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Internet-based Information Usage Pattern of Paediatricians: A Survey of Southern Punjab, Pakistan

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ABSTRACT

This study reports the results of a survey of 40 paediatricians working in teaching hospitals in Southern Punjab. The survey was undertaken to ascertain how paediatricians keep abreast with current development in their field; their purpose for using internet-based resources, databases and search engines being used more frequently and difficulties being faced. This study used a structured questionnaire which was distributed among the paediatricians in four public teaching hospitals by convenience sampling. The findings show that majority of the respondents use internet for obtaining medical information, literature search and online clinical guidelines through using a personal computer at home and personal digital assistant. Most of the respondents start their search from search engines i.e. Google or yahoo to search Medline/ PublMed and E-medicine & Medscape databases for their required information. Inadequate number of computers in libraries was reported as a major barrier.

Key words: Paediatricians**,** Internet-based resources, medical databases, Search engines, medical hospitals in South Punjab, Pakistan

INTRODUCTION

Quality resources are available on web and these resources are increasing rapidly. Many paediatricians believe that utilizing these resources and using information technology can help in quality patient care (Prendiville, 2009). This situation has forced the paediatricians to seek online clinical information and provide the better patients care and keep abreast with the current development in the field.

Since 1996 when evidence based medicine was defined, paediatricians increasingly turn to web based resources for clinical evidence and they want to use evidence base medicine. Pediatricians' familiarity with online, web based resources and computer networks are necessary to assess online quality resources i.e bibliographic data bases and paediatric journals (Riordan, 2004). Medical libraries are considered as a good place to access the network resources (Spooner, 1995). Wireless network has improved the information access for paediatricians, a study reported that all paediatricians must shift their information seeking behavior towards computer resources (D'Alessandro, 2004). Whether or not information needs are pursued, depends on the individual's ability to identify their need and then to express it in terms that are searchable by them or a third party.

Objectives of the Study

The purpose of this study was to investigate the internet-based information usage pattern of paediatricians working in hospitals in South Punjab, Pakistan.

Research Methodology

The study in hand was conducted in the four public teaching hospitals of Southern Punjab as these hospitals met the given criteria. The criteria for inclusion were that paediatricians should be working as a regular employee of the public sector teaching hospitals in southern Punjab; house officers were not included in the study. These hospitals include; The Children's Hospital and the Institute of Child Health Multan (CH&ICH), Nishtar Medical College and Hospital (NMCH), Multan, Bahawalpur Victoria Hospital (BVH) and Sheik Zayed Medical College and Hospital (SZMCH) Rahim Yar Khan; each hospital is having professional librarian and catering for a

wide range of services. Population of the study was paediatricians (both genders); each hospital having equal numbers (n=10) of respondents.

Survey research method was applied in this study. Structured questionnaire was distributed by convenience sampling to paediatricians of participated public teaching hospitals. The population of this study included 40 Medical Officer, Women Medical Officer, Post Graduate Registrar, Senior Registrar and consultant paediatricians who responded to the questionnaire. The questionnaire was discussed with librarians of all participated hospitals and two paediatricians and recommended suggestions were incorporated. In demographic information of the questionnaire; only position, gender and hospital relating questions were asked but subjects were asked to remain anonymous. In first part of the questionnaire, respondents were asked questions that how they keep abreast with current development in the field, purposes for using internet-based resources usage of databases and search engines, their preferred format of information and convenient places for internet- based searching.

Literature Review

A study by Judd & Kennedy (2010) showed that undergraduate biomedical students mostly consult internet users for information seeking. They mostly use different information tools for seeking information i.e. Google and Wikipedia to support their learning activities. Hughesa,Joshib&Warehama (2009) concluded form their study that the use of Web 2.0 technologies by medical students was very helpful to share their information and cross check information. Shanahan (2008) in a study indicated that undergraduate medical students use very short range of information resources to meet their learning and information needs. They use primary search methods as like search engines, to meet their information needs and 70% medical

student's often use database to search their required information. Gabridge, Gaskell & Stout (2008) stated that majority of the students look forward to find their required information online.

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McCann, Schneiderman & Hinton (2010) explored the internet-based information usage pattern of Dental students and identified the student's preferences of using electronic technologies for learning and teaching. It showed that dental school's students preferred web based class over traditional lecture based class for easy to use, easy to accessibility and for repeated practices.

Ge (2010) explored the information needs and seeking behavior of academic researchers in digital age. It showed that mostly students used electronic resource for information collection and research. Researcher stated in his research that majority of the students relay on electronic sources as compare to print sources to meet their research needs. A study by Mostaghimi, et al. (2010) showed in this study that majority of the respondents use Internet for seeking health information. They found that mostly physicians in Boston, posted their personal and professional information online. Patients seek the information about their required physicians on internet.

Curtis, Weller &Hurd (1997) studied the information seeking behavior of health science faculty and described that the use of internet increasing day by day rapidly. It found that faculty members of health sciences mostly use the internet for e-mails or subscribed to electronic discussion groups, to exchange their knowledge and information with their colleagues

Rajab & Baqain (2005) discussed the "Use of Information and Communication Technology among Dental Students at the University of Jordan" it showed that use of computers was high

among male students as compared to female. Respondents indicated that electronic learning was helpful for students to work speedily and on time.

Findings and Discussion

Frequency distribution of the Gender

Of these 40 paediatricians15 (37.5%) were female and 25 (62.5%) male who participated in the survey.

Current Development in the Field

Most of the respondents were abreast with the current development frequently with home personal computer using internet for medical information and seeking answers to clinical questions with mean values 3.28, 3.10 and 2.55 respectively. For the same purpose some of them were using the services of medical librarian to seeking on line information. (Table 1)

How to keep abreast with current development in the field (Table 1)

Options	Mean	Median	Std. Deviation
Owning Home Personal Computer	3.28	3.00	.847
Using a Personal Digital Assistant	2.55	3.00	1.319
Using Internet for Medical Information	3.10	3.00	.545
Using the Internet to Seek Answer to Clinical Questions	2.53	3.00	.960
Using Services of Medical Librarian to Seek Online Information	2.23	2.00	1.097
Use the Internet as their First Port of Call	2.18	2.00	1.035
Use the Internet as their first Port of Call in Seeking	2.28	2.00	1.240

Note:- Always=4 Frequently=3 , Sometimes=2, Seldom=1, Never=0
Maximum = 4 and Minimum = 0

Use of Internet-Based Resources

Most of the respondents were using web resources for literature search and medical guidelines followed by medical journal and images and reading newspaper with mean scores 2.68, 2.55, 2.20 and 2.10 each respectively. Table 2 is for further details.

Use of Internet-Based Resources (Table 2)

Options	Mean	Median	Std. Deviation
For Literature Searches	2.68	3.00	.797
Online Clinical Guidelines	2.55	3.00	.904
Online Medical Journal	2.20	2.00	1.114
Medical Images or Clinical Videos	2.10	2.00	1.057
Online Medical Textbooks	1.68	2.00	1.228
Renowned Children's Hospital Website	1.68	2.00	.917
Online Discussion with Colleague	1.90	2.00	.982
Consulting Experts in Subject Field	2.00	2.00	1.086
Professional Conference, Seminars, Workshops	1.60	1.50	1.172
Email Alerts	1.85	2.00	1.210
Reading E Newspaper	2.10	2.00	1.236
Radio, TV	1.88	2.00	1.265

Note:- Always=4 Frequently=3 , Sometimes=2, Seldom=1, Never=0
Maximum = 4 and Minimum = 0

Databases and Search Engine

Most of the respondents were using google and yahoo search engines to search Medline/ PublMed and E-medicine & Medscape databases for their required information. A slight number of doctors were also using HEC data bases for their information needs. (Table 3)

Databases and Search Engine (Table 3)

Options	Mean	Median	Std. Deviation	Variance
HEC Databases	1.40	2.00	.900	.810
E-medicine, Medscape.com	2.68	3.00	1.141	1.302

Medline/PubMed	2.90	3.00	1.033	1.067
Search Engine (Google/Yahoo)	3.50	4.00	.987	.974

Note:- Always=4 Frequently=3 , Sometimes=2, Seldom=1, Never=0
Maximum = 4 and Minimum = 0

Preferred Format of Information

Preferred format was Print being mentioned by majority of the respondents followed by electronic and audiovisual formats respectively. (Table 4)

Preferred Format of Information (Table 4)

Options	Mean	Median	Std. Deviation	Variance
Print	3.35	3.00	.700	.490
Electronic	2.78	3.00	.733	.538
Audio Visual	2.43	3.00	1.035	1.071

Note: - Always=4 Frequently=3 , Sometimes=2, Seldom=1, Never=0
Maximum = 4 and Minimum = 0

Difficulties in using Internet-Based Resources

Most of the respondents were facing problems due inadequate computers in library followed by formulation of search query, overloaded information, low internet speed, inadequate knowledge of using electronic databases and books respectively with mean values, 3.18, 2.75, 2.55, 2.50, 2.28 and 2.25respectively. (Table 5)

Difficulties in using Internet-Based Resources (Table 5)

Options	Mean	Median	Std. Deviation	Variance
Difficulty in Finding Relevant Information	2.30	2.00	.564	.318
Inadequate Knowledge About Advance Searching	2.03	2.00	1.000	.999
Inadequate Computers in Library	3.18	3.00	.903	.815
Overload of Information of Internet	2.50	3.00	1.086	1.179

Formulating Search Query	2.75	3.00	.707	.500
Inadequate Knowledge to Use Electronic Books	2.28	2.00	.987	.974
Using Electronic Databases	2.35	2.00	.893	.797
Insufficient Information Retrieval Skills	2.25	2.00	.840	.705
Insufficient Time for Searching	2.25	2.00	.981	.962
Related Information is not Available	1.68	2.00	.997	.994
Low Internet Speed	2.55	2.00	.959	.921

Note: - Always=4 Frequently=3 , Sometimes=2, Seldom=1, Never=0
Maximum = 4 and Minimum = 0

Convenient Places for Internet-Based Searching

Home was mentioned by a majority of 52.5 % respondents to be the convenient place for web searching followed by hospital library. (Table 6)

Convenient Places for Internet-Based Searching (Table 6)

Options	Frequency	Valid Percent
Hospital library	13	32.5
Home	21	52.5
Hospital	3	7.5
Clinic	3	7.5
Total	40	100.0

Conclusion

This study found that majority of the respondents frequently use Internet and internet-based resources for medical literature search. It was also reported in another study by Younger (2010) that basic reason for seeking the information online is for patient care and continued professional development. Child Specialist is significance to use information technology for the better patient care and their continued medical education (Prendiville, 2009). Majority of Italian paediatrician

use internet mainly for bibliographic and guideline searches whereas 94.6% paediatricians use it for clinical decision making (Romano, 2012). Children doctors use professional organization websites and commercial medical portal most frequently as a source of guideline and other information (Kim, 2005).

During their search for information they also acquire the services of medical librarian. Most of them are using google and yahoo search engines for seeking the required information. They were frequently using e-medicine, Medscape, Pubmed and Medline databases for their clinical information needs. A study at Canterbury District Health Board Organization on the information seeking behavior of health professional reported that 37% health professional rarely/never consult Google followed by 58% who rarely/ never consult Ovid MEDLINE or PubMed (Hider, 2009). They mentioned home to be the most preferred place for web searching. They also rated print format the most preferred one while getting their information in. Inadequate computers in the libraries and Internet were the common problems they face while searching the web or accessing online databases.

The study recommends the following suggestions;

- Information literacy and digital literacy programmes should be organized for medical libraries users for optimum utilization of information resources.
- Workshop and formal training on computer usage and web based searching should be conducted, these workshops should particularly be focused on the usage of web based resources and searching techniques to enable paediatricians to use them effectively.
- Computer lab and Internet facility should be provided in hospital libraries and WIFI Internet should be made available in doctor's offices.

- Librarian should play their role actively in order to update paediatricians with new development in the field by providing them current awareness service (CAS) and selective dissemination information (SDI) and also extend their help in order to formulate the search queries of paediatricians in order to save their time.
- Abstracting and indexing services should be offered to them for saving their time.
- Access to Higher Education Commission (HEC) digital library should be made available in libraries.
- Medical libraries need to examine their policies and practices to ensure that they facilitate doctors' community in accessing and utilizing internet-based information fully.

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