

IAI SPECIAL EDITION

RESEARCH ARTICLE

The potential role of pharmacists in counteracting health misinformation in social media

Anila Impian Sukorini¹, Titik Puji Rahayu², Kandi Aryani Suwito², Andi Hermansyah¹

¹ Faculty of Pharmacy, Universitas Airlangga, Surabaya, Indonesia

² Faculty of Social Sciences and Political Sciences, Universitas Airlangga, Surabaya, Indonesia

Keywords

Healthcare
Misinformation
Pharmacist
Social media

Correspondence

Anila Impian Sukorini
Faculty of Pharmacy
Universitas Airlangga
Surabaya
Indonesia
anila-i-s@ff.unair.ac.id

Abstract

Background: Health misinformation is often circulated on social media (SM), leading to confusion and jeopardising patients' health. **Aim:** This study aimed to identify the pharmacist's role in responding to health misinformation on SM. **Methods:** Several focus group discussions were conducted involving pharmacist participants purposively recruited. The discussions were audiotaped and thematically analysed. **Results:** A total of 41 pharmacists participated in this study. The most frequent misinformation on SM was related to the use of herbal medicines. The misinformation tended to decrease medication compliance, increase delayed treatment, and worsen the illness. Participants reported difficulty in seeking reliable references about traditional and alternative medicines. They were often asked for advice and opinion related to information on SM. **Conclusion:** Pharmacists need to counteract the health misinformation on SM actively. Lack of reference to a particular topic is a significant obstacle.

Introduction

Social Media (SM) is a group of internet-based applications that build on the ideological and technological foundations of Web 2.0 and allow the creation and exchange of user-generated content (Kaplan & Haenlein, 2010). SM has developed rapidly and presented on various platforms, offering several advantages to users, thus making SM vital for everyday life in most countries, including Indonesia. Nowadays, SM connects many people. Almost 50% of the world population are active SM users. In 2020, Indonesia was the third-largest internet and SM user globally (We are Social, 2020).

SM provides immense opportunities for people to search for health information, one of the most frequently sought on SM. However, SM also allows for health misinformation to flourish. Nyhan and Reifler (2010) define misinformation as "cases in which people's beliefs about factual matters are not

supported by clear evidence and expert opinion". Without filtering or fact-checking misinformation, the accumulation of individual beliefs in these speculative stories, conspiracy theories, and pseudoscience can put individuals and the public at risk (Wang *et al.*, 2019). Accordingly, health misinformation can decrease the health status either in individuals or society.

Pharmacists are recognised as medication experts. They are responsible for delivering effective, safe, and quality medicines and services to achieve optimal health outcomes. Pharmacists are often required to provide robust and reliable health information supporting the public health system. Therefore, their involvement in SM is critical to tackling misinformation. However, a recent study shows that pharmacists used SM mainly for personal purposes (Hermansyah *et al.*, 2019), highlighting the untapped potential for pharmacist contributions in SM. Furthermore, studies describing the perceived and expected role of the pharmacist in overcoming health misinformation on

SM are scarce, particularly in Indonesia, the third-largest user of SM globally. Therefore, this study aimed to identify the potential role of pharmacists in counteracting the health misinformation on SM.

Methods

Study design and setting

This study was designed as qualitative. Permission was obtained to conduct this study from the Indonesian Pharmacist Association and the Board of Social and Political Affairs of East Java and Central Java Province. Four focus group discussions (FGDs) were conducted in different cities from July to September 2019, namely Surabaya, Banyuwangi, Klaten, and Semarang.

Participants

FGDs participants were pharmacists active on SM. A list of potential participants was compiled upon the recommendation of the Local Pharmacist Association. Candidates in each city were selected to represent different gender, education, and practice backgrounds. Potential participants were provided detailed information about research objectives, benefits, data collection, analysis, and participant rights and obligations. Those who consented to participate were invited to attend the FGDs. Ethical clearance was not deemed necessary for this study as the FGDs did not include any at-risk groups and assured anonymity to all participants. Each FGD was attended by 10–11 participants.

Data collection

The interview guide for FGDs was derived from the literature. Key points of the interview included health misinformation circulating on SM, effects of health misinformation, pharmacist responses to misinformation, and expected role of the pharmacist on SM. Each FGD was facilitated by two investigators who represented pharmacy practice and communication science. All FGDs were conducted in the Indonesian language and took 90–100 min.

Data analysis

All FGDs were audiotaped then transcribed verbatim by a professional. Thematic analysis was used. Four investigators reviewed the transcripts independently and coded the data manually into a Word spreadsheet. The coding framework was collated into meaningful themes. Discussion by all investigators was conducted to resolve any discrepancies and reach a consensus regarding the final themes.

Results

A total of 41 pharmacists participated in this study. None of the invited participants declined to participate in this study. Most of them were females (n=31; 76%), some had a graduate level of education (n=8; 20%), 39% (n=16) practised as pharmacists for more than ten years, and only 22% (n=9) reported using SM for less than one hour (Table I).

Table I: Characteristics of participants (n = 41)

Characteristics	Number	%
Gender		
• Male	10	24%
• Female	31	76%
Education		
• Apothecary	33	80%
• Apothecary + Graduate	8	20%
Practice as pharmacist, years		
• 1-5 years	14	34%
• 6-10 years	11	27%
• >10 years	16	39%
Estimated time spent in SM per day		
• <1 hour	9	22%
• 1-3 hour	19	46%
• >3 hour	13	32%

Four themes were identified: 1) type of health misinformation on SM, 2) effects of health misinformation, 3) pharmacist response to health misinformation, and 4) expected roles of the pharmacist. Table II provides illustrative quotes relevant to the theme.

The first theme described a significant number of health-related misinformation circulating on SM. The most frequent were related to the use of herbal/traditional medicines, food additives, cosmetics, supplements, and energy drinks. Herbal and traditional medicine was the most trending information topic on SM, particularly for treating terminally ill and chronic conditions.

The second theme highlighted that health misinformation had detrimental effects on patients, pharmacists, and pharmaceutical industries. Health misinformation could lead to treatment failure due to discontinuing therapy, noncompliance, and ultimately worsening patient health condition. From an economic perspective, health misinformation could discredit the brand image and decrease the turnover of the pharmacy.

The third theme revealed that pharmacists responded to health misinformation depending on their ability to locate valid references. At first, the pharmacist searched for well-founded information from scientific databases, government, and newsletters. Subsequently, they made clarifications based on the obtained sources. However, when accurate information was unavailable or limited, the pharmacist preferred not to clarify. This case commonly happened

with information regarding the use of herbal medicines.

The fourth theme showed that the public had several expectations from the pharmacist, perceived as a reliable source of information. For this reason, people seek pharmacists to obtain information and therapeutic recommendations regarding their health issues.

Table II: Illustrative quotes representing FGD findings

Theme	Findings	Quotes
First theme: type of health misinformation in SM	Food additives	"I remember once there was an information in SM about the dangers of consuming wax-coated fruits. My mother shared this info in the family WhatsApp group" (Surabaya – Female)
	Cosmetics	"I ever read in Twitter ... Cosmetic 'X (certain producer)' containing paraben was toxic, so don't use it especially face-care products" (Surabaya – Female)
	Herbal/ traditional/ alternatives medicines	"The health misinformation that was widely spread in SM is related to herbal medicine." (Klaten – Female)
	Supplements and energy drinks	"There was information in SM that stated energy drink 'X' containing ingredients that cause kidney damage." (Klaten – Female)
Second theme: effect of the health misinformation	Worsening the illness	"Patients are welcome to us (in SM). However, they sometimes believe hoax information rather than trusting our advice. I have one patient who died as she stopped her chemotherapy and changed into herbal medicine. I convinced her that it is not yet confirmed (the safety and efficacy of the herbal medicines), but she insisted on consuming it after all." (Banyuwangi – Female)
	Stop the therapy	"Information on SM about the recalls of several brands of drugs containing Irbesartan made my patient stop taking his drug therapy. Because he was worried that all products containing Irbesartan were dangerous and would recall later." (Surabaya – Male)
	Disruption of competitor brand	"... this information can disrupt the branding of product 'X'." (Surabaya – Female)
	Reduction of pharmacy income	"The spread of hoax about supplements and energy drinks can harm consumers and reduce product sales." (Klaten – Female)
Third theme: pharmacist's response to misinformation	Make clarification	"I often clarify misleading information about medicines, sharing health information, notify people about side effect (of medicines) via SM." (Banyuwangi – Female)
		"I had ever made the clarification in SM, but it led to debate with others. This why I never made any clarification again to the public, but I still did it to my group of family." (Surabaya – Female)
	Find reference from the government institution	"I checked the official Instagram account of National Agency of Drug and Food Control (NA-DFC) about the food preservative wax; then I shared it in WhatsApp group to counteract the misleading information." (Surabaya – Female)
	Find reference from the newsletter and scientific resource.	"I searched the valid information from digital newsletters and scientific publications, as a reference to make clarification." (Surabaya – Male).
	Did not clarify	"There was a lot of information about herbal medicines in SM. Some of this information were dubious, but I ignored it because I had difficulty in getting scientific information about herbal or traditional medicines. I need this information as a reference to provide clarification." (Klaten – Male)

Theme	Findings	Quotes
	Implement the information	<p>"Sometimes I don't clarify the wrong information because my friend shared it, and I consider her feelings." (Surabaya – Female)</p> <p>"I rarely read the SM because I don't have enough time, so I don't know if there was health misinformation, but if someone contacts me privately regarding the health information, then I will answer it." (Surabaya – Female)</p> <p>"I heard information about herbs that can decrease blood sugar levels. This information had not been clarified yet. I have diabetes. Yesterday I wanted to try using this herb, but unfortunately, I don't have time. I thought the information might be correct because some of my relatives had already tried it." (Klaten – Female)</p>
Fourth theme: expected role of the pharmacist	A reliable source of information	<p>"Patients, friends, and families know that I am a pharmacist. They'll ask me first about pharmacy, tag me or send me a private message." (Semarang – Female)</p> <p>"If there are any latest issues or news about health and medicines in any WhatsApp group that I joined – it can be an old classmate or alumni (group), community and neighborhood (group), family (group) or (school), parents and careers (group), the member of the group often tag my name to seek my response." (Surabaya – Female)</p>
	Medication consultant	<p>"I often got asked by mothers about medicines for their children or their families, sometimes even up to 12 at night because they knew I'm a pharmacist." (Klaten – Female)</p>

Discussion

Herbal and traditional medicines were the most trending information topic on SM, particularly for treating the terminally ill and chronic conditions. Herbs are part of traditional medicine that has been used in Indonesia for generations (Ministry of Health Republic of Indonesia, 2017). Additionally, Indonesia is the second-largest biodiverse country worldwide and the home of many medicinal resources (Indonesia Institute of Sciences, 2010). The characteristics of conventional therapy for chronic diseases that require long-term treatment have encouraged the public to search actively and get more information about alternative therapies. Unfortunately, some information on herbal and traditional medicines was considered misleading because it was not supported by reliable references. The lack of information on this topic is due to the paucity of studies on the efficacy, activity, and toxicity of natural substances (as a source of disease treatment) and the difficulty of accessing scientific information (Gelayee *et al.*, 2017).

Misleading information may affect patients' perception and influence them to stop and change therapy or combine therapies without the doctor's supervision (Linna *et al.*, 2019). This behaviour is very dangerous for patients with chronic disease or terminally ill since it will worsen their condition. Additionally, patients are becoming more vulnerable because some misleading information was circulated on SM to win a competition of particular brands. The economic impact is the

decrease in sales volume, thus affecting pharmacy income.

The public viewed the pharmacist as an educator and consultant in medicines and health areas. Such expectation is an untapped opportunity for pharmacists to show their contribution on social media. Participants were involved actively in counteracting the spread of misleading health information after considering its impact. Unfortunately, such action comes with several barriers, including limited access to reliable scientific information, time constraints, and psycho-cultural aspects. This study did not explore such obstacles, paving the way for future research about barriers to pharmacist involvement on SM.

Conclusion

Pharmacists have a potential role in counteracting health misinformation actively on social media. This role aligns with their responsibility to improve patient quality of life in the national health system. Ignoring misleading health information could decrease patient quality of life. However, the lack of references on a particular topic is often the main obstacle for pharmacists to combat misinformation on SM.

References

- Barry, A.R., & Pearson, G.J. (2015). Professional use of social media by pharmacists. *Canadian Journal of Hospital Pharmacy*, **68**: 22–7. <https://doi.org/10.4212/cjhp.v68i1.1421>
- Benetoli, A., Chen, T.F., & Aslani, P. (2015). The use of social media in pharmacy practice and education. *Research in Social and Administrative Pharmacy*, **11**: 1–46. <https://doi.org/10.1016/j.sapharm.2014.04.002>
- Gelayee, D.A., Mekonnen, G.B., Atnafe, S.A., Birarra, M.K., & Asrie, A.B. (2017). Herbal medicines: personal use, knowledge, attitude, dispensing practice, and the barriers among community pharmacists in Gondar, Northwest Ethiopia. *Hindawi Evidence-Based Complementary and Alternative Medicine*, Article ID 6480142. <https://doi.org/10.1155/2017/6480142>
- Grindrod, K., Forgione, A., Tsuyuki, R.T., Gavura, S., & Giustini, D. (2014). Pharmacy 2.0: a scoping review of social media use in pharmacy. *Research in Social and Administrative Pharmacy*, **10**: 256–70. <https://doi.org/10.1016/j.sapharm.2013.05.004>
- Hermansyah, A., Sukorini, A.I., Asmani, F., Suwito, K.A., & Rahayu, T.P. (2019). The contemporary role and potential of pharmacist contribution for community health using social media. *Journal of Basic and Clinical Physiology and Pharmacology*, 20190329. <https://doi.org/10.1515/jbcpp-2019-0329>
- Indonesian Institute of Sciences. (2010, May). Indonesia negara mega biodiversity di dunia. Indonesia. <http://lipi.go.id/berita/indonesia-negara-mega-biodiversity-di-dunia-/5181>
- Kaplan, A.M., & Haenlein, M. (2010). Social network sites: definition, history and scholarship. *Journal of Educational Technology Systems*, **53**: 59–68. <https://doi.org/10.1016/j.bushor.2009.09.003>
- Linna, A.J., Van Weerta, J.C.M., Gebeyehua, B.G., Sandersa, R., Diviani, N., Smit, E.G., & VanDijkd, L. (2019). Patients' online information-seeking behavior throughout treatment: the impact on medication beliefs and medication adherence. *Health Communication*, **34**(12), 1461–1468. <https://doi.org/10.1080/10410236.2018.1500430>
- Mackey, T.P., & Jacobson, T.E. (2011). Reframing information literacy as a metaliterary. *College and Research Libraries*, **72**(1), 62–78. <https://doi.org/10.5860/crl-76r1>
- Ministry of Health Republic Indonesia. (2017). Kepmenkes RI No.HK.01.07/MENKES/187/ 2017 tentang Formularium ramuan obat tradisional Indonesia. Indonesia
- Nyhan, B., & Reifler, J. (2010). When Corrections Fail: The Persistence of Political Misperceptions. *Political Behavior*, **32**(2), 303–330. <https://doi.org/10.1007/s11109-010-9112-2>
- Statistics Indonesia. (2019). Population of Indonesia. Jakarta: Statistics Indonesia. <https://www.bps.go.id/subject/12/kependudukan.html#subjekViewTab3>
- Wang, Y., McKee, M., Torbica, A., & Stuckler, D. (2019). Systematic literature review on the spread of health-related misinformation on social media. *Social Science & Medicine*, **240**: 112552. <https://doi.org/10.1016/j.socscimed.2019.112552>
- We Are Social Inc. (2020). Digital 2019: Indonesia. <https://datareportal.com/reports/digital-2019-indonesia>