CHAPTER-3

REVIEW OF LITERATURE

• Introduction

• Studies on Information and Gathering and Use Habits

• Review of Literature: Medical Sciences

• Review of Literature: Dental Sciences

• Review of Literature: Nursing

• Review of Literature: Pharmacy

• Studies on Resources and Services of Health Science Libraries

• Conclusion
CHAPTER 3
REVIEW OF LITERATURE

3.1 INTRODUCTION:

It is emphasized that information is an essential part of a nation’s resource and access to it is a key feature in the improvement of quality of life. The resources (manpower, information, infrastructure and finance) and services (traditional, computerized including Internet based) play a very significant role in satisfying the information needs of users of libraries. The study of information gathering and use habits of health professionals is of paramount significance for design and development of resources and services. The discipline of health science, is witnessing great progress in the form of the development of new drugs and the break-through in the clinical control of various diseases due to research activities, which in turn have led to the proliferation of information in the field of health sciences. The health professionals make use of a variety of information sources in terms of formats - print, non-print, electronic; categories - primary, secondary and tertiary, and channels - formal and informal. A few surveys on health science libraries resources and services and many studies were undertaken in the past to find out the information gathering and use habits of health professionals. An effort is made here to review the literature on the topic based on the literature identified through LISA on CD (1969-June 2001) and MEDLINE on CD (1966-2001).
The review of literature is organized broadly under two sections viz.,
review of studies on information gathering and use habits and studies on resources
and services of health science libraries.

3.2 STUDIES ON INFORMATION GATHERING AND USE HABITS

The first section deals with the review of literature on information
gathering and use habits of health professionals under the following
headings/subheadings:

Review of Literature: Medical Sciences:
Library Centered Studies;
Non-library Centered Studies;
Studies in an Electronic Environment and
Barriers to Information Use

Review of Literature: Dental Sciences:

Review of Literature: Nursing

Review of Literature: Pharmacy

3.21 REVIEW OF LITERATURE: MEDICAL SCIENCES

3.211 LIBRARY CENTERED STUDIES:

It is difficult to make a distinction between use of printed materials inside a
medical library and use of the same owned by physicians but used outside the
library. This section of the review deals with library centered studies. Printed
materials, especially medical texts and professional journals, represent the major
sources of information used by physicians. It was found that several factors
contribute to their extensive use viz., availability, accessibility and reliability.
Stinson and Muller (1) in a survey of two hundred fifty eight physicians of various specialties found that the textbooks, contact with professional colleagues as the most commonly used sources of information. Sources of medical information – medical books, monographs, periodicals and pharmaceutical firms have been identified by Vollan (2) that physicians use to continue their education while practicing medicine. Murray (3), Northup (4) also revealed that the medical books were the most frequently used sources of information by physicians. Based on an in-depth interview of sixty physicians in four hospitals of Nigeria, Ojo (5) identified most frequently used formal information sources and document channels.

According to Covell (6) physicians used print sources such as textbooks, journals and drug information sources significantly more often with a drug compendium being the most frequently used source. Farmer (7), reported that the physicians were extremely knowledgeable of the literature in their specific field and they most often browse through new periodical issues in the library to supplement information from journals, which they receive in their offices, while journals were the most frequently used sources of information by psychiatrists (8). The medical journals were the most popular sources used for obtaining information by family doctors (9).

Strasser’s study (10) on the information use of practicing physicians in New York State found professional journals as the most frequently used sources of information followed by personal communication with colleagues, books, personal
collections as very important sources of information and further the information most frequently sought on specific disease/s.

Although physicians used journals heavily, they lacked knowledge of medical indexes and abstracts. The results of a survey of the self-education patterns of three hundred and ninety staff physicians, interns, and residents by Neufeld and Woodsworth (11) indicated that 63% of the staff physicians. Da Rosa (12) and Marlowe (13) also came to a similar conclusion and noted that it was due either to the lack of knowledge of using these sources effectively or the lack of instruction in the use of medical libraries.

Physicians used audio-visual materials infrequently to resolve clinical problems as a source of information while Family physicians reported that these sources were more difficult to use because of: the prohibitive cost of hardware and software systems; availability/accessibility and non-familiarity with what is available or how to use the one which is available (14). Murray-Lyon's (15) study revealed that tapes, slides, and television presentations were not considered of much value for family doctors. Cheng and Lam (16) reported that the health professionals visit hospital libraries very rarely to view and borrow audio-visual materials. According to Scheley's study (17), physicians used the hospital libraries to conduct library business such as circulation activities, deliveries, or to consult a librarian; look up information, use the reference sources, books and journals; and study or read, use the phone facility, or use the photocopier. A Canadian survey also (18) indicated that physicians in Ontario made little use of libraries, as they had no time to search for information. They obtain information either from their
colleagues or from their own reference collections. Oscasohn (19) found that 36% of the physicians borrowed fewer than ten library items during the two years of the study but Raising et al (20) in a six-month study at the Yale Medical Library found that 90% of the books used were for research purposes.

Kough (21) found a clear preference for the use of hospital libraries opposed to either medical school or medical society libraries, because of the convenient location of the hospital library, while Rosenberg (22), Northup (23) found that they preferred to search their personal files or libraries. Marlowe (24) reported that doctors have a tendency to keep their own stores of information in the form of photocopies and journals to which they personally subscribe. According to Heal’s study (25), the reference books held by general practitioners are those to which they continually refer and found adequate for a large number of their everyday and routine information needs.

Friedlander (26,27) studied the use of medical libraries to ascertain their role among other channels of communication, information sources used by physicians, and factors influencing the choice of information sources. The results showed the library as the most important place for locating printed sources; personal collections as very important sources of information; Journal articles as major source of information; more than half of those who used the library browsed or used indexes; few used the card catalog; and information was used for both clinical and research purposes.

Timpka, Ekstrom and Bjurulf (28) investigated the general practitioner’s decision-making habits with respect to their needs and search for information,
present use of sources of information, and a description of "information
dilemma", perceived need for information. The sources of information preferred
by them were colleagues (38%); personal textbooks (37%); the library (15%);
personal notes (4%), medical journals (2%) and other sources (6%). The highest
number of dilemmas (43%) was related to general medicine (includes neurology
and oncology) followed by dermatology (13%), surgery and pharmacology.
Information was needed urgently (within 15 minutes) for 80% of gynecological,
76% of dermatological and 50% of pharmacological dilemmas.

The results of survey by Cheng and Lam (29) on the information-seeking
behavior of health professionals of thirty-seven hospitals in Hong Kong showed
that 65.7% (N=616) of the respondents used either their own hospital libraries or
their library networks. Most of the medical staff and two-thirds of allied health
professionals used the hospital libraries. Half of them used the library at least once
a week and medical staff were the most frequent users. Book lending was
rated as the most useful and the most frequently used service by all categories of
users followed by periodical lending and photocopying. Database searching was
ranked sixth among ten services, in both usefulness and frequency of use by all
respondents. The medical staff viewed it as a very useful and frequently used
service. The medical staff and hospital executives ranked highly the inter-library
loan and current awareness services, respectively.

Northup (30) survey of two hundred and ninety three medical students,
residents, and physicians concerning their everyday information needs and the
sources used to address their needs found a heavy reliance on books (43%),
followed by professional colleagues (28%) and journal articles (21%); information sources used were often retrieved from personal libraries and journal articles; medical libraries were used to a similar extent by medical students and physicians, but were used to a greater extent by residents; the working relationships and previous schooling were the factors found influencing the knowledge of information sources and twenty percent of the participants directed to the sources by a colleague or an index.

Curtis, Weller and Hurd (31) in their survey found that health science faculty, while seeking information from the journal literature relied on the traditional methods asking a colleague, scanning a personal copy of a journal, pursuing material in a departmental collection and going to the library.

Shelstad and Clevenger's (32) study of one hundred and thirty three physicians who had a primary or secondary practice in general surgery in urban and rural areas found that urban surgeons used information for teaching and publication extensively more than rural surgeons. Rural surgeons used information more frequently for continuing education, patient education and medico-legal purposes. Both urban and rural surgeons used professional meetings, medical literature, colleagues and continuing education courses most frequently to obtain information.

3.212 NON-LIBRARY CENTERED STUDIES:

Heavy reliance on the informal sources of information appears to be particularly strong in the field of medical sciences for a physician; face-to-face contact with professional colleagues, inside or outside the hospitals is a regular occurrence in daily practice. A variety of non-library-related sources of
information such as: personal contacts and discussions with colleagues and medical consultants from inside and outside the hospital; professional meetings, seminars, and workshops; medical conferences at the local, national and international levels; radio and television programs; pharmacists, drug detail men or pharmaceutical representatives; and correspondence and formal courses offered by medical schools, professional associations or government agencies are used.

Based on a review of literature on user studies Wood (33) concluded that the physicians spend a portion of their time for updating their information and learning recent innovations by reading books, professional journals, medical references and other printed materials and when a critical decision needs to be made, they will turn to their colleagues who have similar interests for clarification and direction to solve patient-care problems. Studies have also shown that colleagues are a popular source of medical information in general, and immediate care problems in particular (34-37). Kough (38) found that contacts with colleagues are the most important source of information next to reading. Marlowe (39) also found that nearly all the practitioners covered in the study, admitted that though the conferences are very important, talking to colleagues over coffee or in the evenings often proved more satisfying than the conferences themselves.

Stinson and Muller (40) based on interviews of more than 400 randomly selected health professionals, identified the sources of information used by them to stay abreast of current advances in medicine. It was found that, in addition to the medical literature, the respondents spent one to five hours each per week in discussions with colleagues, five to ten hours each per year at local professional
meetings, five to ten hours per year at state meetings, and 10 to 15 hours per year at national meetings.

Hemer (41) determined the patterns in the use of information sources of American medical scientists and reconfirmed the significant role of personal contacts in the process of information seeking and transmission. He also (42) found face-to-face communication as the most important method of answering questions or solving problems, as one of the most important sources of ideas, and as one of the most important means of keeping abreast of current developments. According to Green (43) the value of colleagues as information sources is great but one has to consider its limitations and pitfalls as it fails to give the learner a real understanding of the basic concepts and it may also lead to inaccurate and/or incomplete information. Dee (44) observed that colleagues, medical meetings (91.7%) and national meetings (83.3%) were the leading sources of information for rural physicians.

Corell’s (45) study listed another physician (29%) followed by other health professionals (24%) and laboratory data (20%) as the sources that most frequently provided the answer to the physicians in office practice. Woolf and Benson (46) based on a study of the medical information needs of internists and pediatricians at an academic medical center found that colleagues were the most frequently used sources by both faculty and house staff next to text books. Timpka, et al (47) in their study on information needs and information seeking in primary health care corroborated the earlier findings. Colleagues and professional activities like
attending meetings and symposium were the sources of information for biotechnology research as found by Grefshein, Franklin and Cunningham (48).

Bowden, et al (49) surveyed the physician's information needs in five Texas counties. The information resources used on a daily, weekly or monthly basis were personal or office collection of books and journals; consultation with colleagues and continuing medical education. Rural health care practitioners in Hawaii have indicated that discussion with colleagues was the second most sought information source (50). Mullaly-Quijas et al (51) in a regional marketing study using focus groups, discovered health professionals' information needs and found that referring to colleagues and personal article collection were the sources of information in their information-seeking activities.

Morris (52) conducted a study to identify the influential members in twenty-one community hospitals. Physicians nominated as information influential seemed to be centrally located in the medical practice; spend greater number of hours at the hospital per week; be the same age as those they influenced; and use consultation more often than those individuals who were characterized as non-influential.

Shearer (53), and Marlone (54) emphasized the role of pharmaceutical representatives and drug detail men in providing drug information to physicians, especially general practitioners. Caplow (55) found that physicians communicated with drug detail men because they bring information about new products and make them aware of new information. Heal (56) reported that most general practitioners received unsolicited information from pharmaceutical companies.
Nelson's (57) study indicated that physicians rated pharmacists as equally or more competent than themselves in drug information. Byron (58) established the frequent use of the pharmacist as a source of information and confirmed a high degree of acceptance of pharmacists' recommendations concerning a patient's drug therapy. However, few studies also indicated health professionals less dependence on drug sales representatives or drug industry-based sources of information, because of better educated physicians coming into practice (59), and pharmaceutical representatives trained in business and selling techniques than in sciences (60).

In a review of literature the role of television in continuing medical education, Marshal and Alexander (61) concluded that television could be used for primary purpose like advertising or to introducing new advances in medical science for the purpose of creating awareness on the part of the physician. Marshal and Alexander (62) and Means (63) observed that physicians favored the use of radio and television as sources of information when used in combination with other sources such as group discussion or printed material for reasons of easier access and not having to travel great distances. Hunter (64) found that non-specialists use television programs more often than specialists.

The formal postgraduate courses offered by medical schools, hospitals, medical organizations and government agencies are found to be popular means for continuing medical education for physicians (65,66). Family physicians too indicated that these courses were an important part of their information-seeking
process to solve clinical problems. Means (67) found that family physicians are more likely to attend a course if it addresses a current clinical problem.

3.2.13 STUDIES IN AN ELECTRONIC ENVIRONMENT:

Although the technology of online bibliographic databases are available since the early 1970s when the National Library of Medicine initiated MEDLINE services, online searching has not yet attained general acceptance among physicians. Krieger (68), Strasser (69), and Renford (70) found that American physicians used the MEDLARS system of on-line retrieval infrequently. Renford found that about 78% of respondents have never used MEDLARS. Even the results of a survey, which was carried out in the United Kingdom by Marlowe (71) showed that secondary publications had a limited use by physicians, as did the online bibliographic services. This was substantiated by a study on the information transfer strategies for military medical practitioners by Burger and VanBrakel (72) where it was observed that 78% of them never made use of computerized literature searches. Grefsheim, Franklin and Cunningham (73) studied the impact of personal computers on both personal communication, and literature review and retrieval. According to Lundeen et al, more than 70% of the health care respondents had fax machines, approximately 85% had computers, the choice for information access with those computers were somewhat limited (74).

Fazzon (75) found that patient care and research are the most frequently stated purposes of on-line searches by physicians. Bowden, Kromer and Tobia (76) observed that the most frequently stated reasons for using MEDLINE were preparing a lecture or paper (59.6%), patient care (43.8%) and staying current (27.9%). Curtis, Weller and Hurd (77) investigated the information-seeking
behavior including use of major bibliographic tools by medical, pharmacy, and nursing and science faculty at the University of Illinois, Chicago and found that Index Medicus or MEDLINE was popular among a larger majority and that a great majority (89.7%) used at least one bibliographic database.

The study was revised and updated by the same authors in 1995 (78) to reveal the latest technological means of access to and use of the electronic resources and to identify the changes in information-seeking behavior of faculty from medicine (48.5%), from nursing (45%) and pharmacy (62.5%) during the period from 1991-1995.

Of the four hundred and four health sciences faculty, 87.3% from medicine, 79.5% from nursing, and 91.6% from pharmacy used some form of MEDLINE or Index Medicus. The most frequent means of accessing MEDLINE was Grateful Med. The next choice was print version of Index Medicus for medicine and nursing, while pharmacy faculty used CD-ROM version of it more often as a next choice. One fourth from pharmacy, less than one-third of the faculty from medicine and nursing used the MEDLINE CD-ROM workstation. The least used method of accessing MEDLINE was OCLC’s first search. Library’s mediated search services were used by for accessing the literature in MEDLINE (11-25%). Index Medicus and MEDLINE were not sufficient to meet all the information needs of many health sciences faculty. They also used BIOSIS, Current Contents, ERIC and Science Citation Index, Chemical Abstracts, CINAHL, Psychological Abstracts. Half of the health sciences faculty used e-mail and another 48.1% used
the World Wide Web. Faculty also used tools such as Gopher, FTP and TELNET but less than e-mail or web.

One of the new developments in the communication behavior of physicians is the use of librarians as information sources. Scura and Davidoff (79) found that clinical librarian was a source of new information for 86% of the respondents. The relevance of information supplied by medical libraries was studied at Yale Medical School (80) which was rated with an overall mean of 3.45 on a 4-point scale, while, 95.3% of the searches by medical librarians were considered as relevant at the University of Missouri at Kansas City (81). Friedlander (82) found that physicians were likely to ask librarians for help.

3.214 BARRIERS TO INFORMATION USE:

According to Chen, (83) information use patterns of an individual are determinantal to that individual's information environment, which consists of the background and characteristics of the individual, the nature and type of information needs with which he or she is confronted, the type and availability of information providers, the existence of barriers between the information user and the information provider, and the degree of satisfaction perceived by an individual. Werner (84) found that the experience of medical researchers, their status in the organization, the resources available to them, their personality and use instruction, are the possible factors which affect their information use patterns.

Paisley (85) identified the factors that are likely to affect the process of information use. These are availability of information sources; the use to which information will be put; the background, motivation, professional orientation and
other characteristics of the user; the social, political, economic, and other systems that affect the user and his or her work; and the consequences of information use.

Slater and Fisher (86) observed that information use is influenced by the nature of the institution in which the user works, by the communication structure within the institution (including the existence of library services), by the user's job, specialization, rank, and the time pressure under which he or she works. Other factors which affect are, field to which the user of information may belong, the user as an information processor, as an individual in a working team in an organization or a professional society, a part of a formal information system, or as a member of an invisible college (87).

Ford (88) found that the factors like educational background, status within the profession, the work environment, the purpose for which information is sought, experience with particular information channels, and accessibility of information channels affect the physicians in using the medical information sources or channels (88). He also found that specialists typically undertake research and teaching, belong to several professional associations, use libraries frequently, read foreign literature, use journals rather than books, ignore trade literature, use inter-library loan services, and subscribe to several journals. On the contrary, general practitioners do little research or teaching, belong to few professional associations, use libraries rarely, read no foreign literature, do not use inter-library loan services, and subscribe to few journals. Dee and Blazek (89) in their study of information needs of the rural physician found that, the rural physicians expressed a desire for immediate and easy access to concise, organized and high-quality information and
not inclined towards the use of computer. A medical library had little impact on the information-seeking behavior of rural physicians.

Shelstad and Clevenger (90) studied the information retrieval patterns and needs of practicing general surgeons and indicated that; rural practice and its result in isolating doctors from expert colleagues, medical schools, and library resources, limited hospital budgets, lack of knowledge about appropriate information sources, practice demands, computer illiteracy acted as barriers to their information retrieval needs.

Nimer (91) also found that the availability of information is one of the most important factors that affect the use of information sources by physicians. Osudina (92) while establishing relationship between accessibility and the use of libraries concluded that better access helps to improve the use of information sources. Friedlander (93) discovered high use of medical sources of information that are accessible and easy to use.

But, Line (94) in his study of information requirements of social scientists noted that the factors such as age, experience in research or job, background, seniority, perseverance, diligence, inspiration, freedom, awareness of sources and languages understood may or may not affect use of information sources. Contrary to this Stinson (95) found that the use of various information sources by health professionals was related to such factors as type of practice, specialty, location of practice, professional’s age, and the size of their primary hospital. Strasser’s (96) study of the information use of practicing physicians in New York State showed that younger doctors used library sources more than older doctors, and that
significant relationships were found between the use of information sources and
the involvement in medical research or education, age, and professional specialty.
Covell, Uman and Manning (97) found that the physicians in office practice use
print sources significantly more often than consulting other physicians,
pharmaceutical librarians, laboratory personnel and social workers. Computerized
sources and medical school faculty were used least often. Use of human resources
was maintained regardless of type of practice, with solo practitioners using human
sources 61.5% of the time and group practitioners 47.2% of the time. Although
physicians believed they used print sources more often than human sources in
office practice, in the actual practice the reverse was true of the situation. During
the interviews, physicians based their choice on their perception of quality 47% of
the time and on the accessibility of the source 38% of the time. The sources they
would like to have in their office but did not have, and the sources that they desired
to have were newer textbooks, computers to answer diagnostic and treatment
questions; better organization of existing print sources; computerized literature
reviews and access to information by telephone, radio and other audio sources.

The most frequent of the eighty-one barriers were lack of time to look up
information, cost of the source, poor organization of source, non-existence of
sources, a glut of information sources of differing reliability.

Woolf and Benson’s (98) study based on eighty physicians at Johns
Hopkins Hospital revealed that the differential diagnosis, rather than treatment
recommendations, was the type of information most commonly sought by house
staff. In contrast basic science information was considerably more important to
faculty than to house staff. The use of basic sciences information was more common among faculty physicians who identified “research” as their primary work activity than house staff. The speed of electronic searching was rated as greater advantage by house staff than faculty. Disadvantages of the technology were lack of accessible terminals in their work area and inability to view photographs, radiographs and diagrams. The time required to use the computer was rated as greater disadvantage by faculty than by house staff.

Grefsheim, Franklin and Cunningham (99) in a study of biotechnologists indicated that, the scientists got their information from three basic sources: their own experiments, receipt through personal communication with other scientists, textual material, including both printed and electronic media. Many said that their most important and timely information came from personal communication and face-to-face contact.

Lundeen and others (100) found that telephone calls and electronic mail provided the means of keeping in contact with colleagues and collaborators on a day-to-day basis. Many senior scientists had personal subscriptions to the major journals, periodically scanned tangential journals often in the department library and only a small number of scientists reported going to the health sciences library in person on a regular basis. All scientists made literature searches on MEDLINE primarily to ensure that no relevant articles were missed. Geographic location (52.8%), cost (49%), and inadequate technology (26.3%), document delivery delays and inadequate staffing were the most often mentioned barriers of information use.
Physicians' information needs in five Texas counties assessed by Bowden, Kromer and Tobia (101) revealed that the inconvenience of the other library, finding time to use the services, and lack of computer training to use online services were the shortcomings. Valley physicians cited the overall lack of service, lack of time to track down information and lack of expertise in computers for online services. Reasons for not requesting MEDLINE searches as far as Bexar physicians were concerned include not being needed (13.0%), an inconvenient location, and having to wait to have the search done (8.0%) while for Valley physicians it included no local access (20%), never heard of it (16.4%) or the search was not needed (11.8%). Mullaly-Quijas (102) has reported that time, lack of computer literacy, lack of sources and computer fear as the barriers to use of information sources.

Cheng (103) in his study indicated that weak collection was the main reason why the hospital libraries failed to meet user needs. One-fourth (26.6%) said the item they wanted was not in the library; 66.7% remarked that there were an insufficient number of books and journals in the library. Thirty of one hundred fourteen commented that the services were not up to the expected standard and CD-ROM searching was not available in their libraries. Most of the comments focused on the long waits involved in obtaining inter-library loans and reserved books. Many (55%) indicated that the rich collection of other information libraries were the reason for using external sources of information. More than half (52.3%) had never used a personal computer. Three-fourth (74%) had not used the CD-ROM database search service. Majority of respondents felt the need for user search
skills. Computer searches were preferred because of work-related reasons, quick reference and self-study and recommended for more full text journals and databases on health care planning.

Physicians spent approximately three hours a week reading professional journals. Those physicians who were specialists or who were younger tended to rely more on professional journals than other physicians. Younger physicians read journals from cover to cover while older physicians seem to skim the articles (104). According to Herner (105), the use of the hospital library was greater in hospitals with a large number of younger physicians, than in hospitals with a population of older physicians. Heal (106) came to a similar conclusion in 1978, noting that general practitioners who were licensed more than 20 years ago hardly used libraries in comparison with the younger generation of general practitioners.

Hibberd and Meadows (107) carried out a survey of one hundred and fifty five hospital doctors in the United Kingdom to discover how they found out information about new drugs. The results showed that 85% of the respondents used the commercially produced Monthly Index to Medical Specialties to learn about the existence of a new drug. It was also found that two factors affected the importance that hospital doctors attach to promotional sources of information. They are the length of time the doctor has been in medical practice and the place of qualification: junior doctors relied more often on textbooks and those qualifying outside the United Kingdom tended to use promotional materials to a greater extent than those qualifying within the United Kingdom.
Royaltey (108) studied the information needs of health care professionals and consumers in developing countries. It was found that though doctors and nurses in the developing world have all the information needs of their counterparts in economically advanced nations; they encounter some unique problems in obtaining such information even in conventional forms, as textbooks are expensive in many cases and journals are a far reach.

Schwartz (109) reported that gaining access to the clinical and scientific information needed, expensive paper and writing down citations that seemed pertinent rather than print them were the major problems confronted by Indian physicians and scientists. Further, none of them has received instruction from libraries in finding information, as they believed that librarians lacked the training, subject knowledge, and technical expertise to teach information-finding skills. Both physicians and scientists indicated that they were performing their own literature searches, believing that their subject expertise enabled them to conduct a higher-quality search than could be executed by professional librarians.

Friedlander (110) found a significant relation between department affiliation and the use of formal or informal sources of information. Psychiatrists were significantly more dependent on informal sources than formal sources, while the reverse was the case for surgeons. The use of formal versus informal sources of information depended on experience and the type of work, that is, whether a physician is engaged in a theoretical or an applied area of the specialty, and found that research, demands more use of formal sources than teaching, administration or clinical work.
Curtis, Weller and Hurd (111) found that Index Medicus or MEDLINE likely to be used by faculty from ophthalmology and medicine than the faculty from the other departments. Similarly, ‘Current Contents’ was more likely to be used by ophthalmology and pathology than from other departments.

Menzel (112), in a study on the use of formal information sources by researchers and clinicians, found clinicians’ use of the literature, much less frequent than researchers. Meyada (113) also came to a similar conclusion that practicing health care professionals require information in forms and amounts that differ substantially from those desired by researchers and academics. Farmer (114) found that the teaching faculty read the most recent literature in their respective specialties much faster than SDI services can bring them to their attention.

Northup (115) studied the information use of medical students, residents, and physicians. It was found that residents and medical students used books more than physicians, who more frequently used journal articles. Libraries were used to a similar extent by medical students and physicians, but were used to a greater extent by residents. Many participants made use of specified sources of information based on physical proximity, ease of use, or familiarity with the source.

Ojo (116) determined the types of information needed by medical doctors in four Nigerian hospitals and found that most frequently used sources were: formal information sources and document channels. Osiobe (117) studied the use of information sources by the faculty and students of medical schools in Nigeria.
and indicated that journals were the most important sources of information for faculty, while monographs and textbooks were the most important sources of information for medical students. Private information files and personal contacts with colleagues were found to be important sources for both the faculty and the medical students.

DaRosa (118) conducted a study in 1983 to compare the information-seeking abilities of third- and fourth-year students and physicians. The findings indicated a difference in the information-seeking process between third-year students and physicians and no differences between third-year and fourth-year students in their approaches to seeking information and that all the three groups needed additional training on accessing the medical literature to make patient care decisions.

Stinson and Muller (119) studied the influence of the geographical focus of practice, institutional setting, experience and specialty on the use of information sources. Their results showed that health professionals in urban areas made more use of professional colleagues than those in rural or semi-urban areas; individuals in institutional practice used professional colleagues more than those in solo or group practice; and physicians in general practice regularly made more use of pharmaceutical representatives than do the specialists.

Herner (120) found awareness of foreign languages as a serious barrier in information use by studying five thousand American medical professionals who made little use of Soviet works. Morris (121) found that use was not made of foreign language literature. According to Broadus (122) the Americans, even
scholars, did not utilize a great quantity of foreign-language materials. Other studies by Riodran (123), Line (124), Hibberd (125), and Ford (126) also found that, the fluency of foreign languages affected the use of information sources.

A study conducted by Woodworth (127) to know whether physicians had any training or instruction in the use of medical libraries and information sources, and if so, whether such instruction had any impact on their information-seeking behavior, indicated that physicians had little knowledge in the use of medical libraries and information sources, and lacked instruction on their use, but that there was a desire among physicians to have such instruction.

3.22 REVIEW OF LITERATURE: DENTAL SCIENCES

Dentists, as health professionals, need access to information. The increase, in the rate and volume of published information has made it more difficult for them to keep up with new developments. Murray's (128) study on dentists' sources of new drug information in a Southeastern State found that dentists preferred medical reference books as a major source of information followed by recommendation by colleagues and dental reference books. The use of drug information sources by dental practitioners in the United Kingdom as found out by Duxbury and Leach (129), is that at the regional information units, the main type of inquiry received was concerned with drug interactions, followed by adverse reactions. At the University Dental Hospital of Manchester, enquires were on adverse effects and dosage/route of administration.

Ashin (130) based on a survey of sixty U.S. Dental School Libraries aimed at examining services to dental practitioners concluded that library use by dentists
was low and suggested the use of promotional methods to inform dentists of available services and resources by libraries. Strother’s (131) study of information needs and means of obtaining information among three hundred and forty four dentists randomly selected from the Louisiana State Board of Dentistry’s Official List of Dentists and Dental Hygienists found that they relied primarily on professional colleagues (51%) and on personal journal collections (51%), followed by continuing education courses and associations or scientific meetings. Libraries including those of dental schools, the ADA and hospitals were used least often and the reason for use of these was convenience and reliability.

Majority (89%) needed information to keep up with new developments in the field, for patient care (85%), for practice management (59%) and for research (30%). Other reasons for information seeking included teaching, auxiliary training, medico legal cases, study club lectures, consultant work, and public speaking.

In a survey of forty-four dental hygiene practitioners by Gravois et al (132) revealed that for professional development, hygienists used discussions with colleagues (79.1%), continuing education courses (69.8%), and journals (67.4%) most frequently. The sources used for obtaining professional information were asking colleagues (62.8%) and browsing journals, books, and newsletters. They relied on personal experience (95.4%), the credibility of a journal (90.7%) and discussions with colleagues (74.4%) were the criteria used to evaluate professional information. Methodology used (65.27%), author’s reputation (41.9%), consultation with professional associations (23.3%), and professional teaching institutions...
(16.7%) were less popular evaluation tool used. Time, availability and accessibility were found to be the barriers in seeking information.

3.23 REVIEW OF LITERATURE: NURSING

Nurses, the largest group of health professionals, make use of variety of information sources. By 1980s, the number of journals reporting nursing research increased significantly. Educators began to emphasize the importance of critically assessing research findings and adopting appropriate innovations to improve the practice (133,134). Information-gathering and use habits of nursing faculty and students have not been investigated fully. However, investigators have studied the information needs of practicing nurses along with the physicians and few studies concerned with the nurses in the work environment.

Strasser (135) studied the information needs of practicing physicians in Northeastern New York State and compared the results with those of registered nurses and found that nurses in general inclined to have more and greater perceived information needs than doctors, although both need: new developments in their area of specialization, and government regulations relating to health care. Nurses expressed more need than doctors for improved information about psychological aspects of diseases; doctors more than nurses about routine patient care. Like non-hospital doctors, non-hospital nurses had greater information needs than were hospital-based. Nurses used colleagues, newspapers and magazine articles; books and journal papers, in that order while the doctors used journal papers, colleagues, books and seminars, workshops, and conferences. Both
doctors and nurses indicated a preference for seminars, workshops, and conferences as sources and they would like to use more often.

Based on the study of information-seeking behavior of health sciences faculty at the University of Illinois, Chicago, Curtis, Weller and Hurd (136) revealed that 70.1% of nursing faculty used Index Medicus or MEDLINE. They showed greater use of major indexes and databases in multiple fields of study than only medicine or pharmacy. 90.2% used CINAHL; 82.1% used PsyLit; and 54.5% used ERIC. 96.7% of them used at least one database or index. Fee based copying-service was used by 12.2%. Slightly less than half of them (41.7%) had sought information from other local libraries.

Curtis, Weller and Hurd (137) in their study of impact of new information technologies on information-seeking behavior of health sciences faculty observed that, 79.5% of nursing faculty used some form of MEDLINE or Index Medicus. The most frequent means of accessing MEDLINE was Grateful Med. The next choice was print Index Medicus. Less than one-third of the faculty used the MEDLINE CD-ROM workstation. 50% of them accessed Grateful Med from their offices or laboratories. Faculty access to Grateful Med from home has become rather common. This suggests that when other options were available to them, library was not the first choice.

Lundeen, Tenopir and Wernager (138) studied the information needs of rural health care practitioners in Hawaii with the nurses representing the largest group (20%) of respondents. The information needs of nurses were for clinical trials, health status indicators, nursing research, public health research, policy
issues and funding sources in that order. Journal articles were the most popular sources followed by discussion with colleagues, newsletters, reports, videos, product literature and resource directory. Personal files and organization library were the most common places for obtaining documents. Interestingly, only nurses utilized, to varying degrees, all of the various libraries including online information services.

Cheng and Lam (139) surveyed the information-seeking behavior of health professionals of thirty-seven hospitals in Hong Kong and identified the reasons for seeking information by trained nurses in the following order of priority— for keeping one self up to-date, preparing for course work (further education), solving some-work related problems, solving some clinical problems, preparing for lectures, undertaking research, and preparing talks or seminars. Trained nurses visited the library more frequently, majority stayed in the library for only a short period. Many (70.2%) were satisfied with the library collection and services. The reasons for using the library were to: borrow books, consult books, find information about a specific topic, photocopy from books/journals articles, consult journals in the library, borrow journals from the library, photocopy other documents, to read newspapers, have leisure reading and to make book reservations.

A study of health professionals of nine hospitals in Chicago by King (140) found that nurses used their hospital libraries less than the other groups did, and survey by Bunyan and Lutz (141) discovered that nurses represented 34% of hospital employees but only 6% of library clientele. Nurses neglected libraries
despite evidence that research literature was potentially useful. Participants in a study by Marshall and Neufeld (142) claimed that use of library resources had a significant positive effect on their treatment of patients. Corcoran-Perry and Graves' (143) study revealed that colleagues and patient records supplied the answers to most of the nurses' clinical questions and they rarely consulted printed sources.

Blythe and Royle (144) assessed the nurses' information needs in the work environment. The results revealed that the information used by the nurses came from oral, written, printed, and computerized sources. Oral sources included fellow nurses, physicians and other members of the health care team. Handwritten information comprised of individual patient records, the Kardex and other frequently updated resources. Printed materials included institution-specific publications such as departmental manuals and commercially published reference sources such as the Compendium of Pharmaceuticals and Specialties (CPS).

Spath and Buttlar (145) studied the information and research needs of acute-care clinical nurses. Fifty-two of the nurses found information through discussion with colleagues, forty-six searched the library catalog by subject, forty-five browsed the shelves in a subject area, forty-one consulted an expert or authority, and thirty-nine consulted a librarian. The popular abstracting-and-indexing service used was CINAHL while; Index Medicus, MEDLINE and Dissertation Abstracts were used less frequently. Seventy nurses used the library to pursue a personal interest in a subject. Need for information about a diagnosis was a major motivation for sixty one of the subjects, only twenty-five of the nurses indicated
that the libraries of their own institutions met more than half of their information needs, and forty-seven said their library met these needs ten percent or less of the time. A majority conducted their own library search. The majority (92%) reported reading up to three professional journals regularly, and forty-five spend hours per month for reading the professional literature. The popular health sciences information sources used by eighty-one of the nurses were the professional journals, followed by the card catalog (51.0%), films or videos (46.1%); and conferences. Only nine of them used CD-ROM databases.

Regarding resources in the hospital, 65.2% indicated that their major source of information was the unit area, and for thirty-one the medical-library. Among the resources in a non-hospital setting, the community library was the most used. Fifty-seven cited journal subscriptions as a means of staying current. Peers or professional colleagues were used for receiving most of their information, while professional conferences were used for keeping abreast in the field.

3.24 REVIEW OF LITERATURE: PHARMACY

The information-use habits of faculty and students in the filed of pharmacy have not been investigated. However, few studies have been reported regarding the use of pharmacists as a resource person. Pharmacists are assuming a very prominent role as drug information resource persons. Although pharmacists are fast assuming the role of drug information resource persons among health professionals, and their use of printed sources tend to be heavily biased in favor of textbooks rather than journals. In a study designed to determine the type and number of printed information sources used by community and hospital
pharmacists in Southeastern Michigan, it was found that, both the groups tended to use a small number of textbooks in obtaining desired information, which was attributed to the fact that common queries that come to pharmacists could be answered adequately from a small number of textbooks (146).

Curtis, Weller and Hurd (147) based on the study of sixty-one pharmacy faculties, reported that 77% of them used some form of Index Medicus or MEDLINE. Pharmacy faculty reported moderately high use of Chemical Abstracts and Science Citation Index in comparison to use made by medicine and nursing faculty and also sought information from other local research libraries. The same authors have reported (148) that the most frequent means of accessing MEDLINE was Grateful Med (71.6%). Pharmacy faculty used CD-ROM more often as a next choice. Nearly one-third used the MEDLINE CD-ROM workstation. One half or more of them accessed Grateful Med from their offices or laboratories and access to Grateful Med from home has become rather common. Many use BIOSIS, Current Contents, ERIC and Science Citation Index, Chemical Abstracts, CINAHL, and Psychological Abstracts.

3.3 STUDIES ON RESOURCES AND SERVICES OF HEALTH SCIENCE LIBRARIES

Lin (149) surveyed the resources and services of fifty medical libraries in Taiwan. The health sciences library resources and services in Canada were reported by Flower (150). Khan, Ahmed and Nilufar (151) studied the health science libraries (sixty one) in Bangladesh and provided the existing status and their problems. Mbatia, Muya and Nordberg (152) surveyed forty-seven provincial, district and mission hospitals in all parts of Kenya to study library
services at health facilities. Dixit (153, 154) studied the resources and services of health science libraries in India based on data collected from 248 health science libraries of different categories – 101 research, 106 academic, 33 medical and eight hospital libraries with the aim to examine the strength and weakness of the resources – finance, documents, services, equipments and manpower. Mahesh (155) studied the resources of selected medical college libraries in Karnataka for the partial fulfillment of MLibSc degree of University of Mysore. Manjula (156) as part of MLISc degree of Gulbarga University has done work on resources and services of medical college libraries in Karnataka. Pathan and Karisiddappa (157) have proposed a model for health science library network for India. Varalakshmi (158) has proposed for the establishment of regional health information system for the medical college libraries in Andhra Pradesh. Khan (159) studied the existing financial resources of six medical college libraries in Northern Part of Karnataka.

3.4 CONCLUSION:

The review of literature disclosed that though many studies reported were library centered, and an equal number were non-library centered, few studies were from electronic environment, and several were on barriers to information use in the field of medical sciences, while relatively, few studies were from the field of Dental, Nursing, and Pharmacy. By and large, the majority were sample studies of limited scope and objectives, and the findings were not generalisable in view of the diverse methodologies employed, varied study population studied and conducted at different time periods. It is astounding to observe that studies were not reported from India except a few piecemeal studies submitted in the form of dissertations as
part of master's program and four studies at Doctoral program in universities which have not been abstracted in abstracting sources.

3.5 REFERENCES:


17) Scheley Marilyn (1969). The use of hospital health science libraries, Detroit, Wayne State University, School of Medicine, p16.


23) Northup Diana; Moore West; Skipper ; Teaf S R. *op.cit.*, pp873-881.


30) Northup Diana; Moore West; Skipper ; Teaf S R., *op.cit.*, pp873-881.


35) Farmer Jan., op.cit., pp53-54


38) Ibid


47) Timpka Toomas; Ekstrom Marie and Bjurulf Per., op.cit., pp105-09.


56) Heal Penelope., *op.cit.*, p 17.


60) Stinson E and Muller., *op.cit.*, pp 140-143.


69) Strasser Theresa C., *op.cit.*, pp 200-209.


73) Grefeheim; Franklin and Cunningham. Op cit., pp36-44

74) Lundeen; Tenopir and Wermager., op cit., pp197-205.

75) Fazzon ., op cit., pp6-11.

76) Bowden; Kromer and Tobia . op cit., pp189-196.


82) Friedlander and Mongan., op cit., pp65-69


89) Dee Cheryl and Blazek Ron., op cit., pp259-263.


95) Stinson and Muller, op.cit., pp140-143.

96) Strasser Theresa., op.cit., pp200-209.

97) Covell David G; Uman Gwen C and Manning Phil R., op.cit., pp596-599.


99) Grefshem Suzanne; Franklin Jon and Cunningham Diana., op.cit., pp36-44.

100) Lundeen Gerald W; Tenopir Carol and Wermager Paul, op.cit., pp197-204.


106) Heal Penelope., op.cit., p76.


110) Friedlander and Mongan., op.cit., p16.


115) Northup Diana et al., op.cit., pp873-81.
116) Ojo, op cit., p1-170
118) DaRosa., op cit., pp45-50.
119) Stinson and Muller., op.cit., pp130-34.
126) Ford., op. cit.,
135) Strasser., op. cit., pp200-209.
138) Lundeen Gerald W; Tenopir Carol and Wermager Paul., op.cit., pp197-204.
150) Flower M A. Survey of the Health Sciences Library Resources and Services in Canada. Current Research in Library and Information Science
154) Mahesh P S(1977). A Study of Resources of Selected Medical College Libraries in Karnataka. MLisSc Dissertation, Mysore University
