

Use of Internet & Web Resources by Medical Professionals in Jammu & Kashmir

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Abstract:

A survey was carried out to explore the use the Internet of medical professionals of J&K working at primary, secondary and tertiary health care institutions by administering a questionnaire and employing stratified random sampling. The findings reveal that majority of the physicians/surgeons use the Internet for professional purposes. However, most of the paramedical professionals do not access it. The most consistent predictors of use were being male and younger. The results also depict that most of the professionals access the internet mostly at home while less than half search them in the library and at office or lab. They make less use of online databases and other web resources. Survey results also highlights areas in which improvements are needed, such as availability of Internet facilities at work place, better internet connectivity, free fulltext e-journals/books and user awareness programmes.

Keywords: *Medical professionals, paramedical professionals, physicians, surgeons, Internet, databases,*

Introduction

In the Information Age, Internet has become an important source of information. Internet is used by students, researchers, academicians, professionals, businessmen etc. According to Internet World Stats, the population of internet users is 2,405,518,376, almost covering 34.3% of the total world population in the year 2012. (Internet World Stats)

The internet came to India in the early 1990s for a restricted group of users through some leading Internet Service Providers (ISPs). In India presently there are about 151,598,994 internet users covering 12.6% of the total population. (**Wikipedia, 2013**). The internet services were introduced in the State during 1994-95 by Bharat Shanchar Nigam Limited (BSNL). With the course of time many privately owned ISPs became operational in the State like Airtel, Aircel, Reliance, Tata Indicom, Vodafone and Idea. The Commercial Cyber Cafes are also available in the major cities and towns of the State.

The Internet is increasingly an important resource of medical information for the medical professionals. Substantial high-quality information exists within numerous government, university, professional association and private sites. There are several “portal” websites which attempt to provide

a wide variety of information, including up-to-date news coverage, online lectures, teaching manuals, full text journals, textbooks, CMEs, virtual case conferences, practice guidelines and medical search capabilities. It has made significant impact in research, training and patient care.

The internet facility is available at Sher-i-Kashmir Institute of Medical Sciences (SKIMS) Srinagar, Government Medical College (GMC) and Government Dental College (GDC) at Jammu as well as Kashmir and Acharya Shri Chandra College of Medical Sciences (ASCOMS), Jammu.

Literature review

The literature available on the use of internet reveals that the internet is widely used by the medical professionals all over the world for different purposes.

Scheiber, Schneemann and Wischer (1998) conducted a survey in Public Health research and practice in Germany about the experience of professionals with online databases and demands for specific information resources was conducted in order to analyze the extent of problems experienced with information retrieval. The results reveal that some of the respondents had access to the Internet, only very few of them are using e-mail or the WWW to find and exchange information. There is a serious demand for information filtering and information supply in Public Health in Germany. Some of the "missed" databases do already exist, but are obviously not well known or accessible, thus indicating a need of promoting information resources. **Aasland (2000)** surveyed Norwegian physicians' Internet activities and their perceived coping with medical information through questionnaire. The results revealed that 72% of all physicians had access to the Internet in 1999, up from 38% in 1997. One out of two physicians uses the Internet for professional purposes. Web-based search is the dominant activity and Internet use is closely related to other ways of information-seeking (reading and attending professional meetings). A total of 70% of the respondents reported ability to obtain sufficient information for keeping updated in their daily work. "Internet-active"-physicians reported a higher rate of such ability than physicians without Internet access (74% vs 65%). A total of 18% of all physicians found the Internet to be of "great" or "very great" importance for professional updating while 46% found it of "some value" and 37% found it "useless." **Casebeer, Bennett, Kristofco, Carillo and Centor (2002)** surveyed the U.S. office-based physicians' internet medical information-seeking and on-line continuing education use patterns. The results of the study revealed that nearly all physicians have access to the Internet, know how to use it and access it for medical information. The Internet's professional importance to physicians was in the area of professional development and information-seeking to provide better care rather than for patient-physician communication. The credibility of the source, quick and 24 - hour access to information and ease of searching were important to physicians. The findings identified the barriers to use internet which included too much information to scan and too little specific information to respond to a defined question. **Cullen (2002)** made a survey to determine the extent of use of the Internet for clinical information among family practitioners in New Zealand. The results of the survey revealed that 48.6% practitioners used the Internet to look for clinical information. Gender and age were more significant in determining use than practice type or location. Information was primarily sought on rare diseases, updates on common diseases, diagnosis and information for patients. MEDLINE was the most frequently accessed source. **Kerse, Arroll, Lloyd, Young, Ward (2001)** reports that a greater proportion of General Practitioners and Family Physicians at New Zealand have access to the Internet

and the majority uses it for patient care. **Veness, Richard-Bell and Ward (2003)** also reports that 85% of Australian and New Zealand radiation oncologist and registrars use Internet in day-to-day management of patients. **Morris-Docker, Tod, Harrison, Wolstenholme and Black (2004)** made a survey to identify nurses' use of the Internet in clinical ward settings in four acute wards in a large UK teaching hospital. The results revealed that majority used the networked computers and some frequent users emerged. Nurses were able to use the technology during quiet periods throughout the day and night. Patterns of use were mixed, with nurses accessing the Internet for a combination of work and non-work-related activities. They integrated use of Internet technology into their working days in ways that appropriately fitted patterns of clinical activity. Factors relating to the organization, workplace culture and training were identified influencing Internet use. **Zehnder, Beutler, Bruppacher, Ehrenhofer and Hersberger (2004)** conducted a survey of community pharmacists from the German-speaking part of Switzerland. The results revealed that the internet as a source of drug information was of minor importance, even though 88% of the pharmacists have internet access. **Parekh, Nazarian and Lim (2004)** characterized the use and acceptance of the Internet and information technology among resident physicians in a large academic medical center and assessed concerns regarding privacy, security, and credibility of information on the Internet. The results revealed that the majority of resident physicians have adopted the tools of information technology. 98% used the Internet and 96% use e-mail. Two-thirds of the respondents used the Internet for healthcare-related purposes and a similar percentage thought that the Internet has affected their practice of medicine positively. **De Leo, LeRouge, Ceriani and Niederman (2006)** studied physicians' use of the Internet to gather medical information through an online questionnaire in Missouri. The vast majority (92%) of physicians indicated they access a targeted site rather than utilize a search engine (such as Google) to gather medical information. 96.7 % of physicians using a targeted site indicated they considered their on-line information source as being accurate. Of the targeted site types, 123 (32.3%) physicians indicated they use edited/secondary data sources as their primary medical information data retrieving. Specifically, 10.8% use Uptodate, 8.4% use Medscape, 5.5% use Webmd, 4.7% use MDconsult and 2.9% use Emedicine. More than one quarter (27.3%) 104, of the physicians surveyed indicated their on-site preferred source of medical information was research databases, which provide access to medical journal publications. Specifically, 19.7% use Pubmed, 3.9% use Ovid, and 3.7% use Medline as their primary web source for on-line medical information gathering. **Bennett, Casebeer, Kristofco and Strasser (2004)** reports that the credibility of the source, relevance, unlimited access, speed and ease of use are most important to physicians to seek clinical information. They most frequently use Internet in accessing the latest research on specific topics, new information in a disease area, and information related to a specific patient problem. **Bellman, Havens, Bertolucci and Streeter (2005)** also reports that majority of physicians (89%) use online resources frequently to enhance care, inform clinical decisions, update knowledge, educate patients, or for combination of these purposes. These findings are evidence of how ubiquitous the Internet is in developing countries. The professionals who have access and possess required skills obtain relevant information from the Internet. They use various search engines particularly Google and Yahoo, for medical information and are familiar with Internet keyword searching. **Dolan (2010)** reports that 86% of U.S. physicians use the Internet to gather health, medical or prescription drug information. Of physicians who use the Internet for health information, 92% accessed it from their office, while 21% did so with a patient in the examination

room. Meanwhile, 88% looked for health information online from home, while 59% doing so from a mobile device. **Cooper, Gelb, Rim, Hawkins, Rodriguez and Polonec (2012)** made a survey of US Physicians who use social media and other Internet-based communication technologies. Reports reveal that technology use during 6 months ranged from 80.6% using a portable device to access the internet to 12.9% writing a blog. The most consistent predictors of use were being male, being younger, and having teaching hospital privileges.

Objectives

The main objectives set forth for the study are:

- To assess the use of internet by medical professionals.
- To gauge the awareness of users about the online medical databases/resources and to assess the extent of their utility.

Scope

The study attempts to identify the use of internet by medical professionals working in J&K at primary, secondary and tertiary health care institutions, which encompass 3567 medical colleges/associations/health institutions in public and 51 Registered Nursing Homes besides several solo practitioners in private sectors assembled under the following headings:

1. Sher-i-Kashmir Institute of Medical Sciences (SKIMS) and associated Medical College and Hospital, Srinagar.
2. Government Medical College (GMC) and associated hospitals/ Government Dental College (GDC) in Kashmir region.
3. Government Medical College (GMC) and associated hospitals/ Government Dental College (GDC) in Jammu region.
4. District, Sub-district Hospitals, Dispensaries and Health Centres in the State.
5. Ayurvedic cum Unani Hospitals and Dispensaries in the State.
6. Acharya Shri Chandra College of Medical Sciences (ASCOMS), Jammu, and
7. Private Nursing Homes/ Solo practitioners in the State.

SKIMS & associated Medical College, and ASCOMS are tertiary health care institutions. GMCs/ associated hospitals & GDCs are secondary health care institutions while District/ Sub-district hospitals/ dispensaries/ health centres, Ayurvedic cum Unani hospitals/ dispensaries and Private nursing homes are primary health care institutions.

Methodology

A stratified random sample of 226 physicians and surgeons, 143 Nursing Professionals, 155 Pharmacy Professionals, 116 Laboratory Technologists/Technicians and 53 Other Allied Medical Professionals of major medical fields and sub-fields were drawn using the sample size determination formula. The practitioners on the basis of their work roles were first divided into different strata. The strata were selected from the different working environments as mentioned in the scope.

Questionnaires were distributed and collected personally among professionals. The survey was previously piloted among several groups of medical professionals.

Findings and Discussion

1.1 Usefulness of internet and web

Majority of the physicians/surgeons (58%) use Internet to seek medical information while as among paramedical professionals, 34% of LTTs, OAMPs (26%), NPs (15%) and PPs (3%) show positive attitude regarding the application of Internet and web resources. The most frequent use is in accessing solutions to diagnostic problems, resolution of queries, laboratory/molecular diagnosis, drug information, information for researchers, health statistics and medical education.

Majority of the professionals (79-100%) agree that by using Internet, retrieval of current and up-to-date information is quick and easy while as 77-100% report that they retrieve relevant documents and access wide range of global information. (Table 1.1)

Table 1.1: Usefulness of Internet and WWW

Professionals	Response (N)	Usefulness				
		NIU (n)	RIQE	CUIR	DRR	AWRGI
Physicians/ surgeons	226	132 (58.4)	132 (100.0)	132 (100.0)	116 (87.9)	132 (100.0)
Nursing	143	22 (15.4)	22 (100.0)	22 (100.0)	17 (77.3)	22 (100.0)
Pharmacy	155	5 (3.2)	5 (100.0)	5 (100.0)	5 (100.0)	5 (100.0)
LT/T	116	39 (33.6)	38 (97.4)	39 (100.0)	35 (89.7)	38 (97.4)
Others	53	14 (26.4)	14 (100.0)	11 (78.6)	11 (78.6)	14 (100.0)

*Figures in parenthesis indicate percentage

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No. of internet users

Retrieval of information is quick and easy

Current and up-to-date information is retrieved

Documents retrieved are relevant

Access to wide range of global information

Lab Technologists/ Technicians

NIU

RIQE

CUIR

DRR

AWRGI

LT/T

1.2 Use of Web Resources by Professionals (Age-Wise Distribution)

Among 132 (58%) physicians/surgeons using web resources, 13 (10%) are less than 30 years, 52 (39%) are between 31-40, 48 (36%) are between 41-50 and 19 (14%) are over 50. It shows that physicians/surgeons in the age group of 31-50 make more use of Internet as compared to those whose age group falls below 30 or over 50.

Among 22 (15%) NPs using web resources, 2 (9%) are under 30, 12 (54.5%) are between 31-40, 5 (23%) are between 41-50 and 3 (14%) are over 50. It shows that mostly younger NPs in the age group of 31- 40 use Internet.

Among 5 (3%) PPs using web resources, 3 (60%) are between 31-40 and 2 (40%) are between 41-50. It shows that majority of PPs using Internet for clinical information are in the age group of 31-40.

Among 39 (34%) LTTs using web resources, 7 (18%) are less than 30, 11 (28%) are between 31-40, 12 (31%) are between 41-50 and 9 (23%) are over 50. Among 14 (26%) OAMPs using web resources, 3 (21%) are under 30, 7 (50%) are between 31-40 and 4 (28.5%) are between 41-50. However, the professionals over 50 years do not have preference for these resources. About 71-100% of OAMPs of less than 30-50 years avail the facility of web resources. (Fig. 1)

It is concluded that older professionals especially over 50 years make less use of web resources as compared to their younger counterparts. The reason may be young professionals having been raised in a computer-prevalent society, may be more likely to embrace technology and consistently used computers during their education and training so they are more likely to search the medical literature online, whereas many older professionals happen to be unfamiliar with searching online databases and tend to turn to colleagues and textbooks for information.

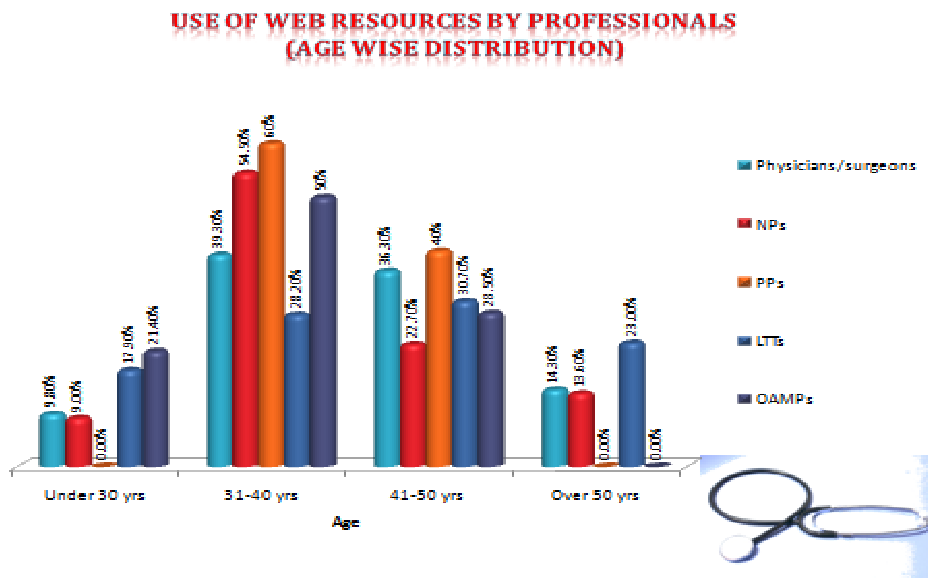


Fig 1

1.3 Use of Web Resources by Professionals (Gender-Wise Distribution)

Like age, gender of a person also affects the preference of use of various information sources.

Among 132 (58%) physicians/surgeons using web resources, 108 (82%) are males and 24 (18%) are females. It shows that male practitioners make use of more web resources than their female counterparts.

Among 22 (15%) NPs using web resources, all are females. Of 5 (3%) PPs using web resources, 4 (80%) are males and 1 (20%) is female.

Among 39 (34%) LTTs using web resources, 27 (69%) are males and 12 (31%) are females.

Of 14 (26%) OAMPs using web resources, 11 (78.5%) are males and 3 (21%) are females. (Fig. 2)

It is thus inferred that male professionals make more use of web resources as compared to their female counterparts. The reason may be male practitioners have more computer skills and interest in using web resources. Female professionals may have more family liabilities and lesser time to learn new IT skills.

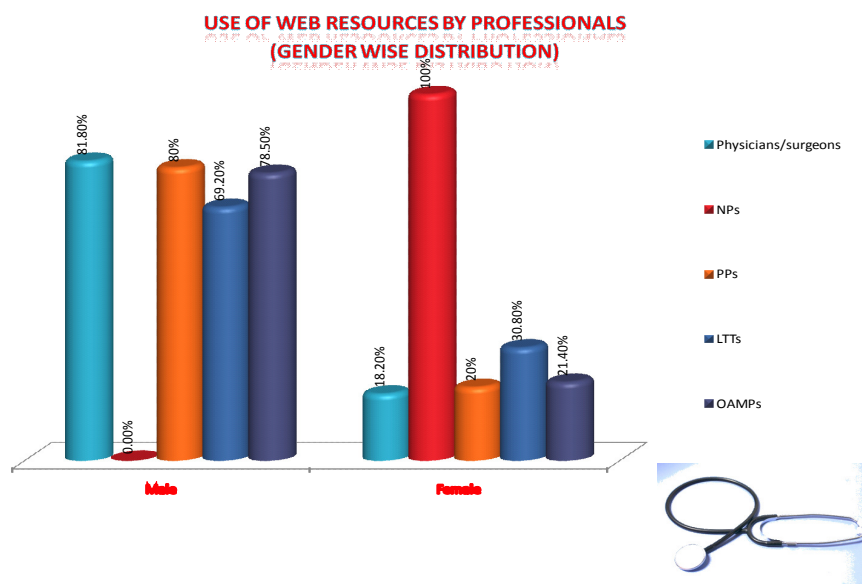


Fig 2

1.4 Online Access of Resources & Database

There are wide variations between work settings to provide opportunities to the medical professionals to access online resources and databases.

Of 132 (58%) physicians/surgeons browsing Internet, about 19% access web resources and databases in the office or lab of the institution. However, 17% retrieve them at home using PC and laptop while as 16% at home browse via PC and 9% by laptop. About 15% of the professionals perform searches at home as well as at work place while as 14% retrieve them in the library.

Only 10% of the physicians/surgeons log on the web resources at other places e.g., cyber cafes. It shows that most of the professional's Internet use takes place at home. Physicians/surgeons in J&K

make less use of web resources at home as well as at practice sites. The professionals working in academic settings e.g., SKIMS, GMCs/ associated hospitals/GDCs have access to medical libraries and extensive computer networks, and retrieve web resources/databases in the office, lab or library. However, the professionals working in primary, district, sub-district hospitals and dispensaries etc retrieve e-resources mostly at home. The reason may be non availability of Internet facilities at primary and district levels.

Among 22 (15%) NPs searching Internet, 45.5% access the web resources and databases in the office or lab while as 18% log on them in the library and 14% retrieve at home using PC. About 9% browse them at home via PC and laptop while as 9% retrieves at home as well as at work sites. It is inferred that in spite of good computer service availability at home and at work, clinical nurses make less use of online resources. The results thus show that NPs in J& K have less computer availability both at home and at work place and hence they browse web resources less.

Among 5 (3%) PPs using Internet, about 60% search the web resources and databases at home through PC while as 40% retrieve them in the library.

Of 39 (34%) LTTs browsing Internet, 31% retrieve the web resources and database at home by means of PC while as 23% search them in the library and 20.5% access them in the office or lab. However, 8% access them at home using laptop and at any other places like cyber cafes, cell phones (anywhere) etc. Only 5% retrieve e-resources at home as well as at professional location.

Among 14 (26%) OAMPs using Internet, 29% search the online information and database in the office or lab while as 21% access them at home by PC. About 21% retrieve them both at home and at work place, while as 14% access them in the library and at any other places e.g., at cyber cafes etc. (Table 1.2)

It is thus inferred that most of the medical professionals access the online databases and other web resources mostly at home while less than half search them in the library and at office or lab. The reason may be non availability of Internet facilities in hospitals and libraries or insufficient time for electronic database searching.

Table 1.2: Online Access of Resources and Databases (Work Environment)

Professionals	NIU (n)	RFL	OLL	Home			BHWP	AO
				HOPCAH	HOLH	BPCL		
p/S	132	18	25	21	12	23	20	13
		(13.6)	(18.9)	(15.9)	(9.1)	(17.4)	(15.2)	(9.8)
Nursing	22	10	4	3	1	2	2	-
		(45.5)	(18.2)	(13.6)	(4.5)	(9.1)	(9.1)	-
Pharmacy	5	2	-	3	-	-	-	-
		(40)	-	(60)	-	-	-	-

Lab LT/T		9 (23)	8 (20.5)	12 (30.8)	3 (7.7)	2 (5.1)	2 (5.1)	3 (7.7)
Others	14	2	4	3	-	-	3	2
		(14.3)	(28.6)	(21.4)	-	-	(21.4)	(14.3)

*Figures in parenthesis indicate percentage

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Lab Technologists/ Technicians

No. of Internet users

Retrieved from library

Office or Lab

Have only PC available at home

Have only Laptop at home

Both PC and laptop

Both at home and at work place

Any other

Physicians/ surgeon

LT/T

NIU

RFL

OOL

HOPCAH

HOLH

BPCL

BHWP

AO

PS

1.5 Online Database Searching Frequency

With the increase in the pace of medical research and the introduction of computers and the Internet, many new electronic information resources and databases are now available.

Physicians/surgeons (34%) and (22%) access MEDLINE weekly and daily respectively, while as (17%) access it on monthly basis.

Further, majority of the physicians/surgeons (64-96%) do not use other online databases. However, the professionals (7-23.5%) use the MD consult, Current Contents, International Pharmaceutical Abstracts, Evidence Based Medicine, EMBASE and IndMED weekly, while as 8-20.5% use them monthly.

The NPs (9-18%) use the MEDLINE, MD Consult, Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Evidence Based Medicine weekly. However, about 36% of NPs use CINAHL monthly while as only 4.5% uses the rest of databases with same frequency.

The PPs (20%) use MEDLINE daily. About 40-80% use MD Consult, Web of Science, International Pharmaceutical Abstracts and Evidence Based Medicine weekly while as 20-40% use CINAHL, Psyc INFO and IndMED monthly.

The LTTs (5-23%) use MEDLINE daily. About 3-14% use MEDLINE, Current Contents and Web of Science weekly while as 3-8% of professionals use MEDLINE, MD Consult, Current Contents, EMBASE and IndMED monthly.

The OAMPs use EMBASE weekly while as 7-29% use MEDLINE, Current Contents, Web of Science, Evidence Based Medicine and EMBASE monthly. (Table 1.3)

It is concluded that the medical professionals make less use of online databases. The major barriers that they face in searching the online databases are time, access, training, and the user interface. Patient visits are short in duration and require rapidly available information. The professionals may not have immediate access to online databases in the hospitals, health centers, nursing homes, private-

practice office or clinics etc. Additionally, training of professionals has traditionally been based on searching print sources. Therefore, these professionals are often unfamiliar with the content of the online databases or the navigation methods necessary to conduct a search. Efforts are required to improve the user-friendliness of the search interface which will improve the utility of the databases for these professionals.

Table 1.3: Online Database Searching Frequency

CC	CINAHL	MD Consult	MEDLINE	Database	Daily	Weekly	Monthly	Never						
					Physicians/surgeons (n=132)	Nursing professionals (n=22)	Pharmacy (n=5)	Laboratory technicians / technologists (n=39)	Others (n=14)	Physicians/surgeons (n=132)	Nursing professionals (n=22)	Pharmacy (n=5)	Laboratory technicians / technologists (n=39)	Others (n=14)
--	--	4 (3.0)	29 (22.0)	Physicians/surgeons (n=132)										
--	--	--	--	Nursing professionals (n=22)										
--	--	--	1(20)	Pharmacy (n=5)										
--	--	2 (5.1)	9 (23.1)	Laboratory technicians / technologists (n=39)										
--	--	--	--	Others (n=14)										
14 (10.6)	1 (0.8)	25 (18.9)	45 (34.1)	Physicians/surgeons (n=132)										
--	4 (18.2)	2 (9.1)	3 (13.6)	Nursing professionals (n=22)										
--	--	2 (40.0)	--	Pharmacy (n=5)										
3 (7.7)	--	--	5 (13)	Laboratory technicians / technologists (n=39)										
--	--	--	--	Others (n=14)										
27 (20.5)	--	12 (9.1)	22 (16.7)	Physicians/surgeons (n=132)										
--	8 (36.4)	--	1 (4.5)	Nursing professionals (n=22)										
--	1 (20)	--	--	Pharmacy (n=5)										
1 (2.6)	--	2 (5.1)	3 (7.7)	Laboratory technicians / technologists (n=39)										
2 (14)	--	--	4 (29)	Others (n=14)										
86 (65.2)	118 (89.4)	84 (63.6)	22 (16.7)	Physicians/surgeons (n=132)										
20 (90.9)	10 (45.5)	20 (90.9)	18 (81.8)	Nursing professionals (n=22)										
5 (100.0)	3 (60.0)	3 (60.0)	4 (80.0)	Pharmacy (n=5)										
33 (84.6)	39 (100)	35 (89.7)	20 (51.3)	Laboratory technicians / technologists (n=39)										
11 (79)	14 (100)	14 (100)	10 (71)	Others (n=14)										

Any other	WHOSIS	IndMED	EMBASE	EBM	IPA	WOS	Psyc INFO
-	--	1 (0.8)	1 (0.8)	3 (2.3)	2 (1.5)	--	3 (2.3)
-	--	--	--	--	--	--	--
-	--	--	--	--	--	--	--
-	--	--	--	1 (2.6)	1 (2.6)	--	--
-	--	9 (6.8)	17 (12.9)	31 (23.5)	12 (9.1)	9 (6.8)	6 (4.5)
-	--	--	--	2 (9.1)	--	--	--
-	--	--	--	2 (40.0)	4 (80.0)	2 (40.0)	--
-	--	--	1 (2.6)	--	1 (2.6)	1 (2.6)	--
-	--	--	--	1 (7.1)	--	--	--
-	--	--	10 (7.6)	18 (13.6)	11 (8.3)	12 (9.1)	10 (7.6)
-	--	--	2 (9.1)	1 (4.5)	--	1 (4.5)	1 (4.5)
-	--	1 (20.0)	--	--	--	--	2 (40)
-	--	1 (2.6)	1 (2.6)	--	--	--	--
-	--	--	1 (7.1)	1 (7.1)	--	1 (7.1)	--
132 (96.2)	127	113 (85.6)	91 (68.9)	63 (47.7)	95 (72.0)	106 (80.3)	106 (80.3)
22 (100)	22 (100)	22 (100.0)	20 (90.9)	19 (86.4)	21 (95.5)	19 (86.4)	21 (95.5)
5 (100)	54 (100)	4 (80.0)	5 (100.0)	3 (60.0)	1 (20.0)	3 (60.0)	3 (60.0)
39 (100)	37 (94.8)	33 (84.6)	34 (87.2)	38 (97.4)	36 (92.3)	34 (87.2)	38 (97.4)
14 (100)	14 (100)	14 (100)	13 (93)	10 (71)	14 (100)	13 (93)	11 (79)

*Figures in parenthesis indicate percentage

(100)

Note: Cumulative Index to Nursing and Allied Health Literature CINAHL

Web of science WOS

Current Contents CC

International Pharmaceutical Abstracts IPA

Evidence Based Medicine IPA

1.6 Use of Wikis, Blogs/Photo Blogs, Facebook and Podcasts

Medical professionals have a lot of social connections. There is a total lack of time to manage these connections. A practitioner has to manage his/her life in several circles during the day (family, patients, hospitals, professional connections). There is consistent flow of data and knowledge through the day from family, patients and Internet. Web-based tools, namely wikis, blogs/photoblogs, facebook and podcasts/vodcasts can help the medical community to share information with others.

The wikis, blogs/photoblogs, facebook and podcasts are used by only 15% and 8.6% of the physicians/surgeons and LTTs respectively. However, NPs, PPs and OAMPs do not report their use for exchange of information. (Table 1.4)

It is thus inferred that medical professionals are not aware of the benefits of wikis, blogs/photoblogs, facebook and podcasts.

Table 1.4: Use of Wikis, Blogs/ Photoblogs and Podcasts

Types of professionals	Response (N)	Yes	No
Physicians/surgeons	226	34 (15.0)	192 (85.0)
Nursing	143	- -	143 (100.0)
Pharmacy	155	- -	155 (100.0)
Lab Technologists/ Technician	116	10 (8.6)	106 (91.4)
Others	32	- -	32 (100.0)

*Figures in parenthesis indicate percentage

1.7 Suggestions for improving access to information

Majority of the physicians/surgeons (83%) suggest availability of Internet facilities at work place to save their time while as 65% of the professionals propose organization of user awareness programmes so as to know about available information sources in print and electronic formats. Most practitioners believe that they need to upgrade their computer skills. Medical databases and Internet searching skills are identified as those in greatest need of improvement for the purposes of improving practice effectiveness. 29% suggest availability of free of cost full text e-books/e-journals. However, only 20% suggest convenience of better Internet connectivity.

About 77% of the NPs propose for user awareness or training programmes especially regarding ICT skills. However, 49% recommend availability of Internet facilities at work place. However, only 5% of the professionals propose accessibility of free full text e-books/e-journals.

The PPs (88%) suggest conduct of user awareness programs while as 71% suggest availability of Internet facilities at work place. However, only 2% of the PPs suggest availability of free full text e-books/e-journals.

Majority of the LTTs (80%) suggest organizing of user awareness programmes while as 68% suggest availability of Internet facilities at work place. 16% suggest availability of free full text e-books/e-journals. However, only 2% suggest availability of better Internet connectivity.

Majority of the OAMPs (98%) suggest availability of Internet facilities at work place while as 81% suggest user awareness programmes. About 13% suggest accessibility of free full text e-books/e-journals. Only 2% suggest availability of better Internet connectivity.

It is thus inferred that medical professionals want conduct of user awareness programmes, Internet searching skills and availability of Internet facilities at work place.

Table 1.5: Suggestions to Improve Access to Information

Professionals	Response (N)	Suggestions for improving information access			
		Internet facility at work place	Better internet connectivity	Free full text e-books and e-journals	User awareness programmes
Physicians/surgeons	226	187	22	66	146
		(82.7)	(9.7)	(29.2)	(64.6)
Nursing	143	70	-	7	110
		(49.0)	-	(4.9)	(76.9)
Pharmacy	155	110	-	2	137
		(71.0)	-	(1.3)	(88.4)
Lab Technologists/ Technicians	116	79	2	19	93
		(68.1)	(1.7)	(16.4)	(80.2)
Others	53	52 (98.1)	1 (1.9)	7 (13.2)	43 (81.1)

*Figures in parenthesis indicate percentage

Conclusion

The findings of the study lead us to the conclusion the physicians/surgeons use internet and utilize its services and sources more than paramedical professionals. The professionals are not well aware about the medical databases. Therefore, the need is to aware all the medicos about the information and communication technologies (ICT) and to train them in using these technologies to bridge the gap.

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