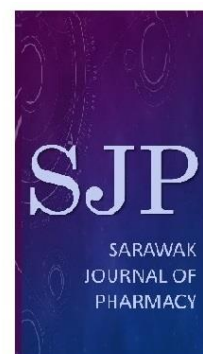


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Pharmacists' Perceptions Towards Online Health Information in Miri Hospital

Chin Zi Ying¹, Goh Zi Yu¹, Kamarudin Ahmad^{1,2}

¹*Pharmacy Department, Miri Hospital, Sarawak*

²*Clinical Research Centre Miri*

Corresponding author name and email: Chin Zi Ying (chinziying@moh.gov.my)

ABSTRACT

Introduction: Pharmacy professionals widely use the internet for seeking health-related information, obtaining professional updates, accessing the latest research, treatment information, or latest product. The enormous online information available may be overwhelming, leading to stressful situations in terms of filtering, selecting sound output in making decision. Hence, it is vital to study pharmacists' perceptions and the employment of Internet technologies in hospital pharmacy practice in order to ensure appropriate use of the Internet in daily pharmacy practice.

Objective: The objective of the study is to assess pharmacists' perceptions towards online health information and to identify the barriers when retrieving online health information.

Methods: A cross-sectional study was done involving pharmacists (Fully Registered Pharmacists and Provisionally Registered Pharmacists) in Miri Hospital. Data collection was done based on questionnaire fully adapted from a validated questionnaire. However, we only focused on the pharmacists' perceptions towards online health information and the barriers encountered when retrieving online health information. We applied both descriptive and inferential statistics for data analysis. All statistical analysis was performed using SPSS Statistics Version 21.

Results: A total of 50 pharmacists in Miri Hospital participated in this survey study. The primary barrier reported by respondents in this study was scanning through the abundance of health information from the Internet. We found a significant association between ethnicity and the provision of useful information by Internet ($p=0.048$). Significant association was also observed between gender and distraction by the links to other sources ($p=0.011$). Respondents' educational level was found to be statistically associated with statement on unsure how to filter online health information ($p=0.014$).

Conclusion: The current study demonstrated a positive perception towards online health information among hospital pharmacists in which the majority of the respondents used the Internet frequently for searching health information. Thus, future studies can be carried out to focus on the information searching behaviours and patterns as well as the relevant associated factors, in order to ensure the information retrieved is reliable with good quality to help in promoting a safer use of Internet in pharmacy practice.

Keywords: Pharmacists, perceptions, barriers, online health information

INTRODUCTION

Since the 1970s, information technology and automation are widely used in supporting pharmacy practice (1). In order to reduce medication errors and ensure patients' safety, enormous effort and investments were made to support pharmacy practice (2). High-quality information is essential for hospital pharmacists in updating their knowledge and improving their skills from time to time. Inappropriate use of medications may elevate the risks and cost burden of healthcare sectors. Pharmaceutical care management by hospital pharmacies is strongly related to pharmaceutical information and knowledge (3).

The literature concludes that healthcare professionals have been substantially using the Internet to seek health-related information (4). Moreover, Internet is also widely used in obtaining professional updates, accessing latest research, treatment information or latest product (5). Despite the extensive use of the Internet for online health information, there are some studies elaborated on the significant barriers towards its usage in pharmacy practice. Some of the perceived barriers include excessive information to scan, reliability of online information, lack of knowledge or searching skills, and resource problems, such as slow internet connection (6).

Studies had been carried out to assess information needs and seeking behaviour among health professionals working at public hospitals and health centres in Ethiopia (7), and more specifically, among hospital pharmacists in Greece (3). However, to date, there is no research available on Malaysian hospital pharmacists' perception towards online health information. Hence, it is vital to study their perception and the employment of Internet technologies in hospital pharmacy practice.

METHODS

This is a cross-sectional study. In this study, we recruited Pharmacy department staff (fully registered pharmacist and provisionally registered pharmacist) in Miri Hospital. This is because they are the medication professionals, and are responsible for ensuring rational medication use.

In the present study, a questionnaire consisted of 3 sections: Section A, B, and C was used to gather information. Section A asked about respondents' background information such as gender, age, ethnicity, educational level, working experience as a hospital pharmacist, and frequency of using the Internet to look for health-related information. Section B, which was consisting of 10 items, assessed pharmacists' perception towards online health-related information. Section C was consisting of 8 items, which assessed the barriers to online

health-related information. In Section B and C, respondents were asked to choose either 'agree', 'neutral' or 'disagree' based on the opinions stated.

SPSS Statistics Version 21 was used to perform descriptive statistics, to obtain the frequency and percentage of occurrence. Linear-by-linear test was used to investigate the significance of association, with $p < 0.05$ considered as statistically significant.

RESULTS

Table 1. Demographic characteristic of respondents

Characteristics	n (%)
Gender	
Male	11 (22.0)
Female	39 (78.0)
Age (years)	
24-28	29 (58.0)
29-33	16 (32.0)
>33	5 (10.0)
Ethnicity	
Malay	9 (18.0)
Chinese	36 (72.0)
Indian	1 (2.0)
Others	4 (8.0)
Educational level	
Bachelor	46 (92.0)
Master	4 (8.0)
Working experience as hospital pharmacist (years)	
1-5	36 (72.0)
6-10	12 (24.0)
>10	2 (4.0)

Fifty hospital pharmacists in Miri Hospital participated in this study. Respondents included Fully Registered Pharmacists and Provisionally Registered Pharmacists. The respondents were mostly females (78%). More than half of the respondents were in the age range of 24-28 years old (58%), followed by 29-33 years old (32%) and >33 years old (10%). Majority of the respondents were Chinese (72%). A significant number of the respondents had Bachelor as their highest educational level (92%). Most of the respondents had working experience of 1-5 years as hospital pharmacist (72%),

Table 2. Hospital pharmacists' perception towards online health information

Statements	n (%)		
	Agree	Neutral	Disagree
The Internet provides useful health information.	43 (86)	7 (14)	0 (0)
I can find up-to-date health information on the Internet.	40 (80)	10 (20)	0 (0)
It is easy to find appropriate online health information about a particular topic.	39 (78)	10 (20)	1 (2)
I visit established trusted health websites only (for example MIMS Malaysia).	30 (60)	16 (32)	4 (8)
I am confident that I can determine the quality of online health information.	25 (50)	22 (44)	3 (6)
I use online health information to prepare talks for community groups.	32 (64)	17 (34)	1 (2)
I am familiar with the criteria to evaluate a health website.	25 (50)	24 (48)	1 (2)
The Internet has health information that I cannot find in other resources.	32 (64)	16 (32)	2 (4)
I need more practice in order to use the Internet to search for health information effectively.	23 (46)	23 (46)	4 (8)
I refer to blog, forum or social media for health information.	9 (18)	16 (32)	25 (50)

Over half of the respondents perceived positively on online health information. The majority of the respondents agreed that Internet provided useful health information (n=43, 86%) and up-to-date health information (n=40, 80%) and was easy to find appropriate information about a particular topic (n=39, 78%). When respondents were assessed on the need for more practice to seek online health information effectively, an equal number of them rated 'agreed' (n=23, 46%) and 'neutral' (n=23, 46%). Half of them (n=25, 50%) disagreed, and the rest remained neutral or agreed concerning referring to social media, blog or forum for health information.

Table 3. Barriers to online health information

Statement	n (%)		
	Agree	Neutral	Disagree
There is too much health information to scan from the Internet.	41 (82)	7 (14)	2 (4)
I am distracted by the links to other sources.	14 (28)	18(36)	18 (36)
I do not have enough time to search for online health information.	6 (12)	28 (56)	16 (32)
I do not have searching skills for online health information.	11 (22)	23 (46)	16 (32)
I have resource problem (such as slow Internet connection, not familiar with technology, etc.).	17 (34)	12 (24)	21 (42)
I am unable to pay for the subscription fee for online health resources.	23 (46)	16 (32)	11 (22)
I am uncertain about the genuine and reliability of the health websites / online health information.	14 (28)	25 (50)	11 (22)
I am not sure how to filter online health information to find what I want.	12 (24)	21 (42)	17 (34)

This study accessed the barriers encountered by hospital pharmacists when they retrieved online health information. The major obstacle reported by respondents in this study was scanning through the abundance of health information from the Internet (n=41, 82%). A high proportion of respondents rated 'neutral' concerning not having enough time (n=28, 56%) and searching skills (n=23, 46%) in retrieving online health information. Half of the respondents (n=25, 50%) remained neutral on the genuine and reliability of online health information.

Table 4 and table 5 summarise the association between perceptions as well as barriers to online health information and demographic characteristics. Significant association found between ethnicity and the provision of useful information on Internet (p=0.048). Significant association was also observed between gender and distraction by the links to other sources (p=0.011). Meanwhile, educational level was found statistically associated with statement on unsure how to filter online health information (p=0.014).

Table 4. Association between perception towards online health information and demographic characteristics

Statements	p-values				
	Gender ^a	Age ^a	Ethnicity ^a	Educational level ^a	Working experience ^a
The Internet provides useful health information.	0.158	0.700	0.048	0.513	0.859
I can find up-to-date health information on the Internet.	0.080	0.917	0.228	0.796	0.608
It is easy to find appropriate online health information about a particular topic.	0.656	0.436	0.586	0.965	0.931
I visit established trusted health websites only (for example MIMS Malaysia).	0.913	0.865	0.422	0.352	0.458
I am confident that I can determine the quality of online health information.	0.817	0.847	0.583	0.133	0.406
I use online health information to prepare talks for community groups.	0.894	0.726	0.199	0.609	0.653
I am familiar with the criteria to evaluate a health website.	0.897	0.566	0.647	0.300	0.269
The Internet has health information that I cannot find in other resources.	0.536	0.883	0.219	0.715	0.468
I need more practice in order to use the Internet to search health information effectively.	0.317	0.968	0.825	0.694	0.974
I refer to blog, forum or social media for health information.	0.927	0.199	0.063	0.065	0.526

^a Linear-by-linear Test

Table 5. Association between barriers to online health information and demographic characteristics

Statements	p-values				
	Gender ^a	Age ^a	Ethnicity ^a	Educational level ^a	Working experience ^a
Barriers to online health information					
There is too much health information to scan from the Internet.	0.402	0.907	0.949	0.365	0.204
I am distracted by the links to other sources.	0.011	0.585	0.146	0.276	0.816
I do not have enough time to search for online health information.	0.580	0.291	0.236	0.328	0.372
I do not have searching skills towards online health information.	1.000	0.330	0.378	0.065	0.888
I have resource problem (such as slow Internet connection, not familiar with technology, etc.).	0.375	0.617	0.474	0.849	0.206
I am unable to pay for the subscription fee for online health resources.	0.249	0.743	0.489	0.530	0.785
I am uncertain about the genuine and reliability of the health websites / online health information.	0.233	0.099	0.638	0.364	0.281
I am not sure how to filter online health information to find what I want.	1.000	0.347	0.832	0.014	0.415

^a Linear-by-linear Test

DISCUSSION

Internet, which serves as a significant source of healthcare information, has been supporting the practices of primary healthcare professionals (8). More and more general practitioners are using the Internet extensively for their professional development (9) as well as for patient care (9, 10). This study will contribute clear understanding and empirical evidences regarding Malaysian hospital pharmacists' perception towards online health information.

Perception towards online health information

A study from the Electronic Journal of Sociology (2001) has stated that ethnicity is a significant predictor of total time of Internet usage. The research revealed a gap in Internet use among the major racial and ethnic groups in the United States. Perhaps individuals who frequently use the Internet as the primary source of information might perceive that Internet provides useful information (17). A high proportion of the respondents agreed with majority of the statements regarding perception of online health information. Previous studies supported the finding, stating Internet plays a vital role in providing healthcare information (5, 8). Majority of the respondents had been using online health information to prepare talks for community groups. Consistent with the findings of previous study, Internet is commonly used in pharmacy practice (5) with the advancement of information technology that eases in delivering speedy and effective online health information, regardless in searching, retrieving and analysing of patient-centered care information (11). Over half of the respondents claimed that they visited established trusted health websites only because they provide genuine and reliable healthcare information that may assist pharmacists in the practice of rational drug use.

The present study has shown that half of the respondents agreed that they had confidence in assessing the quality of online health information, and they were familiar with the criteria in evaluating health websites. In contrast, a previous study found that many did not explain how they have assessed the sources, and thus the quality of the information remained doubtful (12, 13). Therefore, pharmacists need to recognise criteria when evaluating the websites as the evaluative criteria may assist in avoiding the use of misleading online health information (12).

Barriers to online health information

The major obstacle reported by respondents was scanning through a high volume of health information from the Internet even though they frequently used the Internet to search for health information. Due to the abundance of information available on the Internet, competent computer skills are essential in order to manage the information effectively (11). Moreover, to ensure safer use of online health information, to avoid potential risk of disseminating inaccurate or inappropriate use of information for health purposes, the validity and precision of the information and attitude of the users are crucial (14). The majority of the hospital pharmacists in Vancouver General Hospital and University of British Columbia Hospital agreed that more training was required to achieve the ideal level of computer literacy (11). Most of the respondents claimed that they had no issues with resources because the expenses for subscription of internet were affordable nowadays with reasonable price and ease of subscription. Thus, people nowadays were subscribed with sufficient data plan which enabled them to have access to Internet whenever they need to.

Female respondents showed significant association when questioned if they were distracted by the links to other sources ($p=0.011$) when retrieving health information. According to a study evaluating gender differences on online behavioural intentions, the women were reported exhibiting more favourable attitudes towards interest-related messages than men and were susceptible to additional information (15). Moreover, respondents with Master qualification showed significant association when they were enquired about the certainty to filter ($p=0.014$) online health information. Pharmacists with master qualification have usually undergone advanced training and experience as well as they were substantially exposed to Internet resources during their postgraduate studies. As a result, they may be more proficient in retrieving, evaluating and disseminating information which were essential for their healthcare profession (16).

LIMITATIONS

Considering the study population involved small sample size that included hospital pharmacists in Miri Hospital, the results in this study may not be representative of the overall pharmacist population in Malaysia. Perhaps a nationwide study could be conducted in order to provide a broader view on this topic.

CONCLUSION

In conclusion, the Internet is among the essential sources of health-related information that is vital in health professionals' practice. The current study demonstrates the extensive use of Internet as well as positive perception towards online health information among pharmacists in Miri Hospital. Hence, this study provides opportunity for future studies to assess the information searching behaviours and patterns as well as the relevant associated factors, in order to promote safer use of the Internet for health purposes by ensuring the quality and reliability of the online information.

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	information about a particular topic.			
7.	I need more practice in order to use the Internet to search for health-related information effectively.			
8.	I use online health-related information to prepare talks for community groups.			
9.	I visit established trusted health-related websites only (for example, MIMS Malaysia).			
10.	I refer to blog, forum, or social media for health-related information.			

SECTION C: Barriers to Online Health-related Information

	Opinions	Agree	Neutral	Disagree
1.	There is too much health-related information to scan from the Internet.			
2.	I am distracted by the links to other sources.			
3.	I do not have enough time to search for online health-related information.			
4.	I do not have searching skills for online health-related information.			
5.	I have resource problem (such as slow Internet connection, not familiar with technology, etc.).			
6.	I am unable to pay for the subscription fee for online health-related resources.			
7.	I am uncertain about the genuine and reliability of the health-related websites / online health-related information.			
8.	I am not sure how to filter online health-related information to find what I want.			

Thank you for your participation. Your time and contribution is greatly appreciated