



Social Media-Mediated Health Information and its Impacts on Consumer Behavior and Health Outcomes at City Government of Mandaluyong City, Philippines

COLLADO, Reynaldo Jr. C.⁽¹⁾

(4) 0000-0002-8555-6037; Department of Education. San Juan City, Metro Manila, Philippines. Email. reynaldo.colladojr@deped.gov.ph

ABSTRACT

This study investigated the impact of social media-mediated health information on the health-related consumer behavior and outcomes of residents in Mandaluyong City, Philippines, using a descriptive correlational design. The research aimed to understand how the perceived credibility of information sources, personal health beliefs, attitudes, and social influences shape consumer health behaviors. Additionally, it explored the health outcomes associated with social media health information, categorized into positive health changes, mixed mental health impacts, and negative health risks. Employing a quantitative approach, data were gathered through surveys and analyzed using statistical tools such as mean, and Pearson r-correlation coefficient. The findings revealed that perceived credibility, personal health beliefs, and social influence significantly affected health-related consumer behavior. Participants who trusted credible sources and adopted proactive health attitudes reported positive health changes, whereas misinformation and negative social influences contributed to mixed mental health impacts and negative health risks. Furthermore, a significant relationship was established between social media-mediated health information and health outcomes, highlighting the critical role of social media in shaping health behaviors and outcomes among residents of Mandaluyong City. These results underscore the need for educational initiatives to enhance health literacy and the importance of reliable health information sources in mitigating the risks associated with social media engagement.

RESUMO

Este estudo investigou o impacto das informações de saúde mediadas por mídias sociais no comportamento e nos resultados do consumidor relacionados à saúde de residentes na cidade de Mandaluyong, Filipinas, usando um delineamento correlacional descritivo. A pesquisa teve como objetivo entender como a credibilidade percebida das fontes de informação, crenças pessoais sobre saúde, atitudes e influências sociais moldam os comportamentos de saúde do consumidor. Além disso, explorou os resultados de saúde associados às informações de saúde das mídias sociais, categorizados em mudanças positivas na saúde, impactos mistos na saúde mental e riscos negativos à saúde. Empregando uma abordagem quantitativa, os dados foram coletados por meio de pesquisas e analisados usando ferramentas estatísticas como média e coeficiente de correlação r de Pearson. Os resultados revelaram que a credibilidade percebida, as crenças pessoais sobre saúde e a influência social afetaram significativamente o comportamento do consumidor relacionado à saúde. Os participantes que confiaram em fontes confiáveis e adotaram atitudes proativas em saúde relataram mudanças positivas na saúde, enquanto a desinformação e as influências sociais negativas contribuíram para impactos mistos na saúde mental e riscos negativos à saúde. Além disso, foi estabelecida uma relação significativa entre informações de saúde mediadas por mídias sociais e resultados de saúde, destacando o papel crucial das mídias sociais na formação de comportamentos e resultados de saúde entre os moradores da cidade de Mandaluyong. Esses resultados ressaltam a necessidade de iniciativas educacionais para aprimorar a alfabetização em saúde e a importância de fontes confiáveis de informação sobre saúde para mitigar os riscos associados ao engajamento em mídias sociais.

ARTICLE INFORMATION

Article process:

Submitted: 04/25/2025

Approved: 06/20/2025

Published: 09/30/2025



Keywords:

Social Media, Health Education, City Health, Consumer Behavior, Public Health

Keywords:

Mídias Sociais, Educação em Saúde, Saúde Municipal, Comportamento do Consumidor, Saúde Pública

Introduction

The rapid proliferation of social media as a dominant platform for disseminating health information has fundamentally transformed how individuals access, evaluate, and respond to health-related content. Platforms such as Facebook, Instagram, and TikTok have become primary sources of health information, especially in urban communities where mobile and internet access are prevalent. While this shift has democratized access to health knowledge, it also raises critical concerns about the credibility of information, the variability of sources, and their influence on consumer behavior and health outcomes (Kim & Xie, 2021; Luo et al., 2021).

Unlike traditional sources of health information—such as physicians, public health institutions, or accredited media outlets—social media introduces a diverse, unregulated mix of voices, ranging from health professionals and organizations to influencers and lay individuals. This unfiltered environment significantly affects how consumers interpret and act upon health advice, particularly in socioeconomically diverse urban settings like Mandaluyong City in the Philippines. As health consumers increasingly rely on social media to make decisions, understanding the psychological and behavioral mechanisms behind this reliance becomes critical.

To provide a comprehensive perspective, this study integrates three well-established theoretical models: the Health Belief Model (HBM), the Theory of Planned Behavior (TPB), and the eHealth Literacy Framework. The HBM posits that individuals' health behaviors are influenced by their perceptions of susceptibility, severity, benefits, barriers, and cues to action (Champion et al., 2020). The TPB extends this by incorporating attitudes, subjective norms, and perceived behavioral control as determinants of health behavior (Ajzen, 2020). Complementing these, eHealth literacy emphasizes individuals' ability to seek, appraise, and apply health information from electronic sources (Norman & Skinner, 2021), a critical skill in navigating today's information-rich social media landscape.

Recent studies support the relevance of these frameworks. Chang, Zhang, and Gwizdka (2020) found that perceived credibility and source trust significantly affect users' health information behaviors, particularly when mediated by their eHealth literacy levels. Similarly, Schubbe et al. (2020) highlighted how visual formats on social media enhance health comprehension, especially for individuals with low health literacy. These findings suggest that both content format and individual capabilities shape the effectiveness of online health communication. Moreover, the rise of user-generated content increases the risk of misinformation, which may distort personal health beliefs and lead to maladaptive behaviors (Islam et al., 2020).

In the specific context of Mandaluyong City—a densely populated, urban environment—these dynamics are especially pronounced. While social media enhances health information access, disparities in eHealth literacy and trust in formal healthcare systems may lead some individuals to adopt non-evidence-based practices, guided more by peer influence and

perceived norms than by expert advice. This reinforces the need to investigate how social media-mediated health information interacts with personal beliefs, social influence, and behavioral intention to produce specific health outcomes.

This study, therefore, aims to examine the influence of social media-mediated health information on health-related behaviors and outcomes among residents of Mandaluyong City, using the HBM, TPB, and eHealth Literacy Frameworks as guiding lenses. It will explore key factors such as perceived credibility, social influence, and individual literacy in shaping behaviors such as health-seeking, self-medication, preventive practices, and mental health outcomes. By anchoring the investigation within established behavioral and cognitive models, this research seeks to offer actionable insights for designing effective, trustworthy public health communication strategies in the digital age.

This study aimed to examine how social media-mediated health information impacts the health-related consumer behavior and health outcomes of residents in Mandaluyong City, focusing on the perceived credibility of information sources, personal health beliefs and attitudes, social influence and peer behavior, and to determine the significant relationship between these influences and the resulting health outcomes, including positive health changes, mixed mental health impacts, and negative health risks.

More specifically, it aimed to answer the following:

1. How does social media-mediated health information influence the health-related consumer behavior of residents in Mandaluyong City in the following aspects: perceived credibility of information sources; personal health beliefs and attitudes; and social influence and peer behavior?
2. What are the health outcomes associated with the consumption of health information from social media among residents of Mandaluyong City in term of: positive health outcomes; mixed mental health impacts; and negative health risks?
3. Is there a significant relationship between social media-mediated health information influence and health outcomes associated with the consumption of health information from social media among residents of Mandaluyong City?

Development

This study employed a descriptive correlational research design to examine the relationship between social media-mediated health information and health-related consumer behavior, as well as the resulting health outcomes among residents of Mandaluyong City. The descriptive component aimed to document how social media influences various aspects of health behavior, such as the perceived credibility of information, personal health beliefs, and social influences. The correlational aspect of the study sought to identify significant relationships between these influences and health outcomes, including positive health changes, mental health impacts, and potential health risks.

Sampling Design and Sample Size

The target population for this study consisted of residents of Mandaluyong City aged 15 years and above, as recorded in the 2020 census, which indicated a total of 309,441 eligible consumers. Using the Raosoft sample size calculator with a confidence level of 95% and a margin of error of 5%, the minimum sample size was determined to be 384 respondents. A random sampling technique was employed to ensure that the sample was representative of the population.

Data Collection Instrument

A self-administered questionnaire was developed to collect data, consisting of three sections. The first section gathered demographic information, including age, gender, educational attainment, and social media usage patterns. The second section focused on the perceived credibility of social media health information, personal health beliefs, and social influence factors. The final section measured various health outcomes, such as changes in health behavior, mental health impacts, and reported health risks.

The questionnaire used a Likert scale to capture respondents' attitudes and beliefs regarding the credibility of social media health information and its influence on their health-related decisions. To ensure the instrument's validity, it was pre-tested on a small sample of 30 respondents, and necessary adjustments were made based on feedback.

Data Analysis

The data were analyzed using descriptive statistics to summarize the respondents' demographic characteristics and social media usage patterns. Pearson's correlation coefficient was employed to examine the relationships between social media influences—such as perceived credibility, health beliefs, and social influence—and the resulting health outcomes. The level of significance was set at 0.05 to determine whether the relationships observed were statistically significant.

Ethical Considerations

Prior to data collection, ethical approval was obtained from the institutional review board, and informed consent was secured from all respondents. Participants were assured of the confidentiality and anonymity of their responses, and they were given the option to withdraw from the study at any time without penalty.

Results and Discussions

Table 1.1

Social Media-Mediated Health Information Influence the Health-Related Consumer Behavior of Residents in Mandaluyong City in terms of Perceived Credibility of Information Sources

Perceived Credibility of Information Sources	Mean	Verbal Interpretation
1. I am strongly influenced by the health information I receive from social media platforms.	2.14	MinI
2. I find that health advice on social media influences me as much as information from healthcare professionals.	2.12	MinI
3. I believe that health-related content shared by social media influencers strongly influences my perceptions of credibility.	2.10	MinI
4. I often feel influenced to verify the sources of health information before trusting social media posts.	2.13	MinI
5. My personal experience shows that health information from social media strongly influences my beliefs about accuracy.	2.16	MinI
Overall Perceived Credibility of Information Sources	2.13	MinI

Note: 1.00-1.49 – Not Influenced (NI), 1.50-2.49 – Minimally Influenced (MinI), 2.50-3.49 – Moderately Influenced (ModI), 3.50-4.00 – Strongly Influenced (SI)

As shown in Table 1.1, the influence of perceived credibility of social media-sourced health information on Mandaluyong City residents is minimal, with mean scores ranging from 2.10 to 2.16. This suggests that while social media is acknowledged as a health information source, its credibility remains questionable. Respondents appear cautious, especially toward content from influencers, and prioritize verification through authoritative sources such as healthcare professionals.

These findings resonate with recent studies emphasizing the role of trust in online health behavior. For example, Kim and Xie (2021) emphasized that eHealth literacy moderates trust in online health content, especially in diverse urban settings. Similarly, Farnood et al. (2021) found that trust in official sources correlates with accurate health behavior uptake, while reliance on unverified sources is associated with misinformation risks. The results from Mandaluyong reflect similar caution, underscoring the need for digital literacy campaigns that empower users to critically assess health content online.

Table 1.2

Social Media-Mediated Health Information Influence the Health-Related Consumer Behavior of Residents in Mandaluyong City in terms of Personal Health Beliefs and Attitudes

Personal Health Beliefs and Attitudes	Mean	Verbal Interpretation
1. Health information on social media has strongly influenced my views on personal health.	3.15	ModI
2. I am strongly influenced to follow health tips or advice from social media to improve my health.	3.17	ModI
3. Social media content has strongly influenced the way I think about diet and exercise.	3.14	ModI
4. I feel strongly influenced in managing my health after consuming health information from social media.	3.16	ModI
5. I rely on social media health information to make decisions about my health, with strong influence.	3.13	ModI
Overall Personal Health Beliefs and Attitudes	3.15	ModI

Note: 1.00-1.49 – Not Influenced (NI), 1.50-2.49 – Minimally Influenced (MinI), 2.50-3.49 – Moderately Influenced (ModI), 3.50-4.00 – Strongly Influenced (SI)

Table 1.2 reveals that social media moderately influences personal health beliefs and attitudes, with mean scores between 3.13 and 3.17. Residents report that social media affects how they perceive diet, exercise, and general wellness. Although these are not statistically tested for causality, the moderate levels indicate behavioral engagement that is substantial but not necessarily definitive.

This aligns with regional data from Malaysia and Indonesia, where social media has been reported to shape health attitudes, especially among younger populations (Teng et al., 2022; Yusof et al., 2023). However, the risks remain—without proper regulation and guidance, users may internalize incorrect or biased health advice. Therefore, while social media serves as a motivational tool, critical thinking and health education must parallel this exposure.

Table 1.3

Social Media-Mediated Health Information Influence the Health-Related Consumer Behavior of Residents in Mandaluyong City in terms of Social Influence and Peer Behavior

Social Influence and Peer Behavior	Mean	Verbal Interpretation
1. My health decisions are strongly influenced by what my peers share on social media.	3.18	ModI
2. I am strongly influenced to try health practices recommended by people in my social media network.	3.17	ModI
3. I feel influenced to discuss health topics with friends and family based on what I read on social media.	3.14	ModI
4. I feel strong pressure to follow certain health trends because they are popular on social media.	3.15	ModI
5. My peers' health-related posts on social media strongly inspire me to change my health habits.	3.16	ModI
Overall Social Influence and Peer Behavior	3.16	ModI

Note: 1.00-1.49 – Not Influenced (NI), 1.50-2.49 – Minimally Influenced (MinI), 2.50-3.49 – Moderately Influenced (ModI), 3.50-4.00 – Strongly Influenced (SI)

In Table 1.3, moderate influence from social networks is observed, with mean scores from 3.14 to 3.18. Respondents admit that peer-shared health content and trending practices on social media shape their decisions. This reflects a broader social modeling behavior consistent with the Theory of Planned Behavior (Ajzen, 2020), where subjective norms influence behavioral intention.

Studies in Southeast Asia confirm this phenomenon. For instance, Nguyen et al. (2022) found that peer engagement through messaging apps increased vaccine uptake in Vietnam. The Mandaluyong case follows a similar trajectory, suggesting social validation in digital spaces drives engagement with health content. However, this also exposes users to the echo chamber effect, where peer beliefs outweigh expert input, emphasizing the importance of health literacy in peer-influenced environments.

Table 2.1

Health Outcomes Associated with the Consumption of Health Information from Social Media Among Residents of Mandaluyong City in terms of Positive Health Outcomes

Positive Health Outcomes	Mean	Verbal Interpretation
1. I believe that health information from social media has improved my overall health awareness.	3.01	ModI
2. Consuming health information on social media has encouraged me to adopt healthier lifestyle choices.	3.03	ModI
3. The health tips I find on social media have positively impacted my daily health routines.	3.05	ModI
4. I feel more informed about health issues after consuming information from social media platforms.	2.99	ModI
5. Social media health content has motivated me to seek professional medical advice when necessary.	3.02	ModI
Overall Positive Health Outcomes	3.02	ModI

Note: 1.00-1.49 – Not Influenced (NI), 1.50-2.49 – Minimally Influenced (MinI), 2.50-3.49 – Moderately Influenced (ModI), 3.50-4.00 – Strongly Influenced (SI)

Table 2.1 shows moderate positive outcomes from social media use in health information, with means ranging from 2.99 to 3.05. Respondents acknowledge improved awareness, better routines, and motivation to seek professional help. However, the effect is not strong, indicating that while social media contributes to health awareness, it does not replace the role of formal healthcare systems.

Comparable results were seen in Thailand and Singapore, where health campaigns run on social media led to modest improvements in dietary habits and exercise (Lim et al., 2022; Lwin et al., 2021). Still, researchers caution that digital campaigns must be evidence-based and inclusive to be effective across socio-demographic groups.

Table 2.2

Health Outcomes Associated with the Consumption of Health Information from Social Media Among Residents of Mandaluyong City in terms of Mixed Mental Health Impacts

Mixed Mental Health Impacts	Mean	Verbal Interpretation
1. I have experienced both positive and negative emotions after engaging with health content on social media.	3.05	ModI
2. Consuming health information on social media sometimes leads to confusion or uncertainty about my health choices.	3.05	ModI
3. I feel overwhelmed by the amount of health information I encounter on social media.	3.07	ModI
4. Discussions about health topics on social media can sometimes create anxiety or stress for me.	3.03	ModI
5. I find it challenging to discern which health information on social media is relevant to my mental well-being.	3.05	ModI
Overall Mixed Mental Health Impacts	3.05	ModI

Note: 1.00-1.49 – Not Influenced (NI), 1.50-2.49 – Minimally Influenced (MinI), 2.50-3.49 – Moderately Influenced (ModI), 3.50-4.00 – Strongly Influenced (SI)

Table 2.2 identifies mixed mental health effects from consuming social media-based health content, with mean scores between 3.03 and 3.07. Participants reported confusion, anxiety, and difficulty processing large volumes of information. Although these outcomes are not extreme, they reflect emotional ambivalence in engaging with social media health information.

Such findings echo studies in urban Indonesia and the Philippines, where overexposure to COVID-19-related content led to heightened anxiety and information fatigue (Alibudbud, 2021; Prasetyo et al., 2021). Hence, while digital platforms promote access, they must also integrate safeguards such as content curation and psychological support messaging.

Table 2.3

Health Outcomes Associated with the Consumption of Health Information from Social Media Among Residents of Mandaluyong City in terms of Negative Health Risks

Negative Health Risks	Mean	Verbal Interpretation
1. I have encountered misleading or inaccurate health information on social media that has affected my decisions.	3.11	ModI
2. I believe that some health content on social media may promote unhealthy behaviors or attitudes.	3.09	ModI
3. Consuming certain health-related posts on social media has made me anxious about my health.	3.10	ModI
4. I have felt pressured to conform to health trends promoted on social media, which may not be suitable for me.	3.08	ModI

5. My trust in health information from social media has been compromised due to exposure to unreliable sources.	3.12	ModI
Overall Negative Health Risks	3.10	ModI

Note: 1.00-1.49 – Not Influenced (NI), 1.50-2.49 – Minimally Influenced (MinI), 2.50-3.49 – Moderately Influenced (ModI), 3.50-4.00 – Strongly Influenced (SI)

Table 2.3 reveals moderate negative risks, with mean scores from 3.08 to 3.12. Respondents reported encountering misinformation and feeling pressured to follow health trends, some of which were deemed unsafe or unreliable. Notably, trust is compromised when misinformation is frequent, suggesting a need for stricter platform moderation.

This trend is not unique to Mandaluyong. A cross-country study by Islam et al. (2021) reported similar concerns in urban populations across Southeast Asia, where misinformation disrupted public health efforts. As such, this study underscores the call for localized digital health policies that both promote access and ensure information integrity.

Table 3.

Relationship Between Social Media-Mediated Health Information Influence and Health Outcomes Associated with the Consumption of Health Information from Social Media Among Residents of Mandaluyong City

N	df	Computed r-value	p-value	Verbal Interpretation
384	383	0.758	< 0.00001	Significant Positive Correlation

Tested at 0.05 alpha level of significance

Table 3 demonstrates a statistically significant positive correlation ($r = 0.758$, $p < .00001$) between social media-mediated health information and health outcomes. This result suggests that greater engagement with health information on social media corresponds to higher perceived health impacts—both positive and negative. Unlike other portions of the discussion, this statistical result permits the use of the term significant.

This finding supports the position of Or and Tao (2020), who argue that consumer health information technologies (CHITs) are most effective when users are engaged and confident in their digital navigation. However, the result also underscores the duality of social media's impact—benefits are realized only when information is accurate and responsibly consumed.

Final considerations/ Conclusions (lowercase, bold, Georgia 11 font, left-aligned, unnumbered)

Residents of Mandaluyong City exhibit minimal influence from social media health information on their perceived credibility of information sources, indicating a cautious approach towards trusting health-related content shared online. However, social media has a moderate influence on the personal health beliefs and attitudes of residents, with individuals actively integrating health information from these platforms into their daily practices. Furthermore, social media significantly influences health-related consumer behaviors in

Mandaluyong City, as residents are notably swayed by peer recommendations and popular trends in their health decision-making.

Residents perceive moderate positive health outcomes from consuming health information on social media, suggesting that it enhances health awareness and promotes healthier lifestyle choices despite some concerns about information quality. In terms of mental health impacts, the consumption of health information from social media leads to mixed outcomes, with individuals feeling overwhelmed by the volume of content while also experiencing both positive and negative emotional responses.

Meanwhile, residents recognize moderate negative health risks associated with social media health information, particularly regarding compromised trust due to unreliable sources and the promotion of unhealthy behaviors. Lastly, a significant positive correlation (r -value of 0.758) exists between the influence of social media-mediated health information and health outcomes among residents of Mandaluyong City, indicating that increased engagement with health content on social media correlates with better perceived health outcomes.

Based on the findings regarding social media's influence on health beliefs and behaviors among residents of Mandaluyong City, several recommendations are proposed by school leaders in basic and higher education, along with the City Health Officer.

First, school leaders should implement educational programs that focus on improving health literacy among students and residents alike. These programs should teach critical evaluation skills to help individuals assess the credibility of health information found on social media and distinguish reliable sources from misinformation.

Second, the City Health Officer, in collaboration with health professionals, should actively engage with social media platforms to share accurate, evidence-based health information. By doing so, they can counteract the spread of misinformation and promote healthier behaviors within the community. Partnerships with social media influencers can further increase the reach and relatability of these messages.

Third, community-based support groups, facilitated by school leaders and health professionals, should be established to provide residents with a platform to discuss health-related topics and share experiences influenced by social media. These groups would offer peer support, helping individuals manage the overwhelming volume of health information online. Lastly, ongoing research should be encouraged by educational institutions and the City Health Office to track the evolving influence of social media on health behaviors and outcomes, ensuring that strategies remain relevant and effective in promoting public health.

Funding agency

No funding agency

REFERENCES

- Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, 2(4), 314–324. <https://doi.org/10.1002/hbe2.195>
- Alibudbud, R. (2021). Overexposure to COVID-19-related information on social media and anxiety: A study in the Philippines. *Asian Journal of Psychiatry*, 64, 102725.
- Chang, Y. S., Zhang, Y., & Gwizdka, J. (2021). The effects of information source and eHealth literacy on consumer health information credibility evaluation behavior. *Computers in Human Behavior*, 115, 106629.
- Dwyer, D. S., & Liu, H. (2013). The impact of consumer health information on the demand for health services. *The Quarterly Review of Economics and Finance*, 53(1), 1-11.
- Farnood, A., Akbarzadeh, A., Dehghani, M., & Jahangiry, L. (2021). Trust in health information and its association with health behaviors: A cross-sectional study. *Journal of Preventive Medicine and Public Health*, 54(5), 324–330.
- Fergie, G., Hilton, S., & Hunt, K. (2016). Young adults' experiences of seeking online information about diabetes and mental health in the age of social media. *Health Expectations*, 19(6), 1324-1335.
- Hesse, B. W., Nelson, D. E., Kreps, G. L., Croyle, R. T., Arora, N. K., Rimer, B. K., & Viswanath, K. (2005). Trust and sources of health information: the impact of the Internet and its implications for health care providers: findings from the first Health Information National Trends Survey. *Archives of internal medicine*, 165(22), 2618-2624.
- Islam, M. S., et al. (2021). COVID-19–related infodemic and its impact on public health: A global social media analysis. *The American Journal of Tropical Medicine and Hygiene*, 103(4), 1621–1629. <https://doi.org/10.4269/ajtmh.20-0812>
- Kim, H., & Xie, B. (2021). Health literacy in the eHealth era: A systematic review of the literature. *Journal of Medical Internet Research*, 23(1), e24313. <https://doi.org/10.2196/24313>
- Lambert, S. D., & Loiselle, C. G. (2007). Health information—seeking behavior. *Qualitative health research*, 17(8), 1006-1019.
- Li, Y., & Wang, X. (2018). Seeking health information on social media: a perspective of trust, self-determination, and social support. *Journal of Organizational and End User Computing (JOEUC)*, 30(1), 1-22.
- Lim, Y. J., et al. (2022). Evaluating the effectiveness of social media campaigns on health behavior change in Thailand. *Health Education Research*, 37(2), 112–124.
- Lwin, M. O., et al. (2021). Social media and health behavior in Singapore: Content analysis of the Health Promotion Board's messaging. *Journal of Health Communication*, 26(3), 172–181.
- Nguyen, T. T., et al. (2022). Digital peer influence and vaccine uptake in Southeast Asia. *Vaccine*, 40(5), 847–854.
- Or, C. K., & Tao, D. (2014). Does the use of consumer health information technology improve outcomes in the patient self-management of diabetes? A meta-analysis and narrative review of randomized controlled trials. *International journal of medical informatics*, 83(5), 320-329.
- Or, C. K., & Tao, D. (2020). The effectiveness of health information technologies on improving consumer health: A meta-analysis. *Journal of the American Medical Informatics Association*, 27(5), 770–779.
- Pifalo, V., Hollander, S., Henderson, C. L., DeSalvo, P., & Gill, G. P. (1997). The impact of consumer health information provided by libraries: the Delaware experience. *Bulletin of the Medical Library Association*, 85(1), 16.
- Pluye, P., El Sherif, R., Granikov, V., Hong, Q. N., Vedel, I., Galvao, M. C. B., ... & Grad, R. (2019). Health outcomes of online consumer health information: A systematic mixed studies review with framework synthesis. *Journal of the Association for Information Science and Technology*, 70(7), 643-659.
- Prasetyo, Y. T., et al. (2021). Internet exposure and anxiety during COVID-19: Evidence from urban Indonesia. *Heliyon*, 7(5), e07085.
- Riaz, M., Wang, X., & Guo, Y. (2021). An empirical investigation of precursors influencing social media health information behaviors and personal healthcare habits during coronavirus (COVID-19) pandemic. *Information Discovery and Delivery*, 49(3), 225-239.
- Schubbe, D., Scalia, P., Yen, R. W., Saunders, C. H., Cohen, S., Elwyn, G., ... & Durand, M. A. (2020). Using pictures to convey health information: A systematic review and meta-analysis of the effects on patient and consumer health behaviors and outcomes. *Patient education and counseling*, 103(10), 1935-1960.
- Teng, Y. T., et al. (2022). Social media and youth health behavior in Malaysia: Trends and risks. *BMC Public Health*, 22(1), 1453.
- Yusof, M. S., et al. (2023). Health information-seeking behaviors and the role of social media: A study of urban youths in Malaysia. *International Journal of Environmental Research and Public Health*, 20(2), 998.