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INFORMATION SEARCH SKILLS IN WEB ENVIRONMENT FOR ACCESSING CLINICAL INFORMATION BY THE STUDENTS OF HEALTH SCIENCE UNIVERSITIES IN KARNATAKA

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ABSTRACT

Web is a powerful tool to delivery online information resources and services. In recent years web based information resources are very informative and resources for medical information can be access through web by various applications. Study aims to investigate the information search skills among the students of health science universities, special focus on accessing and use of various clinical information resources in the web environments. Medical students for clinical practice they need ready access to medical information, proper search strategies leads to get accurate information for clinical decision making. The study reports the results of a survey conducted to determine the information search skills which medical students are aware and make use of the web in accessing clinical information resources.

KEYWORDS: *Information Search, Internet, Information Literacy, Clinical Information Sources.*

INTRODUCTION :

Health is one area where information has played a major role in life saving, users are the supreme in and any kind information system.The last few years have seen extraordinary technological development in the world of telecommuni- cation. Information is circulating freely through the world with the advent of web based information system and the web enabled an opportunity for the wide spread access to medical information.Information is a basic necessity which improves the health delivery system. Medicine, as is to be expected, is undergoing a radical changes, medical professionals has evolved rapidly towards the use of the internet as a tool which will change the world of health care for better patient treatment. Improved and standardized methods have been evolved to assess the quality of health information. Health practitioners need to be maximizing the potentiality in using ICT applications for improving access to health information.

As well as medical practitioners have more interested in health information services which are available in different sources such as libraries, media, and health institutions and so on. The evaluation of web based technologies enabled to access health information in digital formats of textbooks, research articles, reference materials, clinical trials, reports, thesis and dissertations, medical images and audio-video materials etc. Along with print resources medical libraries today are providing access to online resources such as e-books, e-journals, e-databases, e-thesis and dissertations and supporting with various information services like e-mail, newsgroup, social networking other online contents to users. Health science library professionals need to train in searching and evaluating information on the Internet and in identifying and applying evidence-based information for encouraging proper utilisation information resources at the patient care. In order to serve the students for academic work efficiently and effectively it is necessary to ascertain the information search skills of students in accessing clinical information resources in the web environment.

2. CLINICAL INFORMATION RESOURCES

Clinical Information Resources are those information sources that can be used at the point of clinical care. These resources are used to provide clinical care to patients by medical practitioners, nurses and other health care providers. Clinical Information delivery can be disseminating using network operations, email, patient history record, patient records, laboratory records and electronic information resources. Clinical Information Resources may play a major role in clinical decision making that require timely and appropriate patient care. These resources provides evidence based guidelines for solve therapeutic decision making. Web based clinical information resources provides access to clinical data access, information resource access and integrated information resources of the subject. The recent developments in web technologies have led to the extensive use of web resources and services like e-books, e-journals, online publications and databases that are made available through the web platform.

The primary objective of the medical library is to support the Research and Development activities and to deliver the Information resources and service on the interest of the user. Internet possesses an enormous number of medical databases which are very useful for medical students. Web-based clinical information resources it provides clinicians with access to patient records, It also contains links to sources of health knowledge such as Medical Information, Micromedex, BMJ Best Practice, Dyna Med, MD Consult, Embase, Medline, Psych Info, ProQuest, Ovid SP, PubMed, Web of Science, Psychiatry Online, Clinical Guidelines etc. These resources should be accessible accurate, authoritative and timely, Computer skilled medical practitioner may feel more comfortable while using web based clinical information resource at the time of consultation with a patient. However medical Practitioners need more constant in touch with new discoveries in web based resources and services.

3. REVIEW OF LITERATURE

Schwank (1980)11 gives the detailed Information resources in clinical medicine for health science librarians, study covers Family Practice, Pediatrics, Obstetrics and Gynaecology, General Surgery, Internal Medicine. A brief discussion of issues related to medical library use, the characteristics of librarians and physicians, the establishment of mutual respect between the two groups have been discussed.

Cimino (1995)5 pointed the impact of World Wide Web and Clinical computing application, researcher suggested that proper adopted web technologies enables to access clinical information from other systems with similar server capabilities. This approach may be adaptable for use in developing institution-independent standards for data and application sharing. Dissanayake (1999)7 studies use of medical information made available via an Internet website. Author expressed that the Internet is probably the fastest growing means of public communication. Study reveals that during 1997-1998 period 23,373 web surfers visited the site. There were 222 guest book entries and 12 direct inquiries to the webmaster. Author also that governments in developing countries must plan to make computers and information technology as well as telecommunication services affordable and widely available.Bharali (2000)4 in his research reviewed the information seeking strategies of medical practitioners of North –East India. Researcher investigated the nature of information needs of medical practitioners, information channels, information barriers and information sources. Study result found there is no significant difference between information seeking strategy between clinicians and non-clinicians.

Berlandet. al. (2001)3 explicit the Health information accessibility and the role of internet, objective of the study is to evaluate health information available through search engines and websites. Through 14 search engines less than one quarter of the search engine's first pages of links led to relevant content. The information provided is generally good and high reading levels are required to comprehend web based health information. Cullen (2002)6carried out a research on use of the Internet for clinical information among family practitioners in New Zealand. The study result shows that 48.6% reported that they used the Internet to look for clinical information. MEDLINE was the most frequently accessed source. Search skills were basic, and abstracts were commonly used if the full text of an item was not readily available. Lohonenet. al. (2009)9 sheds light on the role of the information search process and discusses how to approach key medical bibliographic databases and information sources, using the field of psychiatry as an example. Author states that medical journals play a key

role in providing latest information in medicine and health and bibliographic databases play an important role in accessing them.

Thanuskodi (2012)12 in a case study explored the use of Internet by medical professionals, from Tamil Nadu, author explained that the advent of information technology has resulted in reducing the size of libraries. Study result shows that respondents have high problems in accessing e-resources in terms of virus, difficulty in using digital resources due to lack of IT knowledge and limited access to computers. Rao (2014)10 was conducted a study to evaluate clinicians awareness towards evidence-based medicine (EBM) resources at Kasturba Medical College,Manipal. Evaluating the different EBM resources at work, study revealed that 'UpToDate', 'PubMed/ Medline', and 'MD Consult' always came first in user-preference. Also researcher pointed that clinicians possessed awareness of several EBM resources.Banerjee (2015)2 investigated the medical students' attitudes about Clinical Informatics (CI) training and careers. Almost one third of medical students who responded to the survey expressed an interest in a Clinical Informatics related career, but they were generally unaware of Clinical Informatics training and mentoring opportunities available to them. Inthiram(2015)8 from the study information search behaviour of medical students assesses how medical students search for medical information online for specific medical tasks. Results of this study provide an understanding of the information search behaviour of medical students when searching for medical information online across varying levels of task difficulty. Azami(2016)1 highlights the significance and validity of web-based scientific databases among post graduate medical students. The results showed that the average components of the perception of usefulness, decision to use, using to perform duties. Researcher suggests that designers of databases and electronic resources can design systems that are both useful and easy to learn by considering the components of the research model.

4. NEED AND PURPOSE OF THE STUDY

This study aims is to describe the use of clinical information resources and services on the web from Health Science University, Deemed University / Constituent Medical Colleges located at Karnataka state. While much attention has been devoted to studying how the students use search strategies to locate and apply Clinical Information resources in clinical practice.The study will help health science library professional and other information mangers to develop Information and Communication Technology based Library System where the students can access and search clinical information resources through the latest web environment.Information and Communication technologies have enabled the popularity and use of medical literatures from the web, it is necessary to find, what the Clinical Information Sources available on Web? What the Students prefer to get information from the web? What is the awareness among the Students of Health Science Universities about available online clinical information resources and services?

5. OBJECTIVES OF THE STUDY
Following objectives have been considered for the study.
• To study the sources of use of clinical information resources and services from the web.
• To examine the search techniques used for accessing various Clinical Information resources from the web.
• To find out the most preferred clinical information resources from the web.
• To find out the various formats while accessing the clinical information resources.
• To assess the problems faced by the Faculty and Students in accessing information from the online databases.

6. METHODOLOGY AND SCOPE

In order to collect comprehensive and relevant data the questionnaire were designed and a survey method to study the extent use of Clinical Information Resources and Services from the web by the Faculty and Students of Health Science Universities in Karnataka State. The study Sample includes the Faculty and Students from 10 Health Science Universities / Deemed Universities and its Constituent Colleges located in Karnataka.

Table-1: List of Medical University, Deemed University / Constituent Colleges.

Name of the College/ University	Name of the University / Deemed University	Established Year
B. M. Patil Medical College	BLDE University, Bijapur	1986
JSS Medical College	JSS University, Mysore	1984
Jawaharlal Nehru Medical College	KLE University, Belgaum	1963
Kasturba Medical College	Manipal University, Manipal	1953
National Institute of Mental Health and Neuro Sciences (NIMHANS)	NIMHANS, An Institute of National Importance, Bangalore	1974
K. S. Hegde Medical Academy	NitteUniveersity, Mangalore	1999
Rajiv Gandhi University of Health Sciences	RGUHS, Bangalore	1996
Sri DevrajUrs Medical College	Sri Dev Raj Urs University, Kolar	1986
Sri Siddhartha Medical College	Sri Siddhartha Academy of Higher Education and Research, Tumkur	2008
Yenepoya Medical College	Yenopoya University, Mangalore	1999

7. Data Analysis

The study covered students from 10 medical universities/ itsconstituent medical colleges located across Karnataka State. In these relation total 1200 questionnaires randomly distributedto students, among 922 were ultimately returned giving a 82.17% response rate, which can be considered good, taking into account the difficulties faced while data collection.
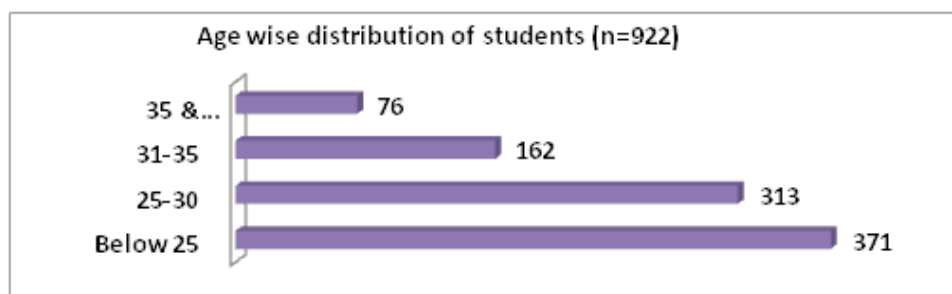
Figure-1 presents the number of participants in different age category. It can be seen that on an overall basis, a little more than half of the respondents were of below 30 years of age. Majority of the student respondents were below the age of 25 years (n=371, 40.24%), followed by 25-30 years (n=313, 33.95%), about 17.57% of them were in the age range of 31-35 years and a very small percentage of the students were in the age category of 35 and above were 76 (08.24%).
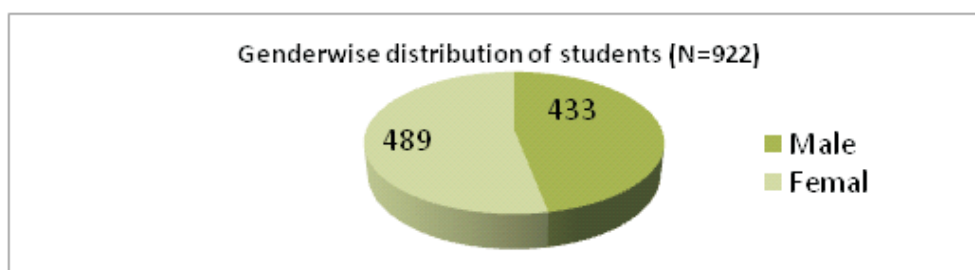
Figure-2: Gender wise distribution of respondents

It can be noted from the figure-2 that the sample of respondents are almost an equal mix of both the

genders. However, a small majority of females can be seen among students (n=186, 52.25%) and males were 433 (53.04%).

Figure-3: Age wise distribution of respondents

Figure-3 represents the cross-tabulation of respondents by their qualification. It reveals that among the entire students most of the students were undergraduates i.e. 351 about 38.07%), followed by post graduates (n=270, 29.28%), MPhil (n-114, 12.36%) and PhDs (n=96, 10.41%).Only about 01.84% of them have PDF qualification.

Table-2: Clinical Information Sources

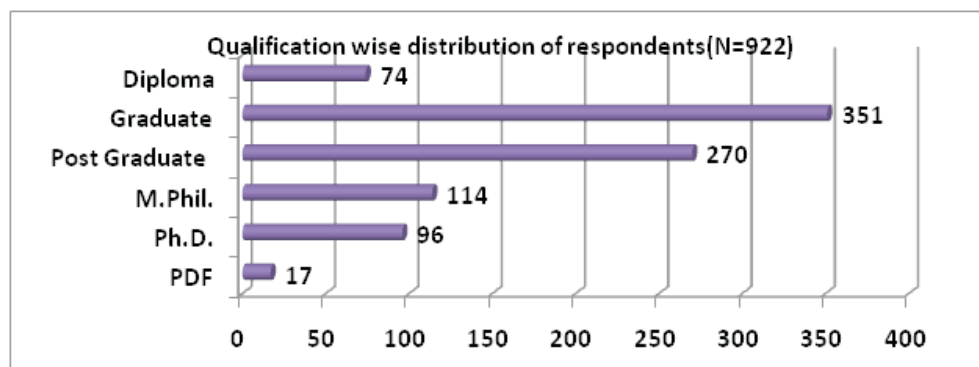| Clinical Information Sources	Always	Most of the Time	Often	Rarely	Never
Call other hospitals	155 (16.81)	198 (21.48)	199 (21.58)	138 (14.97)	232 (25.16)
Colleagues	204 (22.13)	277 (30.04)	169 (18.33)	187 (20.28)	85 (9.22)
Daily Meeting with Faculties	226 (24.51)	274 (29.72)	207 (22.45)	144 (15.62)	71 (7.7)
Departmental Library	218 (23.64)	261 (28.31)	214 (23.21)	136 (14.75)	93 (10.09)
Drug Literature	308 (33.41)	351 (38.07)	143 (15.51)	76 (8.24)	44 (4.77)
Electronic Documents	269 (29.18)	298 (32.32)	224 (24.3)	78 (8.46)	53 (5.75)
From your Personal Collection	251 (27.22)	276 (29.93)	204 (22.13)	137 (14.86)	54 (5.86)
Library	185 (20.07)	273 (29.61)	230 (24.95)	189 (20.5)	45 (4.88)
Patient File / Medical Record	176 (19.09)	228 (24.73)	225 (24.4)	185 (20.07)	108 (11.71)
Seminars / Conferences / Workshops	141 (15.29)	193 (20.93)	234 (25.38)	209 (22.67)	145 (15.73)
Tests / Investigation Reports	154 (16.7)	212 (22.99)	254 (27.55)	167 (18.11)	135 (14.64)
Web / Internet	246 (26.68)	296 (32.1)	227 (24.62)	114 (12.36)	39 (4.23)

Researcher raised a question that what are the major sources of clinical information that students are refer for clinical practice table-2 shows that majority of the students about 308 (33.41%) of students expressed that they 'always' prefer to use drug literature, followed by 'always' (29.18%) or 'most of the time' (32.32%) use

electronic documents and majority of the students 'most of the time' prefer to use web/ internet (32.10%), daily meeting with faculties (29.72%), departmental library (28.31%), colleagues (30.04%) and form library (29.61%). Data shows that 254 (27.55%) of students 'often' get information from tests/ investigation reports and 199 (21.58%) of students 'Often' use to call other hospital.
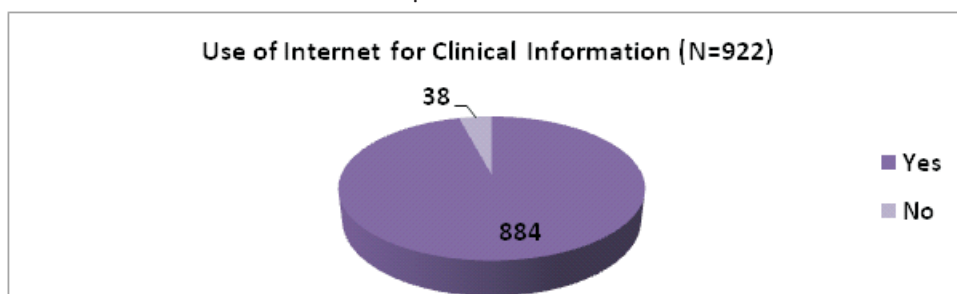
Figure-4: Use of Internet for Clinical Information

Figure-4 explicit the opine about use of Internet for accessing clinical information from the web, it is clear that the majority of students responded positive opinion, about 884 (95.88%) students said 'yes', whereas very less number of students i.e. 38 (04.12) opted 'no' that they do have use internet as a source for clinical information .
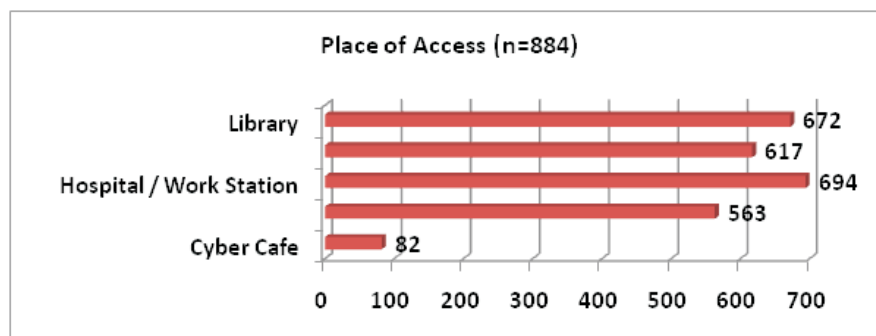
Figure-5: Use of Internet for Clinical Information

It is clear from the figure-5 that majority of respondents i.e. 694 (78.51%) of students use the electronic information from their work station/ hospital, it is also observed that 672 (76.02%) of students get access form the library, 617 (69.80%) of students access form cyber café and hostel respectively and 563 (63.69%) of students access electronic information related to clinical information from home. The data shows that major percentage of respondents prefers their work stations and library to accessElectronic Information Services.
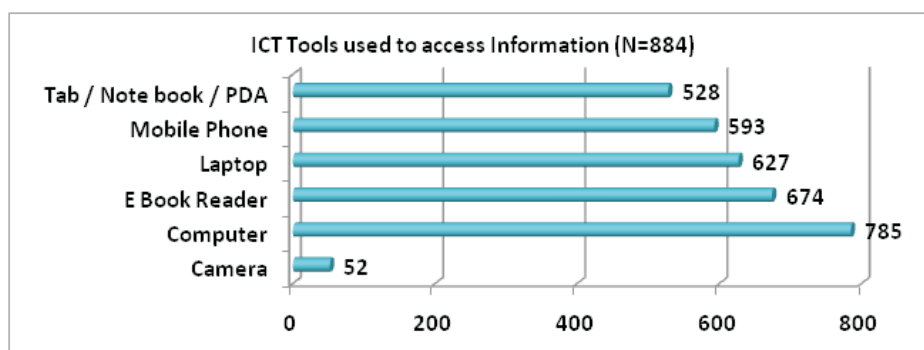
Figure-6: Use of Internet for Clinical Information

Among 884 students about 785 (88.80%) of students use 'computer' to access web resources, followed by 674 (76.24%) of students use 'E-book reader', 627 (70.93%) students use 'laptop', 593 (67.08%) of students use 'mobile phone', 528 (59.73%) of students use 'tab/ note book/ pda' and 52 (05.88%) of students use camera' for accessing web resources.
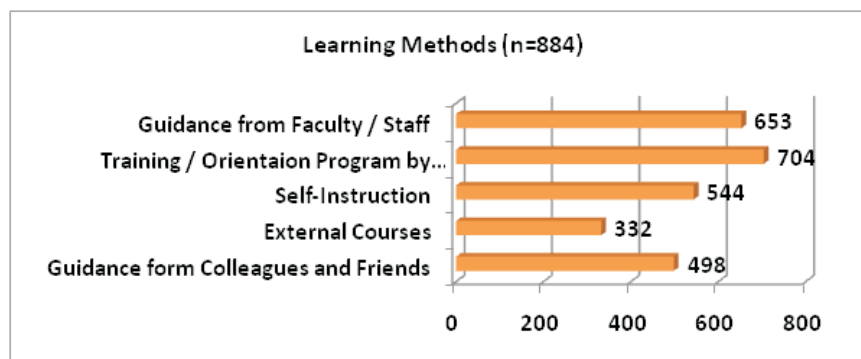
Figure-7: Use of Internet for Clinical Information

In order to identify the impact of various factors in learning how to use electronic information resources the factors were included in the questionnaire. As it can be seen from figure-7 that majority of the respondents 704 (79.64%) mentioned that they learn to use of Electronic Information Resource by attending training/ orientation program organized by college library. 544 (61.54%) of them stated that they learnt by 'self-instruction', 653 (73.87%) respondents stated that they learnt through 'guidance from colleagues and friends and 332 (37.56%) respondents mentioned that they learnt with the help of external courses.
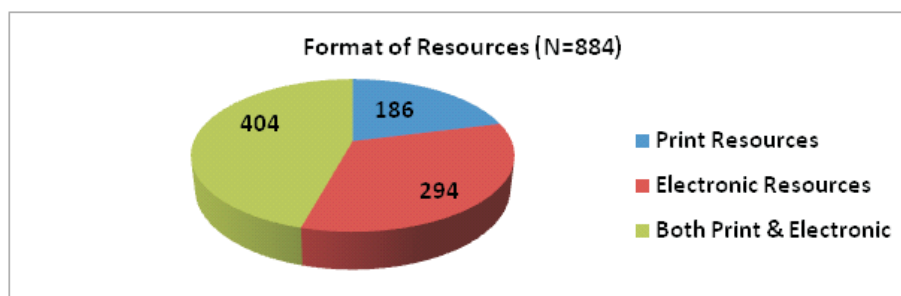
Figure-8: Use of Internet for Clinical Information

Figure-8 shows that maximum number of respondents prefer both print and electronic resources, as it is shown in the table that majority of the students (n=404, 45.70) prefer 'both print & electronic resources', followed by 294 (33.26%) of students prefer 'electronic resources' and 186 (21.04%) of students prefer 'print resources'
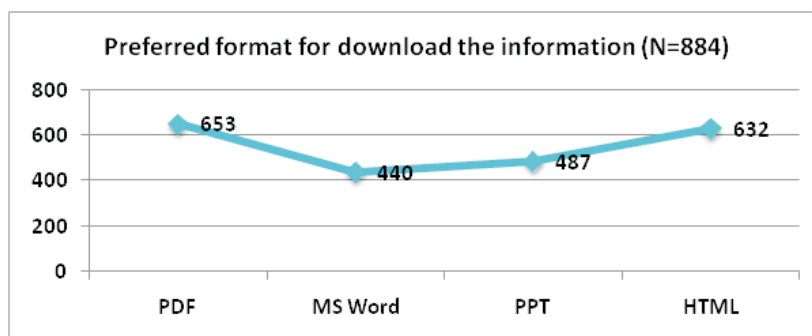
Figure-9: Use of Internet for Clinical Information

Figure-9 represents the opinion about preferred format for access/ download the clinical information form the web. Data reflects that 653 (73.87%) of students prefer to have PDF, 632 (71.49%) have preferred HTML format, 487 (54.73%) of students prefer PPT and 440 (49.77%) of respondents prefer MS Word format for collecting, storing and retrieving clinical information from the web.
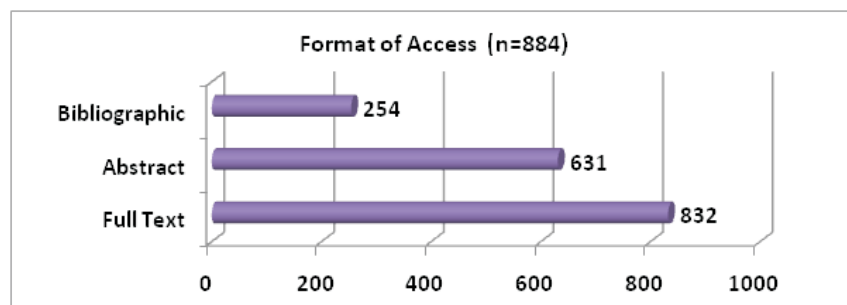
Figure-10: Use of Internet for Clinical Information

Figure-10 describes that among 884 respondents maximum number of students i.e. 832 (94.12%) preferred 'Full Text' access, 631 (71.38%) of students preferred 'Abstract' and 254 (28.73%) of students preferred 'Bibliographic' information for their research and reference purposes.
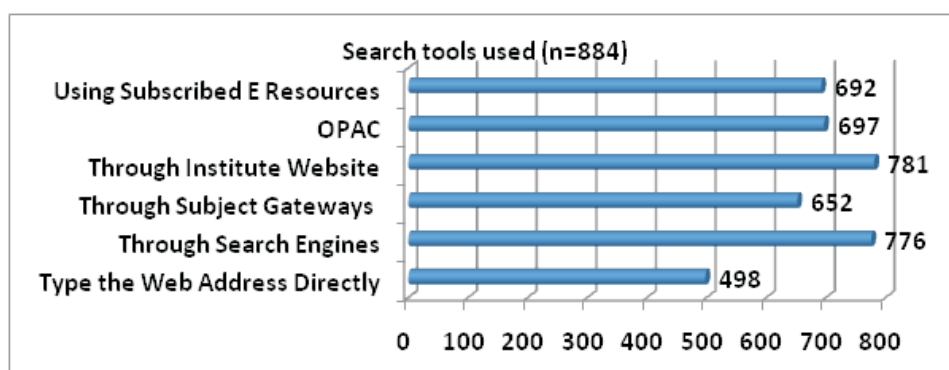
Figure-11: Search tools used

Medical students use various types of search method to retrieve relevant information from the web, the effective utrilization of information can be achieved with proper search techiques, figure-11 decpcits that about 781 (88.35%) of students menttioned that they browse 'Through Institute Website', followed by 776 (87.78%) of students browse 'Through Search Engine', 697 (78.85%) of students use 'OPAC', 692 (78.28%) of students browse 'Using subscribed E-Resources' 652 (73.76%) of students browse "Through Suject GAteways" and 498 (56.33%) of students mentioned they 'Type the web Address Directly' to search required information from the web.
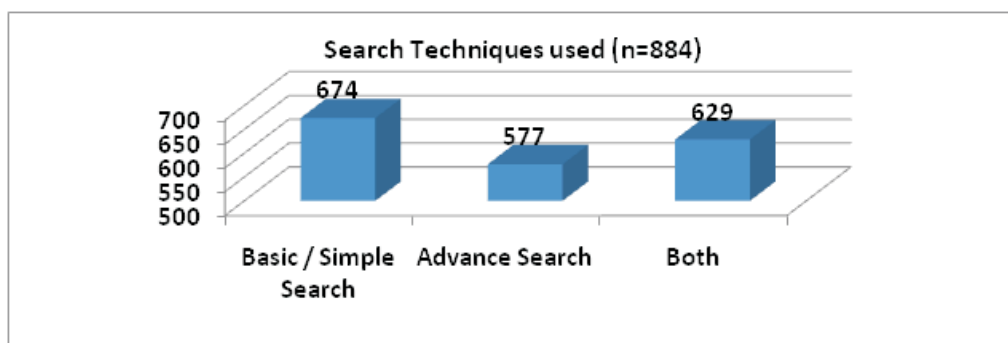
Figure-12: Search Techniques used

It can be seen from figure-12 that 674 (76.24%) of students use 'Basic/ Simple Search', 577 (65.27%) of students use 'Advance Search', it can be seen form the table that 836 (68.19%) use both basic/ simple search and advance search.
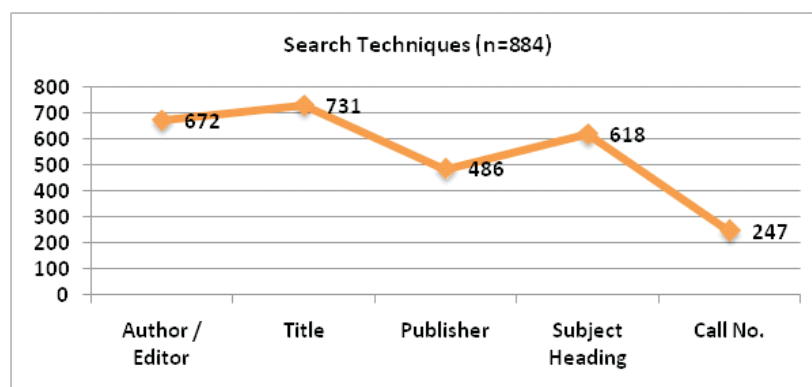
Figure-13: Search Techniques used

The information search techniques used while accessing required information from the web figure-13depicts that majority of the student search based on 'title' (n=731, 82.69%) followed by about 672 (76.02%) of students prefer 'author/ editor' for access required information. It can be seen form the table that 618 (69.91%) of respondents use 'subject heading', 486 (57.10%) of student search on 'Publisher' and least number of respondents i.e. 247 (27.94%) have search based on 'Call No'.

Table-3: Purpose of using Internet (n=884)

| Purpose of using Internet (n=884)	Always	Most of the Time	Often	Rarely	Never
Improve Clinical Decision Making	264 (29.86)	307 (34.73)	158 (17.87)	119 (13.46)	36 (4.07)
Improve General Knowledge	217 (24.55)	263 (29.75)	261 (29.52)	106 (11.99)	37 (4.19)
Keep up-to-date	281 (31.79)	286 (32.35)	198 (22.4)	99 (11.2)	20 (2.26)
Continuing Education	185 (20.93)	237 (26.81)	257 (29.07)	136 (15.38)	69 (7.81)
Answer Collegues / Friends Question	162 (18.33)	194 (21.95)	242 (27.38)	199 (22.51)	87 (9.84)
Research / Reports / Articles	278 (31.45)	324 (36.65)	210 (23.76)	61 (6.9)	11 (1.24)
For Teaching / Seminar	203 (22.96)	262 (29.64)	278 (31.45)	102 (11.54)	39 (4.41)

Students use Internet for various purposes, it is evident from the table-3 that 264 (29.86%) of student have 'always' and 307 (34.73%) of student 'most of the time' use internet to improve clinical decision making purpose. 263 (29.75%) of students 'most of the time' and 261 (29.52%) of students 'often' use internet as a source to improve general knowledgeabout 31.79% of students 'always' and 32.35% of them 'most of the time' use internet to keep up-to-date. 242 (27.38%) of student sated that they 'often' use internet for answer colleagues/ friends questions and 26.81% of students use internet for continuing education. 324 (36.65%) of students 'most of the time' use internet for writing research/reports or article purpose.

Table-4: Sources prefer to obtain information related Clinical Practice through web(n=884)

Web based Information Sources	Always	Most of the Time	Often	Rarely	Never
E Journals Databases	246 (27.83)	292 (33.03)	189 (21.38)	114 (12.9)	43 (4.86)
Physicians' Websites	196 (22.17)	245 (27.71)	290 (32.81)	108 (12.22)	45 (5.09)
Continuing Medical Education	164 (18.55)	206 (23.3)	244 (27.6)	167 (18.89)	103 (11.65)
Clinical practice guidelines sites	221 (25)	276 (31.22)	217 (24.55)	112 (12.67)	58 (6.56)
Professional Medical Associations sites	128 (14.48)	210 (23.76)	223 (25.23)	183 (20.7)	140 (15.84)
Medical Related Mobile App.	110 (12.44)	189 (21.38)	295 (33.37)	249 (28.17)	41 (4.64)

To assess the sources of clinical information resources researcher raised a question that what are the major sources normally students refer for their clinical practices table-4 represents the number of faculty and students who refer various sources of clinical information for research and clinical practice. Majority of the student about 221 (25.0%) have 'always'use clinical practice guideline sites and 290 (32.81%) of students have 'often' used the physicians website as a sources of clinical information.246 (27.83%) of them have 'always' used E-Journal Databases for fulfill their needs. About 223 (25.23%) of student have 'often' used professional medical association sites and 244 (27.60%) of students said they 'often' used continue medical education sites. Data reflects that mobile also one of the major sources for students 'often' (33.37%)mobile apps as a source of clinical information.

Table-5: Electronic Information Resources you refer for clinical practice

Electronic Information Sourcese	Always	Most of the Time	Often	Rarely	Never
E-Journals	224 (25.34)	283 (32.01)	247 (27.94)	91 (10.29)	39 (4.41)
E-Books	194 (21.95)	250 (28.28)	268 (30.32)	115 (13.01)	57 (6.45)
Audio – Video Materials	156 (17.65)	275 (31.11)	229 (25.9)	143 (16.18)	81 (9.16)
E- Databases	241 (27.26)	283 (32.01)	227 (25.68)	86 (9.73)	47 (5.32)
E- Thesis and Dissertations	227 (25.68)	251 (28.39)	314 (35.52)	61 (6.9)	31 (3.51)
Social Networking (Blogs, Wikis, RSS feeds)	147 (16.63)	229 (25.9)	206 (23.3)	172 (19.46)	130 (14.71)
Open Source literature	214 (24.21)	257 (29.07)	222 (25.11)	108 (12.22)	83 (9.39)
E- Reference resources (Dictionaries, encyclopedias etc.)	227 (25.68)	250 (28.28)	274 (31)	88 (9.95)	45 (5.09)

Health science university library have begun to make their information resources available online in order to improve their services to satisfy the information needs of students. Health science university libraries have electronic Information Resources include such as e-books, e-journals, e-databases, e-thesis & dissertations, e-e-reference sources, subject gateways, social networking sites, open source literature and students and faculty generated contents. Students make use of various types of e-resources for their research and clinical practice. Table-5about283 (32.01%) have 'most of the time' e-journal databases for clinical practice,224 (27.26%) of student have 'always' use e-databases, 28.28% of students 'most of the time' used e-books, 314 (35.32%) of student have 'often' used electronic thesis and dissertations collections form the library.

Table 6: Use of Web based Clinical Information Resources

Web based Clinical Information Resources	Always	Most of the Time	Often	Rarely	Never
Access Medicine	184 (20.81)	266 (30.09)	241 (27.26)	134 (15.16)	59 (6.67)
BMJ Best Practice	129 (14.59)	237 (26.81)	204 (23.08)	162 (18.33)	152 (17.19)
CINAHL(Ebsco)	132 (14.93)	185 (20.93)	241 (27.26)	212 (23.98)	114 (12.9)
Dyna Med	83 (9.39)	144 (16.29)	230 (26.02)	192 (21.72)	235 (26.58)
Embase (Elsevier)	221 (25)	245 (27.71)	277 (31.33)	89 (10.07)	52 (5.88)
Lexi-Comp	69 (7.81)	132 (14.93)	225 (25.45)	238 (26.92)	220 (24.89)
MD Consult / Clinical Key	204 (23.08)	281 (31.79)	248 (28.05)	103 (11.65)	48 (5.43)
Micromedex	80 (9.05)	92 (10.41)	188 (21.27)	230 (26.02)	294 (33.26)
MIMS DrugAlert	62 (7.01)	80 (9.05)	156 (17.65)	174 (19.68)	412 (46.61)
Scopus	213 (24.1)	226 (25.57)	264 (29.86)	143 (16.18)	38 (4.3)
UpToDate	173 (19.57)	252 (28.51)	286 (32.35)	109 (12.33)	64 (7.24)
Clinical Access	112 (12.67)	185 (20.93)	306 (34.62)	225 (25.45)	56 (6.33)

Web is a grand place where various types of clinical information resources can be access, with increasing sources of clinical databases over the web respondent were asked to indicate their lever of knowledge about those web based clinical information resources. Ttable-6 gives the detailed information about the various clinical information databases. Table shows that 252 (28.51%) of student 'most of the time'used Up To Date clinical information database, moderate percentage of student use MD consult for 'most of the time' (n=281, 31.79%).Embase (Elsevier) also one of the major clinical information provider, the above table represent that 221 (25.00%) of students have 'always' used Embase (Elsevier) database306 (34.62%) of students have 'often' used clinical access database for clinical practicealso 237 (26.81%) of students 'most of the time' used BMJ Best Practice clinical database264 (29.86%) of them have 'often' used scopus database241 (27.26%) of students 'often' used CINAHL (Ebsco) . Data reveals that very less number of faculty and students have used Lexi-Comp, Dynamed, Micromedex and MIMS Drug Alert database.
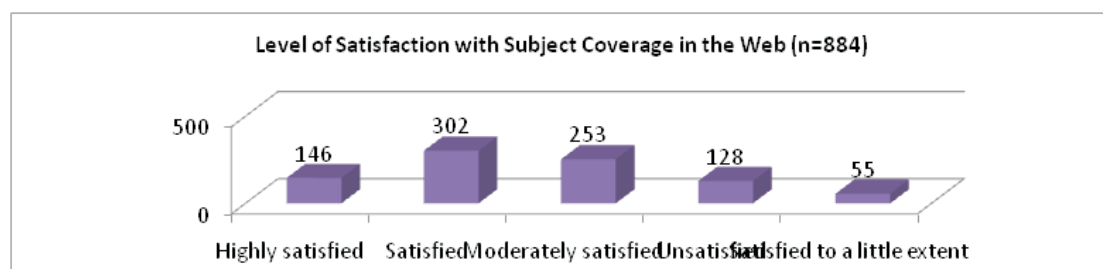
Figure-14: Level of satisfaction with subject coverage in the web

Respondent were asked to indicate their level of satisfaction on subjet coverage in web based clinical information resources. It is evident form figure-14 that majority students (n=302, 34.16%) were 'satisfied' with web/ internet for searching clinical information resources, followed by 146 (16.52%) of students 'highly satisfied' with the subject coverage while using internet.

Table-7: Effectiveness of Internet for accessing clinical information.

Factor	Strongly Agree	Agree	Moderately Agree	Disagree	Strongly Disagree
24/7 access to Clinical Information Resources	271 (30.66)	320 (36.2)	206 (23.3)	54 (6.11)	33 (3.73)
Access to up-to-date information	296 (33.48)	342 (38.69)	143 (16.18)	65 (7.35)	38 (4.3)
Has enhanced my participations in professional associations, societies	207 (23.42)	283 (32.01)	227 (25.68)	102(11.54)	65 (7.35)
Has helped to take quality decisions in Clinical Practice.	194 (21.95)	247 (27.94)	301 (34.05)	85 (9.62)	57 (6.45)
Has increased the frequency to publish the outcomes of research	133 (15.05)	271 (30.66)	332 (37.56)	118 (13.35)	30 (3.39)
Information available in various formats as per the need.	158 (17.87)	241 (27.26)	306 (34.62)	107 (12.1)	72 (8.14)
Made access to required information much cheaper and more accurate	292 (33.03)	315 (35.63)	161 (18.21)	70 (7.92)	46 (5.2)
Made my clinical practice much easier & less time consuming	155 (17.53)	256 (28.96)	288 (32.58)	126(14.25)	59(6.67)
Provide Organized information	171 (19.34)	217 (24.55)	302 (34.16)	131 (14.82)	63 (7.13)

Table-7 explains the level of effectiveness of Internet while accessing clinical information resoources, it is evident from the table that about 296 (33.48%) of student 'strogly agree' and 342 (38.69%) of student 'agree' for the statement that web enables access to up-to-date information. As for as time of access concerned about about 271 (30.66%) of students have 'strongly agree' for the statement that web provides 24/7 access to clinical information. About 247 (27.94%) of students 'agree' that statementweb has helped to take quality decisions in clinical practice, whereas among the students. 332 (37.56%) of student 'agree' for the statement web has increased the frequency of publication of research. 283 (32.01%) of students 'agree'that web has made access to required information much cheaper and more accurate. From the result the researcher notes that majority of students (32.01%) have 'agree'' for the factor that web has enhanced participations in professional associations, societies and so on. About 306 (34.62%) of students 'moderately agree' and opinioned that web provides information in various formats as per our needs.

Table-8: Discouraging factors

Factor	Strongly Agree	Agree	Moderately Agree	Disagree	Strongly Disagree
Limited access to a computer terminal	176 (19.91)	254 (28.73)	267 (30.2)	106 (11.99)	81 (9.16)
Lack of IT knowledge to effectively utilize services	105 (11.88)	160 (18.1)	181 (20.48)	257 (29.07)	181 (20.48)
Using Web often detracts me from doing my other work	86 (9.73)	123 (13.91)	152 (17.19)	406 (45.93)	117 (13.24)
Non-cooperative attitude of the staff to facilitate easy access	139 (15.72)	164 (18.55)	185 (20.93)	324 (36.65)	72 (8.14)
Lack of network facility	147 (16.63)	296 (33.48)	212 (23.98)	149 (16.86)	80 (9.05)
Lack of user education program	130 (14.71)	181 (20.48)	257 (29.07)	260 (29.41)	56 (6.33)
Difficult to read from screen & unorganized	159 (17.99)	223 (25.23)	312 (35.29)	109 (12.33)	81 (9.16)
High Cost	282 (31.9)	173 (19.57)	165 (18.67)	149 (16.86)	115 (13.01)
Low Speed Internet	168 (19)	253 (28.62)	220 (24.89)	162 (18.33)	81 (9.16)

Researcher also asked the respondents to mention the discouraging factors in utilizing the web based clinical information resources and services from the library. Table-8 explores the discouraging factors while

utilizing web based clinical information. It is evident from the table that lack of network facility is a common factor 296 (33.48%) of them 'agree' for the statement, about 260 (29.41%) of students were 'disagree' and they said that they have not got fair user education program means they have fair user education. Further the researcher observes that most of the students have 'moderately agree' (35.29%) for the statement that they felt difficult to read form the screen and those information are unorganized, 185 (20.93%) of students 'moderately agree' forthe statement the non cooperative attitutde of the staff of facilitate easy access. It can be seen frm the table that about 253 (28.62%) of studetns were 'agree' that they have low speed internet, further data shows that about 20.47% 'strongly disagree'for the factor that the web provides information at low cost compared to print 257 (29.07%) of students 'disagree' for the statement and they said they have good ICT skills. It is revealed from the table that about 406 (45.93%) of students were 'disagree'' for the factor that using clinical informaltin on website oftne detracts me from doing my other work.

8. FINDINGS AND SUGGESTIONS

Based on the result from the analysis of data gathered, the following findings, suggestions/ recommendations and conclusion have been summarized below.
• Majority of the student respondents were below the age of 25 years (n=371, 40.24%),
• A small majority of females can be seen among students (n=186, 52.25%).
• Most of the students were undergraduates i.e. 351 about 38.07%).
• About 308 (33.41%) of students expressed that they 'always' prefer to use drug literature
•Majority of the students 'most of the time' prefer to use web/ internet (32.10%), 29.18% use electronic documents and 29.61% of students depend on library.
• 95.88%student'suse of Internet for accessing clinical information from the web.
• Work station and hospital is a favourite place to access clinical information for 78.51% of students.
• Computer is a popular tool to access web resources among 88.80% of students.
• 704 (79.64%) mentioned that they learn to use of Electronic Information Resource by attending training/ orientation program organized by college library.
• 294 (33.26%) of students prefer 'electronic resources' and 45.70% of respondents prefer both print and electronic resources
• 653 (73.87%) of students prefer to view or download in PDF format and 832 (94.12%) of respondents preferred 'Full Text' access.
• About 781 (88.35%) of students menttioned that they browse 'Through Institute Website' and 836 (68.19%) use both basic/ simple search and advance search.
• Majority of the student search based on 'title' (n=731, 82.69%)
• 264 (29.86%) of student have 'always' use internet to improve clinical decision making purpose.
• Majority of the student about 221 (25.0%) have 'always' use clinical practice guideline sites
• About283 (32.01%) have 'most of the time' e-journal databases for clinical practice.
• that 252 (28.51%) of student 'most of the time' used Up To Date clinical information database, moderate percentage of student use MD consult for 'most of the time' (n=281, 31.79%).221 (25.00%) of students have 'always' used Embase (Elsevier)
• 34.16% of students were 'satisfied' with web/ internet for searching clinical information resources.
• 38.69% of student 'agree' for the statement that web enables access to up-to-date information 30.66% of students have 'strongly agree' for the statement that web provides 24/7 access to clinical information.
• 296 (33.48%) of students 'agree' lack of network facility among health science university libraries.

9. RECOMMENDATIONS OF THE STUDY

Based on the findings the following suggestions are made to improve the Information search skills. Internet is a popular tool which changes the world of health care. Medical professional have to make an effort to proper training in utilising the information resources and services provided by the libraries in various channels. Following recommendations have been formulated for better utilisations of health information.

• Proper networking infrastructure should be considered provide better informationto fulfil the complex needs of the user.
• To achieve the effective curricula among medical students medical universities / deemed universities have to review and regularly analyze the ICT Infrastructure.
• The infrastructure for access clinical information sources should be improve to give effective services by the medical colleges
• It is reflects from the above analysis that medical libraries should improve the user education program to user to educate them towards the usage resources because proper user education enhance the quality of search and access information
• Provision should be made to train the medical students even from a very basic level and this should be further followed by the latest IT applications.

10. CONCLUSION

The tendency toward super specialization in medicine makes hospital to make more and more obliged to maintain effective clinical information delivery among medical practitioners. Internet possesses an enormous number of clinical databases and images which are very useful for medical professionals. The technological development in library activities library professionals have to skill with latest technological development. Efficient infrastructure and resources provides an opportunity for faculty and student to access with latest clinical research. clinical information resources support patient-specific information needs when clinicians use and those resource should well utilized by the students and the library and information centres should support on contributing clinical information for better patient care by helping and assisting the students in optimizing the clinical information delivery by providing unbiased and relevant information for better patient care. Health science library professionals have to educate the uses in a variety of user education programs. Also make provisions for online assessment makes and feedback system to keep it possible to collect many types offeedbacks, which is very usefulin quality measurement of services. Modern Libraries should adoptintroduction of a feedback system for improving and maintaining quality of library services.

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