CHAPTER - 2
REVIEW OF LITERATURE
2.1 Introduction

Considerable research has been done on information needs and information seeking behaviour of various categories of users of information system all over the world. The information personnel need empirical evidence in order to improve the delivery system and fulfill the requirements of the community of users. The exponential growth of health institutions, health information centres and user community gave rise to the need for assessment of the services provided by libraries and also the status of these resources and services. There is a need for educating health professionals regarding the information resources, technologies and services, which are available in health libraries. Mental health and neuroscience sector has developed considerably over the years. The professionals of mental health and neuroscience sector are required to improve their vision and competence on the basis of information resources, technologies, tools and services. In reality, limited scientific investigations are conducted on the information use behaviour of mental health and neuroscience professionals in a developing country like India.

A brief survey of the notable works done in the field of mental health and neuroscience information needs in India and elsewhere is presented in this chapter under different headings, namely, information seeking behaviour of Mental Health, Professionals, Neurologists, Neurosurgeons, Pediatrics, Orthopaedicians, Medical Practitioners, Clinicians, Health Sciences, Faculty, Medical Oncologists, Nurses, Pharmacists, Physiotherapists, Speech Pathologists/Occupational Therapists.

2.2 Information sources consulted for review

The Information sources consulted for review of literature are listed below:

- Dissertation Abstracts International, UMI
- ERIC Database, Silver Platter
- Sociological Abstracts Published by Cambridge Science Abstracts
- Full text journals from publisher site at www.emerldinsight.com
- Helinet Consortia Resources (Rajiv Gandhi University of Health Sciences Consortia, Bangalore)
• LISTA (Library and Information Science and Technology Abstracts)
• Pub-Med National Library of Medicine USA Database
  (www.ncbi.nlm.nih.gov/)

2.3 Information Use Behaviour of Mental Health Professionals

Lohonen et.al (2010) examined the coverage of the electronic bibliographic databases in mental health research in order to understand the overlap of three commonly used databases in mental health research. The study revealed that PubMed was most comprehensive database which fulfilled the information needs of mental health professionals when compared to ADHD and PsycINFO databases. The scholars suggested that the extent of coverage and topic should be taken into account while choosing the databases.

Bucur and Adams (2010) analysed the accessibility and nature of Romanian psychiatric articles in order to assess the content and quality of services. The study revealed that major topics of interest included cognitive process, creativity, schizophrenia, cognitive development and stress aspects under the existing circumstances. The scholars suggested that meaningful balance should be struck between benefitting support and loosing independence in order to enhance the status of health care services.

Marton (2010) examined the quality of information on mental health websites and noted that women used the web to find health information on a variety of topics. The scholar suggested that user-friendly health information services and library orientation facilities were essential to ensure that mental health patients gained the benefit of access to health information of high order.

Lohonen et al. (2009) conducted a psychiatric research on medical information searches of bibliographic databases since they provide up to date information to the community of users when compared to traditional methods and sources. The study revealed that medical journals played a crucial role in providing access to the latest information resources in medicine and health sectors. The study has provided certain guidelines for the improved delivery system in regard to bibliographic databases in modern society.
**Fanner and Urquhart (2008)** examined the library resources and services which facilitated the rehabilitation needs of mental health service users through bibliotherapy and noted that library-based interventions and the provision of information were useful for service users and economical for the health service in assisting treatment of a range of conditions. The scholars suggested that more sophisticated bibliotherapy services would improve the status of health service.

**Robertson et al. (2008)** studied the usage and experiences of health professionals and library staff with regard to mental health in family medicine and noted that health professionals already used bibliotherapy in their practice. The scholars suggested that healthy reading scheme would provide a useful treatment option for patients with mild mental health problems.

**Robinson and Bawden (2007)** expressed the issues inherent in accessing the impact of library and information services (LIS) to health care professionals. Using the example of an evaluation of outreach services to primary care and mental health workers within London, we identify service features which are readily measurable and those which are not together with the factors affecting them. Recommendations for practice are drawn from the findings.

**Powell and Clarke (2006)** studied the Internet information seeking behaviour of mental health and neuroscience professionals in order to assess the prevalence of Internet use for mental health information seeking and its relative importance as a source of information and guidance. The researchers adopted general population survey method to collect primary data and examine the advantages of Internet information. The study revealed that about 18 per cent of the Internet users had used the Internet for information related to mental health. It was also found that the prevalence was higher among those with a past history of mental health problems and those with current psychological distress.

**Pollock Kristian et al. (2004)** investigated the process of meeting the information needs of psychiatric inpatients from the point of view of staff and patient requirements by using focus group study of patients, carers and health professionals. The study revealed that patients and relatives accorded high priority to the current provision of written and verbal information. The scholars suggested
that greater professional awareness of patients’ understanding and experience of their illness and concerns about treatment would go a long way in improving the quality of health delivery systems.

Shahul and Nizamie (2004) examined the implications of Internet revolution for mental health professionals since it is a cost-effective alternative and supplement for the conventional methods of education and research. The study revealed that Internet revolution also caused Internet addiction disorder among the young generation of users. The scholars suggested that appropriate checks and balances are required to minimize the negative implications of Internet revolution on mental health professionals.

Pandey and Raveesh (2004) examined the emerging frontier in psychomedical informatics which demonstrates a variety of visual processing capabilities. The researchers have observed that computational model has contributed to current understanding of normal brain function and offers new insights into the pathophysiology and neurological diseases. They also suggested that information resources and services should be standardized and modernized in order to strengthen the delivery system in the field of mental health and neuroscience.

Shokeen and Kaushik (2003) conducted a case study of information seeking behaviour of psychologists and sociologists working in Delhi and Haryana Universities. The researchers followed survey method and collected primary data through a structured questionnaire. The study revealed that qualifications, teaching experience and status did not have any effect on the information seeking behaviour of psychologists and sociologists. It was also found that periodicals were the most used and important source of information. The researchers have recommended that optimum use of databases relating to psychology and sociology would facilitate better capacity building and problem solving capabilities of psychologists and sociologists.

Stone and Sharpe (2003) examined the role of Internet resources for psychiatry and neuropsychiatry and noted that professionals used the website extensively for the conduction of their day-to-day operations. The scholars
suggested that Internet resources should be upgraded and made accessible to the psychiatrists in order to enhance the status of health care system and services.

Rebecca et al. (2003) assessed the information needs of psychiatric residents and noted that a majority of the respondents favoured necessary professional orientation in regard to the proper utilization of information resources. The scholars also suggested that regular and formal instruction on the use of information resources could be useful to the psychiatric residents and fellows.

Poyner et al. (2002) examined the skills training needs of a group of specialist registrars in psychiatry working as flexible trainees in order to identify the professional needs of the users. The study revealed that the information needs of trainees in psychiatry were met in a series of half-day workshops. The scholars suggested that experience and insight gained during the project should be used appropriately while planning for the future information service delivery systems.

Blackburn (2001) identified the information needs of health professionals, social workers and staff from voluntary agencies, who work together in the provision of services for people with a mental illness. The aim is to provide a fully integrated library and information service for mental health social care. A number of recent governments’ reports have prompted this research. These have culminated in the publication of the National service framework for mental health. Results have indicated and from statutory and non-statutory organizations information technology is viewed as the only realistic vehicle to provide the required information. As specialist mental health trusts are configured, covering wider geographical areas, this can only increase the reliance on information technology, for information access and information sharing.

Fakhoury and Wright (2001) investigated the training, communication and information needs of mental health counselors in the United Kingdom. The findings revealed that the respondents were constantly in touch with other counselors, general practitioners and psychiatrists to obtain professionally relevant information. The study highlighted the importance of meeting the information, communication and training needs of mental health counselors in the United Kingdom in order to develop professional competence.
Brettle and Long (2001) made a comparative study of bibliographic databases for information on the rehabilitation of people with severe mental illness in order to examine the overlap in the coverage between several health related databases. The study revealed that almost a third of the papers retrieved from each databases were unique to that source. PsycLIT and MEDLINE were the prominent databases for this topic area, containing 44% and 29% of the papers respectively. The study suggests that information professionals have an important role to play in the development of bibliographic databases concerning mental health services.

Fakhoury and Wright (2000) reported on a cross-sectional survey investigating communication and information needs of community psychiatric nurses attached to community mental health teams in the United Kingdom. Community psychiatric nurses' access to and communication with other professionals was also assessed. In total, 200 teams were randomly sampled UK-wide, and postal questionnaires were sent to community psychiatric nurses attached to these teams; 110 questionnaires were completed and returned (55% response rate). Spearman's rho, Pearson's correlation and the chi-square test were used in bivariate analyses and multiple logistic regressions in multivariate analysis. Participants reported to be mainly in contact with psychiatrists (71%) and other community psychiatric nurses (52%). Eighty-four per cent and 91% reported psychiatrists and community psychiatric nurses, respectively, to be quite/extremely helpful when consulted; the proportions were lower for general practitioners and counselors/therapists (32% and 31%, respectively). All reported lack of time and 84% reported communication problems with other professionals as barriers to their work. Although 70% reported having the necessary training/skills for managing severe cases, 76% indicated they had information needs.

Kaula (1999) analyzed the current issues in health sciences and the impact of information technology with special reference to mental health care. The study reveals that the current trend is towards decentralization of the services for the mentally disordered patients in India. The study also recommends that a properly integrated mentally health care system should be developed in India. The researcher has suggested that mental health and neuroscience delivery system should be
developed in accordance with the needs of the physicians, researchers and others associated with mental health care in India.

Reddy and Karisiddappa (1997) examined the information seeking behaviour of the professionals in the field of disabilities with special reference to mental handicap in India through a systematic survey research method. The findings revealed that informal channels were more used for information gathering by the respondents. Journals, books and other formal resources were utilized by the users of information.

Reddy and Karisiddappa (1995) investigated the information seeking behaviour of health professionals working in national institutions of mental health. It was found that the health professionals primarily relied upon journal literature rather than electronic resources in order to obtain professionally relevant information and guidance. On-line information and other computer-based literature services were less frequently used for teaching, research and practice purposes by mental health professionals.

Binner (1993) examined the issues related to applying information technology on behalf of mental health service delivery systems. Each of these issues has an impact on how well information technology has been able to service the mental health systems. These are not primarily information technology issues. They are concerns that have to do with the structure of the mental health system; the way management might use an information system; and the role of money and power in the mental health systems. How these issues are resolved will have major impact on how well the promise inherent information technology is realized.

King, Goldstein and William (1990) studied the use of PsychLit and Medline on CD-ROM by the medical professionals at University of Michigan by following survey research method. The study revealed that a vast majority of medical students used the CD-ROM while faculty and house staff users were very less in number. A majority of the users required assistance in the use of CD-ROM.

Sangam (1989) analyzed the information use pattern of researchers in the field of psychology in Karnataka state. The study identified the information resources and services which benefited the community of psychologists. The
findings of the study have implications in the development of need based collection in libraries in the field of psychology in a developing country like India.

**Salasin and Cedar (1985)** studied the information seeking behaviour of users’ community in an Applied Research/Service Delivery setting in the United States of America. The area of rural mental health services was used by the researchers as a test-bed to analyse the information seeking behaviour in a field that includes researchers, policy makers and practitioners. The findings of the study demonstrate the importance of inter-personal communication sources, differences in the sources used and the value placed on the sources of information. The researchers have also recommended for the design and development of information system and services, which would enrich the information seeking behaviour of mental health professionals.

**Meliza (1985)** stated that the advent of deinstitutionalization and consumer health advocacy has spelled changes in mental health information, seeking by the general public, by families of the mentally ill themselves. Their information needs have implications for academic and public libraries as well libraries in psychiatric facilities and general hospitals. Explores by library type and recommends reflection upon current attitudes toward mental health information access.

**Angier (1984)** examined the issues in consumer mental health information, which include diagnosis, management and treatment of mental illness. The work presents issues specific to the provision of mental health information to the medical professionals and others. The researcher states that further investigation into effective methods for communicating with the widest range of consumers possible is needed. The development and selection of consumer mental health information should consider the unique issues and concerns of its field such as social stigma and confidentiality, cognitive competence, educational background, reliable information and means of transfer of information.

**Epstein (1982)** stated an issue devoted to mental health information. Over the past decade the smaller health libraries have been aided by the advent of relatively inexpensive, publicly available online databases. The impact on reference services has been profound MEDLINE, CHEMLINE, PSYCHINFO NCMHI AND
social science search are discussed and compared. Computerized access to mental health information can be achieved either directly or through a variety of intermediaries, satisfying many levels of request. New technology cannot replace the entire reference process, but it does eliminate much of the drudgery, promoting efficiency and expanding the retrievable resources.

**Bowden and Bowden (1971)** conducted a survey of information sources used by psychiatrists in American society. The study revealed that journals and books were the important information sources of the respondents. The researchers have suggested that mental health information resources and services should be improved in accordance with the changing needs of the professionals.

**2.4 Information Seeking Behaviour of Neurologists**

**Vibert et al. (2007)** made an exploratory study on bibliographic and documentary information-seeking behaviour of high level research scientists in the control of ever-developing online bibliographic and documentary information (BDI) resources. Descriptive data were obtained from a nationwide sample of French neuroscience researchers using individual questionnaires followed by semi-structured interviews.

**Burright., Hahn., and Antonisse (2005)** examined the information use in a multi-disciplinary field by following local citation analysis of neuroscience research and noted that the challenges of assessing the information needs was great when the target community was multi-disciplinary and dispersed throughout many academic departments. The scholars suggested that the information needs of multi-disciplinary academic community should be assessed before designing and implementing the information delivery system.

**Sarah (2003)** examined the impact of Internet on neurologists and noted that medical information system has been subjected to better advancement because of the application of advanced technologies including Internet. The scholar suggested that the barriers to constant flow of information should be wiped out and the policy makers should understand the interplay between physicians, patients, and information systems in the health care management.
Al-Shahi and Sandercock (2003) investigated the Internet resources for neurologists on the basis of an extensive review of literature and noted that Internet had become inescapable and increasingly essential in everyday practice of neurology. The scholars suggested that uniform resource locaters and training facilities for the Internet users would enhance the health care system.

Busis and Honig (1999) examined the relationship between Neurologists and the Internet and noted that electronic information resources have revolutionized professional communication and health delivery systems. The scholars have called upon the policy makers to provide guidance concerning computer-based communications between clinicians and patients.

Busis (1999) examined the state of Neurology in the electronic information age and observed that Internet resources or applications were available to facilitate successful fulfillment of the neurologists’ core professional activities, clinical care, teaching, and research and practice issues. The scholar has suggested that technological infrastructure including usability, security, meaning, validity, quality, value, outcomes and responsibility should be addressed in order to facilitate the use of Internet in the right time at the point of medical care.

Biradar and Vijayalaxmi (1997) discussed the pattern of information use by researcher in the field of Neurology as indicated by citations in the D.M. (Neurology). Dissertations submitted to the National Institute of Mental Health and Neurosciences (NIMHANS), Bangalore, in the period, 1979 to 1996. Identifies the average number of references per dissertation the use obsolescence of literature and lists the most frequently cited periodical by neurological scientists. Notes the implications of findings for the developments of need based collections in library and information centres in the field of neuroscience.

2.5 Information Seeking Behaviour of Neuro-Surgeons

Moreau et al. (2009) investigated the relationship between the teaching of neurosurgery and information technologies and noted that the digital campus was developed as the source of potential information resources for the benefit of professionals involved in the field of neurosurgery. The scholars suggested that
professional societies of relevant specialities should create high quality intellectual and scientific resources in order to facilitate free access to the digital campus.

Thomson and Philips (2003) studied the Internet resources for neurosurgeons and neuropathologists and noted that such resources on the Internet became extensively available for the use of neuro-surgeons. The scholars suggested that upgradation of Internet resources and extensive training for the users would go a long way in improving the health delivery system.

2.6 Information Seeking Behaviour of Pediatricians

Prendiville et al. (2009) studied the information seeking behaviour of pediatricians accessing web-based resources and noted that web-based pediatric resources increased significantly in the day-to-day clinical practice. The scholars suggested that need-based, professionally relevant and time-efficient information services should be made available to the pediatricians.

Tenopir et al. (2007) conducted a study on the journal reading patterns of pediatrician members of the American Academy of Pediatrics (AAP) and compare results to similar surveys of medical faculty and physicians. The author explored some factors that might influence changes in reading patterns in the future, such as adoption of PDA technology. Pediatricians read journal articles primarily for current awareness and most often rely on quick reading from print journals for current awareness. Reading for research, writing, and presentations are more likely from library-provided electronic journals. Convenience and purpose of reading are key factors that explain reading patterns of pediatricians. Print personal subscriptions are convenient for current awareness reading, while electronic journals systems are convenient for reading for research because they provide access to a broader range of journals. The scholars suggested that publishers and librarians must understand the purposes and patterns of reading to design appropriate journals and services. Pediatricians read many current articles very quickly and from many different locations.

In view of Kim, Bartlett, and Lehmann (2005) information needs and resource preferences of office-based general pediatricians have not been well characterized. Data collected from a sample of twenty office-based urban/suburban
general pediatricians consisted of: (a) a demographic survey about participants' practice and computer use, (b) semi-structured interviews on their use of different types of information resources and (c) semi-structured interviews on perceptions of information needs and resource preferences in response to clinical vignettes representing cases in Genetics and Infectious Diseases. Content analysis of interviews provided participants' perceived use of resources and their perceived questions and preferred resources in response to vignettes. Participants' average time in practice was 15.4 years (2–28 years). All had in-office online access. Participants identified specialist/generalist colleagues, general/specialty pediatric texts, drug formularies, federal government/professional organization Websites and medical portals (when available) as preferred information sources. They did not identify decision-making texts, evidence-based reviews, journal abstracts, medical librarians or consumer health information for routine office use. In response to clinical vignettes in Genetics and Infectious Diseases, participants identified Question Types about patient-specific (diagnosis, history and findings) and general medical (diagnostic, therapeutic and referral guidelines) information. They identified specialists and specialty textbooks, history and physical examination, colleagues and general pediatric textbooks, and federal and professional organizational Websites as information sources. Participants with access to portals identified them as information resources in lieu of texts. For Genetics vignettes, participants identified questions about prenatal history, disease etiology and treatment guidelines. For Genetics vignettes, they identified patient history, specialists, general pediatric texts, Web search engines and colleagues as information sources. For Infectious Diseases (ID) vignettes, participants identified questions about patients' clinical status at presentation and questions about disease classification, diagnosis/therapy/referral guidelines and sources of patient education. For ID vignettes, they identified history, laboratory results, colleagues, specialists and personal experience as information sources. Content analysis of office-based general pediatricians' responses to clinical vignettes provided a qualitative description of their perceptions of information needs and preferences for information resource for cases in Genetics and Infectious Diseases. This approach may provide complementary information for discovering practitioner's information needs and resource preferences in different contexts.
Biradar and Thippeswamy (2004) conducted a study based on 3401 references appended to the 61 M.D. Pediatric dissertations submitted to the J.J.M. Medical College, Davanagere. Authors have attempted to determine the average number of reference per dissertation, forms of documents, authorship pattern, and obsolescence of literature and percentage of cited periodicals available in the library. Their results indicate that periodicals (79.12%) are the highly utilised source. Three authors (25.3%) write major percentages of articles. 25.98% and 76.70% cited journals and journal articles respectively are available in the J.J.M. Medical College Library, Davanagere, and Karnataka.

D’Alessandro, Kreiter & Peterson (2004) conducted an evaluation of information seeking behavior of general pediatricians in order to characterize quantitatively the information-seeking behaviors of general pediatricians before and after an educational intervention. The scholars observed participant demographics between control and intervention which were not statistically different. The scholars suggested that pediatricians who seek answers at the point of care should begin to shift their information seeking behaviours toward computer resources.

Woolf, Benson, and Dennis (1989) investigated on medical information needs were examined in a survey of sixty-seven physicians selected from the faculty and house staff at Johns Hopkins Hospital. A standardized questionnaire was administered personally by a medical informatics physician to collect data on information needs, attitudes, and previous experience with computers. The types of information most frequently required by both faculty and house staffs were treatment recommendations and differential diagnosis. The sources of reference information most commonly used were textbooks and colleagues. The scholar suggested that the information needs of house staff differed significantly in several categories from those of faculty physicians’ house staff more frequently needed information for patient care.

2.7 Information Seeking Behaviour of Orthopaedicians

Ahmadreza, Ali, and Fardin (2009) studied the information seeking behavior of Iranian Orthopedic Surgeons in acquiring updated orthopedic knowledge and observed that orthopedic textbooks were the most common source of
information used by the professionals for clinical problem cases. The scholars suggested that Internet and online services should be upgraded in order to enhance the knowledge and exposure of orthopedic surgeons.

**Bardyn et al. (2009)** presented a collection development tool that identifies a list of key orthopaedic journals to retain in print or license electronically in an academic or teaching hospital library. The author developed an assessment tool comparing five measures of importance and use, including journal impact factor, cited half-life, interlibrary loan lending, electronic archival access, and library usage. The author assists medical librarians and orthopaedic surgeons by identifying the titles in this subject area that may be of most enduring value for professional reading and for hospital library collections.

### 2.8 Information Seeking Behaviour Medical Practitioners

**Davies (2011)** focused on the information needs of physicians in the UK; the frequency physicians formulate questions and then search the literature electronically; physicians’ use of information technology (IT) and their desire to use such equipment; physicians’ preferences in locating evidence; and perceived barriers to accessing electronic information to assist in clinical decision making. Physicians working in the hospital environment are compared to those who work in primary care. Data for this study were gathered using an online questionnaire.

**Davies (2011)** compared a previous research on physicians’ use of electronic resources, use of MEDLINE search features, preferred source type for clinical information, perceived barriers to accessing information for patient care in specific countries, attitudes toward evidence-based medicine (EBM), and understanding of EBM terms. These published research papers were included in a review by Davies of the evidence on the information seeking behavior of doctors, during which comparison across different countries was identified as an area needing further research. The author reported here compares these aspects, focusing on EBM resources across three countries: Canada, the United Kingdom, and the United States. Generally, physicians in the United States (and Canada) were more likely to use electronic resources to locate information compared to physicians based in the United Kingdom. However, there was a distinct cultural bias, with physicians often
preferring to utilize resources created in their country. The major barrier to using electronic resources for health information is still time. The results from this research and range of results from previous research suggest that comparing physicians' use of information and information resources in different countries is an area where further investigation is required before in-depth conclusions can be drawn.

Davies (2011) evaluated UK doctor's awareness and use of specified evidence-based medicine (EBM) electronic resources. Respondents were invited to complete an online questionnaire and 636 were completed. The most frequently used EBM resources available via the National Library for Health were the most established and well-known resources, namely, Medline/PubMed. The top three resources not freely available via the National Library for Health were general non-specialist specific resources. Over three-quarters of the respondents had not heard of the American resources and resources that had only ever been electronic were not widely known or used by the respondents. The introduction of new electronic resources to doctors must involve more than simply promoting the URL/web location. In fact, the development of a comprehensive list of resources highlighting their strengths (and weaknesses) may be beneficial for busy doctors.

Alghanim (2011) conducted an exploratory study on information needs and seeking behavior among primary care physicians in Saudi Arabia and noted that physicians in rural areas were less likely to have access to medical and health information than their counterparts in urban areas. The scholars suggested that rural physicians should be enabled to have increased access to information resources and services that would help develop the profession and provide quality-oriented health care services.

Cullen, Rowena et al. (2011) described to investigate the extent to which junior doctors in their first clinical positions retained information literacy skills taught as part of their undergraduate education. Participants drawn from different training cohorts were interviewed about their recall of the instruction they had received, and their confidence in retrieving and evaluating information for clinical decision making. They completed a search based on a scenario related to their speciality. Their self-assessment of their competency in conducting and evaluating a
search was compared with an evaluation of their skills by an experienced observer. Most participants recalled the training they received but had not retained high-level search skills, and lacked skills in identifying and applying best evidence. There was no apparent link between the type of training given and subsequent skill level. Those whose postgraduate education required these skills were more successful in retrieving and appraising information. Commitment to evidence-based medicine from clinicians at all levels in the profession is needed to increase the information seeking skills of clinicians entering the work force.

According to Mahawar and Azeem (2011) medical college libraries are set up in medical colleges to lend support to their basic function of promoting medical education and research. Such libraries are entrusted with the responsibility to develop a good collection of documents comprising of medical literature, which is required and demanded by its users. Moreover, they have to be well equipped to meet all the users’ needs in a wide range of disciplines related to medicine. The medical college libraries have to cater to the needs of medical students, research scholars and faculty cum practitioners.

Nwezeh et al. (2011) studied the pattern and determinants of information seeking behaviours of doctors at the Obafemi Awolowo University in Osun State, Nigeria and noted that the university library services failed to fulfill the information needs of the doctors due to absence of computerization of library services, inter-library connection, current awareness services and improvement in the interpersonal relationship of library professionals. The scholars suggested that the advancement of information resources and services should be undertaken by the librarians concerned in order to improve the information seeking behaviour of doctors.

Murugan and Allysonam (2011) examined the information needs and information seeking behaviours of Allopathic Medical Practitioners in Tirpur District of Tamil Nadu and noted that numerous publications like books, journals and news letters were the indicators of the parameters and physicians sought information regarding the availability of drugs. The scholars suggested that drug indexes like CIMS/MIMS should be popularized among the medical practitioners.
Borzad and Viswanathappa (2010) examined the physicians’ medical information-seeking behaviours and their relevance to continuing medical education. The study reported that nearly all physicians had the benefit of access to the Internet, know-how to use it and accessed it for medical information. The scholars suggested that barriers to Internet-sources and resources should be wiped out in order to enhance the credibility of source and facilitate 24 hour access to medical information.

According to Boumarafi, Behdja (2010) electronic information is becoming prevalent worldwide, and its use is growing exponentially as more and more users are recognizing the potential that it offers in terms of access and delivery. However, with the introduction of new tools for e-information searching and retrieval, users have to readjust their information-seeking behavior to cope with the corresponding changes. The University of Sharjah library is steadily increasing its investment in e-resources to offer ubiquitous access to the growing body of literature in areas that interest the community it serves. The author reports the findings of a survey conducted to investigate the information-seeking behavior of medical students at the medical library. The results showed evidence of use of e-resources, but they did not explicitly establish that some of the major problems mentioned by participants did hinder the information searches of the respondents.

Khan and Pooja (2010) examined the information seeking behaviour of health science users in the age of information technology and noted that undergraduate students sought information to increase knowledge and prepare well for examinations and tests. The scholars suggested that users should be given the benefit of library orientation programmes and user guides in order to improve their information seeking behaviour and acquire required information services.

Davies (2009) determined the frequency of doctors’ clinical information needs using Clinical Librarians as data collectors, focusing on the UK acute sector. Additionally, the frequency of questions followed-up by Clinical Librarians was determined. The information needs of doctors have been investigated in other countries, particularly the USA, but not in the UK. Clinical Librarians have not been utilized as data collectors in any previous studies. Followed a methodology by Clinical Librarians counted clinical questions posed by doctors in clinical settings.
The results shows the Clinical Librarians counted 286 questions from 655 doctors discussing 1210 patient cases. Also represents approximately one question for every four patients. The author concludes that Clinical Librarians can collect data to identify the number of information needs doctors have, but this was more successful when the Clinical Librarian was experienced and an established part of the clinical team.

Abou-Auda (2008) examined the information seeking behaviours and attitudes of physicians toward drug information centres in Saudi Arabia. The scholars observed that about 70 per cent of the physcians were aware of the information resources and primarily depended on books, periodicals and symposia under normal circumstances. The scholars suggested that drug newsletters and continuing education programmes should be based on evidence based medicine techniques in order to build the capacity of physicians.

Gonzalez and Gonzalez (2007) analysed the information needs and information-seeking behaviour of primary care physicians in order to determine the information needs of medical personnel in primary health care sector in Spain. The researchers adopted observational study method and found that the respondents were aware of the information sources which differed between searches performed during the consultation and searches performed afterwards. The physicians actually spent very little time on searching for answers during consultation when compared with their information searching exercises after consultation.

Amritpal and Navneet (2007) examined the use of information in the medical college libraries of Punjab related to modern medicine i.e. Allopathy since these libraries constitute the primary information support system for achieving the goal of health and family welfare. The researchers identified and analysed the level of awareness among the users in general and the status of information resources in the medical college libraries in particular. The study revealed that the information resources did not meet the information needs of a majority of teachers and students. It was also found that bibliographic services, inter-library loan services, translation services and access to international databases were insufficient. The researchers have suggested that the medical college libraries should have a sound collection of reference tools and audio-visual materials.
Davies (2007) provided a narrative review of the available literature from the past 10 years (1996–2006) that focus on the information seeking behavior of doctors. The author considers the literature in three sub-themes: Theme 1, the Information Needs of Doctors includes information need, frequency of doctors’ questions and types of information needs; Theme 2, Information Seeking by Doctors embraces pattern of information resource use, time spent searching, barriers to information searching and information searching skills; Theme 3, Information Sources Utilized by Doctors comprises the number of sources utilized, comparison of information sources consulted, computer usage, ranking of information resources, printed resource use, personal digital assistant (PDA) use, electronic database use and the Internet. The review is wide ranging. It would seem that the traditional methods of face-to-face communication and use of hard-copy evidence still prevail amongst qualified medical staff in the clinical setting. The use of new technologies embracing the new digital age in information provision may influence this in the future. However, for now, it would seem that there is still research to be undertaken to uncover the most effective methods of encouraging clinicians to use the best evidence in everyday practice.

Grefsheim and Rankiri (2007) studied the information needs of clinical specialists and biomedical researchers at the US National Institutes of Health and noted that scientists overwhelmingly used NIH Library. The scholars suggested necessary improvement of services such as developing a Website search engine, organizing gene sequence data, and assisting with manuscript preparation in order to enhance the professional status of health scientists and administrators.

Lambert and Loiselle (2007) examined that the seeking information about one's health is increasingly documented as a key coping strategy in health-promotive activities and psychosocial adjustment to illness. The authors critically examine the scientific literature from 1982 to 2006 on the concept of health information-seeking behavior (HISB) to determine its level of maturity and clarify the concept's essential characteristics. The authors reviewed approximately 100 published articles and five books reporting on HISB. Although HISB is a popular concept used in various contexts, most HISB definitions provide little insight into the concept's specific meanings.
Morey (2007) explored the health information seeking behaviour of African-Americans using Granovetter's strength of weak ties as the theoretical framework. A listed household telephone survey of 216 residents who reside on the Near East Side of Buffalo, New York. Using the Rand feature in MS Excel a random sample was drawn from the telephone numbers randomly selected from census tracts covering the target area. Random samples were drawn three times until at least 200 telephone surveys were completed. Data analysis was completed using SPSS 13.0 for Windows. Both bivariate and multivariate analyses were performed along with analysing descriptive statistics and the chi-squared test to determine the association between the source of health information as related to demographics and tie strength between individuals. The findings confirm the important role of health service professionals in health information seeking by under-served populations and suggest the need for investigation on the information giving behaviour of these professionals.

Asefeh, Nosrat (2006) investigated the relationships between awareness and use of digital resources among students in Isfahan University of Medical Sciences. A descriptive method has been used and users of the medical libraries and information centers affiliated to Isfahan University of Medical Sciences have been surveyed in the research. A total of 250 students were selected randomly as a sample. A structured questionnaire was designed for collecting data. The results were that 70 percent of students were aware of digital resources, but only 69 percent of them have used them; 62 percent were aware of offline databases, whereas only about 19 percent used them through the Central Library LAN network. About 70 percent were aware of online databases, accessible via the Central Library web site, and about 53 percent of respondents have used them. A total of 64 percent were aware of the “CLBJ Database”, while over half of them made use of it. In total 87 percent of students felt that the available data resources met their information needs. Students had less use of offline databases, attributed to factors such as infrequent periodic orientation and lack of education on use of offline databases and fewer terminals connected to the server in the Central Library. Users are faced with problems like low speed connectivity and shortage of hardware facilities. When the user is aware of one resource, it will lead to more use of that resource. Isfahan University of Medical Sciences is aiming to develop new information centers and it
needs to increase the extent of discovery of knowledge. On this base the authors have examined awareness, use and information retrieval of available digital resources and thus will be of benefit to others in a similar position.

According to **Bennett, Nancy et al. (2005)** using technology to access clinical information has become a critical skill for family physicians. The authors were assessing the way family physicians use the Internet to look for clinical information and how their patterns vary from those of specialists. Further, we sought a better understanding of how family physicians used just-in-time information in clinical practice. A fax survey was provided with 17 items. The survey instrument, adapted from two previous studies, was sent to community-based physicians. The questions measured frequency of use and importance of the Internet, palm computers, Internet CME, and email for information seeking and CME. Barriers to use were explored. Demographic data was gathered concerning gender, years since medical school graduation, practice location, practice type, and practice specialty. Family physicians found the Internet to be useful and important as an information source. They were more likely to search for patient oriented material than were specialists who more often searched literature, journals and corresponded with colleagues. Hand held computers were used by almost half of family physicians. Family physicians consider the Internet important to the practice of medicine, and the majority uses it regularly. Their searches differ from colleagues in other specialties with a focus on direct patient care questions. Almost half of family physicians use hand held computers, most often for drug reference.

**Sengar., singh and Gautham (2005)** conducted a survey on the information seeking behaviour of medical professionals at PGIMER, Chandigarh and EHIRC, New Delhi in order to find out the level of awareness and utilization of health information resources among medical professionals, researchers and students. The study reported that there was considerable difference among the users from the point of view of utilization of health information resources and services.

**Tajdaran and Singh (2005)** studied the attitudes and skills of information users in a medical university library in Iran since the users are the important component of any information system. The findings revealed that about 50 per cent of the users knew about IT but very few used it due to various reasons. The study
recommends that a new way of looking at retention of knowledge skills and attitude of users of academic circle should be cultivated.

**Bryant (2004)** explored the information needs and information seeking behaviour of family doctors, identifying any differences in attitudes and behaviours deriving from membership of a training practice and investigating the impact of a practice librarian. A case study of general practitioners (GPs) in Aylesbury Vale incorporated a quantitative study of use of the medical library, and two qualitative techniques, in-depth interviews and group discussions. A total of 58 GPs, almost three quarters of those in the Vale, participated; 19 via individual interviews and a further 39 via two group discussions. Family doctors are prompted to seek information by needs arising from a combination of professional responsibilities and personal characteristics. A need for problem-orientated information, related to the care of individual patients, was the predominant factor that prompted these GPs to seek information. Personal collections remain the preferred information resource; electronic sources rank second. The study demonstrated low use of the medical library. However, both vocational training and the employment of a practice librarian impacted on library use. The study illuminates the information needs and preferences of GPs and illustrates the contribution that librarians may make at practice level, indicating the importance of outreach work.

**Bigdeli (2004)** investigated the information seeking behaviour of specialists, residents and interns at hospitals of Ahwaz University of Medical Sciences in Iran and noted that all the three groups of professionals commonly used informal channels including the conferences to obtain specific data and keep abreast with professional progress. The scholars suggested that medical professionals should be encouraged to acquire the necessary skills to retrieve the most advanced information in the field of health.

**Doreswamy (2004)** investigated the information use of University of Health Sciences, Vijayawada, and Andhra Pradesh, India by following survey research method. The researcher analysed the various types of information needs of medical students and found that the respondents were aware of the information resources and services. The study offered several suggestions for the betterment of health information resources and services in Andhra Pradesh.
Ajayi (2004) studied the library use and information seeking behaviour of medical students. The findings revealed that the respondents visited the library 2-4 times per week and sought information on course related contents. The respondents normally used indexes and abstracts to find out the information of their choice. They mainly depended on textbooks, handouts, classroom lectures, library staff and indexes as sources of information. The researcher recommended for the introduction of advanced library instruction programme and problem-based learning curriculum education in order to benefit the medical students.

Ocheibi and Buba (2003) assessed the information needs and information gathering behaviour of medical doctors in Maiduguri, Nigeria. The survey describes the results of an investigation which included a sample of 158 medical doctors. The study revealed that the physicians preferred the use of publisher catalogues as the most important source for new developments in their relevant fields. Many physicians did not have access to local databases, which provide adequate information to them.

ShijithKumar (2003) evaluated the use of electronic information sources by medical professionals in Karnataka, India by following descriptive research method, which is popular in the field of social sciences. The findings revealed that there was no difference in the frequency, duration and extent of use of EIS between the medical professionals who have undergone training and those who have not. The study suggests that electronic information resources should be enriched in the medical libraries. The users community should be given necessary orientation regarding the use of EIS in the medical libraries.

Raju (2002) examined the communication patterns and information seeking behaviour of medical researchers/scientists in Andhra Pradesh, India. The researcher observed that factors such as quantitative growth of users, diversified nature of users’ needs, multi-disciplinary nature of research, development of health sector and so on made health information services highly complex in the present times. The study revealed that empirical research facilitates better understanding of the information seeking behaviour of medical professionals. Besides this, the researcher has called upon the information personnel to identify the information users’ needs
and fulfill them on the basis of proper planning of information resources and services in a developing country like India.

**Shivanand (2001)** investigated the use of information sources and services by the health professionals in Manipal Academy of Higher Education in Karnataka, in India. The study reported that the medical professionals had positive attitudes towards the information resources (EIS and CD-ROM Databases) which had a profound impact on their professional status and progress. The study recommended for the development of latest and best infrastructural facilities in order to improve the use of information resources by the health profession.

**Biradar et al. (2001)** studied the information searching patterns of medical professionals in Shimoga city, Karnataka, India and noticed about 50 per cent of the users used e-mails as source of health information. About 25 per cent of the respondents also utilized CD-ROM databases. The major electronic database used by them was Medline. The study also recommended for wider utilization of the modern electronic information resources by the medical professionals.

**Zawawi and Mazid (2001)** assessed the information needs and information seeking behaviour of biomedical scientists in Malaysia. The findings indicated that biomedical scientists used a variety of information sources to fulfill their information needs. The researchers primarily depended on journal articles and books to gather relevant information. Biomedical scientists and researchers utilized CD-ROM source to the great extent.

**Bryant (2000)** studied the information needs and information seeking behaviour of family doctors on the basis of review of secondary literature. The aim of literature review was to indicate publications that have made a significant contribution to the understanding of the information needs, behaviour and preferences of family physicians and to identify areas in which there is scope for further research. The review also discusses studies of information gatekeepers and projects intended to augment access to information services. The researcher has also recommended few additional sources of reading, which would benefit the community of researchers in the field of medicine.
Keith et al. (2000) investigated information needs and information seeking in primary care practices serving as educational sites. The authors interviewed 15 community-based primary care physician–preceptors, once when the preceptor was working without a student and once when a student was present at the practice (in which case, the student was interviewed as well). The interview asked for questions that had arisen during the patient encounter or teaching moment that would need further investigation. A week after the interview, the authors contacted the preceptors to see whether they had pursued information to answer those questions. The preceptors generated fewer questions when students were present (0.42 versus 0.29 per patient). Both preceptors and students most frequently had questions pertaining to diagnoses and drug therapy. The proportion of questions pursued by the preceptors decreased when students were present (32% versus 16%). These findings cast light on information needs and seeking in the context of community medical education. Further research is needed to explore variables such as practice size and access to appropriate Web-based information resources.

Dorsch (2000) studied information needs of rural health professionals on the basis of an extensive review of literature and noted that rural health professionals appear to have the same basic needs for patient care information as their urban counterparts. The scholars suggested that rural health practitioners should be encouraged to overcome the barriers to information access and obtain outreach efforts which would facilitate equity in information access.

McKnight and Peet (2000) studied the information seeking behaviour of doctors, nurses and other health care providers in the University of Illinois at Chicago and noted that most of the health care providers used traditional sources instead of advanced online bibliographic and full text sources in the modern society. The scholars suggested that health care providers should be trained and motivated to make use of the latest and advanced information resources in order to upgrade their professional competence.

2.9 Information Seeking Behaviour of Clinicians

According to Maura and Claire (2011) hospital clinicians are increasingly expected to practice evidence-based medicine (EBM) in order to minimize medical
errors and ensure quality patient care, but experience obstacles to information-seeking. The introduction of a Clinical Informationist (CI) is explored as a possible solution. They investigated the self-perceived information needs, behaviour and skill levels of clinicians in two Irish public hospitals. It also explores clinicians' perceptions and attitudes to the introduction of a CI into their clinical teams. A questionnaire survey approach was utilised for this study, with 22 clinicians in two hospitals. Data analysis was conducted using descriptive statistics. Analysis showed that clinicians experience diverse information needs for patient care, and that barriers such as time constraints and insufficient access to resources hinder their information-seeking. Findings also showed that clinicians struggle to fit information-seeking into their working day, regularly seeking to answer patient-related queries outside of working hours. Attitudes towards the concept of a CI were predominantly positive. The authors highlight of the factors that characterise and limit hospital clinicians' information-seeking, and suggests the CI as a potentially useful addition to the clinical team, to help them to resolve their information needs for patient care.

Hider et al. (2009) investigated the information seeking behavior of clinical staff in a large health care organization in the South Island of New Zealand and noted that the clinical staff had the benefit of access to modern information resources. The scholars have suggested that clinicians should have the benefit of access to computers with high speed Internet in order to improve their proficiency.

Sahapong et al. (2009) conducted a survey on information use behavior of clinicians in evidence-based medicine process in Thailand and noted that most of the clinicians used information for supporting their teaching and learning process as well as professional development. The scholars suggested that all hospitals should have adequate facilities to provide medical information for clinical practice.

Korjonen-Close (2005) investigated as part of the strategy to set up a new information service, including a physical Resource Centre, the analysis of information needs of clinical research professionals involved with clinical research and development in the UK and Europe was required. The author suggested an opportunity to build a unique collection of clinical research material, which will promote The Institute not only to members, but also to the wider health sector.
Members stated that the most physical medical libraries don't provide what they need, but the main finding through the survey and discussions is that it's pointless to set up 'yet another medical library'.

Byrnes, Kulick, and Schwartz (2004) described a collaborative project funded by the National Library of Medicine, USA that information access to provide computer resources in fourteen clinical practice sites and enabled health care professionals to access medical information via Pub Med and the Internet. Health care professionals were taught how to access quality, cost-effective information that was user friendly and would result in improved patient care. Selected sites were located in medically underserved areas and received a computer, printer, and during year one, a fax machine. Participants were provided dial-up Internet service were connected to the affiliated hospitals network. Clinicians were trained in how to search Pub-Med as a tool for practicing evidence-based medicine and to support clinical decision making. Health care providers were also taught how to network with other professionals. Prior to training, participants completed a questionnaire to assess their computer skills and familiarity with searching the Internet, MEDLINE, and health related databases. Responses indicated favourable changes in information-seeking behaviour, including an increased frequency in conducting MEDLINE searches and Internet searches for work-related information.

2.10 Information Seeking Behaviour of Health Sciences Faculty

Sulemani and Katsekpor (2007) examined the information seeking behaviour of health sciences faculty at the college of health services, University of Ghana and reported that health faculty lacked awareness about the use of full text journal databases and preferred the use of CD-ROM than traditional print indexes and abstracts. The scholars suggested that library should provide more effective and relevant electronic databases and full text journals to the faculty of health sciences.

Owen et al. (2003) evaluated the information seeking behaviour in complementary and alternative medicine system and noted that a vast majority of the users found MEDLINE as a useful resource. The scholars suggested that medical librarians should educate health professionals in the identification and use of authoritative complementary and alternative medicine resources.
Curtis, Weller, and Hurd (1997) examined the information seeking behavior of health sciences faculty in medicine, nursing and pharmacy at the University of Illinois at Chicago. The study found that use of print Index Medicus among faculty was in transition. The scholars suggested that the faculty should be enabled to use a wide variety of databases and enrich their professional competence through in-house or electronic training sessions offered by librarians.

Curtis and Weller (1993) investigated the information seeking behavior of health sciences faculty including the use of major bibliographic tools at the University of Illinois at Chicago and noted that about 70 per cent of all faculty from the colleges of medicine, pharmacy and nursing used Index Medicus or MEDLINE. The scholars suggested that new formats to bibliographic tools should be made available to the faculty in order to improve their information seeking behavior and professional competence.

2.11 Information Seeking Behaviour of Oncologists

Musses, Linda et al. (2011) investigated the study on information needs of Medical Oncologists. The research has been conducted on the characteristics of patients using different information sources. They aimed to get insight into which information sources patients receiving chemotherapy for the first time use and which factors (background characteristics, psychological factors, information needs and source reliability) explain the use of different mass media information sources. The suggested that medical and psychological factors, unfulfilled information needs and perceived reliability of the sources to utilize library resources and further revealed that treatment guide, brochures and Internet were the most frequently used mass media sources. medical specialists, nurses, and family and/or friends were the most common interpersonal sources. Using the treatment guide was found to be associated with treatment goal, unfulfilled information needs and source reliability.

Lomax, Lowe, and Logan (1997) conducted an investigation of the information seeking behaviour of medical oncologists in metropolitan Pittsburgh using a multimethod approach and noted that a significant amount of information resources and services were made available to support the development of clinical information retrieval system. The scholars suggested that multi-media research
designed would go a long-way in identifying the information requirements of oncologists and facilitating better flow of professionally relevant information, ideas and expertise.

2.12 Information Seeking Behaviour of Nurses

Younger Paula (2010) examined the Internet-based information seeking behaviour amongst doctors and nurses on the basis of an extensive review of literature. The study revealed that nurses and doctors preferred to have information services mainly on primary patient care and continuing professional development. The scholar suggested that librarians should take into account the fact that medical professionals on duty need proper orientation on the uses of online information services.

Nwagwu and Oshiname (2009) studied the information needs and seeking behaviour of nurses at the University College Hospital, Ibadan, Nigeria and noted that nurses needed a wide variety of information to meet their clinical and educational needs. The scholars suggested that nurses should be given professionally relevant information services in order to solve problems like supporting life-long learning and improving their knowledge on the practice of their profession.

Turner et al. (2008) assessed the information needs of nurses in a rural public health department in Oregon and noted that public health nurses performed a wide variety of roles and associated tasks on the basis of personal computers, basic communication software and expanded Internet access in rural areas. The scholars suggested that information tools and resources should be tailored to meet the needs of nurses and facilitate better conduction of their day-to-day duties.

According to Murphy (2006) keeping current with drug therapy information is challenging for health care practitioners. Technologies are often implemented to facilitate access to current and credible drug information sources. In the Canadian province of Nova Scotia, legislation was passed in 2002 to allow nurse practitioners (NPs) to practice collaboratively with physician partners. The purpose of the author was to determine the current utilization patterns of information technologies by these groups of practitioners. Nurse practitioners and their
collaborating physician partners in Nova Scotia were sent a survey in February 2005 to determine the frequency of use, usefulness, accessibility, credibility, and current/timeliness of personal digital assistant (PDA), computer, and print drug information resources. Two surveys were developed (one for PDA users and one for computer users) and revised based on a literature search, stakeholder consultation, and pilot-testing results. A second distribution to non-responders occurred two weeks following the first. Data were entered and analysed with SPSS. Twenty-seven (14 NPs and 13 physicians) of 36 (75%) recipients responded. 22% (6) returned personal digital assistant (PDA) surveys. Respondents reported print, health professionals, and online/electronic resources as the most to least preferred means to access drug information, respectively. 37% and 35% of respondents reported using "both print and electronic but print more than electronic" and "print only", respectively, to search monograph-related drug information queries whereas 4% reported using "PDA only". Analysis of respondent ratings for all resources in the categories print, health professionals and other, and online/electronic resources, indicated that the Compendium of Pharmaceuticals and Specialties and pharmacists ranked highly for frequency of use, usefulness, accessibility, credibility, and current/timeliness by both groups of practitioners. Respondents' preferences and resource ratings were consistent with self-reported methods for conducting drug information queries. Few differences existed between NP and physician rankings of resources. The use of computers and PDAs remains limited, which is also consistent with preferred and frequent use of print resources. Education for these practitioners regarding available electronic drug information resources may facilitate future computer and PDA use. The author suggested that the further research is needed to determine methods to increase computer and PDA use and whether these technologies affect prescribing and patient outcomes.

**Dee and Stanley (2005)** conducted a research to provide new insights on clinical nurses' and nursing students' current use of health resources and libraries and deterrents to their retrieval of electronic clinical information, exploring implications from these findings for health sciences librarians. Questionnaires, interviews, and observations were used to collect data from twenty-five nursing students and twenty-five clinical nurses. Nursing students and clinical nurses were most likely to rely on colleagues and books for medical information, while other resources they
frequently cited included personal digital assistants, electronic journals and books, and drug representatives. Significantly more nursing students than clinical nurses used online databases, including CINAHL and Pub-Med, to locate health information, and nursing students were more likely than clinical nurses to report performing a database search at least one to five times a week. Nursing students made more use of all available resources and were better trained than clinical nurses, but both groups lacked database-searching skills. Participants were eager for more patient care information, more database training, and better computer skills; therefore, health sciences librarians have the opportunity to meet the nurses' information needs and improve nurses' clinical information-seeking behaviour.

2.13 Information Seeking Behaviour of Pharmacists

Iyer (2011) studied the drug information seeking behaviour among healthcare professionals in the University of Utah Community Clinics and noted that the clinicians and pharmacists were given a wide range of sources to choose from the available drug information. The scholar suggested that multi-sources of health information such as books, journals, meeting with colleagues, physicians’ desk reference and Internet should be made available to the healthcare professionals in order to enhance their professional competence.

According to Kostagiolas, Aggelopoulou and Niakas (2011) hospital pharmacists need access to high-quality information in order to constantly update their knowledge and improve their skills. In their modern role, they are expected to address three types of challenges: scientific, organizational and administrative, thus having an increased need for adequate information and library services. They also investigated the information-seeking behaviour of public hospital pharmacists providing evidence from Greece that could be used to encourage the development of effective information hospital services and study the links between the information seeking behaviour of hospital pharmacists and their modern scientific and professional role. An empirical research was conducted between January and February 2010 with the development and distribution of a structured questionnaire. The questionnaire was filled in and returned by 88 public hospital pharmacists from a total of 286 working in all Greek public hospitals, providing a response rate of 31%. The hospital pharmacists in Greece are in search of scientific information and,
more particularly, pharmaceutical information (e.g., drug indications, storage, dosage and prices). The Internet and the National Organization of Medicines are their main information sources, while the lack of time and organized information are the main obstacles they have to face when seeking information.

The modern professional role of hospital pharmacists as invaluable contributors to efficient and safer healthcare services may be further supported through the development of specialized libraries and information services within Greek public hospitals.

Kramer (2011) described the creation and implementation of focus groups to evaluate the effectiveness of a health sciences library's liaison program of the College of Pharmacy faculty and to better understand the faculty's information needs in order to design new and improved library services. The liaison services support the teaching and research needs of faculty and students through literature research, classroom teaching, and an extensive library collection of pharmacy literature. Focus group results demonstrated a high level of satisfaction with library liaison services and collections. Opportunities exist for expanded interaction with graduate students and greater marketing of library services to increase faculty awareness of specific library programs.

Brown, Roufogalis, and Williamson (2009) opined that the use of complementary medicines (CM) is increasing in the community. Hospital pharmacists need to expand their knowledge of CM and have access to and become familiar with reliable information sources. To ascertain hospital pharmacists' knowledge on adverse effects of CM; and to investigate their information seeking practices and preferred sources of reliable information on CM. Anonymous self-administered surveys were sent to a stratified random sample of pharmacists across Australia. The questionnaire was designed to address five areas on CM: experience and attitude, knowledge, information use, preference for information sources and demographics. Were received 388 eligible responses (23% response rate). 81 respondents were hospital pharmacists. Around half of the hospital pharmacists sought information on CM at least monthly. The most frequently sought information was drug interactions, contraindications and adverse effects. A variety of sources were used to find the information, with the most popular being the Internet and
MIMS, however, the most useful were specific web sites and drug information phone services. Only 36% of hospital pharmacists knew that hepatotoxicity is a potential adverse effect of black cohosh and 38% knew that glucosamine can interact with warfarin. Many Australian hospital pharmacists had a limited knowledge on the adverse effects of common CM. Although hospital pharmacists often seek information on CM, many were unable to or unaware of where to access reliable information.

The creation of Faculty of Pharmacy at the University of Ibadan led to the downsizing as well as the relocation of more than 80% of pharmacy books and journals from the medical library to the main campus about 15 km away from the teaching hospital/ College of Medicine library, where the books were initially housed.

Komolafe-Opadeji (2009) revealed the hardship and problems encountered by the clinical pharmacists in the teaching hospital who were using these resources before they were relocated. The pharmacists proffered solutions to some of the problems, especially as the researcher gave them a free hand to suggest four core resources they would appreciate finding in the library. Their suggestions would guide selection of relevant resources for their use by the library. The author also determined that the study group would have gained from using the HINARI database, which the study revealed was the least used of the electronic databases available in the library, whereas the Internet was widely used as source for medical information. Though all the participants in the research claimed to be computer literate, 97% clamored for training by the librarians on information sourcing skills.

2.14 Information Seeking Behaviour of Physiotherapists

Ashcraft (1998) discussed that the findings of the impact of the use of library services and information by physiotherapists on their decision making for patient care. The respondent in this study was asked to pose the enquiry of their hospital library and information service point and complete a questionnaire to record the success and speed of their enquiry, and to evaluate the impact of the information on their decisions relating to patient care.
2.15 Information Seeking Behaviour of Speech Pathologists/Occupational Therapists

According to Gilman (2011) for over a decade, occupational therapists have been engaged in a shift to an evidence-based practice (EBP) model, necessitating a concurrent emphasis on EBP in occupational therapy (OT) education. An essential element of this education is the development of information-seeking behaviors: how to locate access, evaluate, and utilize the best available evidence in the course of answering a clinical question. Indeed, prior studies have pointed to the need to incorporate instruction on information-seeking behaviors into the curricula of OT programs.

Previous studies of occupational therapists' information-seeking behaviors have primarily focused on undergraduate degree programs. Powell and Case-Smith recently provided the first examination of information-seeking behaviors in master of occupational therapy (MOT) graduates. Further study of MOT graduates' information-seeking behavior is needed to inform decisions related to curriculum and instruction.

Kloda and Bartlett (2009) examined the clinical information behaviour of rehabilitation therapists on the basis of an extensive review of the research and noted that very little was known about the clinical information needs and information use by rehabilitation therapists. The scholars suggested that adequate research is required to facilitate better understanding of the clinical questions that arise in rehabilitation therapists’ practice.

Guo, Bain and Willer (2008) assessed the information needs of speech-language pathologists and audiologists in Idaho and noted that a vast majority of the respondents indicated insufficient knowledge and skills to search PubMed due to absence of exposure and training facilities. The scholars suggested that speech language pathologists and audiologists should be encouraged to develop skills in locating information to support their practices.
2.16 Inferences

Review of literature on the information use behaviour of mental health and neuroscience professionals in Karnataka revealed certain interesting facts which are as follows: Most of the studies in India and abroad are conducted on information needs and information seeking behaviour of various user communities.

Majority of the studies on information needs and information seeking behaviour of various user communities are conducted in developed countries, especially USA and Europe. Considerable numbers of studies are also conducted on information needs and information use behaviour of physicians, medical practitioners and researchers. Majority of the studies have dealt with the information needs and information seeking behaviour of physicians rather than researchers and students. Majority of the studies on this aspect are conducted in developed countries, especially USA and Europe.

There are some studies, which have specifically dealt with the management of health information centres with a special focus on American and European countries. There are very few studies, which deal with health information management with special reference to India. Surprisingly, there is not even a single study conducted by the researchers on health information management in Karnataka State.

There are quite a few studies, which have dealt with the information needs and information use behaviour of medical professionals belonging to mental health and neuroscience branch. However, there are a couple of studies, which have dealt with this aspect with special reference to Indian Republic. Surprisingly, not even a single study is conducted on this significant aspect of health information with special reference to Karnataka state.

2.17 Summary

Review of literature on the information use behaviour of mental health and neuroscience professionals in Karnataka revealed certain interesting facts which are as follows: Most of the studies in India and abroad are conducted on information
needs and information seeking behaviours of various user communities are conducted in developing countries, especially USA and Europe.

Considerable numbers of studies are also conducted on information needs and information use behaviour of physicians, pediatricians, orthopaedicians, health science faculty, health science professionals, nurses speech pathologists, pharmacists, physiotherapists, clinicians. Majority of the studies have dealt with the information needs and information seeking behaviours of physicians rather than researcher and students. Majority of the studies on this aspect are conducted in developing countries, especially USA and Europe.

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2.18 Conclusion

Karnataka state has a good number of public and private mental health and neuroscience institutions. The physicians, researchers, medical practitioners, counselors, patients and general public’s require timely, relevant and adequate information on various aspects of mental health care in a developing state like Karnataka. Few researchers have assessed the role of libraries in the process of public health management in general and mental health care in particular in India and abroad. Prominent among them include- Bowden and Bowden (1971), Angier (1984), Reddy and Karisiddappa (1995), Reddy and Karisiddappa (1997), Fakhoury and Wright (2001), Raveesh Pandey (2004), (Aborimitis 2003) Shahul Ameen and Nizamie Haque (2004), and Powell and Clarke (2006), Byfield(2007), Lohonen et al
Fanner and Urquhardt (2008), Moreau et.al (2009), (2010), Bacur and Adams(2010)., Adequate scientific evaluations neither are nor made on the role of libraries in mental health care management with special reference to Karnataka state. The major deficiency observed in their works is the lack of emphasis on library intervention for integrated mental health care management as a whole.