Research Article

Online Health Information-Seeking Behaviour and its Associated Factors Among Patients in the Outpatient Department of Dompe E-hospital, Sri Lanka

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Abstract

Background and Objective: Access for information is a fundamental need for human beings. Internet plays a significant role in accessing health information. Literature shows a paucity of data regarding online health information (OHI) behaviour of patients in developing countries. Therefore, this study is aimed to assess the OHI-seeking behaviour and associated factors among patients attending the outpatient department (OPD) of Dompe E hospital, Sri Lanka.

Method: A descriptive cross-sectional study was conducted from April 2020 to January 2021. Patients attending the OPD of E-Hospital Dompe for treatment were the study population. A pre-tested, self-administered questionnaire was distributed among conveniently selected 102 adult patients who were able to use the internet. The data were analysed using SPSS (Version 26) using descriptive and inferential statistics.

Results: The response rate was 93%. The highest number of respondents was females (62.7%), educated up to General Certificate of Education (Advanced Level) (63%) and between 26-35 years of age group (33%). Only 20% of respondents use health monitoring devices or apps to track health. Out of 102 participants, only fifty-nine were OHI-seekers. The smartphone is the most widely used device for OHI-seeking (98.3%). When considering patient's experience with doctors regarding OHI, only 34% of participants had ever asked the doctor about OHI that they had found. Findings show that there is a significant association between age and OHI-seeking ($p < 0.05$).

Conclusions: Half of the participants were OHI-seekers and among them smartphone is the widely used device for OHI-seeking. Age is the only factor associated with OHI-seeking behaviour. It is suggested the need for healthcare professionals to understand how OHI can be utilized for improving the health outcomes of patients.

Keywords: *online health information-seeking behaviour, e-health, health Informatics, health information, digital health*

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Introduction

Curiosity to know is the basis for seeking information. In modern times it has become a fundamental right for human beings. According to Krikelas (1983) any action made by a person to identify a message that satisfies a perceived need is referred to as information seeking behaviour (Sharda et al., 2022). Humans are having the freedom of obtaining information for their needs. There are diverse passive or active sources such as, print media, electronic media which includes digital sources, and health education providers to obtain information. Digital technologies and internet-based communication tools play a significant role in obtaining health information. The best way to get disease-specific novel information is the internet-based digital media (Jacobs et al., 2017). Online sources such as search engines, websites, blogs, online journals, news sites, glossaries, patient support groups on social media and apps are widely available to seek information about health-related issues. However, the accuracy, reliability, and scientific quality of such information is questionable.

The search engine Google reveals that one in 20 searches worldwide is for health-related information (Ramaswami, 2015). Therefore, health information seeking behaviour of humans is an active need-fulfilment behaviour. For instance, during the COVID 19 pandemic, which required maintaining social distancing, people moved to internet more than previously in seeking health information to take care of their-own and their loved one's health (Zhao et al., 2020).

Health information that patients access, undoubtedly influence their health-related decisions and behaviour (Bujnowska-Fedak & Węgierek, 2020). If patients are accessing misleading information, it may affect their health-related decision making, quality of life and may lead to harm themselves or those around them (Lowry et al, 2022; Swire-Thompson & Lazer, 2019). In a study done in the United States it has been revealed that OHI-seeking behaviour has positively affected the quality of life of people (Ghahramani & Wang, 2019). A clear understanding on patient's health information seeking behaviour, will help to make predictions and identify inappropriate behaviour patterns related to OHI-seeking.
According to available evidence; age, gender, eHealth literacy, educational status, economic status, employment status and internet usage skills are the significant influencing factors of OHI-seeking behaviour (Ghweeba et al., 2017; Jia et al., 2021; Kyriacou & Sherratt, 2019; Nangsangna & Vroom, 2019; Nölke et al., 2015; Wang et al., 2019; Wong et al., 2014; Wong & Cheung, 2019).

Sources of health information used by patients are available online. Accessing most reliable and accurate OHI sources are especially important for better health outcomes. Therefore, it is one of the responsibilities of frontline health care professionals to help their patients to find relevant and accurate health information and guide them to use the most up-to-date tools for health education (Shepperd et al., 1999). Little is known regarding the personal characteristics of the patients who search for online health information (OHI) in developing and underdeveloped

countries (Li et al., 2015). OHI-seeking has become a major focus of attention of researchers mainly in developed countries as evidenced through a Chinese bibliometric analysis which reveals the publication trends of research on OHI-seeking behaviour containing more than half of 533 publications from the United States (Li et al., 2015). Although there was an abundance of studies on OHI-seeking behaviour globally, there were no published studies found related to this topic in Sri Lanka. To fill this gap of knowledge, this study is aimed to assess OHI-seeking behaviour and associated factors among patients attending the OPD of Dompe Divisional Hospital, Sri Lanka.

Methods

Study design and setting

A descriptive cross-sectional, design was used as the study design. The study was conducted in Dompe Divisional Hospital (DH), which is a type 'A' hospital situated in the Western Province, of Sri Lanka. It is the first government e-hospital 'which embraced the concept of digital health in Sri Lanka. It has a well-established electronic patient record system in OPD and wards enabling health care providers to have a clear idea about the patients past health history, which is beneficial for both health care provider and the patient. E-channeling facility and telemedicine facility with a health hotline is also available for the patients.

Sample and Sampling

The patients attending the OPD of Dompe DH, Sri Lanka were the study population. The required sample size (n = 422) was calculated using the formula $n= Z^2P (1-P) / d^2$ where "n" is the sample size, "Z" is the statistic corresponding to level of confidence (at 95% confidence interval), P is expected prevalence (P = 0.5), and d (d = 0.05) is precision corresponding to effect size (Pourhoseingholi, 2013).

A convenient sample of 102 patients attending the OPD of Dompe DH, Sri Lanka, aged 18 years and above and having access to the internet through any digital device were included in the study. Those who are unable to read or understand the questionnaire, unable to give consent (e.g. mentally incapacitated), or severely ill were excluded from the study.

Study instrument

Data were collected using a pre-tested, self-administered questionnaire. It was adapted from a previously published questionnaire from China (Wong & Cheung, 2019) for use with a few adjustments in sentence patterns and wording after obtaining permission from the original author. The modified questionnaire was translated into Sinhala and Tamil languages by three subject and language experts. The final questionnaire consisted of twenty-five items, covering demographic information health status, regular pattern of internet use, OHI-seeking behaviour, and eHealth literacy. It was pre-tested with twelve patients who were not included in the sample and revised on their comments.

Data collection

Permission to conduct the data collection from patients was obtained from the District

Medical Officer of Dompe DH. Data collection and screening against the inclusion/exclusion criteria were done by the corresponding author. Written informed consent was obtained after providing relevant information of the study. Participants filled the questionnaire while waiting for their turn for consultation or while waiting at the medication counter at OPD. Data were collected from April 2020 to January 2021.

Statistical analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS) version 26. Descriptive and inferential statistics were used. Characteristics of the study sample and OHI-seeking behaviour were assessed using frequency distributions. Chi-Square tests were performed to determine the statistical significance of the association of variables such as socio-demographic factors and usage of internet to find health information. The likelihood ratio value was used to have an understanding on the approximate change in probability. An alpha level of <0.05 was established for statistical significance for all analyses.

Ethical Considerations

Ethical approval to conduct the study was taken from the Ethics Review Committee of the Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka (Ref: Nur/14/20).

Results

The response rate was 93%. More than half of the respondents were female (62%) and educated up to General Certificate of Education (Advanced Level) (GCE A/L) (62.7%). The highest number of respondents were between 26-35 years (33.3%). Most internet using patients had adequate time to use the internet (83.3%) and had the ability to obtain online information without help (81.3%). The devise used by almost all (98.3%) participants was the Smartphone. Twenty percent of the participants use health monitoring devices or apps to track health.

Patterns of OHI-seeking behaviour

The frequency of finding health information among the OHI-seekers (n=59) was mostly, once a month (20.3%) and several times a month or several times a week (18.6%) (Table 1). Among those, most have searched health information for their family members (83.1%) other than themselves (56%), friends or co-workers (15.3%).

As shown in table 1, the main types of OHI that were searched by respondents were health service information (61%), symptoms of diseases (56%), disease condition (49.2%), and health habits (39%). Major reasons for seeking such OHI were to find a doctor or healthcare facility (61%) and for knowledge or curiosity (52.5%).

The most common online source identified for health information were, social media (62.7%) and video sharing (64.4%) sites. Convenience (67.8%) and easiness to understand (66.1%) were the top reasons provided for choosing online sources (Table 2). A minority of respondents reported that online sources they have chosen were recommended by the health care professionals (11.9%).

Table 1: Patterns of OHI-seeking behaviour of patients who used the internet to find health information (n=59)

Characteristic	**Category**	**n (%)**
Frequency of using the internet to find health information (n=59)	Once a month	12 (20.3)
	Several times a month	11 (18.6)
	Several times a week	11 (18.6)
	Once a week	7 (12)
	Everyday	7 (12)
	Every few months	6 (10.2)
	Once a year	5 (8.5)
Finding health information for [#]	For family members	49 (83.1)
	For myself	33 (56)
	For friends or co-workers	9 (15.3)
Device used to obtain health information [#]	Smart phone	58 (98.3)
	Laptop computer	12 (18.6)
	Desktop computer	5 (8.5)
	Tablet	5 (6.8)
Health information searched online (contents) [#]	Health service information	36 (61)
	Symptoms	33 (56)
	Disease/ Condition	29 (49.2)
	Health habits	23 (39)
	Treatments	17 (29)
	Medication	16 (27.1)
	Vitamins and supplements	11 (18.6)
	Test/ Investigation	10 (17)
	Alternative medicine	5 (8.5)
	Health insurance	3 (5.1)
	Others	1 (0.9)
Reasons for seeking health information online [#]	Finding a doctor or healthcare facility	36 (61)
	For knowledge or curiosity	31 (52.5)
	Noticing new symptoms or change in health	19 (32.2)
	Dealing with an on-going medical condition	19 (32.2)
	Deciding to change my behaviours/ daily routine	19 (32.2)
	Hearing or seeing something in a news that you wanted to learn more about	16 (27.1)
	Being diagnosed with a new medical condition	13 (22)
	Being prescribed with a new medication, test, or treatment	8 (13.5)
	Having doubts about information given by my doctor	5 (8.5)
	Preparing for a doctor's consultation/ to discuss with doctor	4 (6.8)

[#] Multiple responses allowed.

Table 2: Sources of online health information and reasons for choosing

Characteristic	Category	n (%)
Sources of online health information[#]	Video-sharing site (e.g. YouTube)	38 (64.4)
	Social media (e.g.Facebook, WhatsApp)	37 (62.7)
	Online encyclopedia (Ex: Wikipedia)	25 (42.4)
	Hospital/ clinic websites	19 (32.2)
	News sites	15 (25.4)
	Mobile Health Information Apps	12 (20.3)
	Government websites	11 (18.6)
	Online journals	9 (15.3)
	Commercial sites	6 (10.2)
	Online forums	4 (6.8)
	University websites	3 (5.1)
	Blogs	3 (5.1)
	Non-profit organization websites	1 (1.7)
Reasons for choosing particular sources [#]	Convenience	40 (67.8)
	Easy to understand	39 (66.1)
	Usual habit	25 (42.4)
	It's trustworthy	16 (27.1)
	Recommended by family or friends	13 (22)
	Top results from search engines	9 (15.3)
	Recommended by professionals	7 (11.9)

[#] Multiple responses allowed.

Although 58% of patients who use the internet have sought OHI, only 34% of them have ever asked the doctor about the OHI (Table 3). Among them most of them have shared the information that they had found online with the doctor. The participants reported that the doctors only had slight interest regarding the shared information.

Factors associated with OHI-seeking behaviour

There was a significant association between age and OHI-seeking ($p< 0.05$) while no association was found with gender, education level, employment, and self-rated health status (Table 4).

Table 3: OHI-seekers' experience with doctors regarding health information that they found

Characteristic	**n (%)**
Ever asked a doctor about OHI	20 (33.9)
Shared OHI with a doctor (verbally/ by email/ print-out/ photos or screenshot on smartphone)	18 (30.5)
Asked doctor about specific disease because of information found online	13 (22)
Asked for specific treatment, test, or referral because of information found online	14 (23.7)
Doctors' interest about online health information	
Slightly interested	11 (18.6)
Don't know/ Can't remember	6 (10.16)
Very interested	3 (5.08)

Table 4: Factors associated with OHI-seeking behaviour of the participants (N= 102)

Characteristic	**Category**	**Use of the internet to find health information**			**p-value**
		Yes n (%)	No n (%)	Total n(%)	
Gender	Male	24 (40.6)	14 (32.6)	38 (37)	0.271#
	Female	35 (59.3)	29 (67.4)	64 (62)	
Age (Years)	18-25	19 (31.7)	8 (19)	27 (26)	0.041$
	26-35	23 (38.3)	11 (26.2)	34 (33.3)	
	36-45	12 (20)	8 (19)	20 (19.6)	
	46-55	3 (5)	5 (11.9)	8 (7.8%)	
	56-65	3 (5)	9 (21.4)	12 (11.7)	
	>65	0	1 (2.4)	1 (0.9)	
Highest Education Level	Year 1-10	0	1 (2.3)	1 (0.9)	0.06$
	Up to GCE O/L	13 (2.2)	17 (3.95)	30 (29.4)	
	Up to GCE A/L	40 (67.8)	24 (55.8)	64 (62.7)	
	Degree or above	6 (10.2)	1 (2.3)	7 (6.8)	
Employment	Employed	28 (47.5)	21 (48.8)	49 (48)	0.89#
	Unemployed	31 (58.5)	22 (41.5)	53 (51.9)	
Self-rated health status	Excellent	2 (3.4)	0	2 (1.9)	0.225$
	Very Good	12 (20.3)	5 (11.6)	17 (16.7)	
	Fair	44 (74.6)	36 (83.7)	80 (78.4)	
	Poor	1 (2.9)	2 (4.7)	3 (2.9)	

#- Pearson Chi-Square GCE = General Certificate of Education

$- Likelihood Ratio

Discussion

Patterns of OHI-seeking behaviour

The findings of the study shows that more than half of the respondents (58%) were OHI-seekers. In comparison with other studies, the prevalence rate in a Chinese study was remarkably high (87.4%) (Wong & Cheung, 2019) while a study from Scotland reported a total of 68.4% using the internet to acquire health information (Moreland et al., 2015). Findings of a Ghanaian study revealed that although internet usage rate among patients was 85.8%, only 35.7% were OHI-seekers (Nangsangna & Vroom, 2019). Most OHI – seekers in the current study were females. This finding is similar to the studies from Egypt (Ghweeba et al., 2017) and Germany (Nölke et al., 2015). Most of the respondents reported that they seek OHI for their family members other than themselves, friends or co-workers. This result is consistent with the findings of Wong & Cheung (2019).

The most used device for OHI-seeking in this study was smartphone (98.3%). A study among diabetic patients in a high income (Singapore) and middle income (Malaysia) country showed that nearly half of the participants from both countries [Malaysia (43.8%) and Singapore (45.0%)] reported that they sought health information online using smart phones (Lee et al., 2020). Ghahramani & Wang (2019) reported that the use of smartphones had a positive influence on health information seeking behaviour, indicating that seeking health information and using health-related applications improve overall quality of life.

In the current study, the most common online resources identified for seeking health information were video sharing and social media sites because of the convenience and easiness to understand. Although there were trusted sources available such as university, World Health Organization, non-profit organizations and government websites (Health Promotion Bureau, Sri Lanka) and online journals, it is evident that the participants have chosen convenient and easily understandable sources. In contrast, an exploratory study conducted in Hong Kong, revealed that most of the respondents, had visited professional websites such as government, non-profit organization and hospital sites (Yan, 2010). The top reasons for choosing an online source in the current study were convenience and easiness to understand, which is similar to the study in China (Wong & Cheung, 2019). However, the most common online sources for seeking health information found in the Chinese study were online encyclopaedias like Wikipedia, health portals or medical encyclopaedias and Q&A sites (Wong & Cheung, 2019).

The current study suggests that main types of OHI such as health service information, symptoms of diseases, disease condition, and health habits are the important considerations when seeking OHI by the patients. Major reasons for seeking such OHI in the current study, were to find a doctor or healthcare facility such as e-channelling and for knowledge or curiosity. However, Chu et al., (2017) from Hongkong found that desire for greater understanding, clarity, and confirmation of their health issue are some of the main reasons for patient's OHI-seeking.

In the current study, only few OHI-seekers (30.5%) have ever asked the doctor about the OHI that they found. This might be due to health care provider's low caring style of information sharing (Cousin et al., 2012) and less participatory relationship between doctors and patients regarding health information sharing and healthcare decision-making (Kennedy et al., 2017). A study from Scotland revealed that less percentage of patients (34.0%) had talked to a health professional about the health information they had found (Moreland et al., 2015). A systematic review done in Singapore has shown that OHI- seeking can improve the patient-physician relationship depending on whether the patient discusses the information with the physician and on their prior relationship. In addition it reveals that patients have better access to health information through the internet and expect to be more engaged in health decision-making (Tan & Goonawardene, 2017). Similarly, a systematic review done in China found that OHI seekers who discuss OHI with doctors is beneficial to the physician-patient relationship in most cases (Luo et al., 2022).

Factors associated with OHI-seeking behaviour

There was no statistical association between gender and OHI-seeking behaviour in the current study. The finding is supported by a study from Australia which reveal that sex did not influence internet use or OHI-seeking (Wong et al., 2014). However, some studies conducted previously in Egypt, West-Africa and Germany reported an association between gender and OHI-seeking (Ghweeba et al., 2017; Nangsangna & Vroom, 2019; Nölke et al., 2015).

In the current study, the highest number of respondents were young adults (26-35 years) suggesting that this age group might have used the internet to seek more health-related information, or they may have used more online devices than others. Further, an association between age and OHI-seeking ($p < 0.05$) was identified in the current study which is consistent with the results of previous studies from Egypt, United Kingdom, Germany and Australia; reporting that internet use and OHI-seeking were inversely related to age (Ghweeba et al., 2017; Kyriacou & Sherratt, 2019; Nölke et al., 2015; Wong et al., 2014). This may be due to the high familiarity with technological tools of the youth population in the digital era.

Although education level was not found as a significant factor associated with OHI-seeking in the current study, several previous studies indicate education as a significant influencing factor for OHI-seeking (Ghweeba et al., 2017; Kyriacou & Sherratt, 2019; Nangsangna & Vroom, 2019; Wang et al., 2019).

Even though employment was not significantly associated with OHI-seeking in the current study, a study from Ghana revealed employment as a positive influencing factor of OHI-seeking (Nangsangna & Vroom, 2019; Jia et al., 2021).

There was no association found between self-rated health status and OHI-seeking behaviour which indicate that regardless of their health status category (poor, fair, good,

or excellent), they have sought OHI. In the current study, patients who reported fair health status searched health information online than other categories compared to an Egyptian study showing that OHI seekers with high self-reported general health were more likely to seek OHI than those with poor general health (Ghweeba et al., 2017). In contrast, the study from Hong Kong, reported that the patients with poorer health status are more likely to search OHI more often (Wong & Cheung, 2019).

Limitations

Current study utilized the cross-sectional study design where the behaviour patterns of patients could not be observed over a defined period. The sample would not be representative of the entire population that has been studied because of the use of convenient sampling technique. Further, the results of this study cannot be generalized to a larger population since the study was conducted in a single hospital. The calculated sample size could not be achieved due to the restrictions of COVID-19 pandemic situation during the data collection period. Further, smaller sample size has decreased the statistical power sufficient to identify the true relationships between the demographic factors and the usage of online sources for health information due to larger margins of error. Utilizing self-reported answers could be another limitation since various biases may affect the results.

Conclusions

Half of the participants were OHI-seekers and among them smartphone is the widely used device for OHI-seeking. Most searches were carried out for health service information, regarding symptoms and diseases prior to consultation and for knowledge or curiosity. Age is the only factor found associated with OHI-seeking behaviour. Results of this study will provide a basic picture for primary health care providers to understand the overall OHI-seeking behaviour and patient's health information needs. Healthcare professionals and eHealth developers are recommended to develop and promote accurate and convenient OHI applications to improve patients' OHI-seeking behaviour. It is also recommended for healthcare professionals to acknowledge patients' OHI-seeking behaviour, discuss the information offered, educate them on assessing the quality of OHI and guide them to quality health information to improve their OHI-seeking behaviour. Further, patient's health information usage behaviours after seeking OHI can be assessed in future research.

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Conflict of Interest

The authors declare that they have no conflicts of interests.

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