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## Original Research

# Community pharmacists' perceptions towards online health information in Kuala Lumpur, Malaysia

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### Abstract

**Objective:** The current study was carried out to assess community pharmacists' perceptions towards online health information, to examine the type of information seek from Internet and to identify the barriers when they retrieved online health information.

**Methods:** The study was designed as a cross-sectional questionnaire-based survey whereby all (300) community pharmacists practicing in Federal Territory of Kuala Lumpur, Malaysia were targeted for data collection. A 35-itemed questionnaire was posted out along with a stamped addressed envelope, invitation letter and support letter. Responses were also accepted via online response. Both descriptive and inferential statistics were used for data analysis. All statistical analysis was performed using SPSS v. 20.0.

**Results:** A total of 67 responses were received with a response rate of 22.3%. The top three frequently health information searched by respondents were medicine information, general healthcare information and disease-related information. High number of respondents agreed that Internet had too much health information to scan through. Gender ( $p=0.018$ ) showed significant association with visiting established health websites. Meanwhile, statistical significant was observed between age and searching medicine information ( $p=0.037$ ), undertaking online continuing professional development ( $p=0.023$ ), as well as searching clinical guidelines ( $p=0.047$ ). Respondents' education level showed significant association with uncertainty about the reliability of online health information ( $p=0.023$ ) and unsure about filtering the information ( $p=0.007$ ).

**Conclusions:** Majority of the respondents expressed positive perception with the use of Internet for health information. The findings of the current study showed the widely use of Internet for health information among community pharmacists. Hence, this study provides opportunity for future works to further examine community pharmacist's retrieval and appraisal skills for online health information, as well as application of this information into their daily pharmacy practice.

### Keywords

Online Systems; Education; Distance; Drug Information Services; Pharmacies; Pharmacists; Attitude of Health Personnel; Surveys and Questionnaires; Malaysia

## INTRODUCTION

In recent years the Internet has developed tremendously and health information is widely available on the Internet with the potential of improve information distribution.<sup>1,2</sup> People rely on Internet for information and other purposes, and this technology is becoming increasingly important in people's daily lives around the world.<sup>3</sup> This is because Internet is convenient and widely available, where a person can go online from home, workplace or libraries. In addition, Internet offers almost unlimited information to public.<sup>4</sup>

The literature reports that there is an increase trend of Internet usage among healthcare professionals for medical and health information.<sup>3</sup> Since the Internet is readily available, the use of web based searching becomes an important clinical tool for doctors that may help them to diagnose difficult cases.<sup>5</sup> The Internet improves the quality care of family physicians and may influence the way they shape their questions and search for responses.<sup>6</sup> A study regarding Internet technology in UK community pharmacy found that with the use of Internet technologies in practice

improves isolation problems, self-confidence, perceived lack of clinical knowledge and enhance communication between pharmacists and patients.<sup>7,8</sup> Additionally, studies have reported that both general practitioners and community pharmacists performed various search activities while visiting health websites, such as continuing professional development (CPD) programs; seeking for drug information, disease-related information, general healthcare information<sup>9</sup>, as well as retrieval of information from online journals.<sup>3</sup> In addition, it was also stated that healthcare professional used Internet to obtain professional updates<sup>3</sup>, to access latest research on specific topics, new product or therapy information and to search guideline summaries.<sup>10</sup>

Although there is a widespread use of Internet for online health information, some studies described significant barriers towards its usage in professional practice. Some of the perceived barriers include limited time available to undertake the search<sup>3,7,11</sup>, difficulty in finding pertinent information<sup>7,10</sup>, lack of knowledge or searching skill<sup>3,7,11</sup>, navigation or searching difficulties, excessive information to scan<sup>6,10</sup> and resources problems such as lack of technology in practice.<sup>7</sup> Furthermore, other reported barriers included evaluation of online health information and website for its credibility and effectiveness, low diversity of websites visited, as well as lack of coherent for available health information were reported too.<sup>3</sup>

It is now realized that due to free accessibility of online health information, the healthcare practice has change.<sup>12</sup>

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Consumers are playing active role in using Internet for medicine information<sup>2</sup> and they are better informed regarding their healthcare needs.<sup>12</sup> Therefore, the issue of source credibility and reliability in health websites is becoming a critical issues.<sup>3</sup> In such scenario, healthcare professionals such as community pharmacists have to become proactive in assisting consumer to search, select and interpret the information.<sup>2</sup> As community pharmacists are the most accessible healthcare professionals to the public and are recognized as source for professional health advice<sup>13</sup> they can educate consumers about medicines and online health information.<sup>2</sup> Community pharmacists have the responsibility to dispense medication and to ensure consumers are provided with adequate information, to assist medication safety and effectiveness in order to enhance health outcomes.<sup>7</sup> Pharmacists can support the quality use of medicines by providing online health information, but they must be able to use Internet to ascertain and evaluate the quality of the information.<sup>7</sup>

Inline to what is reported above, studies had been carried out to assess healthcare professional's information-seeking behaviour especially among physicians, such as family physicians' information searching behaviour in US<sup>6</sup>, and pharmacists' online information literacy in Australia.<sup>2</sup> However, to date, there is no information available regarding Malaysian community pharmacists' perception towards online health information. Hence, it is crucial to study their perception and the employment of Internet technologies in community pharmacy practice. In response to this issue, the aim of this study is to assess community pharmacists' perception pertaining online health information, to examine the type of information that they seek from the Internet, and to identify the barriers while they are retrieving online health information.

## METHODS

### Study design and sample

This study was designed as a questionnaire based cross-sectional survey. All (300) community pharmacists practicing in Kuala Lumpur were identified from the list obtained from Pharmaceutical Services Divisions, Ministry of Health Malaysia. The questionnaire was mailed with an invitation letter explaining the purpose of the study, a support letter and a self-addressed postage paid envelope. In order to increase the response rate of this survey, community pharmacists were given alternative option to respond via an online form whereby a link was provided along invitation letter. The participation for this survey was strictly voluntary. Completion and returned of the questionnaire implied the consent from the respondents.

### Study instrument

The questionnaire was developed and modified from the literature review.<sup>2,6,8-10</sup> The questionnaire was tested for face and content validity and was pilot tested with 15 community pharmacists prior to general distribution. Data collected from pilot study were not included in the final data analysis. The reliability of this survey was supported by the overall fit measure, where Cronbach alpha coefficient yields a value of 0.807. The final questionnaire comprised of four sections. The first section assessed the demographic

Characteristic	N (%)
Gender	
Male	28 (44.4%)
Female	35 (55.6%)
Age (years)	
18 – 27	7 (11.1%)
28 – 37	29 (46.0%)
38 – 47	17 (27.0%)
> 47	10 (15.9%)
Ethnicity	
Malay	11 (17.5%)
Chinese	49 (77.8%)
Indian	2 (3.2%)
Others	1 (1.6%)
Status of ownership	
Manager and owner of pharmacy	25 (39.7%)
Manager	18 (28.6%)
Employee	20 (31.7%)
Educational level	
Bachelor	53 (84.1%)
Master	10 (15.9%)
Pharmacy setting	
Single outlet independent pharmacy	26 (41.3%)
Multi outlet independent pharmacy	10 (15.9%)
Chain pharmacy	27 (42.9%)
Working experience as CP (years)	
1 – 5	29 (46.0%)
6 – 10	7 (11.1%)
11 – 15	8 (12.7%)
> 15	19 (30.2%)

and practice characteristics of the community pharmacists. The second section evaluated the community pharmacists' perceptions towards online health information. The third section included statements pertaining to the type of online health information accessed by community pharmacists, while the final section focused on the barriers faced by community pharmacists with online health information. The respondents were requested to answer using a three-point Likert scale response format.

### Data analysis

Statistical Package for Social Science (SPSS®) was used to analyze the data. The KS test was used for normality assessment. Descriptive analysis was performed to obtain the frequency and percentage of occurrence. Mann-Whitney test and Kruskal-Wallis test were used to investigate the significance of association. Where significant associations were observed, Bonferroni correction was used to interpret the information. A p-value of less than 0.05 was considered to be statistically significant.

### Ethical approval

This study protocol was registered with National Medical Research Register (NMRR). Ethical application was reviewed and approved by Medical Research and Ethics Committee (MREC), Ministry of Health Malaysia prior to the commencement of this study (NMRR-15-1880-28384).

## RESULTS

A total of 67 questionnaires were received, giving a response rate of 22.3%. However, only 63 questionnaires were usable. More than half of the responses were

Statement	Frequency (%)		
	Always	Sometimes	Never
I search for disease-related information from the Internet.	37 (58.7%)	26 (41.3%)	0 (0.0%)
I search for general healthcare information from the Internet.	42 (66.7%)	21 (33.3%)	0 (0.0%)
I search for medicine information from the Internet.	46 (73.0%)	17 (27.0%)	0 (0.0%)
I read online journals/articles.	31 (49.2%)	28 (44.4%)	4 (6.3%)
I undertake online CPD/CME.	30 (47.6%)	25 (39.7%)	8 (12.7%)
I contribute to online discussion forums on health topics.	16 (25.4%)	10 (15.9%)	37 (58.7%)
I search for guidelines/protocol such as Malaysia CPG, WHO, SIGN.	19 (30.2%)	33 (52.4%)	11 (17.5%)
I search and read latest updates from pharmaceutical company.	21 (33.3%)	32 (50.8%)	10 (15.9%)

received via online (n=36, 53.7%) compare to postage (n=31, 46.3%). Thirty-five respondents were females (n=35, 55.6%) and most of the respondents were manager and owner of the pharmacy outlets (n=25, 39.7%) (Table 1).

### Type of online health information

The types of online health information searched by community pharmacists were assessed. From this survey, it was found that the top three health information that mostly looked up by the respondents was medicine information (n=46, 73.0%), general healthcare information (n=42, 66.7%), and disease-related information (n=37, 58.7%). In contrast, they were least interested to make contribution to online discussion forum on health topics (n=37, 58.7%). Majority of the respondents always read online journals (n=31, 49.2%) and undertook online CPD (n=30, 47.6%), and sometimes searched for professional guidelines (n=33, 52.4%) and read the latest updates from pharmaceutical company (n=32, 50.8%) (Table 2).

### Perception towards online health information

The community pharmacists were required to express their general perception towards online health information. Over half of the respondents agreed with majority of the statements regarding perception of online health information. It was also noted that almost equal number of respondents rated 'agreed' (n=28, 44.4%) and 'neutral' (n=26, 41.3%) in respond to the need for more practice to seek online health information effectively. When respondents were assessed with regard of referring to social media, blog or forum for health information, majority (n=29, 46.0%) remained neutral to the usage and the rest (n=26, 41.3%) mainly disagreed with the usage of opinion-based source (Table 3).

### Barriers towards online health information

This study had accessed the barriers encountered by community pharmacists when they retrieved online health information. The major obstacle reported by respondents

in this study was scanning through abundance of health information from the Internet (n=40, 63.5%). A high proportion of respondents neither trusts blindly nor remains skeptical towards health websites or health information (n=36, 57.1%). Majority of the respondents think that they had no issue with resource (n=32, 50.8%), had appropriate searching skill (n=31, 49.2%), as well as having sufficient time to seek for online health information (n=30, 47.6%) (Table 4).

Statements that showed statistical significant with demographic characteristics were summarized in following table (Table 5). Significant association was observed between gender and visiting established health websites (p=0.018). Meanwhile, age was found statistically associated with statements on searching medicine information (p=0.037), undertaking online CPD (p=0.023), and searching professional guidelines or protocol (p=0.047). Respondents' educational level showed statistically association with statement on uncertainty about the genuine and reliability of health websites (p=0.023) as well as unsure how to filter online health information (p=0.007).

## DISCUSSION

Due to the extensive availability of health information on Internet<sup>1</sup>, general practitioners are using Internet for their professional development.<sup>14</sup> The present study will provide vital understanding and empirical evidences regarding Malaysian community pharmacists' perception towards online health information.

### Perception towards online health information

Majority of the respondents perceived positively about online health information, where they believed Internet provides useful and updated health information. Consistent with the findings of previous studies, Internet is known to be a useful resource.<sup>6,9,15</sup> Interestingly, about half of the respondents used online health information to prepare

Statement	Frequency (%)		
	Agree	Neutral	Disagree
The Internet provides useful health information.	53 (84.1%)	10 (15.9%)	0 (0.0%)
I can find up-to-date health information on the Internet.	53 (84.1%)	9 (14.3%)	1 (1.6%)
It is easy to find appropriate online health information about a particular topic.	48 (76.2%)	12 (19.0%)	3 (4.8%)
I visit established trusted health websites only (for example MIMS Malaysia).	47 (74.6%)	13 (20.6%)	3 (4.8%)
I am confident that I can determine the quality of online health information.	43 (68.3%)	18 (28.6%)	2 (3.2%)
I use online health information to prepare talks for community groups.	35 (55.6%)	27 (42.9%)	1 (1.6%)
I am familiar with the criteria to evaluate a health website.	33 (52.4%)	26 (41.3%)	4 (6.3%)
The Internet has health information that I cannot find in other resources.	32 (50.8%)	27 (42.9%)	4 (6.3%)
I need more practice in order to use the Internet to search health information effectively.	28 (44.4%)	26 (41.3%)	9 (14.3%)
I refer to blog, forum or social media for health information.	8 (12.7%)	29 (46.0%)	26 (41.3%)

Statement	Frequency (%)		
	Agree	Neutral	Disagree
There is too much health information to scan from the Internet.	40 (63.5%)	21 (33.3%)	2 (3.2%)
I am distracted by the links to other sources.	19 (30.2%)	27 (42.9%)	17 (27.0%)
I do not have enough time to search for online health information.	10 (15.9%)	23 (36.5%)	30 (47.6%)
I do not have searching skills towards online health information.	6 (9.5%)	26 (41.3%)	31 (49.2%)
I have resource problem (such as slow Internet connection, not familiar with technology, etc.).	10 (15.9%)	21 (33.3%)	32 (50.8%)
I am unable to pay for the subscription fee for online health resources.	20 (31.7%)	29 (46.0%)	14 (22.2%)
I am uncertain about the genuine and reliability of the health websites / online health information.	11 (17.5%)	36 (57.1%)	16 (25.4%)
I am not sure how to filter online health information to find what I want.	9 (14.3%)	28 (44.4%)	26 (41.3%)

talks/sessions for community group programs. This finding was supported by previous study where Internet had made an impact on healthcare professional practice.<sup>9</sup> It is worth to mention that more than half of the respondents claimed that they were confident in determining the quality of online health information and they recognized the criteria in evaluating health websites. Thus further study could specifically concentrate on assessing community pharmacist's ability to search and appraise the information. There were studies stated that the use of social media to share health information among physicians and other healthcare professionals is expanding<sup>16,17</sup>, nevertheless, merely 12.7% respondents in this study referred blog, forum or social media for health information. Perhaps more research is required to study this area and researcher could redefine the term of 'social media'. Current study found that male respondents (mean rank: 36.64,  $p=0.018$ ) visited established only health websites, for example MIMS Malaysia. As web portal serves a good start to gain medical information<sup>18</sup>, it is possible that the female community pharmacists are readily to expose different kind health websites and do not constrain themselves to only the well-known resources.

#### Type of online health information

It was identified that medicine information is the most frequent searched topic, followed by general healthcare information and disease-related information. This finding could imply that community pharmacists are more likely to deal with drug-orientated information instead of broader range of health information.<sup>9</sup> However, in terms of reading online journals, finding from the current study is in contrast with one of studies carried out among community pharmacists and general practitioners in Northern Ireland where online journals is the most popular sites for both of these profession.<sup>9</sup> Majority of the respondents claimed that they occasionally seek for professional guidelines and read the latest research by pharmaceutical company. This is because access to technology supports the understanding

of current best practice and clinical guidelines.<sup>6</sup> Overall, the finding from this section provides a useful insight regarding the regular use and trust of online resources among community pharmacists.<sup>9</sup> It was also noticed that respondents' age group showed significant association with the following study questions: respondents aged between 38 - 47 years old (mean rank: 40.18) were associated with searching medicine information from Internet ( $p=0.037$ ), while respondents aged more than 47 years was associated undertaking online CPD (mean rank: 45.75,  $p=0.023$ ) and searching professional guidelines or protocol (mean rank: 42.30,  $p=0.047$ ). This finding might imply that the use of Internet to update professional knowledge among Malaysian community pharmacists was not confined by age, as one of the study carried out in Taiwan found that physicians with age of 50 and above were less likely to access online databases which might due to unfamiliarity with latest technology.<sup>18</sup>

#### Barriers towards online health information

Although respondents used Internet to obtain health information regularly, the major barrier reported in this study was to scan through the overwhelming of online health information, which was reported in other studies.<sup>6,14,19</sup> This reported barrier was expected and Internet users require sophisticated skills to look for answer from online resources.<sup>14</sup> Perhaps the respondents from this study were equipped with competent literacy skill as most of the respondents claimed that they possessed searching skills, had adequate time and no issue with resources, though previous studies reported them as challenges.<sup>3,10,11,20</sup> On the other hand, respondents with Master qualification showed significant association when they were asked if they were convinced about the reliability (mean rank: 42.75,  $p=0.023$ ) and certainty to filter (mean rank: 45.10,  $p=0.007$ ) online health information, majority of them remained neutral and respondents with Master qualification showed significant association with these statements. It could be correlated to previous study where

Statements	p-values			
	Gender <sup>a</sup>	Age <sup>b</sup>	Educational level <sup>a</sup>	Pharmacy setting <sup>b</sup>
I visited established trusted health websites only (for example MIMS Malaysia)	<b>0.018</b>	0.061	0.519	0.541
I search for medicine information from the Internet.	0.753	<b>0.037</b>	0.191	0.844
I undertake online CPD/CME.	0.277	<b>0.023</b>	0.495	0.682
I search for guidelines/protocol such as Malaysia CPG, WHO, SIGN.	0.879	<b>0.047</b>	0.384	0.263
I am uncertain about the genuine and reliability of the health websites / online health information.	0.277	0.419	<b>0.023</b>	0.282
I am not sure how to filter online health information to find what I want.	0.856	0.199	<b>0.007</b>	0.537

<sup>a</sup> Mann-Whitney Test, <sup>b</sup> Kruskal-Wallis Test



credibility was cited as the most important criterion for Internet clinical information<sup>3,6,10</sup>, and it could be Master-qualified respondents deal with Internet resources more frequently especially during their postgraduate studies. Therefore, future study should explore how community pharmacist constructs search strategies<sup>11</sup> as well as evaluate health website.<sup>3</sup>

### Limitations

The major limitation of this study is the low response rate and it is impossible for researcher follow up with non-respondent due to its anonymous nature. Nevertheless, the low response rate was expected with the study design and it is comparatively similar to previous studies conducted among Malaysian practicing community pharmacists.<sup>21-23</sup> However, the finding of this study is not generalized to all community pharmacists, and perhaps a nationwide study could be carried out in order to achieve broader view on this topic.

### CONCLUSIONS

In conclusion, the Internet offers extensive resources for healthcare professional, as current study shows the impact and widely use of Internet among community pharmacists in Kuala Lumpur. The present study demonstrates positive response towards online health information yet certain reservation was reported. Hence, this study provides

groundwork for more rigorous investigation, in terms of searching skill, quality determination as well as evaluation skill for online health information for pharmacy professional development.

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### CONFLICT OF INTEREST

The authors declare that they have no conflict of interest to disclose.

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