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Usage of Library for Accessing Clinical Information by the Students of Health Science Universities in Karnataka

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ABSTRACT

Medicine aims at promoting 'Health for all' and to produce 'Physicians of first contact' which depends on quality medical education and the outcome of which is to deliver quality of health care. Health Science University libraries took various enhancements with the use of innovative information delivery methods while providing clinical information resources and services. The study aims to investigate the attitude towards the use of library for accessing clinical information needs by the medical students from 10 Health Science Universities/Deemed Universities located across Karnataka, Survey method was adopted and questionnaires method was used as a data collection tool. A total of 1000 questionnaires were distributed to students and 782 medical students were ultimately returned giving a 78.20% response rate. The result of the study reflect on usage of library, purpose of use resources, using web-resources for clinical information needs, difficulties in obtaining required information and problems faced while accessing the clinical information resources in the library have been discussed.

Keywords: Clinical information resources, library services, internet, medical libraries, health information

1. INTRODUCTION

Medicine is a field where the practice of health-care evolved to maintain prevention and treatment carried out in human beings. Current medical education aims at understanding the crucial role of doctors in society, the need for continuing education and health care. Clinical information needs are important because faculty and students engage in clinical practice need specific and recent information for the patient care. Library professionals serving in medical institutions require thought understanding about the varied factors and forces influencing such services and the best way to deal the clinical information needs of the medical students.

The concept of health is no longer limited to the absence of disease, today it encompasses the physical, mental and social wellbeing of each individual. Significant changes in health care knowledge and need for clinical information at the point of care have changing practice of library services. The library activities from selection of materials to their directed use emphasised those aspects which are remedial and therapeutic, faculty and students of health-care institution should be encouraged to use the library collection for their clinical information needs. The revolutionary changes in information and communication technologies changed the way of information is stored, retrieved and disseminated, it is the responsibility of libraries to satisfy clinical information needs so they are timely and accurate in nature.

The availability of clinical information on the web has changed the way of information searching in recent years. Information needs and use by medical students for clinical practice has continued to be a hot topic of research in recent years. Services provided by health science university libraries depends not only on funding, whether received form one or more levels of government or form private sources, but also on the competence and commitment to the concept of optimum utilisation of web-based clinical information resources and services. Medical library professional due to cost constraint and support by the management are facing problems to balance on cost effectiveness and fulfil the needs of students. Library professionals have to develop a suitable discovery tool for search, retrieved and delivery of information, by which they can evaluate the impact and develop suitable models for clinical information delivery.

Nowadays, there are various online sources available library professional has to take a step towards so that the student should be encouraged to take up to enhance his/her knowledge as medicine as a branch demands exhaustive dedication and continuous learning. The present study aimed to determine the extent use of library for clinical information needs among the students of health science universities in Karnataka and discussed about various types of clinical information resources and services provided to deliver clinical information to medical students.

1.1 Clinical Information Needs

Clinical Information Resources are information resources which provides support to evidence-based

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practice for the patient care provided to physician/medical practitioners. Clinical Information Resources is a platform for faculty and students to access many Online Clinical Databases like e-books, e-journals and other electronic information resources and services. The information needs of medical profession rise form variety of factors such as patient care, continuing medical education and other research activities. Clinical information needs are different compared to general research and education because medical profession required quick and upto date practical information that can be applied in patient care. Marshall[1] explained that clinical information needs includes, what information are perceived, what are the channels used and what are the information is applied for patient care. Williams[2] categorised the information needs of medical practitioners based on the following factors, i.e., existing knowledge, solving new problem, update knowledge through review, obtain another speciality when treating with a patient, find out rare patient care problem and assist to implement new organisational programs.

The assessment of web-based technologies enabled medical libraries to access large volume of health related information in digital formats like textbooks, case-records, clinical trials, protocols, critical reports, medical audio-video images, etc. Accessing medical information has always been an important but challenging process for the students as they get engaged with research and clinical practice. Health practitioners need to be upto date with new discoveries in health care practice. Libraries nowaday due to technological advances have shifted from tradition to hybrid environment and devote increased attention for providing access to print and electronic resources. Clinical information resources provides clinicians with access to print and electronic resources of health knowledge such as *Medical Information, Micromedex, BMJ Best Practice, Dyna Med, MD Consult, Embase, Medline, PsychInfo, ProQuest, Ovid SP, PubMed, Web of Science, Psychiatry Online, Clinical Guidelines,* etc.

2. LITERATURE REVIEW

In one of the earliest studies on clinical information needs Mayada[3] pointed out that clinicians' information searches focuses on diseases/treatments and these information in different form are comparted to teachers and researchers. Woodsworth & Neufeld[4] in a study of physicians self-education patterns conducted at Toronto expressed that most of the medical students and residents depend up on textbooks and medical journals for information gathering. Friedlander[5] stated that clinicians information use pattern is differ compared to scientists and researchers. King[6] studied on information services at hospital libraries on patient care reports of 176 nurses, physicians, and other health professionals in 8 Chicago, study showed that majority of the respondents showed high rating on library performance. Giuse[7], *et al*., examined the training skills for clinical librarians to support effective library services. Researchers explain that clinical medical librarians require participation in clinical rounds as a part of clinical care group and proper training required for clinical librarians to support clinical care.

Padmamma[8], *et al*., evaluated the library resources and services at JJM medical college, Davanagere, Karnataka. Study found that majority of the students visit library to refer books and journals and majority of the students were satisfied with physical facilities provided by the library. Winning & Beverley[9] found that the information provided by clinical librarian are cost effective and the information resources are effective in patient care, also health care professionals have high opinion library services provided by clinical librarian. Kannappanavar & Rajanikanta[10] studied the use of e-learning resources in medical colleges at Karnataka. Researchers found that majority of the colleges have major collection of e-databases, most of the colleges have consortia membership and to the infrastructural facilities in almost all colleges are good. Nwezh[11] conducted study on health information seeking behavior among Iran physicians including medical students and residents. Study found that after introducing digital library physicians identified and used what they needed are relevant reliable information. Providing good infrastructural accomplishment can represent the best utilisation of resources and services at the library. Ratnakar[12], *et al*., reviewed the role of consortia initiated by Indian Council of Medical Research (ICMR) in promoting medical resources among 25 medical college libraries, the author highlights on financial delinquent, resource sharing and other benefits of consortia.

Lasserre[13], *et al*., in the study presented the findings of a survey on medical students in Australia about the usefulness of the rural medicine rotation (RMR) personal digital assistants (PDA) service, author recommends that there is significant need to support services to access clinical information on PDA to medical students in rural areas. John & Gandhi[14] stated that medical scholars are increasingly dependent on electronic databases to find information, researchers found that database for the requirement of medical information is the best strategy, which depends on awareness of the users about the databases. Thanuskodi[15] stated that emergence of digital information has replaced the paper based records, medical libraries has moved towards digital information for effective information delivery. Wilson[16], *et al.,* explored the extent or use of e-books for the needs of medical academics in the university of New South Wales, in performance of academic tasks. Data reveals that medical academics are increasingly enthusitic while access is e-books through mobile environments. Rao[17] in a study clinician's awareness towards evidence-based medicine (EBM) resources provide practical knowledge of physicians. After evaluating the study it is revealed that *UpToDate, PubMed/Medline and MD consult* are most preferred sources to obtain evidence based medicine. Dee & Stanley[18] enlightened the use of health resources and libraries by clinical nurses and nursing students, findings reveals that clinical nurses and nursing students were likely to depend upon colleagues

and textbook for required information, online databases such as *CINAHL & PubMed* are the most preferred resources to health information needs.

3. NEED AND PURPOSE OF THE STUDY

The Karnataka state has many well recognised Health Science Universities/Deemed Universities to be among the top medical universities in India. The aim of the study is to determine the extents use of library and information for clinical information among students of Health Science Universities in Karnataka State. Health care professionals face several problems like information on clinical practice is not distributed, contents are distributed with various sources, difficult to search and difficult to retrieve. Hence, it is necessary to find:

a. How the students prefer to get information from the library

b. What are Clinical Information Resources and Services available in the library? What is the awareness among the students of Health Science Universities about available online clinical information resources and services

c. What is the role of library while providing the clinical information.

For better understanding about the clinical information needs of students and the method accessing information from the various sources by which they locate the information the present study is focused on these issues specific to the use pattern of library by Medical students from health science universities in Karnataka.

4. OBJECTIVES

The objectives of the study are to:

i. Study the purpose of use of library resources

ii. Examine knowledge of search & access of various Clinical Information products and services available in library

iii. Find out existing resources on clinical information and use of Resources in the library by students

iv. Understand the role of Libraries in popularising clinical information resources and services

v. Assess the problems faced by the students in accessing information from library

vi. Suggest the suitable technique and methods to overcome the existing problem.

5. METHODOLOGY

A questionnaire based survey method has been choosen to the study. For the study medical students from following 10 constituent colleges of Health Science Universities/Deemed Universities have been chosen for the study as shown in Table 1.

Table 1. Medical colleges under health science universities/ deemed university

S. No	Name of the college	Name of the university/deemed university	Established year
1.	Shri. B. M. Patil Medical College.	BLDE University, Bijapur.	1986
2.	JSS Medical College.	JSS University, Mysore.	1984
3.	Jawaharlal Nehru Medical College.	KLE University, Belgaum.	1963
4.	Kasturba Medical College.	Manipal University, Manipal.	1953
5.	National Institute of Mental Health and Neuro Sciences (NIMHANS).	NIMHANS, An Institute of National Importance, Bangalore.	1974
6.	K. S. Hegde Medical Academy.	NitteUniveersity, Mangalore.	1999
7.	Rajiv Gandhi University of Health Sciences. (RGUHS)	RGUHS, Bangalore.	1996
8.	Sri DevrajUrs Medical College.	Sri Dev Raj Urs University, Kolar.	1986
9.	Sri Siddhartha Medical College.	Sri Siddhartha Academy of Higher Education and Research, Tumkur.	2008
10.	Yenepoya Medical College.	Yenopoya University, Mangalore.	1999

6. DATA ANALYSIS

The study covered students from10 medical universities/ deemed universities located across Karnataka State. 1000 questionnaires, i.e., 100 questionnaires per college were randomly distributed to collect relevant data. A total of 1000 questionnaires were distributed to students by personal visit, out of 1000 questionnaires, 782 were recivied back giving a 78.20% response rate, which can be considered good, taking into account the difficulties faced with this data collection.

6.1 Demographic Details

The data summarised in the Table 2 demonstrates the demographic characteristics of respondents. The data shows that 53.96% of respondents are male and 360 (46.04%) of respondents are female students, 483(61.76%) of respondents come under the age below 30 years, 237(30.31%) of respondents come under the age group of 31-40 years, 62(07.93%) of respondents come under the age group of 41-50 years. Majority 327(41.82%) of respondents are studying graduate courses, 214(27.37%) of respondents doing Post Graduate Courses, followed by 95 (12.15%) of doing MPhil, 86 (11%) of respondents doing Diploma, 52 (6.65%) of respondents PhD and 8 (1.02%) of respondents were from PDF Course.

Table 2. Demographic characteristics of respondents

Demographic	detail (n=782)	Number	Percentage
Gender	Male	422	53.96
	Female	360	46.04
Age	Below 30	483	61.76
	31-40	237	30.31
	41-50	62	07.93
Qualification	PDF	08	01.02
	Ph.D.	52	06.65
	M.Phil.	95	12.15
	Post graduate	214	27.37
	Under graduate	327	41.82
	Diploma	86	11.00

Figure 1 shows out of 782 respondents, 740(94.63%) of respondents visit library to get needed information and 42(5.37%) of respondents said they never access the library.

Figure 2 describes the frequency of visit made by Medical students to library, among the total 740 respondents 86(11.62%) of respondents visit library daily, 226(30.54%) of respondents visit twice a week, 207(27.97%) of respondents visit once in a week and 162(21.89%) of respondents visit fortnightly and 59(7.97%) of respondents visit occasionallyin a month for getting the information they need.

It is revealed from the Table 3 that out of 740 respondents 327(44.19%) of respondents visit library 'Always' to refer journals, 314(42.43%) of respondentsvisit library 'Always' to refer books, 274(37.03%) of respondents 'Always' visits to read newspaper, 251(33.92%) & 231(31.22%) of

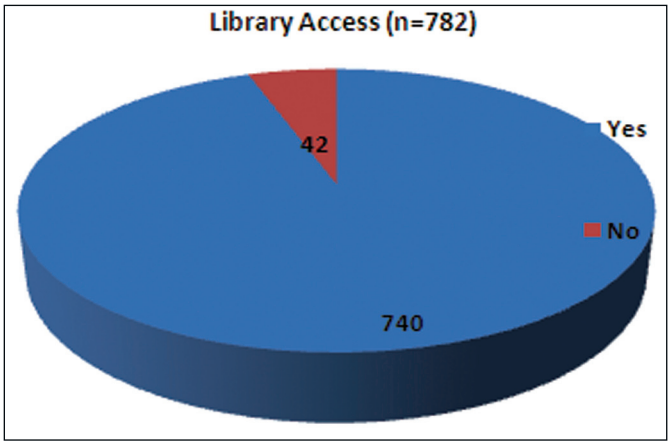

Figure 1. Library access.

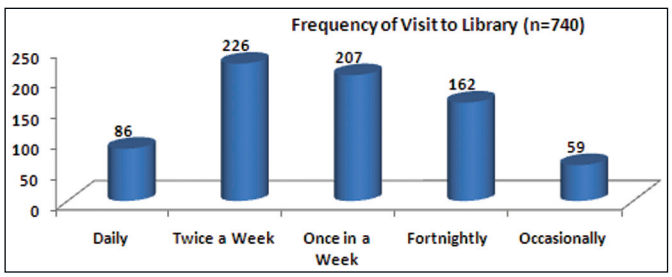

Figure 2. Frequency of visit.

respondents visit 'Always' to use Internet and Electronic Database purpose. 225(30.41%) of respondents visit library 'Always' to get clinical information. 216(29.19%) of respondents 'Always' and 'Most of the time' visit library to refer thesis and dissertations and conference proceedings and 185(25%) of respondents stated that they came 'Most of the time' library to access Institutional publications. Apart from the above reasons students also visited for various other purposes like to take photocopy and facilities other provided by the libraries.

Table 4 presents the number of students who are using the various types of information sources in the library, among the total 740 respondents 321(43.38%) of respondents 'Most of the time' used books in the library, followed by 288(38.92%) & 204(27.57%) of respondents 'Always' using journals and thesis and dissertations form the library, 184(24.86%)of respondents stated that they 'Often' used the library to read newspapers & other general information. Concern to E-resources 305(41.22% and 314(42.43%) of respondents have 'Most of the time' used E-books and E-journals, 233(31.49%) of respondents 'Often' using thesis and dissertations, approach on online databases shows that 287(38.78%) of respondents use Online databases 'Most of the time' and 223(30.14%) of respondents 'Often' use the CD ROM/DVD's.

Medical students were asked to indicate whether they obtain information related to Clinical information from the library. Figure 3 demonstrate that out of 736 respondents 706(95.41%) of respondents agreed that they obtain information related to clinical practice at the library.

Medical students were asked to mention the major type of information sources used for clinical information. Figure 4 explicit that among 706 respondents 224(31.73%) of respondents were 'Always' use Journals as a sources of clinical information, further 203(28.75%) and 231(32.72%)

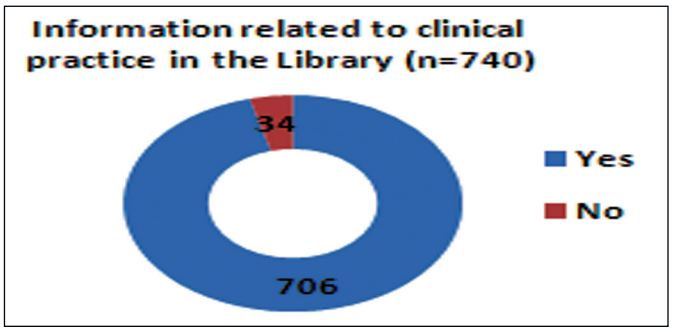

Figure 3. Clinical information at the library

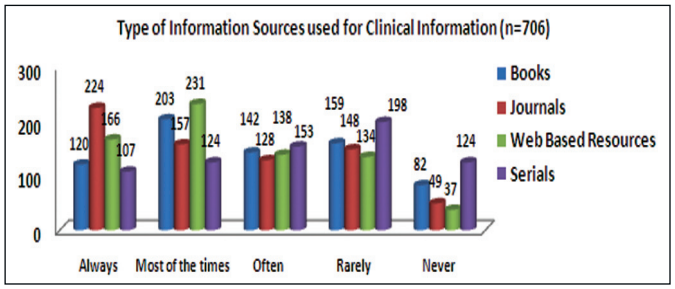

Figure 4. Type of information sources used for clinical information in the library.

Table 3. Purpose of visit to library

Purpose (n=740)	Always		Most of the times		Often		Rarely		Never	
	R	Per cent	R	Per cent	R	Per cent	R	Per cent	R	Per cent
To get clinical information	225	30.41	174	23.51	149	20.14	132	17.84	60	8.11
To read newspapers	274	37.03	220	29.73	139	18.78	60	8.11	47	6.35
To refer conf. proceedings	196	26.49	216	29.19	175	23.65	93	12.57	60	8.11
To refer institutional pub.	165	22.30	185	25.00	158	21.35	147	19.86	85	11.49
To refer book	314	42.43	207	27.97	143	19.32	47	6.35	29	3.92
To refer journals	327	44.19	234	31.62	97	13.11	58	7.84	24	3.24
To refer thesis & diss.	216	29.19	164	22.16	201	27.16	132	17.84	27	3.65
To take photo copy	102	13.78	186	25.14	207	27.97	169	22.84	76	10.27
To use e-databases	231	31.22	297	40.14	134	18.11	55	7.43	23	3.11
To use internet	251	33.92	210	28.38	184	24.86	95	12.84	0	0

Table 4. Information sources referred in the library

Information sources (n=740)	Always		Most of the times		Often		Rarely		Never	
	R	Per cent	R	Per cent	R	Per cent	R	Per cent	R	Per cent
Books	302	40.81	321	43.38	71	9.59	42	5.68	0	0
Journals/magazines	288	38.92	314	42.43	92	12.43	34	4.59	8	1.08
Thesis & dissertation	116	15.68	255	34.46	204	27.57	113	15.27	48	6.49
News papers & General information	173	23.38	146	19.73	184	24.86	131	17.70	102	13.78
E-books	266	35.95	305	41.22	135	18.24	21	2.84	9	1.22
E-journals	281	37.97	314	42.43	104	14.05	19	2.57	18	2.43
E-thesis & dissertation	204	27.57	271	36.62	233	31.49	25	3.38	3	0.41
Online databases	264	35.68	287	38.78	154	20.81	24	3.24	7	0.95
CD ROM/DVD	217	29.32	256	34.59	223	30.14	19	2.57	21	2.84

of respondents 'Most of the Time' use Books and Web-based resources as a sources of clinical information and 198(28.05%) of respondents 'Often' use serial publications as a sources of clinical information.

Table 5 explains the opinion about the preferred format for reference purposes; respondents were asked to mention the type of resources they prefer, among 740 respondents majority 317(42.84%) of respondents expressed that are they comfortable with Electronic versions, 251(33.92%) of respondents expressed that they prefer both print and electronic and only 172(23.24%) of respondents expressed that they prefer only print. Further respondents were asked to mention the file formats to view or download electronic form, majority 322(43.51%) of respondents prefer PDF file formats to view/download the text from the web and 721(97.43%) of respondents said that they prefer Full-text of the required research publications.

Table 5. Preferred resource formats

Preferred resource formats (n=740)		Number	Percentage
Type of resources	Print version	172	23.24
	Electronic version	317	42.84
	Both print & electronic	251	33.92
Preferred formats	PDF	322	43.51
	MS word	86	11.62
	PPT	214	28.92
	HTML	118	15.95
Type of e-resources	Full-text	721	97.43
	Abstract	638	86.22
	Bibliographic	603	81.49

As shown in Table 6 when professionals were asked about to mention the sources to obtain information related to clinical practice from the web, majority, i.e., 255(34.46%) of respondents expressed 'Most of the time' they use clinical guidelines sites, 247(33.38%) of respondents 'Most of the time' used E-journal database and 216(29.19%) of respondents 'Always' use E-journal databases to gather clinical information. Also 258 (34.86%) of respondents 'Most of the time' gone through patient information sites, 192(25.95%) of respondents 'Always' use Physicians website and 204(27.57%) of respondents 'Often' used Continuing medical education sites. Further 243(32.84%) of respondents said they get information through professional association websites also. 255(34.46%) of respondents expressed that they 'Often' used the Medical related mobile apps.

Table 6. Sources of information related Clinical Practice through Internet

Clinical Practice through Internet (n=740)	Always		Most of the times		Often		Rarely		Never	
	R	Per cent	R	Per cent	R	Per cent	R	Per cent	R	Per cent
E-journals databases	216	29.19	247	33.38	154	20.81	94	12.70	29	3.92
Physicians' websites	192	25.95	205	27.70	224	30.27	88	11.89	31	4.19
Patient information sites	173	23.38	258	34.86	188	25.41	93	12.57	28	3.78
Continuing medical Edu.	134	18.11	166	22.43	204	27.57	147	19.86	89	12.03
Clinical guidelines sites	159	21.49	255	34.46	177	23.92	115	15.54	34	4.59
Professional asso. sites	180	24.32	243	32.84	172	23.24	109	14.73	36	4.86
Medical school sites	156	21.08	174	23.51	220	29.73	126	17.03	64	8.65
Medical mobile app.	162	21.89	209	28.24	255	34.46	90	12.16	24	3.24

Table 7 depicts the extent of usage of Clinical Information resources by the Medical students, it is clear from the table that 155(20.95%) and 247(33.38%) of respondents 'Always' and 'Most of the time'uses Embase (Elsevier) database. Followed by 146(19.73%) and 280(37.84%) of respondents use Web of Science 'Always' & 'Often' respectively. 264(35.68%) of respondents stated that they use Up to date 'Most of the times', 241(32.57%) of respondents stated that they use BMJ best practices. 164(22.16%) and 204(27.57%) of respondents use Access Medicien 'Always' & 'Most of the time', 230(31.08%) of respondents use *CINAHL* (*Ebsco*) database for 'Most of the times'. It is observed from the table that 227(30.68%) and 264(35.68%) of respondents have opined that 'Always' and 'Most of the time' they use MD Consult Database, 254(34.32%) of respondents use Proquest Nursing database for 'Most of the time', 297(40.14%) of respondents stated that 'Most of the time' they have used Scopus database. 230(31.08%) of respondents said they 'Never' used the eMedicine-MedScape Ref, 204(27.57%) of respondents 'Rarely used' the PsycArticles. The data reflect that other clinical databases like *Medicine plus*, *MIMS Drug Alert*, *Dyna Med* and *Micromedex* are 'Often' used by Medical Students.

Table 7. Clinical information resources normally you refer

Clinical information resources (n=740)	Always		Most of the times		Often		Rarely		Never	
	R	Per cent	R	Per cent	R	Per cent	R	Per cent	R	Per cent
A.D.A.M. anatomy	87	11.76	155	20.95	144	19.46	241	32.57	113	15.27
Access medicine	124	16.76	164	22.16	204	27.57	154	20.81	94	12.70
BMJ best practice	132	17.84	182	24.59	241	32.57	112	15.14	73	9.86
CINAHL(Ebsco)	120	16.22	230	31.08	144	19.46	170	22.97	76	10.27
Cochrane library (wiley)	97	13.11	245	33.11	277	37.43	87	11.76	34	4.59
Dyna med	46	6.22	132	17.84	157	21.22	277	37.43	128	17.30
Embase (elsevier)	155	20.95	247	33.38	240	32.43	74	10.00	24	3.24
eMedicine--medScaperef	80	10.81	92	12.43	104	14.05	234	31.62	230	31.08
Lexi-comp	62	8.38	90	12.16	156	21.08	230	31.08	202	27.30
MD consult	112	15.14	227	30.68	264	35.68	120	16.22	17	2.30
Medline plus	59	7.97	73	9.86	185	25.00	189	25.54	234	31.62
Micromedex	41	5.54	85	11.49	241	32.57	224	30.27	149	20.14
MIMS drug alert	54	7.30	88	11.89	197	26.62	155	20.95	246	33.24
Ovid SP	86	11.62	159	21.49	276	37.30	184	24.86	35	4.73
Pro quest nursing	107	14.46	254	34.32	231	31.22	122	16.49	26	3.51
PsycArticles	79	10.68	158	21.35	260	35.14	228	30.81	15	2.03
Psychiatry online	71	9.59	154	20.81	277	37.43	204	27.57	34	4.59
Scopus	104	14.05	297	40.14	179	24.19	122	16.49	38	5.14
Uptodate	134	18.11	264	35.68	236	31.89	84	11.35	22	2.97
Web of science	146	19.73	177	23.92	280	37.84	119	16.08	18	2.43

The respondents who access information from web asked to compare print and electronic resources, the options included such as time, coverage, cost, flexibility and effectiveness. The respondents opinion is presented in Table 8, the sample shows that 255(34.46%) of respondents 'Strongly Agree' that Electronic resources are time saving compared to print, further 302(40.81%) of respondents 'Agree' that E-resources have more coverage compared to print, 269(36.35%) of respondents opinioned 'Agree' that E Resources are less expensive, 277(37.43%) of respondents 'Agree' that E-resources are flexible, 296(40%) of respondents 'Agree' that E-resources are easy to handle and 288(38.92%) of respondents 'Agree' that E-resources are more effective compared to print.

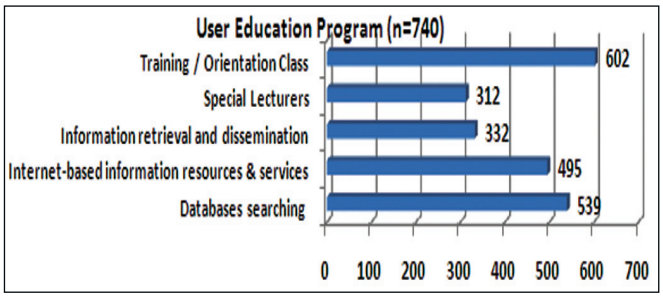

Figure 6. User education program.

Table 8. Comparison of print documents and e-resources

Comparison of print vs electronic (n=740)	Strongly agree		Agree		Moderately agree		Disagree		Strongly disagree	
	R	Per cent	R	Per cent	R	Per cent	R	Per cent	R	Per cent
Time saving	255	34.46	286	38.65	146	19.73	35	4.73	18	2.43
More information	209	28.24	302	40.81	188	25.41	27	3.65	14	1.89
Less expensive	231	31.22	269	36.35	190	25.68	39	5.27	11	1.49
Flexible	211	28.51	277	37.43	164	22.16	64	8.65	24	3.24
Easy to handle	268	36.22	296	40	154	20.81	20	2.70	2	0.27
More effective	230	31.08	288	38.92	148	20	51	6.89	23	3.11

Medical students were asked to mention that whether the Web-based Clinical information resources are substitute for library, Fig. 5 shows that among 740 respondents 238(32.16%) of respondents felt that the web-based CIR are substitute to library and 315(42.57%) of respondents were in dilemma and felt partially there usefullness and 187(25.27%) of respondents denised useing it no.

Respondents were asked to mention the awareness about user education programs organised by the libraries to promote their services. Fig. 6 depicts that among 740 respondents 602(81.35%) of respondents said aware about 'Training/Orientation classes', 539 (72.84%) of respondents were aware about 'Database searching', 495(66.89%) of respondents aware about 'Internet-based information resources & services', 332(44.86%) of respondents were aware about 'Information retrieval & dissemination' for assistance and 312(42.16%) of respondents have attended 'special lectures' for accessing library resources.

The effective utilisation of library resources depends upon the awareness and use of library services, in this relation researcher asked respondents to mention their awareness. As shown in Fig. 7 about library services, among 740 respondents 643(72.74%) of respondents are aware about library OPAC, followed by 581(72.84%) of respondents were aware about 'Digital Library Services', 452(51.53%) of respondents were aware about 'Archival Services', 439(49.66%) of respondents aware about 'Blogs and Wikis' and 433(48.98%) of respondents have awareness about 'reference service' for accessing library resources services. Among the mentioned services least percent of students were aware about Inter-library loan concept, Information search services, e-mail alert services, Institutional search services and current awareness services.

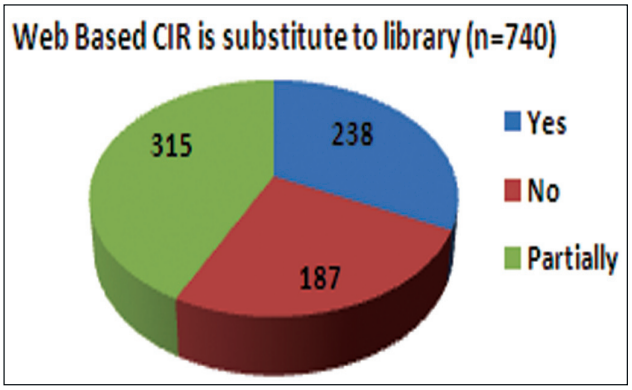

Figure 5. Web CIR is substitute to library.

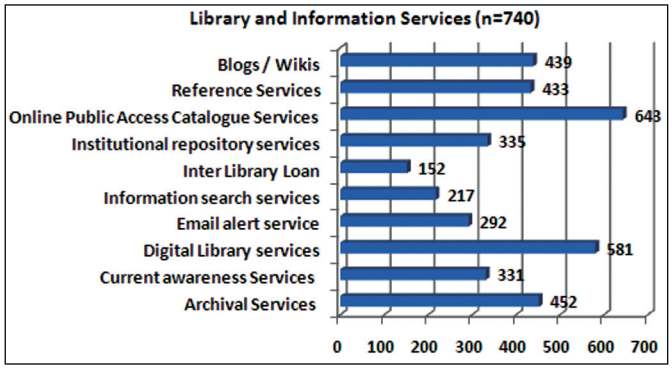

Figure 7. Usefulness of internet in clinical practice.

Figure 8 point out that whether the medical students were satisfied from the existing library collection related to clinical information resources, among 740 of respondents 622(84.05%) of respondents said they are satisfied and 118(15.95%) of respondents said that they weren't satisfied with the existing resources.

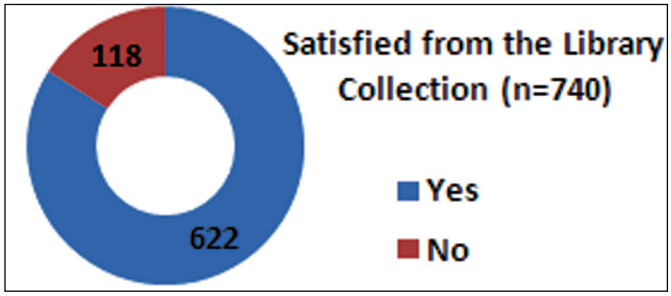

Figure 8. Usefulness of internet in clinical practice.

medical students expressed that they have not familiar with the useof Internet application, they have lack of knowledge and also expressed that there is only few staff and they have non co-operative attitude.

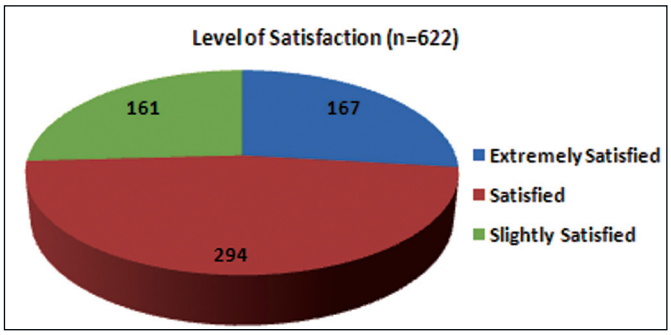

Figure 9. Level of satisfaction from the library collection on clinical resources.

Table 9. Problems with clinical information resources and services

Discouraging factors (n=740)	Strongly agree		Agree		Moderately agree		Disagree		Strongly disagree	
	R	Per cent	R	Per cent	R	Per cent	R	Per cent	R	Per cent
Limited access to a computer	305	41.22	224	30.27	127	17.16	42	5.68	30	4.05
Lack of IT knowledge	77	10.41	128	17.30	141	19.05	237	32.03	157	21.22
Non-cooperative attitude of staff	89	12.03	144	19.46	145	19.59	304	41.08	58	7.84
Lack of network facility	240	32.43	266	35.95	173	23.38	45	6.08	16	2.16
Lack of skills	90	12.16	117	15.81	179	24.19	222	30.00	132	17.84
Not familiar with internet use	65	8.78	91	12.30	80	10.81	343	46.35	161	21.76
Inadequate trained staff in	86	11.62	143	19.32	124	16.76	262	35.41	125	16.89
Lack of user education program	102	13.78	151	20.41	217	29.32	240	32.43	30	4.05
Difficult to read from screen	148	20.00	193	26.08	272	36.76	69	9.32	58	7.84

The respondents were asked to indicate their level of Satisfaction for Useing library for their research purposes. It is evident from Fig. 9, that Majority of the respondents 294(47.27%) were satisfied from the library collection, 167(26.85%) of respondents were extremely satisfied and 161(25.88%) of respondents said they were slightly satisfied from the library collection related to clinical information resources.

Table 9 explain the problems faced by medical students while accessing web-based clinical information resources, majority of the respondents, i.e., 305(41.22%) 'Strongly Agree' as there is limited access to computer, 240(32.43%) & 266(35.95%) of respondents 'Strongly Agree' & 'Agree' that the network facility by provided by the university/deemed university is still not sufficient, 272(36.6%) of respondents 'Moderately Agree' as they face difficulty to read the information always form the computer/tab, 15(20.41%) of respondents 'Agree' and stated that they were not trained in using the resources from the library, 179(24.19%) of respondents 'Moderately Agree' that they have lack of skill in using web-based clinical information resources. Also very few number of

7. FINDINGS AND SUGGESTIONS

Major findings for this study are as follows:

7.1 Demographic Characteristics of Medical Students

(a) Maximum numbers of respondents are male (53.96%)

(b) Majority of respondents are under the age group below 30 (61.76%)

(c) Majority of the respondents are studying in graduate level (41.82%).

7.2 Library Access and Usage

(a) 94.63% of respondents claimed that they access library facilities

(b) Majority no of respondents (30.54%) of respondents visit library twice a week

(c) To access journals (44.19%) of respondents always met the library, (42.43%) of respondents for books and (33.92%) of respondents visit the uses to Internet and (31.22%) of respondents visits library to access e-databases.

7.3 Information Resources

(a) 43.38% of respondents use print books, further 42.43% of respondents use journals available in the library, concern to e-resources, 42.43% of respondents most of time depend upon e-journals and 41.22% of respondents claimed they use e-books for required information from the library

(b) 95.41% of respondents agreed they obtain information related to clinical practices from the library, 31.73% of respondents were 'Always' use Journals, 28.75% and 32.72% of respondents 'Most of the time' uses Books and Web-based resources as a sources of clinical information from the library.

7.4 Clinical Information Resources

(a) Most of the students, i.e., 42.87% prefer electronic version, 43.51% of respondents opted for PDF format and 97.43% of students prefer Full-text format

(b) 31.42% of respondents expressed internet play key role providing clinical information resources

(c) 29.19% of respondents were 'Always' using e-journal databases, & 34.46% of respondents expressed 'Most of the time' they use clinical guidelines sites

(d) E-journals and e-books are the most used sources to get required information 27.57% of respondents 'Always' uses e-journals and 28.92% respondents stated that 'Most of the time' they referred E-books

(e) Majority of students felt Web-based information resources are substitute for library

(f) Medical students obtain clinical information from various clinical databases like *Access Medicine*, *BMJ*, *Embase*, *MD Consult*, *Scopus*, *UpToDate* and other database.

7.5 Satisfaction Towards Clinical Information Resources and Services.

(a) Compared to print to electronic considering the factor including such as time, coverage, cost, flexibility, and effectiveness respondents are more comfortable with electronic compared to print

(b) 32.16% of respondents felt that web-based clinical Information resources are substitute to library

(c) 81.35% of respondents said they were aware about Training/Orientation Class, followed by 72.84% of respondents are aware about database searching, 66.89% of respondents are aware about internet-based information resources and services provided by the library

(d) 72.74% of respondents are aware about library OPAC, 72.84% of respondents aware about Digital Library Services provided by the library

(e) 84.05% of respondents said they are satisfied with the existing library collection and service

(f) Limited access to computers, lack of IT knowledge, lack of user education program is major problem faced by the medical students.

8. RECOMMENDATIONS

Addressing the attitude towards the use of library resources and services for clinical information needs researcher recommends following suggestions to improve the services provided by Medical Universities/deemed universities. To achieve the effective clinical information delivery medical library profession regularly analyse the ICT Infrastructure. The adoption of ICT should not be considered as a luxury, but as an added tool to provide the current information effectively to fulfil the complex needs of the user. It is recommended that the Medical Libraries should be equipped with advance collection of electronic resources and digital library facilities and it is recommended that data access speed (Networking Infrastructure) should be increased. To solve cost constraints, financial crunch among medical colleges effective consortia framework model should be developed. There is need for Web scale discovery tools, semantic web technologies to effectives retrieve clinical information resources. There is need for accurate and relevant clinical information delivery for medical students required so need based resources has to improve at the time of subscription. For effective information retrieval provision should be made with adequate training on information searching skill to medical library staff and students. Library professionals have to promote existing services popularising using extension activities and social networking applications better utilisation of library services.

9. CONCLUSIONS

Medical librarian's involvement in patient care plays and an important role in clinical care and the medical library professional should be trained in manner which facilitates to be more aware about better contribution and access to clinical information delivery. This study indicates the attitude towards the use of library for clinical information needs formten medical university/deemed universities in Karnataka. The response to the survey showed medical students are well aware with existing clinical information resources available in the library. Despite the perceived benefits of e-resource related to clinical information resources there are some barriers like lack of infrastructure, lack of network facility and lack of training are the major barriers to access required information. However, it does appear that the clinical sources are valuable asset to clinical practices for medical students and proactive steps should be taken to overcome the existing problem at the health university libraries. Also there is a need for radical changes and innovations in the structure and process of clinical information at all levels to cope with the explosion in medical knowledge in the changing conditions in the health care information delivery system.

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