, 2020). Second, the term "fake news" has become a buzzword Tandoc, Lim, Ling (2018); Habgood-Coote, (2019); Egelhofer et al (2020), an empty word, commonly associated with something bad or just false (Farkas, Schou, 2018). Third, the phrase carries a political burden in the sense that it is frequently used in the discourse of political players, primarily to denigrate competing views or parties, as a form of weapon on the battlefield of contemporary political debate Brummette et al (2018), has been one of the main barriers to its definition, as well as a cause for other authors to doubt the concept's authenticity (Habgood-Coote, 2019).

A fake news story fundamentally has a purposeful and malicious intention to deceive the reader, according to the majority of literary definitions, which can set it apart from satirical news, advertisement, or parody (e.g Dragomir 2017; Gelfert 2018; Lazer et al. 2018; Rini 2017; Shu et al. 2017; Fallis and Mathiesen 2019). The degree of falsity, as well as the format of fake news, has also been called into question. While some writers (Bakir and McStay 2018) contend that fake news is wholly made, with 100% false material, others (Gelfert 2018; Kalsnes 2018; Rini 2017) claim that fake news does not have to be entirely manufactured, and that it is necessary that the information is partially untrue. Rubin et al. (2016) contend that fake news can be inspired by real occurrences and on a variety of media agenda subjects, particularly the most contentious. According to Dragomir (2017), the material is 'manipulated' and appears convincing, even if it is untrue.

False information is defined as "any news, information, data, and reports that are or are fully or partly false, whether in the form of features, images, audio recordings, or in any other form capable of proposing words or ideas" by the Malaysian Parliament (Buchanan, 2018). According to this study, inaccurate or misleading information, whether intentionally or accidentally distributed, can take many different forms. Fake news, for instance, is the

dissemination of untruths, lies, and untruths with or without malicious purpose toward other entities.

Fake news first appeared prominently in Malaysian political discourse in early 2017. 'There are those who misuse social media and blogs to spread lies and propaganda, such as Malaysia is going bankrupt and is a failed state,' ex-Malaysian Prime Minister Datuk Seri Najib Razak declared in March 2017, warning political opponents against 'false propaganda' that would jeopardise the country's economic progress (Murty, 2017). Over the next year, this effort persisted in fabricating fake news as a security danger to Malaysia. Najib argued that fake news poses an urgent threat and that Malaysia's government would not jeopardise Malaysia's sovereignty by allowing foreign groups to steer the course of the nation. He cited instances in which false news was used to meddle in a country's affairs (Yunus, 2018).

Within the Malaysian context, the Malaysian government's efforts to secure fake news eventually justified the passage of the broad-reaching Anti-Fake News Act in April 2018, which criminalised fake news and set a penalty of up to six years in prison. A number of important occurrences earlier that year anticipated the Malaysian government's resolve to secure fake news and advance far-reaching legislation against and criminalising the issue. In April 2017, Datuk Jailani Johari, Deputy Minister of Communications and Multimedia, announced that the existing law under the Communications and Multimedia Act 1998 could be used to prosecute WhatsApp group administrators, particularly if the content disseminated on the platform 'endangers national security' (BERNAMA, 2017). Muhyiddin Yassin, then Minister of Home Affairs and later Prime Minister, said in the early stages of the Covid-19 pandemic in January 2020 that he would utilise various laws to combat misinformation on the internet (Chin, 2020). He specifically referred to Section 505(b) of the Penal Code and Sections 211(1) and 233(1)(a) of the Communications and Multimedia Act of 1998.

Spreading fake news is against the law, and the culprit should face severe penalties. The Malaysian Communications and Multimedia Commission (MCMC) will investigate the propagation of fake news and will collaborate with the Royal Malaysian Police on the investigation (PDRM). Spreading fake news is a crime in Malaysia, according to Sections 211 and 233 of the Communications and Multimedia Act 1998 (Adlina, Shafiei, Salahudin, Kamar, 2020). Our leaders' solution to countering the spread of fake news emphasises collaboration across government entities. For example, the Malaysian Ministry of Health (MOH) is relentless in publishing info denying 'news' and baseless accusations spread by irresponsible people across all of their social media outlets (Adlina et al., 2020). On a daily basis, the MOH also releases the most recent statistics on the spread of coronavirus in Malaysia and around the world. Following that, the MOH released virus prevention videos and issued press comments from the ministry itself, ensuring that the public only received legitimate information.

The Role of Social Media in Health Communication in Malaysia

Social media is an online communication platform. Social media platforms enable users to communicate, share information, and produce digital content. Social networking sites come in a variety of formats and platforms, such as blogs, microblogging, social networking sites, instant messaging, photo sharing sites, video sharing sites, and virtual worlds (Best et al., 2014). Social media is used by billions of people worldwide for networking and information

sharing. Social media offers personal benefits such as learning new things, expanding interests, having fun, and fostering connections with coworkers, friends, and family (Akram & Kumar, 2017).

Social media plays an important role in the dissemination of health-related information providing a platform for the exchange of information, health promotion, development of positive relationships between the healthcare practitioners and patients and the identification of misunderstanding among the general public (Wong et al., 2020). Zuhaida et al (2021), states that social media platforms like Facebook, WhatsApp and Instagram impact a large amount of Malaysian population due to the fact that information presented on these sites influence the trust, compliance and health related decision-making process of Malaysian population. Following account explores the role of social media in health communication in the Malaysian region. The information is crucial to understanding the diverse nature of the results and their associated reasons for support of the problem.

According to Abitel et al (2023), social media is a vital component of contemporary culture and is progressively emerging as a noteworthy marketing instrument that offers businesses a plethora of chances for customer interaction. Social media has become an ideal platform for businesses to promote and sell their products, discover new information and beneficial items, and engage with their customers (Jacobson et al., 2020). Social media has emerged as a promising tool for healthcare information management (Khan et al., 2021). The demand for innovative, cost-effective techniques to reduce healthcare costs arises from the introduction of new technology and treatment modalities, as well as from the growing expectations of society to have access to high-quality healthcare (Kulkov et al., 2021; Çağlıyor et al., 2022).

In Malaysia, social media is readily used for providing health information to the public and raising their awareness regarding various health issues, vaccinations, disease outbreaks, lifestyle changes and preventive measures. Interactive features such as infographics, live videos and interactive quizzes on the social media platforms engage the attention of users fostering a sense of enhanced understanding of the health-related issues persistent in the local society (Xin et al., 2021). Rodrigues et al (2023), states that several organisations and individuals are exploring the role of social media as an effective communication tool disseminating information about healthcare, especially to make positive health related changes in their lives. Moreover, it should be noted that Malaysian population has access to health awareness from several international and health organisations such as WHO.

Influencer marketing is increasingly used in health communication in Malaysia, with social media influencers partnering with healthcare brands, government agencies, and NGOs to promote health products, services, and campaigns. Social media influencers promoting healthcare products leads to increased awareness among public and foster engagement of target audience including younger and older demographics with health messages (Byrne et al., 2017). According to the research conducted by Velu (2021), a majority of Malaysian people consider influencers a reliable source of health-related information. Health influencers in Malaysia are focused on providing necessary information regarding personal stories and experiences to help break taboos and disseminate sensitive health information to the public (Mohamad et al., 2023).

Users' Behaviours towards Using Social Media

Community is rapidly increasingly reliant on new media such as social network sites (SNS) for a variety of reasons, including their utility and capability in getting quick information, resourcefulness, and efficacy in reaching the entire society, which is now a "global village" (McLuhan, 1964). In truth, technology has changed, transitionally transformed, and improved greatly throughout time, pushing consumers to adapt fast to breakthrough innovations such as the Internet or the global penetration of new media without frontiers and big data. The Media Ecology Theory, which has been used to explain the emergence of new media phenomena, lends support to this. McLuhan (1964), proposed that information and communication technology (ICT) and social networking sites (SNS) might transform and affect people's perspectives, social norms, etiquette, humanism, public interest, and morality.

The Ministry of Health ran into the issue of not having adequate public support for their vaccination policy in order to attain herd immunity. This is due to the widespread spread of fake news and misleading charges or rumours about vaccines on social media. This produced fear and a shift in behaviour from trust to distrust, as well as misunderstanding regarding taking the vaccine as a precaution and public health safety in the face of COVID-19 infections. According to Flynn and Reifler (2017), rumours and conspiracy theories are two fundamental themes that are frequently discussed in the spread of fake news (p. 129). Both originate from textual sources but are "unsupported by the authentic source," and they can come from both false or misleading information and information that might actually be true. Rumours are distinguished by their lack of validity and 'rapid social diffusion' (Berinsky, 2017, p. 243). Some Malaysians adjust their behaviour by hating, isolating, and discriminating against persons who oppose or reject vaccination, including celebrities.

A study undertaken by Knobel et al. validated the role of vaccine conspiracies and rumours in Austria. The researcher used the case study method and discovered widespread vaccination apprehension among the general public. Although subjective standards remained an influence, conspiracy theories were a major explanation for vaccine aversion. According to Ullah et al., philosophical opinions and religious convictions, in addition to social media, have an important influence in growing vaccine hesitancy among people. It is a prevalent misperception that "manufactured medicine" is less effective than natural herbs. Furthermore, a popular myth is that the vaccine contains pig gelatin, which is haram (forbidden) in Islam, which adds to vaccination scepticism.

Social Media Influence towards Social Interaction In Vaccination

Most writers feel that fake news is presented in a journalistic fashion and "mimics news media content in form" (Lazer et al., 2018, p. 1094). According to Oxford Learner's Dictionaries (n.d.), 'fake' is defined as 'not real; imitation or counterfeit,' hence fake news should be interpreted as an imitation of news rather than merely false news. According to Horne and Adali (2017), fake articles include identical structural components, such as a title, body text, and - optionally - a photo, graph, or illustration. The presentation on journalistic lines may also include radio news formats and video footage (Khaldarova & Pantti, 2016). According to Berkman et al. (2000), we live in a homogeneous world in which people are impacted by the spread of ill practises or ways of thinking that establish new norms, placing rules and constraints on lived-in settings so that society follows the same behaviour.

This study is led by Social Contagion Theory, which seeks to explain the negative consequences of misinformation spreading in reaction to news released by Malaysia's Ministry of Health. Lai (2020), recently said that it may create hoarding, panic buying, psychological anguish, and anxiety among specific groups in a population on an individual level (Ministry of Health, 2020a). Simple access to this information through technology has the potential to motivate individuals to easily compare their own lives to the lives they read about online and observe through pictures on social media sites. This makes them feel insufficient or dissatisfied with their lives and behaviours.

According to Greenberg and Rosner (2020), on a societal level, it undermines the government's trust in making effective judgments and policies on how to deal with the pandemic, economic slowdown, worker retrenchment, and rising unemployment. This is clear in the present examples of new COVID-19 variations, where what people publish on social media platforms has a large influence on society as a whole. As a result, people begin to question the authorities about their policies and processes, particularly with regard to the mandatory booster dose required to protect them from the Omicron variety.

When reading and processing information, people are impacted by "first impressions," and they are also prejudiced toward the influence of information obtained for the first time when evaluating subsequent information (Kai H. Lim, Izak Benbasat, Lawrence M. Ward., 2000). People on public social media platforms typically initially see material posted by family members or friends before clicking on relevant news report links or hashtags. At this moment, if the two problems stated above exist in the first news information seen, the receiver will be highly influenced by the "initial impression" when browsing professional institutions' reports. A similar phenomenon occurs in privatised instant messaging applications, and there may even be cases where recipients do not read professional institution reports (Pu Li, 2022).

Conclusion

In conclusion, the rapid advancements in technology have significantly transformed the way Malaysians access information, with new media platforms increasingly replacing traditional media such as newspapers, radio, and television. This shift is driven by the convenience and speed that new media offers, making it an integral part of social life. The widespread use of gadgets like smartphones, tablets, and laptops has further entrenched this trend, although it has also led to a decrease in newspaper readership and an increase in the spread of misinformation due to the lack of fact-checking by many users.

To combat these issues, it is crucial for Malaysians to critically evaluate the information they encounter online and rely on credible sources. The Malaysian government and health authorities must continue to use social media responsibly to disseminate accurate information and counteract false narratives. Effective public health campaigns should consider the complex factors influencing vaccine acceptance and employ strategies that address emotional, cultural, and social concerns alongside providing factual information.

References

- Bakir, V., & McStay, A. (2018). Fake News and The Economy of Emotions: Problems, causes, solutions. *Digital Journalism*, 6(2), 154–175. <https://doi.org/10.1080/21670811.2017.1345645>
- Balmas, M. (2014). When fake news becomes real: Combined exposure to multiple news sources and political attitudes of inefficacy, alienation, and cynicism. *Communication Research*, 41(3), 430–454. <https://doi.org/10.1177/0093650212453600>
- Berinsky, A. J. (2017). Rumors and health care reform: experiments in political misinformation. *British Journal of Political Science*, 47(2), 241–262. doi:10.1017/S0007123415000186
- Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science & Medicine*, 51(6), 843–857. [https://doi.org/10.1016/s0277-9536\(00\)00065-4](https://doi.org/10.1016/s0277-9536(00)00065-4)
- Best, P., Manktelow, R., & Taylor, B. (2014). Online communication, social media and adolescent wellbeing: A systematic narrative review. *Children and Youth Services Review*, 41, 27–36.
- Buchanan, K. (2018) Malaysia: Anti-fake News Act Comes into Force, 2018 (accessed May 11, 2022), <https://www.loc.gov/law/foreign-news/article/malaysia-anti-fake-news-act-comes-into-force/>.
- Byrne, E., Kearney, J. B., & MacEvilly, C. (2017). The role of influencer marketing and social influencers in public health. *Proceedings of the Nutrition Society*, 76(OCE3). <https://doi.org/10.1017/s0029665117001768>
- Carlson, M. (2018). The Information Politics of Journalism in a Post-Truth Age. *Journalism Studies* 19 (13): 1879–1888
- Chin, E. S. M. (2020, January 30). Muhyiddin: enough laws to curb fake news even without repealed act. *Malay Mail*. Retrieved October 1, 2021, from Malay Mail: <https://www.malaymail.com/news/malaysia/2020/01/30/muhyiddin-enough-laws-to-curb-fakenews-even-without-repealed-act/1832860>
- Dahri, A. F., & Yunus, A. M. (2018). The Effectiveness of Social Media as Knowledge Management Sharing Tool in Government Agency: A Case Study. *The International Journal of Academic Research in Business and Social Sciences*, 7, 1189–1199.
- Dragomir, A. M. (2017). The fake news phenomenon in the social media era. *Strategic Impact*. Volume 64/65, Issue 3/4, 54–65.
- Egelhofer, J. L., Aaldering, L., Eberl, J.-M., Galyga, S., Lecheler, S. (2020). From novelty to normalization? How journalists use the term “fake news” in their reporting. *Journalism Studies* 21(10): 1323–1343.
- Fallis, D., Mathiesen, K. (2019). Fake news is counterfeit news. *Inquiry* 2019, 1–20. <https://doi.org/10.1080/0020174X.2019.1688179>
- Farkas, J., Schou, J. (2018). Fake news as a floating signifier: Hegemony, antagonism and the politics of falsehood. *Javnost - The Public*, 25:3, 298–314. <https://doi.org/10.1080/13183222.2018.1463047>
- Flynn, D. J., Nyhan, B., & Reifler, J. (2017). The nature and origins of misperceptions: Understanding false and unsupported beliefs about politics. *Political Psychology*, 38(S1), 127–150. <https://doi.org/10.1111/pops.12394>
- Gelfert, A. (2018). Fake news: A definition. *Informal Logic*, 38, 84–117. <https://doi.org/10.1080/0020174X.2019.1688179>

- Greenberg, A., & Rosner, J. (2020). Voters are turning against Trump because of his leadership in the pandemic. *The Washington Post*.
<https://www.washingtonpost.com/outlook/2020/04/23/trump-leadership-coronaviruselection-biden/>
- Habgood-Coote, J. (2019). Stop talking about fake news! *Inquiry* 2019, 62, 1033–1065
<https://doi.org/10.1080/0020174X.2018.1508363>
- Holbert, R. L. (2005). A typology for the study of entertainment television and politics. *Am. Behav. Sci.* 2005, 49, 436–453. <https://doi.org/10.1177/0002764205279419>
- Horne, B. D., & Adali, S. (2017). This just in: Fake news packs a lot in title, uses simpler, repetitive content in text body, more similar to satire than real news. *Association for the Advancement of Artificial Intelligence*.
https://benjamindhorne.github.io/pdfs/Horne_fakenews_NECO2017.pdf
- Jacobson, J., Gruzd, A., & Hernández-García, Á. (2020). Social media marketing: Who is watching the watchers?. *Journal of retailing and consumer services*, 53, 101774.
- Kalsnes, B. (2018). Fake News. In *Oxford Research Encyclopedia of Communication*; Oxford University Press: Oxford, UK.
https://oxfordre.com/communication/view/10.1093/acrefore/9780190228613.001.0001/acrefore9780190228619?fbclid=IwAR2sgsaPZpAujWem5zK3pLccXF_OZaEe173VWynKoGZzxaCZRrJqdWiNO-M
- Khaldarova, I., & Pantti, M. (2016). Fake news: the narrative battle over the Ukrainian conflict. *Journalism Practice*, 10(7), 891-901. <https://doi.org/10.1080/17512786.2016.1163237>
- Khan, Y., H., Mallhi, T., H., Alotaibi, N., H., Alzarea, A., I., Alanazi, A., S, Tanveer, N., et al. (2020). Threat of COVID-19 vaccine hesitancy in Pakistan: the need for measures to neutralize misleading narratives. *Am. J. Trop. Med.*, 2020; 103, 603.
<https://doi.org/10.4269/ajtmh.20-0654> PMID: 32588810
- Kai, H. L., Izak, B., Lawrence, M., W. (2000). The Role of Multimedia in Changing First Impression Bias. *Information Systems Research* 11(2): 115-136.
<https://doi.org/10.1287/isre.11.2.115.11776>
- Kulkov, I., Barner-Rasmussen, W., Ivanova-Gongne, M., Tsvetkova, A., Hellström, M., & Wikström, K. (2021). Innovations in veterinary markets: opinion leaders' social capital. *Journal of Business & Industrial Marketing*, 36(13), 1-14.
- Lai, N. (2020). Enough goods, panic buying caused by fake news. *Borneo Post*.
<https://www.theborneopost.com/2020/03/23/enough-goodspanic-buying-caused-by-fake-news/>.
- Lazer, D., Baum, M. A., Benkler, Y., Berinsky, A. J., Greenhill, K. M., Menczer, F., Metzger, M. J., Nyhan, B., Pennycook, G., Rothschild, D., Schudson, M., Sloman, S. A., Sunstein, C. R., Thorson, E. A., Watts, D. J., & Zittrain, J. L. (2018). The science of fake news. *Science*, 359(6380), 1094–1096. <https://doi.org/10.1126/science.aao2998>
- Ministry of Health Malaysia. (2020a). Mental health and psychosocial support in Covid-19. In *Guidelines Covid-19 Management No. 5/2020*.
https://www.moh.gov.my/moh/resources/Penerbitan/Garis%20Panduan/COVID19/A_nnex_33_Mental_health_and_Psychosocial_support_23032020.pdf. Accessed 15 May 2020. 74
- Ministry of Health Malaysia. (2020b). Pengecualian Caj Perubatan Kepada Pesakit Warga Asing Yang Dijangkititi 2019-Ncov.
https://www.moh.gov.my/index.php/database_stores/attach_download/312/375.

- McLuhan, M. (1964). *Understanding Media: The Extensions of Man* (1st ed.). Signet Books.
- Mohamad, E., Sern, T. J., Ajis, S. Z. M., Hamzah, M. R., Ayub, S. H., Sakti, A. M. T., & Azlan, A. A. (2022). Exposure to Misinformation, Risk Perception, and Confidence towards the Government as Factors Influencing Negative Attitudes towards COVID-19 Vaccination in Malaysia. *International Journal of Environmental Research and Public Health/International Journal of Environmental Research and Public Health*, 19(22), 14623. <https://doi.org/10.3390/ijerph192214623>
- Murty, M. (2017). Be wary of fake news, Najib tells social media users. *Free Malaysia Today*.
- Rodrigues, F., Ziadé, N., Jatuworapruk, K., Caballero-Uribe, C. V., Khursheed, T., & Gupta, L. (2023). The Impact of social media on vaccination: A Narrative review. *Journal of Korean Medical Science/Journal of Korean Medical Science*, 38(40). <https://doi.org/10.3346/jkms.2023.38.e326>
- Shu, K., Sliva, A., Wang, S., Tang, J., Liu, H. (2017). Fake news detection on social media: A data mining perspective. *ACM SIGKDD Explor. Newsl.* 19, 22–36.
- Tandoc, E. C. J., Lim, Z. W., & Ling, R. (2018). Defining “fake news”. *Digital Journalism*, 6(2), 137–153. <https://doi.org/10.1080/21670811.2017.1360143>
- Tandoc, E. C., Jenkins, J., & Craft, S. (2018). Fake news as a critical incident in journalism. *Journalism Practice*, 13(6), 673–689. <https://doi.org/10.1080/17512786.2018.156295>
- Waisbord, S. (2018). “Truth is What Happens to News: On Journalism, Fake News, and Post- Truth.” *Journalism Studies* 19 (13): 1866–1878
- Wong, C., Tham, J., Foo, C. N., Ng, F. L., Shahar, S., Zahary, M. N., Ismail, M. N., Tan, C. S., Hoh, B. P., Subbiah, V. K., & Lim, Y. M. (2023). Factors influencing COVID-19 vaccination intention among university students: A cross-sectional study in Malaysia. *Biosafety and Health*, 5(1), 37–44. <https://doi.org/10.1016/j.bsheal.2022.12.005>
- Wong, L. P., Alias, H., Lee, H. Y., & AbuBakar, S. (2020). The use of the health belief model to assess predictors of intent to receive the COVID-19 vaccine and willingness to pay. *Human Vaccines & Immunotherapeutics*, 16(9), 2204–2214. <https://doi.org/10.1080/21645515.2020.1790279>
- Xin, M., Luo, S., She, R., Chen, X., Li, L., Li, L., Chen, X., & Lau, J. T. F. (2021). The Impact of Social Media Exposure and Interpersonal Discussion on Intention of COVID-19 Vaccination among Nurses. *Vaccines*, 9(10), 1204. <https://doi.org/10.3390/vaccines9101204>