

Information – seeking behaviour of primary health care physicians: A sample from Al-Rusafa Health Directorate in Baghdad in 2019

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ABSTRACT

INTRODUCTION: Primary health care physicians are the first to face patients' specific problems of all medical specialties. This might trigger the physicians to seek medical knowledge. To find an answer, they may consult colleagues, text books, professional journals, and recently through electronic resources.

OBJECTIVE: To determine medical information-seeking behaviour among primary care physicians at Baghdad Al- Rusafa Health Directorate.

METHODS: A descriptive cross – sectional study was conducted at the Primary Healthcare Centres at Baghdad Al- Rusafa Health Directorate from May till November 2019. Pre- tested self-administered semi structured questionnaire was distributed among four hundred sixty-five physicians working in (96) primary health care centres at Baghdad Al-Rusafa Health Directorate.

RESULTS: the respondent's rate was 67% (312 out of 465) the majority of the participants 188(60.3%) were female physicians. The age of respondents was more than thirty years old 257 (82.4%). Electronic resources was the primary source of knowledge in 200 physicians (64.1%) and solving specific patient problems as a motivated factor to seek information was reported by 161 (51.6%). Also, 181 physicians (58.01%) have reported that they seek medical information on weekly bases.

CONCLUSION: Internet is vital information source that provide health professional with numerous information resources to meet urgent need & answers to patient cases.

Key words: information need, information seeking behaviour, physicians, primary healthcare centre.

INTRODUCTION

Information seeking behaviour is "the purposive seeking for information as a consequence of a need to satisfy some goal".¹ In the last twenty- five years, research has contributed to a better understanding of information need and information seeking behaviour among health practitioners in primary care setting.² because the primary care is vital to any health system, it can deliver significant value if done well³ and researches show that strong primary care is associated with good outcome and lower costs.⁴

Also the primary health care physicians are the providers most patient see first when they have health problem, and the one's they see most often.⁵ So, general practitioners (GP)

occupy a position of pivotal importance in the primary care,⁶ and it is vital that information provision meet the priorities and preference of them.⁷ GPs make decision on how to treat the vast majority of all health related problem in the society, including who should be referred to more comprehensive investigation or treatment.⁸

In addition, keeping the medical knowledge update to cope with the information overload is a major challenge in all branches of medicine.⁹

During physicians' professional workdays, many clinically important patient care questions arise¹⁰ triggering primary healthcare physicians to access a variety of information resources to inform decision-making. Traditional

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resources of health information for health care professionals included printed materials, such as textbooks, clinical manuals, journals drug reference books.¹¹

Studies from low income countries showed that colleagues remained the major source of medical information for health professionals,^{12,13} because they are available, affordable, and reliable.¹⁴ In Iraq, a study in 2014 on physicians working at primary healthcare centres (PHCs) in Al-Karkh district of Baghdad stated that physicians seek medical information primarily from printed textbooks.¹⁵ It seems that physicians prefer to use a certain information source according to its accessibility rather than the quality of the source.¹⁶ The problem with the print resources is that they are out of date by time they are published, they are not always evidence-based, and they are often more academic than practical in their purpose. This is almost the exact opposite of what health care professionals need from knowledge resource. The evidence is clear that health care professionals want and need resources that are continually updated, evidence based and practical.¹⁷

With the development of technology, the practice has started to change through the years. The advent of Internet have given rise to the exponential growth of health information resources which has invariably provided a wider means of access to health professional in meeting their immediate information needs.¹⁸ Electronic resources contain a range of information from primary studies that can be found in journals to synthesized sources including electronic books and synopses of research-based publication.¹⁹

After studying the information seeking behaviour of healthcare physicians in Al-Karkh district of Baghdad 5 years ago,¹⁵ we try this time to measure the change in this behaviour over these years especially after the relative improvement in the availability of the internet service in Iraq. So, the objectives of the study was to measure the common source Iraqi Primary healthcare physicians working at PHCs in Al-Rusafa in Baghdad used to seek medical knowledge and their triggers and frequency to search. In addition to find the barriers and obstacles to this attitude. Also, to test the presence of association between some demographic factors and these variables.

METHODS

Settings and study design: A descriptive cross-sectional study was conducted at primary healthcare centres in Al-Rusafa Health Directorate in Baghdad from 1st May till end of November 2019.

Ethical consideration: The study was approved by the research committee of the Al-Rusafa Health Directorate and implemented according the code of ethics in research of Ministry of Health in Iraq. Verbal consent was taken from all participants after explaining the aims and benefits of the study. All data were kept confidential and used only for the purpose of this study.

Definition of the participants and exclusion criteria: The participants were physicians working at 96 PHCs of the seven central primary healthcare sectors of all ages and both genders. We excluded only those who refuse to participate. .

Sampling: We included PHCs of the seven central primary healthcare sectors at Al-Rusafa Health Directorate: Al- Adhamiya, Al-Sha'ab, Baghdad Al-Jadida, Al-Sader, Al- Baladiyat Al-Awel, Al-Rusafa, and Al-Baladiyat Al-Thani. The PHCs of the three peripheral primary health sectors (Al-Madain, Al-Estiqal and Al-Nahrawan) were excluded from this study due to difficulties in visiting them and limitation of time. We planned a schedule to visit all PHCs in predefined dates. The physicians working at each PHC who were happened to be available at time of visiting this centre were only included in this study.

Study variables: Study variables: The following independent variables age, gender, professional speciality (family senior physician, family permanent doctor, general practitioner and other speciality), and years of work experience (≥ 5 years and < 5 years) were measured and analysed. The following dependent variables were also identified and analysed: the sources of information seeking by the physicians, factors activate and inhibit information seeking behaviour of the physicians, and frequency of information searched by physicians.

Tools: A quantitative close ended questionnaire which was developed by the authors after relevant literature review was used to

take the data from the participants. It was discussed and revised by four assistant professors in the Department of Community Medicine at Al-Kindy College of Medicine and two senior medical educationists.

The questionnaire form has included some demographic characteristics of the physicians participated in the study (age, gender, professional speciality and years of work experience); in addition to four themes in which **theme 1**: covered the sources of medical information used by the physicians, **theme 2**: covered factors triggering physicians to seek medical information, **theme 3**: covered barriers that inhibit physicians to seek medical information, **theme 4**: covered the frequency of searching information by physicians. To assess the understandability of the questions by the participants, we tested the questionnaire on 15 participants without including the results in the final analysis.

The authors have contacted the persons who were responsible for continuous medical education (CME) credits in the all seven primary healthcare sectors. We explained for them the objectives of this study, the targeted doctors needed to be involved, and meaning of the questions in the questionnaire and how to fill them. Those persons were asked to distribute the questionnaire among the potential participants and to explain for them how to fill in the forms. The questionnaires were recollected within a week. The process of data collection was continued from 20th June to 28th July. The questionnaire forms were distributed among 465 physicians who were fulfilling the inclusion criteria of participation, their numbers and response rate in each healthcare sector is shown in **table 1**.

Statistical analysis: Using the SPSS version 24, data were tabulated to measure the frequency and percentages of the variables. Then we tried to find any association between preferred source of information, trigger to search and its frequency, and the barrier and obstacle to search and some demographic features (age, gender, speciality and years of work experience). To measure the statistical significance for any association, we used the Chi square to calculate p value for categorical variables. P value of less than 0.5 was considered statistically non-significant.

Table 1 | The respondents' rate of each PH district

PHC Districts included in the study	Questionnaire distributed	Questionnaire return	Respondent Rate
Al-Baladiyat Al-Awal	50	38	88%
Al- Sader	100	85	85%
Al- Sha'ab	60	41	68%
Al- Adhamiya	75	47	63%
Al- Baladiyat Al-Thani	65	40	62%
Baghdad Al-Jadida	50	30	60%
Al-Rusafa	65	31	48%
Total	465	312	67%

RESULTS

We distributed 456 questionnaire forms, 379 were returned. Of those 312 (68.57 %) were completed and analysed in this study. Most of the respondents 188 (60.3 %) were female physicians, while 124 (39.7 %) were male. Most of them 257 (82.4%) were more than thirty years old, and 258 (82.7%) had five years and more of work experience, with a mean age of 39.4 ± 10.2 .

Regarding profession, the majority of the respondents 130 (41.7 %) were general practitioners, family medicine permanents 41 (13.1%), while family medicine specialist 60 (19.2%) and physicians with Diploma degree in paediatrics, gynaecology, dermatology, rheumatology, internal medicine and post-graduate internships' doctors were 81 (26%) as shown in **table 2**.

Table 3 shows the primary sources used by the participants. It shows that the electronic

Table 2 | Demographic characteristics of physicians participated in the study (no. = 312)

Characteristic	No.	%
Age	< 30	55 17.6
	≥ 30	257 82.4
Gender	Male	124 39.7
	Female	188 60.3
Professional Speciality	General Practitioner	130 41.7
	Family medicine Specialist	60 19.2
	Family medicine permanent	41 13.1
	Other specialities*	81 26.0
Work experience	< 5 years	54 17.3
	≥ 5 years	258 82.7

* Physicians with diploma degree in paediatrics, gynaecology, dermatology, rheumatology, internal medicine and postgraduate internships' doctors

Table 3 | Distribution of study sample according to their primary medical information resources †

	Variable	Printed text-books	Electronic resources	Printed journals	Friends/colleagues	Others*
Gender	Male	61(37.8%)	81(40.5%)	11(57.9%)	19(47.5%)	2(50%)
	Female	100 (62.1%)	119(59.5%)	8(42.1%)	21 (52.5%)	2(50%)
	Total	161(51.6%)	200 (64.1%)	19 (6%)	40(12.8%)	4
	P- value	0.56	0.80	0.14	0.30	0.65
Age	< 30 years	30(18.6%)	33 (16.5 %)	4(21%)	15(37.5%)	1(25%)
	≥ 30 years	131(81.3%)	167(83.5 %)	15(78.9%)	25(62.5%)	3(75%)
	Total	161	200	19	40	4
	P- value	0.65	0.53	0.75	0.001	0.54
Professional Speciality	General practitioner	58 (36%)	78 (39%)	8 (42.1%)	18 (45%)	2
	FM permanents	23 (14.2%)	25 (12.5%)	2(10.5%)	3 (7.5%)	0
	FM specialist	33 (20.5%)	40 (20%)	4(21%)	2(5%)	2
	Other Specialities	47 (29.1%)	57 (28.5%)	5(26.3%)	17 (42.5%)	0
	Total	161	200	19	40	4
	P- value	0.02	0.43	0.98	0.01	0.20
Work experience	< 5 years	27 (16.7%)	32 (16%)	4 (21%)	15 (37.5%)	1
	≥ 5 years	134 (83.2%)	168 (84%)	15 (78.9%)	25 (62.5%)	3
	Total	161	200	19	40	4
	P- value	0.88	0.43	0.75	0.001	0.54

* Included CME activity, printed pamphlets, personal experience, and printed thesis/ dissertation.

† Participants can choose more than one source.

sources are the commonest used 200 (64.1%), also the table shows the association of the type of source used for information seeking and some demographic features.

Table 4 shows the reasons that trigger the primary care physician to seek medical information with the association of these reasons to some demographic features. Specific patient problem is reported in 161(51.6 %) followed by

Table 4 | Distribution of study sample according to the reasons of searching for medical information †

	Variable	Specific patient problem	Update knowledge about disease & health technology	Academic reason	Other reasons
Gender	Male	64 (39.7%)	65 (40.6%)	2(50%)	11(40.7%)
	Female	97 (60.2%)	95 (59.3%)	2 (50%)	16(59.2%)
	Total	161(51.6%)	160(51.2%)	4(1.2%)	27(8.6%)
	P- value	0.99	0.83	0.67	0.91
Age	< 30 years	130 (80.7%)	140 (87.5%)	4(100%)	22(81.4%)
	≥ 30 years	31 (19.2%)	20 (12.5%)	/	5(18.5%)
	Total	161	160	4	27
	P- value	0.43	0.01	0.35	0.89
Professional Speciality	General practitioner	66 (40.9%)	61 (38.1%)	1(25%)	12(44.4%)
	FM permanents	30 (18.6%)	39(24.3%)	1(25%)	4(14.8%)
	FM specialist	17 (10.5%)	29(18.1%)	2(50%)	2(7.4%)
	Other Specialities	48(29.8%)	31(19.3%)	/	9(33.3%)
	Total	161	160	4	27
	P- value	0.29	0.001	0.29	0.63
Work experience	< 5 years	130(80.7%)	143(89.4%)	4(100%)	22(81.4%)
	≥ 5 years	31(19.3%)	17 (10.6%)	/	5(18.5%)
	Total	161	160	4	27
	P- value	0.34	0.001	0.35	0.86

† Participants can choose more than one reason.

Table 5 | Distribution of study sample according to their frequency of searching

	Variable	Daily	Weekly	Monthly	Total	p- value
Gender	Male	38(40.8%)	70(38.7%)	16(42.1%)	124	0.894
	Female	55(59.1%)	111(61.3%)	22(57.9%)	188	
	Total	93	181	38	312	
Age	< 30 years	68(73.1%)	155(85.6%)	34(89.5%)	257	0.017
	≥ 30 years	25(26.8%)	26(14.4%)	4(10.5%)	55	
	Total	93	181	38	312	
Professional Speciality	General practitioner	39(41.9%)	75(41.4%)	16(42.1%)	130	0.082
	FM permanents	12(12.9%)	21(11.6%)	8(21%)	41	
	FM specialist	13(13.9%)	36(19.8%)	11(28.9%)	60	
	Other Specialities	29(31.1%)	49(27%)	3(7.9%)	81	
	Total	93	181	38	312	
Work experience	< 5 years	69(74.1%)	154(85%)	35(92.1%)	258	0.021
	≥ 5 years	24(25.8%)	27(14.9%)	3(7.9%)	54	
	Total	93	181	38	312	

updating knowledge in 160 (51.2 %).

The majority of the participants searching for information on weekly bases in 181 participants (58.01%) and on daily bases in 93 participants (29.8 %). Age and work of experience were significantly associated with the frequency of searching information, p value were 0.017 and 0.021 respectively. **See table 5**

Table 6 shows the barriers and obstacles that the participants reported to affect their information seeking behaviour. The majority, 196 participants (62.8 %), have agreed that the primary barrier against seeking information was inadequate time. Majority of the participants are either accessing the internet at home only or at both home and work, 133(42.6%) and 174(55.7%). **See table 7**

Table 6 | The barriers and obstacles that the participants reported to affect their information seeking behaviour. †

	Variable	Inadequate time	Frequent power cuts	Unreliable information resources of Internet	Poor ICT infrastructure	Personal perception toward internet information	Lack of skill on how to search health information	Lack of access to a computer
Gender	Male	74(37.7%)	16(48.5%)	21(36.8%)	16(50%)	7(58.3%)	4(44.4%)	2(66.6%)
	Female	122(62.2%)	17(51.5%)	36(63.1%)	16(50%)	5(41.6%)	5(55.5%)	1(33.3%)
	Total	196	33	57	32	12	9	3
	P- value	0.35	0.27	0.62	0.21	0.18	0.77	0.33
Age	< 30 years	162(82.6%)	28(84.8%)	15(26.3%)	4(12.5%)	11(91.6%)	3(33.3%)	1(33.3%)
	≥ 30 years	34(17.3%)	5(15.1%)	42(73.6%)	28(87.5%)	1(8.3%)	6(66.6%)	2(66.6%)
	Total	196	33	57	32	12	9	3
	P- value	0.35	0.27	0.62	0.21	0.18	0.77	0.33
Professional Speciality	General practitioner	77(39.3%)	16(48.5%)	21(36.8%)	18(56.2%)	5(41.6%)	4(44.4%)	2(66.6%)
	FM permanents	44(22.4%)	4(12.1%)	8(14%)	4(12.5%)	0	0	0
	FM specialist	23(11.7%)	4(12.1%)	6(10.5%)	5(15.6%)	2(16.6%)	3(33.3%)	0
	Other Specialities	52(26.5%)	9(27.2%)	22(38.5%)	5(15.6%)	5(41.6%)	2(22.2%)	1(33.3%)
	Total	196	33	57	32	12	9	3
	P- value	0.22	0.69	0.11	0.23	0.29	0.19	0.68
Work experience	< 5 years	162(82.6%)	27(81.8%)	43(75.4%)	29(90.6%)	11(91.6%)	6(66.6%)	2(66.6%)
	≥ 5 years	34(17.3%)	6(18.1%)	14(24.5%)	3 (9.3%)	1(8.3%)	3(33.3%)	1(33.3%)
	Total	196	33	57	32	12	9	3
	P- value	0.98	0.88	0.15	0.21	0.40	0.19	0.46

† Participants can choose more than one cause.

Table 7 | Availability and access to computer with Internet

	Variable	At home	At work	Both	Total	p- value
Gender	Male	50(37.6%)	3(60%)	71(40.8%)	124(39.7%)	0.55
	Female	83(62.4%)	2(40%)	103(59.2%)	188(60.3%)	
	Total	133(42.6%)	5(1.6%)	174(55.7%)	312	
Age	< 30 years	106(79.7%)	4(80%)	147(84.5%)	257(82.4%)	0.54
	≥ 30 years	27(20.3%)	1(20%)	27(15.5%)	55(17.6%)	
	Total	133(42.6%)	5(1.6%)	174(55.7%)	312	
Professional Speciality	General practitioner	54(40.6%)	3(60%)	73(41.9%)	130(41.6%)	0.57
	FM permanents	30(22.5%)	/	30(17.2%)	41(13.1%)	
	FM specialist	13(9.7%)	1(20%)	27(15.5%)	60(19.2%)	
	Other Specialities	36(27.1%)	1(20%)	44(25.3%)	81(25.9%)	
	Total	133(42.6%)	5(1.6%)	174(55.7%)	312	
Work experience	< 5 years	106(79.7%)	5(100%)	147(84.5%)	258(82.7%)	0.32
	≥ 5 years	27(20.3%)	/	27(15.5%)	54(17.3%)	
	Total	133(42.6%)	5(1.6%)	174(55.7%)	312	

DISCUSSION

Preference of information source: The advent of Internet has given rise to the exponential growth of health information resources which has invariably provided wider means of access to health professional in meeting their immediate information needs.^{18,20}

In the present study, primary healthcare physicians preferred electronic resources 200 (64.1%) as their primary information source. In a similar study¹⁵ conducted in Al-Karkh Health Directorate in Baghdad in 2014 on the same target of physicians, 114 (43.8 %) stated that printed texts were the primary source for information seeking while only 71 (27.3 %) of the participants were preferring electronic sources. This dramatic change may be due to the change in the attitude of physicians working at the primary healthcare centres and the better internet infrastructure in the country.

Many other studies have shown also that electronic resources are the primary source of information seeking behaviour: Kostagiolas²¹ on hospital professionals in Greece, Oriogu¹⁸ on health professional in Federal Medical Center in Abuja in Nigeria, Perera²² on health related academics from University of Peradeniya in Sri Lanka, and Grefsheim et al² on scientists and science administrators from US National Institutes of Health. However, Andualem²³ from Ethiopia in 2012, Graber,²⁴ Coumou⁴ in his review on published papers from 1992-2005, and Bryant⁷ in 1999 on family

physician in UK have shown that colleagues or paper sources are more used for information seeking. The reasons for this discrepancy in the attitude are most of these studies were done in 1990s and early 2000s where online resource were not widely distributed and available, poor infrastructures of internet, physicians' believe that sources other than electronic are easier and more efficient.²⁵

The present study showed that most of the participants have accessed the Internet at home 133 (42.6%), office 5(1.6%), or both 174 (55.7%) this result is similar to that of Gonzalez¹⁶ study on Spanish primary care physicians where 72% of them have no Internet at their offices.

Frequency of information use: During patient consultation, primary care physicians need patient-specific information. Accessing information in a timely way is essential for the clinical decision- making process.²⁶

The present study showed that most of physicians 181 (58%) search for medical information on weekly basis, while 93 (29.8%), 38 (12.1%) on daily and monthly basis respectively. This result was consistent with that of Cook et al²⁷ where he showed that primary healthcare and subspecialist internal and family physicians use one or more online reference at least twice weekly, Bennett 2005,⁷ and Jette et al⁸ from Norway in 2016.

This frequent tendency of the primary healthcare physicians to seek medical infor-

mation is because they face particular challenges in keeping updated. They usually meet patient with undifferentiated problems and need regular and systematic updated in all field of medicine at satisfactory level. In addition to work in a small unit or a single-handed outside teaching environment and without an organized peer review setting.⁸

The present study identified a statistically significant direct association between the frequency of searching for medical information with age of the physicians (p- value 0.017) and their years of work experience for more than five years, p- value 0.021. This may be due to their professional responsibilities toward their patients or more need with age to update knowledge with relevant information for the sake of the population who use primary health care facilities.²⁰ In addition, with age physician becomes well known from their patients so expanding and updating knowledge will lead to provide a high-quality health services and avoid as much as possible medical errors.

Trigger to seek medical information: The present study showed that most physicians 161 (51.6%) seek medical information to solve a specific patient problem and this result was consistent with the study of Bryant⁷ on general practitioners in Aylesbury Vale in the UK, Bennett in 2002-2003 on US physician of all specialties,²⁷ Soel et al on academic physician in Colombia University in USA in 2004,²⁸ and Gorman in his study on non-academic primary health care physicians in USA.²⁹

Other studies have stated that the commonest cause physicians find to search medical information is improving social and communication skill as in Kostagiolas,²¹ conducting research and writing articles as in Perera,²² or just updating their knowledge as in Norbet from Tanzania.¹⁴

These differences in setting the causes that may trigger physicians to seek medical knowledge may be attributed to the diversity of the targeted physicians: academic or non-academic, general or specialist, working at PHCs or in hospitals. In addition to the effect of socio-cultural differences.

Barriers to seek medical information physicians': Physicians have many information needs that arise at the point of care yet go unmet for a variety of reasons.³⁰ The present

study showed that lack of time 196 (62.8%) was the major obstacles to search for information. This result was consistent with Kostagiolas²¹ study and Coumou et al.⁴ Ely in a study conducted in Iowa in the USA and published in 2005³¹ has shown that the major barrier of their studied respondent was the doubt about the existence of relevant information followed by lack of time.

The limitation of this study was our inability to expand the study to include more healthcare sectors in Baghdad Al-Rusafa and to include other healthcare providers like dentists, pharmacists, and nurses.

CONCLUSION

The Primary healthcare physicians working in the central PHCs in Al-Rusafa find that they should seek medical information at least once weekly triggered by a specific patient problem then tendency to Update knowledge about disease and health technology. The most common source used by the PHC physicians to seek for medical knowledge was the electronic resources followed by printed textbooks. Lack of time was the major obstacle to seek for medical information in primary care physicians.

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Abbreviations list: Continuous medical education (CME), Family Medicine (FM), General practitioners (GP), Information and communication technology (ICT), Number (no.), Primary healthcare (PH), Primary healthcare centres (PHCs), Statistical package for social sciences (SPSS), United State of America (USA).

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