USE AND IMPACT OF MEDICAL LIBRARY SERVICES ON CLINICAL DECISION MAKING BY MEDICAL PRACTITIONERS IN COOUTH, AWKA.

BY

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**APPROVAL PAGE**

This project work, carried out by OKECHUKWU PRECIOUS CHIDINMA with registration number 2018204041, has been supervised and approved by the Department of Library and Information Science, faculty of Education, Nnamdi Azikiwe University, Awka, Anambra State.

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**CERTIFICATION**

This is to certify that the work submitted in this project by OKECHUKWU PRECIOUS CHIDINMA with registration number 2018204041 is original. It has not been submitted to this University or any other Institution for award of any degree/diploma.

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**DEDICATION**

This project is dedicated to Mr and Mrs Okoye Okechukwu Christopher.

**ACKNOWLEDGEMENT**

I would like to express my deep gratitude to God almighty, the source and sustainer of all things who upholds the world with the words of his mouth and has made all grace abound through the knowledge of his son Jesus Christ.

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**ABSTRACT**

The study surveyed the use and impact of medical library services for clinical decision-making by medical practitioners in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital (COOUTH) Amaku, Awka. Five research questions guided the research. The population of the study was made up of 103 medical practitioners who are registered users of the medical library at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka. The instruments for data collection were the checklist and a questionnaire. Data collected were analyzed using mean scores. The findings of the study revealed that majority of the medical library services were not available for use by the medical practitioners, majority of the available medical library services were used on a low extent by the medical practitioners for their clinical decision-making. The available medical library services have impacted positively on the medical practitioners. Their major challenge to the use of medical library services is the restriction of the visiting time. The study concluded that medical library services provide medical practitioners and physicians with health information resources and services thereby enhancing the efficiency of their clinical decision making in relation to patient care, education, research and management of university teaching hospital. The study recommended that the medical library management should ensure that they make available the relevant and needed medical library services such as play–therapy services in their library to boost patronage and usage of these services by the medical practitioners for their decision making.

**CHAPTER ONE**

**INTRODUCTION**

**Background to the Study**

Libraries are service institutions which foster education, research and information. It is the centre of information, providing all kinds of knowledge and information readily available to all forms of users in the community. Libraries serve different categories of users like students, technicians, traders, persons in various forms of business, those on the teaching profession and non-teaching. The services provided by libraries are accessible to all these groups, regardless of tribe, gender, age, occupation and ethnic affiliation. There are many types of libraries such as academic library, public library, school library, national library, and the special libraries which include private and medical libraries.

Medical libraries are service institutions which foster education, research and information to medical organizations and her users. It is the centre of medical information, providing all kinds of health care, medical knowledge and information readily available to users in the Medical institutions or University Teaching Hospitals (Jan, Ullah, & Khan, 2021). According to Jan, Hussain, Ibrahim and Saeed (2018), medical libraries serve different categories of users who are teaching and non-teaching medical staff, medical students, medical practitioners, and other accredited medical research scholars. The medical libraries need to be accessible to all these groups in the University Teaching Hospital, regardless of department, gender, age, and ethnic affiliation (Akusu, 2017). The medical libraries need to be stocked with current and updated information sources and services to be able to meet the information needs of medical practitioners in order to convene on the Nigeria Federal Government Policy on health for all (NHIS, 2019). In this view, the medical libraries are to ensure that medical practitioners and other users are provided with relevant medical library services to boost their medical research work and learning.

Medical practitioners are healthcare experts who are trained to provide health facilities and services to the patients. A medical practitioneris a person who has received the degree of doctor of medicine (M.D.) or doctor of osteopathy (D.O.) following completion of a prescribed course of study in medicine and surgery in an accredited medical school, or study in osteopathy in an accredited osteopathic school, respectively, and who, following a period of internship or residency, is licensed to practice medicine and surgery in a particular state or states (Stinson & Mueller, 2020). Medical practitioners diagnose and treat physical and mental illness, disease and infection, prescribe medications and treatment and refer patients to other specialists where necessary. Medical practitioners are commonly known as medical specialists. Specialist medical practitioners include allergists, cardiologists, dermatologists, emergency medicine specialists, gynaecologists, obstetricians, paediatricians, pathologists and respiratory specialists (Nweke, 2013).

These medical practitioners provide facilities, care and services that are equivalent to those received in a nursing facility, health center or clinic. According to Osiobe (2019), the work activities of a medical practitioner are to examine the patient to make a diagnosis; record the patient's medical information; prescribe medication or administer treatments; order laboratory tests, X-rays and other diagnostic images and procedures; examine the results of tests and diagnostic images; refer the patient to other medical specialists for further diagnosis if necessary; encourage the prevention of diseases and disorders by advising patients on diet, exercise, hygiene and general health; provide pre-natal and post-natal care. The delivery of these work activities and quality of medical care in University Teaching Hospitals is a function of the communicated medical information in their respective libraries (Bryant, 2014). Therefore, the quality, relevance, adequacy and timely information available and accessible to medical practitioners will certainly reflect on the quality of medical care system, hence the need for the medical librarian to provide useful medical library services.

Medical library services are specialized services that are facilitated for use by medical practitioners in Medical institutions. Medical library services are the basic library services that the medical librarians provide to the various medical practitioners and users in the Medical institutions to enable them get informed on various health care needs and emerging trends (Al Kuwaiti, 2020). These services are centered on health information which can be in form of user education (orientation/instruction services), inter-library loan/connection services, abstracting and indexing services, bibliographical services, reference services, circulation services, compilation of reading list and bibliographies; and publishing (Hardy, 2018). Medical practitioners rely mostly on their institution's library and personal data collections for information. Information is sought for the purposes of managing patients, evaluating new drugs, and support for the diagnosis of ailments. Scientific and technical journals, Index Medicus, Excerpta Medical, CD-ROM (MEDLINE) databases and foreign magazines are widely consulted through the availability of these medical library services provided by the medical librarian (Chatterjee, 2016). These medical library services provided for medical practitioners are to enable them to take clinical decisions relating on their patients’ prescription, drug administration and diagnosis.

Clinical decision-making are decisions taken by medical practitioners when administering patients’ prescription, drug administration and diagnosis. These clinical decision-making is key to the patient’s life and health as mistakes taken during patients’ prescription, drug administration and diagnosis can lead to loss of life (Alper, White & Ge, 2015). These clinical decisions ensure that the medical practitioners are guided by certain information that will be very useful for them to know when and how certain prescription, drug administration and diagnosis can be carried out on a patient, hence the need for these medical practitioners to use the medical library services.

The use of the medical library services by medical practitioners for making clinical decisions implies that they apply and adopt the information provided by the medical libraries in relation to certain decision they intend to take and utilize the medical information resources available in their libraries as well. When medical library services are not used or poorly used by medical practitioners, it affects the effectiveness of their clinical decisions (Daniel, 2017). In the words of Daniel, not all medical practitioners who graduated 20 years ago are well informed about certain new trends in today’s medical practices as there are new innovative medical information and practices that are coming up every day and as such their use of the medical library services will avail them these information to practice efficiently and even much more to ensure that their prescription, drug administration and diagnosis are in line with new trends and realities.

The impacts of medical library services to medical practitioners in making clinical decisions is that it will improve their knowledge of new techniques and methods of medicals practices in recent time (Rathnakara, 2013). It will also enhance their knowledge base on new diseases and form of infections and prevention such as the Covid 19 that was affecting the world in the late 2019. Providing the needed medical library services to medical practitioners is very important as this will impact on their user skills in ICT and new media since many medical libraries of today are delivering information with social media and other electronic method for remote access to information. The impact of these services and evidence based practice resources will help medical practitioners to make good decisions in their clinical practice (Nankivell, Wallis & Mynott, 2016). Medical libraries that provide medical practitioners and physicians with health information resources and services is enhancing the efficiency of the clinical decision-making of the medical practitioners in relation to patient care, education, research and management of the University Teaching Hospital.

Similarly, the impact of medical library services to patients cannot be overemphasized, it can ensure that they are well informed about the causes of their ailments, reduce their infection rates or how to take their medications in line with the prescription of the medical practitioners. According to Chantelle and Khalid (2016), the impacts of the medical library services to users such as patients is to improve on their knowledge about various preventive measure about new infections and ailments. This will highly impact on them and give room for their access to enhanced current awareness services; selective dissemination of information; health delivery services; and how to get referral services that will make them meet with qualified medical practitioners for their various diagnosis and health care in general.

Therefore, this study will examine the use and impact of medical library services on clinical decision-making by medical practitioners in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka.

**Statement of the Problem**

New technologies and proper funding has been very useful for medical libraries in providing efficient and effective medical information services and current awareness services to support and facilitate medical practitioners’ clinical decision-making in the University Teaching Hospitals. The utilization of medical library services has been an effective means for medical libraries to adopt to ensure that medical practitioners get the best form of current awareness services to support their clinical decision-making.

However, it is one thing to provide medical library services, and yet another thing for those it is meant for to utilize them. Despite the importance of medical libraries and the huge sum of money invested in providing both the clinical and pre-clinical information services and resources, the problem of low or non-use of these medical library services still persist (Chatterjee 2016; Prout, 2013).

Several studies have found out that there is generally low or non-use of medical libraries by medical practitioners (Alper, 2016; Daniel, 2017). However, this problems as enumerated by different researchers above, makes the researcher to wonder if the medical library services provided does not impact positively on the clinical decisions of medical practitioners, which could be the reason why the discovered poor utilization. It is against this backdrop that the researcher has decided to carry out this study to examine the use and impact of medical library services on clinical decision-making by medical practitioners in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka.

**Purpose of the Study**

The main objective of this study is to examine the use and impact of medical library services on clinical decision-making by medical practitioners in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka. Specifically, the study intends to:

1. Determine the available medical library services at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka.
2. Ascertain the extent to which the medical practitioners use the medical library services for their clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka.
3. Examine the impact these medical library services have created on the medical practitioners on their clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka.
4. Identify the challenges to the use of medical library services by medical practitioners for clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka.
5. Determine the strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka.

**Significance of the Study**

The findings of this study may be beneficial to the following groups: Medical practitioners, Medical researchers, Board of the University Teaching Hospital, Medical library management and Medical librarian.

To the Board of the University Teaching Hospitals, this study would enable them to budget sufficient funds to the medical libraries to enable them procure new medical resources and databases that will enhance their medical collections for use by the medical practitioners in performing their job. This study may also help them especially in the area of planning to ensure that the funds budgeted for ICT and medical digital resources for the enhancement of medical library’s collection and its use are properly utilized to satisfy the expectation of the medical practitioners and other relevant medical library users.

To the Medical library management, this research work may be very helpful to them in deciding on the kinds of medical library services to introduce that are highly needed by the medical practitioners. This study may also enable the Medical library management to know the problems encountered by medical practitioners in the use of medical library services in the University Teaching Hospital. This may inform the Medical library management on the need to improve in their use of new media and current awareness services for these medical practitioners so that they can acquire the needed information they sought for their clinical decision-making.

It is hoped that the study could be of immense help to medical researchers in various ways by supporting them in searching and accessing information materials and to carry out project works on related areas in future.

**Scope of the Study**

The geographical scope of this study is Anambra state with concentration in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka. The study contents will concentrate on the available medical library services in University Teaching Hospital; extent to which the medical practitioners use the medical library services for their clinical decision-making in University Teaching Hospitals; impact that these medical library services have created on the medical practitioners on their clinical decision-making in University Teaching Hospitals; challenges to the use of medical library services by medical practitioners for clinical decision-making in University Teaching Hospitals; and the strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making in University Teaching Hospitals.

**Research Questions**

1. What are the available medical library services in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka?
2. To what extent do the medical practitioners use the medical library services in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka?
3. What are the impacts of the medical library services on the medical practitioners on their clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka?
4. What are the challenges to the use of medical library services by medical practitioners for clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka?
5. What are the strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka?

**CHAPTER TWO**

**REVIEW OF RELATED LITERATURE**

Literatures related to the present study were reviewed. The review was conducted under the following headings;

Utilization

Medical libraries

Medical library services

Medical practitioners

Available medical library services in University Teaching Hospital

Extent of use the medical library services by medical practitioners

Impact of medical library services on the medical practitioners for their clinical decision-making

Challenges to the use of medical library services by medical practitioners for clinical decision-making

Strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making

Summary of Literature Review

**Use**

The term ‘use’ also referred to as ‘utilization’ is defined as analysis of the interaction between the user and the working collection of library presented by the circulation of books in the library (Alonso, Gregory, Field, & Kirchain, 2020). The library in its effort to satisfy the needs of its users provide such material resources that will be used and capable of solving the needs of the users. Lee and Billington (2016) also defined the term ‘use’ as analysis of the process of utilizing or making full use of something that will bring satisfaction. The essence of use is to effectively apply or utilize an item towards achieving stated objectives.

To use means the act of utilizing something or thing for a purpose (Abubakar, 2020). For instance, library is used practically for learning, teaching and research purpose. So in order to build an inquiry mind, use of library resources becomes indispensable. Prout (2016) sees “use” as the extent of utilization of library collections. The library is not just a reservoir of knowledge, information and human experience but it also creates an avenue for accessing this treasure. In view of this, users make use of the library for academic materials, equipment, assistance and guidance. According, Ugah (2018), use stimulates excitement and instills confidence in the users to develop their talents, potentials and capabilities both academically and socially. Ugah further added that use of resources enhance users’ frontier of knowledge and help them to make discovery on their own.

**Medical libraries**

The medical libraries according to U.S. National Library of Medicine in Ali (2020) are libraries found in hospitals, medical schools, and in medical or health associations. These libraries are designed to assist physicians, health professionals, medical students, patients, consumers and medical researchers in locating health and scientific information to improve, update, access and evaluate health care services (Al Kuwaiti, 2020). The objectives for setting up medical libraries include collection development in terms of resources and services, selection processes, library orientation cum instruction, and above all, the organization of these library resources (Philips, 2020). It shouldn’t be enough to have a collection of textbooks, periodicals, etc with no effective library services. Providing adequate resources and services help in the delivery of actual information to the information seekers in medical libraries.

The medical library belongs to the first group of special libraries which is the group that deals with special subjects. As a special library, medical libraries are established to serve the medical practitioners, medical students and other people who wish to carry out a research in the field of medicine (Marshall, 2012). Good healthcare depends upon the existence of good communication and information network, hence the establishment of medical libraries (Okoro & Mbagwu, 2018). The United States (US) Medical library Association (MLA) standards for health sciences and hospital libraries indicated that medical library resources and services must take cognizance of providing Knowledge-Based-Information for quality health care services. According to Ali (2014), in medical libraries, books could be in reference forms- like medical dictionaries- which give the meaning of most medical words, encylopedias-which give detailed information about words and event; gazettes – which give information on periodicals including journals and newspapers; the physicians’ desk reference (PDR) book- which is a commercially published and contains a compilation of manufacturers’ prescription guideline updated annually. This is designed to provide physicians with full legal mandated information relevant to drug prescription.

According to Okeke, Eze, Eze and Asogwa (2017), a medical library is an organized collection of published books and audio-visual materials, and the services of a medical librarian able to provide and interpret such materials as are required to meet the informational, education or recreational needs of the users. Library in a medical institution by definition is a special library. It serves a particular interest group or population who are involved in the field of Medicare( Nweke 2013). A medical library can be seen as one that include references and research libraries assembled and maintained by and for the use of medical organization and societies representing among others, the medical and numerous specialized health profession (Halsted, Ward & Neeley, 2019). All such medical libraries are essential service centers organized for prompt service and usually issue information bulletins on health and medical matters.

Medical library is a type of library that is affiliated to a medical institution. It collects, preserves, organizes and disseminates books, journals medical and health information (Kirik, 2017). The materials are arranged in such a way that they are easily accessible to medical students and officers. According to King (2017), medical library plays a comparable role with the laboratory. It is necessary to acquire, organizes and make available medical literature in every medical institution through the medical library. Because the quantity and quality of information at the doctor’s disposal lies on how often he used the available materials in the medical library. And of course, materials in the medical library are functionally structured and arranged to render service aimed at accomplishing the institutions development and educational objectives of the users. Implies in this structure is the concept of the library as system with several sub systems. And the sub systems are named by a staff (Librarian) who performs one duty or the other. Such duties range from acquisition, processing, provision of medical related literatures to medical personnel in the institution in the right format and at the right time.

**Medical Library Services**

Medical library services are those services rendered by the medical libraries that give information seekers the accurate and or actual thing they needed to know about. According to King (2017) medical library services are those essential resource services found in medical libraries which are charged with the provision of current and retrospective information services to information seekers. These medical library services could be in offline or online forms such as Online information services, E-mail services, CD-ROM searching, Abstracting and indexing services, User education, Referral services, Compilation of reading list, Repackaging services, Internet services, and Binding services (Ali, 2014). These medical library services are those which give the clients direct answers to their research needs. A good medical library should have a private cataloguing unit, circulation section, technical section, study rooms, book processing and journal recording and acquisition sections where the various medical library services can be rendered (Scura & Davidoff, 2016). Medical library services can be viewed as activities or programmes undertaken in medical libraries with the intention of reaching a certain category of the population who are health or medical professional (Philips, 2013). The extent to which these medical libraries assist in information and medical library services delivery to their clienteles as well as assist their parent institutions to successfully carry out their jobs is very important to their mandate.

Medical library services are those services such as lending services, reference services, cataloguing services, medical research services, bibliotherapy services, play–therapy services, and recreation/leisure services among others found in libraries which provide current and retrospective information to information seekers (Marshall, 2013). These services above are called ‘conventional services’. They have now developed into Neo-conventional services such as Current Awareness Services (CAS), Selective Dissemination of Information (SDI), Inter-Library Loan (ILL), document delivery services, reprography services, and translation services in order to suit the needs of the industrial society and the emerging information society (Hardy, Yeoh & Crawford, 2018).

To meet the changing needs and preferences of the users, medical libraries have developed these varieties of information services that have transformed themselves into information centers in the post industrial society and through the application of Information and Communication Technology (ICT). According to Okeke, Eze, Eze & Asogwa (2017), with these new Libraries such as Library 2.0 Services, UMLS (Unified Medical Language System) Services, Digital Technology Library Services, Telemedicine services, The BackMed email discussion service, Information therapy services, Online services through social networking, Blog, Wikis, Slide shares, video shares and Photos Shares, Podcast, Really Simple Syndication (RSS), and Folksonomy, medical library services has been improved. It is expected that University Teaching Hospitals in recent time is expected to serve as one of the forerunners in application of new technologies.

**Medical Practitioners**

Medical practitioners are health care expert in Medical institutions. Medical practitioners are trained medical experts who diagnose and treat physical and mental illness, disease and infection, prescribe medications and treatment and refer patients to other specialists where necessary (Mathiharan & Patnaik, 2018). Medical practitioners are commonly known as medical specialists. A medical practitioner is an authorized practitioner of medicine, as one graduated from a college of medicine or osteopathy and licensed by the appropriate board (Harish & Sharma, 2021). A medical practitioner can also be an attending physician who attends a hospital at stated times to visit the patients and give directions as to their treatment; an emergency physician who is a specialist in [emergency medicine](https://medical-dictionary.thefreedictionary.com/emergency+medicine); a family physician who is a medical specialist that plans and provides the comprehensive primary health care of all members of a family, on a continuous basis; or a resident physician who is a graduate and licensed physician learning a specialty through in-hospital training (Hamasaki &Hagihara, 2012).

A medical practitioner is also a person who is skilled in the science of medicine, usually a doctor. The medical practitioner is the physician who is primarily responsible for providing comprehensive health care to every individual seeking medical care, and arranging for other health personnel to provide services when necessary (World Organization of Family Doctors, 2013). The medical practitioner also known as general practitioner/family physician functions as a generalist who accepts everyone seeking care whereas other health providers limit access to their services on the basis of age, sex and/or diagnosis. According to Association of American Medical Colleges (1984), the general practitioner/family physician cares for the individual in the context of the family, and the family in the context of the community, irrespective of race, culture or social class. He/she is clinically competent to provide the greater part of their care, taking into account the cultural, socioeconomic and psychological background (Weston, 2019). In addition, he/she takes personal responsibility for providing comprehensive and continuing care for his/her patients.

Similarly, Oosten (2013) gave other forms of medical practitioners as osteopathy or dentistry, Admitting physician, Chest physician, Complementary physician, [Corroborating physician](https://medical-dictionary.thefreedictionary.com/corroborating+physician), [Covering physician](https://medical-dictionary.thefreedictionary.com/covering+physician), [Hospital-based physician](https://medical-dictionary.thefreedictionary.com/hospital-based+physician), [Intern](https://medical-dictionary.thefreedictionary.com/intern), [House physician](https://medical-dictionary.thefreedictionary.com/house+physician), Medical doctor, [Panel physician](https://medical-dictionary.thefreedictionary.com/panel+physician), [Personal physician](https://medical-dictionary.thefreedictionary.com/personal+physician), [Primary care physician](https://medical-dictionary.thefreedictionary.com/primary+care+physician), [Rent-a-doc](https://medical-dictionary.thefreedictionary.com/rent-a-doc), Sentinel physician, [Supervising physician](https://medical-dictionary.thefreedictionary.com/supervising+physician), [Surgeon](https://medical-dictionary.thefreedictionary.com/surgeon), Teaching physician, [Triple threat physician](https://medical-dictionary.thefreedictionary.com/triple+threat+physician), [Virtual physician](https://medical-dictionary.thefreedictionary.com/virtual+physician), medical laboratory scientist and nurses. According to Medical and Dental Practitioners Act (2014), medical practitioners can also include Epidemiologist, Optical Dispenser/Technician, Biostatistician, Natural Therapist, Healthcare Administrator, Massage Therapist, Radiographer, and Nurse (Registered).

**Available Medical Library Services in Medical Libraries**

Medical library services are offered to users of medical information to satisfy their information needs. According to Medical Library Association (2018), medical library services are provided by medical librarians and information professional in the medical libraries or centers for the use of library resources and dissemination of information. In so doing, medical practitioner/users’ information needs are met. Generally, the well-known existing library and information services provided and available in medical libraries are cataloguing, classification, circulation services, which including charging and discharging, registration, renewal, book reservation, current content, current awareness services, selective dissemination of information, indexing and abstracting services, bibliographic services, literature search services, interlibrary loan, reference services, document delivery, translation services, referee services and so on (Ajayi, 2014). For ensuring that medical library services are effective and used in medical libraries, the medical librarians must be professional to make the available medical library services to be accessible and easy to locate.

The availability of medical library services in medical libraries of University Teaching Hospitals has become an important area that shows the extent at which the medical libraries are explored. Medical library, being a member in the special library family has a lot to offer to its clients as its own quota to improving the task of medical practitioners in University Teaching Hospitals (Okeke, Eze, Eze & Asogwa, 2017). The available medical library services provided by Medical Libraries according to Okoro and Mbagwu (2018) include the following:

* **Circulation service (lending services):** this is the formal lending and borrowing activities of the medical libraries. It is essentially a social service in which medical practitioners of a medical library have the privilege of borrowing library materials either for reading or for consultation (Okoro and Mbagwu, 2018).
* **Reference Services:** This is generally a person-to-person service that is rendered to clienteles especially medical practitioners who may not be used to the library. The reference section answers the “5w” questions concerning the use of the medical libraries. A clientele may come up with the question – where can I get this or what is this, who is this person, when did that happen, which method is better? Etc (Okoro, 2018).
* **Cataloguing Services:** the catalogue is a bibliographic description of a book. It enables the users of the medical libraries to know what the library has in stock (Okoro and Mbagwu, 2018).
* **Medical Research Services**: this is the approach which medical libraries adopt to ascertain the proper dissemination of information to the medical professionals (Gavgani, & Mohan, 2018). Medical research includes amongst other things the purchase of medical bulletins both new and retrospective, medical journals and magazines, etc. From these periodicals the clienteles will be able to know which drugs are in existence and which one have been dropped to heal certain ailment and why it is so or the reason behind it.
* **Bibliotherapy Services: t**his is the therapeutic use of books in the treatment of illness or personal psychological problems. This entails a careful selection of books pertaining to the persons’ ill-health. It is one of the services rendered since the medical library is charged with the provision of such materials to the patients according to doctors’ prescription (Okoro and Mbagwu, 2018).
* **Play–Therapy Services**: this is mostly done in the psychiatry hospital. This is whereby the medical library is charged with the provision of writing materials and toys for children. In the case of the toy, there could be a toy room where children will stay and play and learn as well (Gavgani, & Mohan, 2018). Those of them who keep to themselves are given pencils and drawing books. There, they make drawings of which one could possibly decode. Some may draw a woman and a child, then father separate, indicating that the father left them. Some may draw father and mother together and a faceless child separate. Sometimes it will be a child without arms. All these indicate that the child was abandoned by the parents and needs alms and helps. All these are needed in the rehabilitation of these patients because it can be made known where the problem lies.
* **Recreation/leisure Services:** These are relaxation/recreational services offered to clienteles of the medical libraries by the librarians. Medical libraries acquire Newspapers and magazines to enable their clientele who are mainly medical practitioners to browse through and know what is happening around the globe as well as developments in their field.

Similarly, in medical libraries, there are other available services called ‘Neo-conventional services’ that are provided in order to suit the needs of the medical practitioners towards their tasks in the industrial society and the emerging information society. To meet the changing needs and preferences of the medical practitioners, medical libraries have developed these varieties of information services which have transformed them into information centers in the post industrial society and through the application of Information and Communication Technology (ICT). According to Gavagani and Mohan (2018), medical libraries through the application of new technologies now have the following available service:

* **Current Awareness Services (CAS):** This has been defined as the establishment of a system for providing new and more updated medical library services to medical practitioners in line with their request and needs (Gavgani, & Mohan, 2018).
* **Selective Dissemination of Information (SDI):** This is a common service in medical libraries with the main objective of providing users (especially in medical practitioners) with information that will promote their medical task or research and other day-to-day activities. This could be through the use of bill boards or notice board or through the internet.
* **Inter-Library Loan (ILL):** This essentially involves transaction between two libraries whereby the medical libraries come together to help each other by loaning each other materials. The participating libraries share a union catalogue list whereby they check upon to know the collections they lack (Casey & Savastinuk, 2016).
* **Document Delivery Services:** This medical library services enable the medical libraries to partner with publishers to deliver journals or medical information resources to medical practitioners who need them at a given fee (Gavgani, & Mohan, 2018).
* **Reprography Services:** This is has to do with reproducing information materials to larger quantity whereby one can neither reduce nor enlarge the outlay/content of the material. The services provided here include photocopying, typesetting and bindery of works and or materials at a cheap rate (Gavgani, & Mohan, 2018).
* **Translation Services:** Since the ‘library is a growing organism’ going by the fifth law of library science, it has grown to the level of translating relevant materials to their clienteles’ language by the aid of a translator. This will enable the user have access to the materials. Some medical library users desire some publications written in language other than English (Gavgani, & Mohan, 2018).
* **Documentation Services:** As a medical library, one of its duties is to document activities for future use (Casey & Savastinuk, 2016). The documentation of these activities will make it easier for the library to provide any kind of information needed by the medical practitioners

By applying advanced information technologies, Web 2.0 technologies and library 2.0 technologies, medical libraries are transforming themselves into digital libraries, virtual libraries and community building information centers. According to Illochi (2021), medical libraries also have some available services called ‘non-conventional services’ which relates more with the internet and Web 2.0 environment such as:

* **Library 2.0 Services:** This technology came into being after the application of Web 2.0 tools. It makes the use of libraries more transparent. Library 2.0 enables users to know the search address of first choice and easier access to required information from the massive information (Okeke, Eze, Eze & Asogwa, 2017). It does this so that user-centric information services could be put in place. Library 2.0 makes information demands go beyond the physical walls of libraries and make the entire network to form a site where information could be continually collected and provided to medical practitioners.
* **UMLS (Unified Medical Language System) Services:** This is a knowledge organization system based on ontology and Semantic Web. It is found in the field of biomedical science. According to Iroka (2014), it collects more than 800,000 biomedical concepts, 1.9 million words from 60 different types of biomedical controlled vocabularies, terminologies, classified and expert systems such as MeSH and International Classification of Diseases (ICD). It also provides 135 kinds of semantic types among these vocabularies and thus allows one to translate among the various terminology systems. It also provides natural language processing and language standardization, it has already been used in the medical information organization.
* **Digital Technology Library Services:** This is an intranet-based clinical imaging service which was transformed from photography services (Ajayi, 2014). Some aspect is also a common service that medical libraries render. It gives the clienteles the opportunity to know what the library has in stalk via the internet (Casey & Savastinuk, 2016). It involves the use of computers in all the library activities and intranet-based digital imaging system.
* **Telemedicine services**: This is the provision of health-care consultation and education using telecommunication network to communicate information (Okoro & Mbagwu, 2018). It involves the assessment and review of patient information (history, examination or investigation) by a health professional who is separated temporally and/or spatially from the patient. However, it is split into two types, real-time and store-and-forward. The real time involves the transmission of images which are viewed synchronously in dedicated transmission rooms. A good example of this according to Ajayi (2014) can be found in videoconferencing and tele-psychiatry, which rely on instantaneous interactions. Store-and-forward system rely on time-independent communication, usually involving still images not exclusively, and have been used to great effect by the military and dermatology services. Both types are reported to be accurate.
* **The BackMed email discussion service:** This is a free electronic system maintained by Swetsblackell.com that enables hundreds of health sciences libraries across the United States as well as other places to quickly post lists of excess as well as wanted journal issues and books (Casey & Mohan, 2018).
* **Evidence-based medicinal information services:** This medical library service through the Web 2.0 and access to the Medicine 2.0 gives medicinal information as well as their evidences to clienteles (Casey & Mohan, 2018).
* **Information therapy services:** This is a facet of the Web 2.0 which gives access to Medicine 2.0 (Ajayi, 2014). This helps clienteles know the latest in the field of medicine.
* **Online services through social networking:** This is whereby the library is connected to the internet and gives a clientele the access to view wherever you may be (Gavgani & Mohan, 2018).
* **Blog**: Here too there are medical Blogs search query such as the ‘allinurl: medicine blog’. Specialization plays an important role here as it gives information therapy, patient education, patient guides in hospitalization, patient discharge information, doctors time schedule, doctors list based on specialty, insurance and information about diseases caused by climate changes, common diseases, prevention of common diseases, seasonal diseases, etc (Okoro & Mbagwu, 2018). All these could be presented and shared to medical practitioners through hospital blogs.
* **Wikis**: It is a tool from Web 2.0 which is a suitable platform for reference and information services in medical library and information centers. Medical libraries can create a special case study wiki which serves as an open course repository and finally best source of evidence (Ajayi, 2014).
* **Slide shares, video shares and Photos Shares:** These are tools used to share medical images, atlases, educational clips in medical libraries. Medical librarians could digitalize these in order to serve their clienteles better. Such could be atlases of Skin Diseases, atlases of Heart Operation/Surgery that can be used to make a slide show or video clips about operation and chronicle/revolving processes of diseases, etc (Casey & Mohan, 2018).
* **Podcast**: This is one of the tools of Web 2.0 which is normally used for medical practitioners or patients’ education. Some medical library’s Web sites offer patient education audio/video clips and podcasts through their web sites such as ‘Medicine Health, patient UK (a comprehensive, free, up-to-date health information as provided by GPs to patients during consultation), Mayo clinic, UK National Health System, etc.
* **Really Simple Syndication (RSS):** Availability of RSS feeds enables medical practitioners to catch up with trends and changes in the desired medical specialty since it gives the possibility of being informed about new items added to the interested site (Seidman, 2018). It is an SDI since it gives the user the easy, fast accessibility to specific up-to-date information.
* **Folksonomy**: This is also a tool from the Web 2.0. It is used to advocate the controlled vocabulary, thesaurus, taxonomy, etc. It is used to decode the meaning of several slangs used in the medical world. Therefore, it is this system that is used as a thesaurus by medical practitioners.

**Extent of the use of medical library services by medical practioners**

The essence of providing medical library services to medical practitioners is to make them use them in their daily activities. These medical library services are expected to involve available resources of the library to be made available either online or offline. As more medical library services become available both offline and online, the activities of medical practitioners are being expanded and limitless (Koteswara, 2013). These library services which includes consultancy services, exhibition and displays, book reservation services, reprographic services, library instruction (user education, inter-library loan, document delivery service, abstracting and indexing services, referral services, selective dissemination of information, current awareness services, photocopying, computer typesetting services, lending services, internet access, customer relation, binding services, bibliographic, service online public access catalogue, and translation services usually add value to the content of the collections by making them accessible through offline or digital means so that students, researchers and the entire members of the University community (including medical practitioners) can access them anytime and anywhere (Chowdhury & Margariti, cited in Ekere, Omekwu & Nwoha, 2016).

Similarly on the extent of use of the medical library services by medical practitioners, medical libraries in developing countries are beginning to provide assistive technologies such as BackMed email discussion service to medical practitioners (Casey & Mohan, 2018). Most notably, medical libraries have put in place evidence-based medicinal information services to assist medical practitioners in their access to useful information that will support their clinical decision-making on the type of drugs and medication to give to patients (Ali, 2014). Furthermore, information resources in slide shares, video shares and photos shares are being procured to enable medical practitioners to access information sources more easily. Libraries are also training selected members of staff on how best to use social media platform serve medical practitioners (Nassimbeni & De Jager 2014).

Although medical libraries are normally associated with books on medical practices and innovations that can help medical practitioners in their clinical decision-making, they have numerous other research resources and services such as folksonomy and Really Simple Syndication (RSS) which are available and used extensively by these medical libraries (Medical Library Association (MLA), 2017) Similarly, clinical decision-making by medical practitioners are more virile and positive by useful and authentic provision and extensive use of medical library services of the medical librarians in the medical libraries. Moreover, while medical libraries have a plethora of both physical and digital services, some of their most valuable medical library services are provided or accessible to those medical practitioners that has ICT skills and is aware of the medical library services which will improve their patronage and use of the medical library services (Lazar & Jaeger, 2011). According to Okeke, Eze, Eze and Asogwa (2017), the medical library services used extensively by medical practitioners for their decision making includes the provision of library resources that are grouped into three forms – print resource services, none print resource services and reference services:

**● Print Resource services:** These resources are bounded books, journals, newspapers, magazines and pamphlets, novels, picture books, drawing books, and other literatures that are available for medical practitioners. They are usually available and in high demand for use in clinical decision-making

**● Non-Print Resource services:** Otherwise known as electronic resources or audio-visual materials. These are soft copies of information that can only be viewed through the use of compatible hardware or application of information and communication technology. Electronic resources can be found in slides, CD-ROMS, microforms, internet, audio cassette, video cassette and other storage devices. These resources are called e-books, e-journals, e-zines, e-documents, microfilms e.t.c. These resources are used by the medical practitioners through the services of the medical librarians. They support the medical practitioners to gain access to use these available library services and resources to take clinical decisions.

**● Reference services:** This type of services offer information for research and provide useful data to medical practitioners on various forms of medical cases and information. Reference resources such as encyclopedia, dictionaries, hand books or manuals, biographical sources of information, atlas, prospectus, directories, gazetteers, almanacs, and newspapers and so on guides the medical practitioners in their clinical decision-making. Medical practitioners use these reference services to support and advance their occupation and clinical decision-making.

Sufficient utilization of medical library services by medical practitioners will make them to be more effective in their clinical decision-making as they will be more satisfied without any discrimination in using the available library services. In this regard, Obinyan and Ijatuyi (2013) stated that medical libraries can render a number of services such as Blog and Wikis to the medical practitioners to use for their clinical decision-making. The medical libraries can offer online services through social networking and podcast. According to Utor (2013) other ways through which the medical libraries and librarians can encourage medical practitioners’ use of medical libraries is through organizing activities with them in the form of Really Simple Syndication (RSS), teaching videos, CD-ROMS with medical dictionaries, and language stimulating materials (e.g. games like puzzles, chess).

To further enhance the use of medical libraries for clinical decision-making by medical practitioners, the library can provide medical journals in sufficient quantities as well as develop evidence-based medicinal information services. According to Casey and Mohan (2018) medical practitioners can also have access to use slide shares, video shares and photos shares as this will aid their practical exposure to some key cases and images that will improve their medical diagnosis and decision making on the patients. Information materials contained in folksonomy and Really Simple Syndication (RSS) should be organized by librarians to assist medical practitioners’ use and access to useful medical contents that will support their clinical decision-making. According to Haruna (2016), countries like Germany and Denmark have a central medical library that produces and distributes reading materials for medical practitioners who treats serious health issues such as blind, deaf, and dumb cases. These medical practitioners also receive and use library services such as BackMed email discussion service to assist them in their clinical decision-making.

In some countries, there is a high usage of medical library services by medical practitioners for their clinical decision-making. According to Meldy cited in Okoro and Mbagwu (2018), in America, the medical library services used by medical practitioners for the clinical decision-making is charged by law with providing online information service to aid quick access and use of online medical books free of charge. In Ireland too, Information therapy services and many medical audio books, both on cassette and CD format are lent free of charge to the medical practitioners (Zain cited in Illochi, 2021). Dada (2013) affirms the position above when they argue that medical libraries and health information centers around world have developed specialized health information services to meet the library and information needs of their medical practitioners who need to make certain prescription and decision on the health and drug administration of the patients. Dada identified these health information services to include UMLS (Unified Medical Language System) services and Telemedicine services.

In the words of Alemna and Dodoo (2013), medical practitioners are also utilizing information and communication technologies (ICTs) services provided by the medical libraries to increase their information access for enhanced clinical decision-making. A broad range of ICTs otherwise called adaptive or assistive technological services are now available to provide access to information in electronic data bases on the internet giving medical practitioners an opportunity to be effective. According to Iroka (2014), these innovative technological services are library 2.0 services and digital technology library services.

Furthermore, contributing to the extent of use of medical library services by medical practitioners for their clinical decision-making, Casey and Mohan (2018) observed that there is low use of the medical library services by medical practitioners which can be attributed to the expressed unavailability of the desired medical library services for them to access in the library. Ajanyi and Akineiye (2014) also observed that there is frustration among medical practitioners as a result of their inability to properly utilize the Information therapy services and other telemedicine services provided by the medical libraries. The frustration could be the inability of the medical library management to provide relevant library materials that suit the needs of the medical practitioners. That is why Ali (2014) stated that the use of medical library services by medical practitioners depend on the availability of the desired library services and information source.

Similarly, Okoro and Mbagwu (2018) in confirmation of the above assertion, stated that the extent of use of medical library services by medical practitioners for their clinical decision-making has an approximately 80% dependence on the availability of the library services. Iroka (2014) informs that the consequences of medical practitioners’ inability to use the library bring about serious debasement of the quality of clinical decision-making which may consequently have a negative effect on the health of the patients.

**Impact of medical library services to the medical practitioners for their clinical decision-making**

In medical librarianship, one of the key parametres for measuring the benefits from medical library services is the impact it has on improving medical practitioners’ task and improving the patient care (Weightman & Williamson, 2015). Identifying the way to demonstrate this benefit to medical practitioners in their clinical decision-making is usually a challenge because of the poor funding and resource deficiency of the medical libraries. Improving access to, and use of medical library services has to a large extent impacted on the clinical decision-making of medical practitioners to ensure that patients gets the best prescription for their healthy living (Ali, 2014). Medical library services provided to medical practitioners has also impacted on the training and research programmes has been one aspect of those programmes (Lindberg, Siegel, Rapp, Wallingford & Wilson, 2013).

Similarly, Nankivell, Wallis and Mynott (2021) in a study using 120 medical practitioners, found that many medical practitioners have attested to been very active and satisfied with the medical library services provided to them in their task in the medical care. A major impact that these medical library services have had on them is that it has helped them at improving the health services to the citizens. The World Health Organization cited in Adio, Akewukereke and Ibitoye (2017) revealed that nearly all developing countries are signatories to international declarations on the promotion of health care delivery and the medical libraries stand a better chance of providing medical library services that will impact of the clinical decision-making of the medical practitioners in the health centers. According to Abubakar (2017), other impacts of the medical library services to the clinical decision-making of the medical practitioners are that it has helped in Improving their drugs prescription and health communication to the patients through a variety of approaches, including:

* Improving access to health materials.
* Emphasis on readability and comprehension in these materials; e.g., journals, instruction guides, books, websites, etc., and
* The use of non-written materials such charts, diagrams, photographs, picture books, audio and videotapes, multimedia presentations, and so on.

The medical practitioners need to have a high level of health information literacy. This is a key requirement for the medical practitioners in their clinical decision-making (Oduwole, 2014). They will be well exposed to the basic medical information that will guide them in their tasks and patient care (Burnham & Peterson, 2015). The development of appropriate and effective health communication has two main impacts to the medical practitioners which are to increase their role of giving genuine health prescription that will improve the quality of health life, and to eliminate disparities in healthcare decisions and health information among medical practitioners (Pluye, Roland, Grad, Dunikowski & Stephenson, 2015). The medical library plays an important role in the dissemination of health information to the medical practitioners towards the promotion of healthy lifestyles. Therefore, librarians should strive to meet the health needs of the medical practitioners as this has a major impact on their clinical decision-making.

A study carried out by Jan, Ullah, and Khan (2021) on the Impact of Medical Libraries on Clinical Decision-Making in Pakistan found that medical libraries play a very active role in quenching the information thirst of their users who are medical practitioners. Journals were reported as the most used library resources in the medical libraries in Pakistan. Medical literatures housed in these libraries have a great impact on the clinical decisions of the medical doctors working in hospitals. The provision of latest, relevant and sufficient medical literature to the medical practitioners has a great impact towards the level of effectiveness of the medical practitioners in their clinical decision-making. Therefore, Marshall (2012) further opined that health information service should form an integral part of the medical libraries so as to enhance the service delivery and clinical decision-making of the medical practitioners.

The impact of medical library services will be well felt by the medical practitioners if there is adequate, up-to-date and timely information which must be available to enhance clinical decision-making and quality performance of the medical practitioners. According to Word and Wright (2018), the tremendous use of new medical information being produced in various languages will help rural doctors to communicate better with the community members who may not understand English language better. This will improve on their clinical decision-making to ensure that the patients get the best service in their preferred language. A medical library is high-quality information centers that provide the much-needed support for health care delivery by ensuring that their medical library services have an impact on the medical practitioners (Uwem, 2019). Medical librarians need to anticipate medical practitioners' needs and supply comprehensive and current answers to the practitioners' questions.

To make the medical libraries to have a lasting impact on the medical practitioners, they will need to procure information materials that are in the area of interest of the medical practitioners. Such areas must have all areas of medical practices and solution to health problems. According to Jan, Ullah, and Khan (2021), these information materials will guide the medical practitioners in ensuring that they seek and acquire relevant resources that will expose them to the new areas and emerging practices in their field. Medical journals and books will keep the medical practitioners up-to-date regarding their field of specialization which will support their clinical decision-making. King (2017) underscored the impact of relevant health information in clinical decision-making of medical practitioners and concluded that if medical practitioners are provided with online resources, it will improve their offline task and make room for a better search for information that will guide their clinical decision-making

In the work of Muller and Stinson cited in Jan, Ullah, and Khan (2021), they revealed that 258 doctors of deferent deportments attested that medical literature is the main source of information that supports their clinical decision-making. Hardy (2018) also found that, in-touch with other doctors, using of textbooks and journals was the main source of information consulted by the medical researchers which has impacted on their clinical decision-making. Ajayi (2018) reported that information provided by the libraries has a tremendous effect on medical practitioners towards psychiatric patient care. Osiobe (2019) stated that in Nigerian universities, journals were the main source of information used by the medical researchers and medical practitioners. Sneiderman, Fushman, Damner, Fiszman, Ide and Rindflesch (2017) stated in his study that information received from the medical libraries have directly impacted on clinical decision-making of the medical practitioners. Hardy (2018) further revealed in her investigation that ''the medical libraries have started to move from a prevalently clinical help facility to a wide scope of supporting the whole medical care setting by ensuring that their resources supports clinical decision-making.

**Challenges to the use of medical library services by medical practitioners for clinical decision-making**

Medical library services are vital to the functions of the medical practitioners in the medical institution. These medical library services support medical practitioners to be well equipped with medical information that will improve on their clinical decision-making. However, some medical practitioners do not visit medical libraries for use of its medical information for their professional or administrative task with respect to clinical decision-making (Urquhart & Hepworth, 2015). They may see the medical library services as complimentary and not really so important for them to use and make clinical decisions. Some others see the medical library services medical library services as a place where they can have access to social networking sites, mainly for leisure, relaxation, fun and entertainment. Sneiderman, Fushman, Damner, Fiszman, Ide and Rindflesch (2017) noted in their study that some medical librarians have bad attitudes which negate medical practitioners to patronize or use the medical libraries. The visiting time for the medical libraries and using its resources are sometime restricted and not on a 24/7 basis mostly during after work period. This to a large extent may serve as a major challenge for the use of medical library services by medical practitioners for clinical decision-making**.**

Some of themedical libraries are not very supportive to the medical information needs of the users they do not have social media tools and network to enhance and encourage usage of the medical library services for educational or consulting activities purposes (Word & Wright, 2018). According to Ali (2014), some medical practitioners mostly the old and established ones do not use or see the medical library services as key to their clinical decision-making. They felt they have been taking decision long ago even before the library setup so they do not see the need to use the medical library services. Some medical practitioners also exhibit poor attitude towards the use of medical library services for their clinical decision-making as most clinical departments within the institution may be far away from the medical libraries (Pluye, Roland, Grad, Dunikowski & Stephenson, 2015). It is expected that librarians should be at the fore of bringing these medical library services to these disadvantaged users.

The use of medical library services by medical practitioners for clinical decision-makingmay also be a problem as some of thesemedical practitioners are averse to the use of technology. Oduwole (2014) surveyed the attitude of medical practitioners towards the use of medical library services for their clinical decision-making and found that most could be described as being apathetic. It is pertinent to note that there are some other critical challenges involved with the poor use of medical library services by medical practitioners for clinical decision-making. Abubakar (2017) identified some of these challenges as:

**Copyright issues**: It is a common challenge when making use of medical library services and information and this is not restricted to information disseminated in print format alone but it also cuts across medical information disseminated in audio and video format. Medical librarians may infringe on some authors’ copyright if they are not well knowledgeable in the process of making medical information accessible on social media, hence it is paramount that medical librarians even in the bid to satisfy medical practitioners with current awareness services should not go beyond the dictates of the copyright law (Okoro & Mbagwu, 2018).

**Skills**: Technical competence is a point that cannot be overlooked when using medical library services and this could sometime pose as a challenge in providing medical information as some library professionals may not possess needed skill to function effectively in this area. Nankivell, Wallis and Mynott (2021) reiterated that high level of expertise is required when using medical library services most especially with social media. They noted that in some instances the library professional may not have the require skills for customizing applications that can aid medical practitioners medical practitioners in accessing online catalogs for current awareness services users and this can affect the library’s input towards their clinical decision-making.

**Cost**: Cost of carrying out medical library services with the advent of the new media could be enormous. The cost here includes cost of purchasing and maintaining needed infrastructure and equipment, remunerations for technical staff, cost of regular training, cost of bandwidth, electricity, etc. This may be the reason why some medical libraries lack these above necessities which may invariably affect the use of medical library services by medical practitioners for clinical decision-making.

**Time consuming**: Use of some medical library services can be time consuming; this is because any information professional that wants to be effective and efficient enough in quenching the information thirst of his clientele would need to spend a lot of time on the internet. Medical practitioners could get frustrated if they send in a query and do not get the needed response in good time; hence this can affect their use of the medical libraries for their clinical decision-making.

**Technophobia and Technostress**: Despite the level of infiltration of ICTs in medical libraries and information profession today some medical librarians as well as some medical practitioners still have that inert fear of technology. They would rather stick to the manual means of carrying out or accessing medical library services respectively. This challenge of technology related stress creates boredom and long period of usage can cause stress. Pluye, Roland, Grad, Dunikowski and Stephenson (2015) explained that technostress is usually caused by the use of obsolete technology, power fluctuation, slow network, poor sitting position, poor computer proficiency skill, etc.

**Poor funding**: Regrettably, most medical libraries do not have neither do they provide adequate medical library services to her medical practitioners as they are still grappling with the problems of poor funding. Some medical libraries do not have the needed facilities to support their provision of medical library services to medical practitioners and this may have affected the medical practitioners in their clinical decision-making. Most medical practitioners are not trained to possess skills in using new media as an alternative means of accessing medical library services due to low funding.

Generally, according to Word and Wright (2018), problems of poor network, lack of data, high cost of ICT facilities, and the imminent epileptic power supply have all bedeviled medical practitioners in their utilization of medical library services for clinical decision-making. Some scholars have explored the problem from different perspectives which ranges from lack of internet connectivity (Oduwole, 2014) inadequate health information resources to facilitate these services (Pluye, Roland, Grad, Dunikowski & Stephenson, 2015), lack of steady power supply to access the medical library services (Nankivell, Wallis & Mynott, 2021) to lack of awareness of the medical library services and problem of accessibility of relevant medical library services and resources online (Word & Wright, 2018). These deficiencies as enumerated may have lead to the certain poor clinical decision-making of the medical practitioners in their prescription, drug administration and general diagnosis.

**Strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making**

Notwithstanding the challenges to the use of medical library services for clinical decision-making by medical practitioners, medical libraries in general have been noted to be very useful in the provision of effective, timely, accurate and up to date medical library services to users, most especially the medical practitioners in the medical libraries. These challenges as it affects the use and impact of the medical library services for clinical decision-making are found to have solutions that will mitigate and reduce these effects and improve on the medical practitioners’ use of these medical library services to support their clinical decision-making.

In a bid to solve these challenges that have affected the clinical decision-making of the medical practitioners, Ali (2014) suggested that sufficient awareness needs to be created for the medical practitioners to know more about the various medical library services inherent in the medical library. The medical librarians in the medical libraries can utilize the use of social media platforms for marketing and promotion of available medical library services in their institution (Urquhart & Hepworth, 2015). According to Urquhart and Hepworth (2015), medical libraries should incorporate more social media in their library to provide effective and quick services to their patrons, the medical practitioners. Medical libraries can apply new media tools such as instant messaging (IM) which can be used to provide current awareness services (CAS), selective dissemination of information (SDI), and online reference services where medical practitioners can access reference librarians and can also communicate and get medical information needed for their clinical decision-making. Word and Wright (2018) stated that Rich Site Summary (RSS), YouTube and specialized network platform can be used to notify medical practitioners of acquisitions and selective information that are classified can be posted to them as well.

The problem of lack of finance is one that has affected the use and impact of medical library services for clinical decision-making by medical practitioners. As a means to solve this menace, the approved funding percentage for library should be provided regularly by the institutional management to enable the medical libraries to procure needed collections, tools and facilities that will enhance their medical information service delivery (Pluye, Roland, Grad, Dunikowski & Stephenson, 2015). The university management can partner with International funding agencies, Non-governmental organizations and alumni of their institutions to source for funding to support her medical libraries. There should be regular training and re-training for the medical librarians on relevant skill-set that will make them more efficient in providing these medical library services to the medical practitioners (Oduwole, 2014). This type of training can be done by professional organizations such as Librarian Registration Council of Nigeria (NLCN) and the Nigerian Library Association (NLA) in collaboration with Medical Library Association (MLA) and other health information agencies to ensure that the needed capacity required from these medical librarians in their tasks are provided in the training programme. The medical library management should make these training and re-training programmes to be in line with emerging trends and with current technological facilities for accessing and providing medical library services especially in the use of social media and internet facilities such as ICT (Abubakar, 2017).

Library and information science schools should redesign their curricula to include courses in web technology such as social media applications in library and information services delivery. The curricula should be revised to include courses in web technology at all levels of library and information science schools (Nankivell, Wallis & Mynott, 2021). Efforts should be made to provide stable power supplies in the medical libraries to enable full integration and use of new technology in providing medical library services to the medical practitioners. With good internet access and computers in the medical libraries, it will enable the medical librarians to render more proactive and more quality medical library services to meet the diverse information needs of their medical practitioners (Word & Wright, 2018).

There is no doubt that rapid and effective clinical decision-making can help to transform and save lives. The ability of the medical practitioners to give good clinical decision will help to mitigate the high rate of death coming from misinformation to the patients. In this regard, the medical practitioners will need to be trained on how to access medical library services online as well as be well exposed to use of social media which is rapidly transforming the health information sector worldwide. Therefore, Abubakar (2017) opined that the medical libraries in Nigeria as a matter of urgency needs to be provided a ICT policy to encourage the use of ICT and other media tools as well as for the medical practitioners to acquire the necessary skill-set to use them as a resource to enhancing their clinical decision-making. According to Ali (2014), a good library policy with contents in training, procurement and library development indicators will address majority of these problems and create room with substantive measures to deal with the deficiency in the medical practitioners’ use of medical library services for their clinical decision-making.

**Summary of Literature Review**

The review of related literature was organized under conceptual framework of Utilization, Medical libraries, Medical library services, and Medical practitioners. The study discusses the available medical library services in University Teaching Hospital. There were also reviews on the extent to which the medical practitioners use the medical library services for their clinical decision-making. The study further discussed the impact of medical library services on the medical practitioners on their clinical decision-making. There were reviews on the challenges to the use of medical library services by medical practitioners for clinical decision-making; as well as the strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making.

From the review of literature, it was revealed that previous studies on medical library services for clinical decision-making has more bearing in foreign countries as samples and population used were not localized to the Nigerian setting. There is also an acute deficiency of this subject matter in Nigeria. Furthermore, there is no research work known to the researcher as at the time of this study that examined the use and impact of medical library services for clinical decision-making by medical practitioners in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka. This has therefore necessitated the need for this study.

**CHAPTER THREE**

**METHOD**

This chapter discussed the methods adopted for the study. The research method was carried out under the following sub-headings: research design, area of study, population of the study, sample and sampling techniques, instrument for data collection, method of data collection and method of data analysis.

**Research Design**

The descriptive survey research design was used for this study. Nworgu (2015) stated that descriptive survey is concerned with collecting data on, and describing in a systematic manner, the characteristics, features or facts about a given population. This design was considered appropriate for this study because of the given area size and its ability in analyzing grouped data in a systematic manner.

**Area of the Study**

The area of study is Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku, Awka. Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku, Awka was established as a college of medicine and teaching hospital in 2010 and is located in Awka capital city of Anambra State, Nigeria. It is a medical school of the Chukwuemeka Odumegwu Ojukwu University, Igbariam. The teaching Hospital is constructed at the Amaku General Hospital, Awka and received legal backing as the state House of Assembly in 2010 passed an amendment act to situate a third campus of the University a three campus structure at Uli (Anambra South), Awka (Anambra Central) and Igbariam (Anambra North). With respect to the Clinical Programmes of the Faculty of Medicine and Surgery based at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku, Awka using the structures and facilities of the former Amaku-General Hospital, the Government of Anambra State has just constructed multi-million naira physical structures to accommodate the Clinical Programmes of the Medical School as well as its Teaching Hospital Professional bodies accreditation in the hospital. Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku, Awka is headed by a chief medical director and a board appointed by the governor of the state.

**Population of the Study**

The population of this study comprised of the medical practitioners in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka. There are 103 medical practitioners who are registered to use the medical library services at the Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka (Library Records, 2022).

**Sample and Sampling Technique**

The population was sizeable and small; hence the need for sampling was not necessary. Therefore, all the medical practitioners of Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka was used for the study.

**Instrument for Data Collection**

The instruments used for data collection were questionnaire and observation checklist. The questionnaire was designed to elicit information from the medical practitioners while the checklist was designed to get real experiences and on the spot observation of the Medical Library services of Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka. The questionnaire was structured in a 4 point rating scale of VHE (Very High Extent); HE (High Extent); LE (Low Extent); VLE (Very Low Extent); and SA (Strongly Agreed); A (Agreed); D (Disagree); SD (Strongly Agree). Section A is the observation checklist and section B which is the questionnaire and has thirty seven items, sought to elicit information on the extent of medical practitioners’ use of medical library services for their clinical decision making. Section C contained information on the impact of medical library services on the medical practitioners on their clinical decision-making.Section D sought for information on challenges to the use of medical library services by medical practitioners for clinical decision-making. Section D is to find out strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making.

**Method of Data Collection**

The researcher distributed the copies of the questionnaire to the respondents in the library location and their various departments with the help of 2 research assistants. The distribution and collection of the instrument took seven (7) working days.

**Method of Data Analysis**

Data collected was analyzed using descriptive statistics of mean scores and percentages. However, the criterion mean (a mid-point mean score) of 2.50 was used as the decision rule. The response on a 4 point rating scales of High Extent (VHE); High Extent (HE); Low Extent (LE); and Very Low Extent (VLE) will be used for research questions 2 while Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD) was for research questions 3,4 and 5. The both scales were assigned values which are representedas follows:

SA/VHE, - 4

A/HE - 3

D/LE - 2

SD/VLE -1

The assigned value was calculated thus:

= = 2.50

Based on this, any mean score from 2.5 and above was regarded as positive and accepted. While any mean score from 0 to 2.4 was regarded as negative and rejected. The responses from the checklist and questionnaire were analyzed quantitatively.

**CHAPTER FOUR**

**PRESENTATION AND DATA ANALYSIS**

**Introduction**

This chapter dealt with the presentation and analysis of data collected from the respondent. The results are presented in tables using mean scores. Out of the 103 questionnaires distributed to the medical practitioners, 90 were returned. Therefore, the 90 completed questionnaire returned were used for this study.

**Research Question 1: What are the available medical library services in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka?**

**Table 4.1: Observation Checklist of the available medical library services in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka**

|  |  |  |  |
| --- | --- | --- | --- |
| S/NO | **Items** | Available | Not Available |
| 1 | Online information services | √ |  |
| 2 | E-mail services | √ |  |
| 3 | CD-ROM searching |  | x |
| 4 | Current awareness services | √ |  |
| 5 | Abstracting and indexing services |  | x |
| 6 | User education | √ |  |
| 7 | Referral services | √ |  |
| 8 | Bibliographical services | √ |  |
| 9 | Reference services | √ |  |
| 10 | Circulation services | √ |  |
| 11 | Inter-Library Loan (ILL) | √ |  |
| 12 | Compilation of reading list |  | x |
| 13 | Reprography services | √ |  |
| 14 | Document delivery services | √ |  |
| 15 | Bibliographic instructions | √ |  |
| 16 | Selective dissemination of information | √ |  |
| 17 | Repackaging services |  | x |
| 18 | Lending services | √ |  |
| 19 | Internet services | √ |  |
| 20 | Binding services | √ |  |
| 21 | Medical research services | √ |  |
| 22 | Play–therapy services |  | x |
| 23 | Recreation/leisure services |  | x |
| 24 | Translation services |  | x |
| 25 | UMLS (Unified Medical Language System) Services |  | x |
| 26 | Digital Technology Library Services |  | x |
| 27 | Telemedicine services |  | x |
| 28 | BackMed email discussion service |  | x |
| 29 | Information therapy services |  | x |
| 30 | Online services through social networking |  | x |
| 31 | Folksonomy |  | x |
| 32 | Really Simple Syndication (RSS) |  | x |
| 33 | Slide shares, video shares and Photos Shares |  | x |
| 34 | Podcast |  | x |
| 35 | Wikis |  | x |
| 36 | Blog |  | x |
| 37 | Library 2.0 Services | √ |  |

In Table 4.1 above, the available medical library services in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka were online information services, e-mail services, current awareness services, user education, referral services, bibliographical services, reference services, circulation services, inter-library loan (ill), reprography services, document delivery services, bibliographic instructions, selective dissemination of information, lending services, internet services, binding services, medical research services, and library 2.0 services. However, medical library services such as CD-ROM searching, abstracting and indexing services, compilation of reading list, repackaging services, play–therapy services, recreation/leisure services, translation services, UMLS (unified medical language system) services, digital technology library services, telemedicine services, backmed email discussion service, information therapy services, online services through social networking, folksonomy, really simple syndication (RSS), slide shares, video shares and photos shares, podcast, wikis, and blog were not available in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka. More than half of the medical library services are not available in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka.

**Research Question 2: To what extent do the medical practitioners use the medical library services in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka?**

**Table 4.2: Mean responses on extent of use of the medical library services by the medical practitioners**.

|  |  |  |  |
| --- | --- | --- | --- |
| S/NO | **Items** | **Mean** | **Decision** |
| 1 | Online information services | 2.54 | High Extent |
| 2 | E-mail services | 2.61 | High Extent |
| 3 | CD-ROM searching | 1.08 | Low Extent |
| 4 | Current awareness services | 2.31 | Low Extent |
| 5 | Abstracting and indexing services | 1.06 | Low Extent |
| 6 | User education | 2.12 | Low Extent |
| 7 | Referral services | 2.71 | High Extent |
| 8 | Bibliographical services | 2.61 | High Extent |
| 9 | Reference services | 2.73 | High Extent |
| 10 | Circulation services | 2.68 | High Extent |
| 11 | Inter-Library Loan (ILL) | 2.11 | Low Extent |
| 12 | Compilation of reading list | 1.01 | Low Extent |
| 13 | Reprography services | 2.52 | High Extent |
| 14 | Document delivery services | 2.01 | Low Extent |
| 15 | Bibliographic instructions | 2.11 | Low Extent |
| 16 | Selective dissemination of information | 2.62 | High Extent |
| 17 | Repackaging services | 1.05 | Low Extent |
| 18 | Lending services | 2.91 | High Extent |
| 19 | Internet services | 2.53 | High Extent |
| 20 | Binding services | 2.78 | High Extent |
| 21 | Medical research services | 2.77 | High Extent |
| 22 | Play–therapy services | 1.12 | Low Extent |
| 23 | Recreation/leisure services | 1.03 | Low Extent |
| 24 | Translation services | 1.04 | Low Extent |
| 25 | UMLS (Unified Medical Language System) Services | 1.16 | Low Extent |
| 26 | Digital Technology Library Services | 1.02 | Low Extent |
| 27 | Telemedicine services | 1.04 | Low Extent |
| 28 | BackMed email discussion service | 1.02 | Low Extent |
| 29 | Information therapy services | 1.13 | Low Extent |
| 30 | Online services through social networking | 1.02 | Low Extent |
| 31 | Folksonomy | 1.03 | Low Extent |
| 32 | Really Simple Syndication (RSS) | 1.17 | Low Extent |
| 33 | Slide shares, video shares and Photos Shares | 1.03 | Low Extent |
| 34 | Podcast | 1.08 | Low Extent |
| 35 | Wikis | 1.03 | Low Extent |
| 36 | Blog | 1.15 | Low Extent |
| 37 | Library 2.0 Services | 2.51 | High Extent |

Table 4.2 shows that the extent at which the medical practitioners use the medical library services in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka was high on online information services (= 2.54), e-mail services ( = 2.61), referral services ( = 2.71), bibliographical services ( = 2.61), reference services ( = 2.73), circulation services ( = 2.68), reprography services ( = 2.52), document delivery services ( = 2.01), bibliographic instructions ( = 2.11), selective dissemination of information ( = 2.62), lending services ( = 2.91), internet services ( = 2.53), binding services ( = 2.78), medical research services ( = 2.77), and library 2.0 services ( = 2.51). However, medical library services such as current awareness services ( = 2.31), user education ( = 2.12), inter-library loan (ill) ( = 2.11), CD-ROM searching ( = 1.08), abstracting and indexing services ( = 1.06), compilation of reading list ( = 1.01), repackaging services ( = 1.05), play–therapy services ( = 1.12), recreation/leisure services ( = 1.03), translation services ( = 1.04), UMLS (unified medical language system) services ( = 1.16), digital technology library services ( = 1.02), telemedicine services ( = 1.04), backmed email discussion service ( = 1.02), information therapy services ( = 1.13), online services through social networking ( = 1.02), folksonomy ( = 1.03), really simple syndication (RSS) ( = 1.17), slide shares, video shares and photos shares ( = 1.03), podcast ( = 1.08), wikis ( = 1.03), and blog ( = 1.15) were used on a low extent at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka. Majority of the medical library services in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka were used on a low extent.

**Research Questions 3: What are the impacts of the medical library services on the clinical decision-making of the medical practitioners in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka?**

**Table 4.3: Mean responses on how medical library services have helped medical practitioners in decision-making.**

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Items** | **Mean** | **Decision** |
| 1 | Improving medical practitioners’ task and patient care | 2.51 | Agree |
| 2 | Improving access to, and use of medical library services for Medicare | 2.68 | Agree |
| 3 | Best prescription for their healthy living of patients | 2.71 | Agree |
| 4 | Improves the training and research programmes of medical practitioners on drug prescription for patients | 2.86 | Agree |
| 5 | Improving health communication to the patients | 2.92 | Agree |
| 6 | Improved access to health materials for clinical decision-making | 2.51 | Agree |
| 7 | High level of health information literacy on new drug information | 2.61 | Agree |
| 8 | Improves the readability and comprehension in drug administration | 2.74 | Agree |
| 9 | Facilitate the use of non-written materials such charts, diagrams, photographs, picture books, audio and videotapes, multimedia presentations to administer drugs | 2.87 | Agree |
| 10 | Increase their role of giving genuine health prescription that will improve the quality of health life | 2.96 | Agree |
| 11 | Eliminate disparities in healthcare decisions and health information among medical practitioners | 2.55 | Agree |
| 12 | Supports medical practitioners towards the promotion of healthy lifestyles | 2.68 | Agree |
| 13 | Improves the level of effectiveness of the medical practitioners in their clinical decision-making | 2.72 | Agree |
| 14 | Helps rural medical practitioners to communicate better with the community members who may not understand English language better | 2.81 | Agree |
| 15 | Supports medical practitioners in acquiring relevant resources that will expose them to the new areas and emerging practices in their field | 2.94 | Agree |

Table 4.3 shows that all of the items on the table were agreed on by the respondents as the impacts of the medical library services on the clinical decision-making of the medical practitioners in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka. By implication, the impacts of medical library services on medical practitioners’ clinical decision-making are that it improves medical practitioners’ task and patient care ( = 2.51), improves access to, and use of medical library services for medicare ( = 2.68), best prescription for their healthy living of patients ( = 2.71), improves the training and research programmes of medical practitioners on drug prescription for patients ( = 2.86), improves health communication to the patients ( = 2.92), improved access to health materials for clinical decision-making ( = 2.51), high level of health information literacy on new drug information ( = 2.61), improves the readability and comprehension in drug administration ( = 2.74), facilitates the use of non-written materials such charts, diagrams, photographs, picture books, audio and videotapes, multimedia presentations to administer drugs ( = 2.87), increases their role of giving genuine health prescription that will improve the quality of health life ( = 2.96), eliminates disparities in healthcare decisions and health information among medical practitioners ( = 2.55), supports medical practitioners towards the promotion of healthy lifestyles ( = 2.68), improves the level of effectiveness of the medical practitioners in their clinical decision-making ( = 2.72), helps rural medical practitioners to communicate better with the community members who may not understand English language better ( = 2.81), and supports medical practitioners in acquiring relevant resources that will expose them to the new areas and emerging practices in their field ( = 2.94). This implies that all the options on the table were the ways by which medical library services has helped medical practitioners in decision-making.

**Research Questions 4: What are the challenges to the use of medical library services by medical practitioners for clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka?**

**Table 4.4: Mean responses on challenges to the use of medical library services by medical practitioners for clinical decision-making.**

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Items** | **Mean** | **Decision** |
| 1 | Visiting time are sometime restricted and not on a 24/7 basis mostly during after work period | 2.51 | Agree |
| 2 | Lack of social media tools to enhance usage of the medical library services | 2.68 | Agree |
| 3 | Librarians’ poor attitude towards the use of medical library services | 2.71 | Agree |
| 4 | Most clinical departments within the institution may be far away from the medical libraries | 2.86 | Agree |
| 5 | Some librarians practitioners are averse to the use of technology | 2.92 | Agree |
| 6 | Abuse of copyright issues by Librarian | 2.51 | Agree |
| 7 | Poor technical competence and skills in using medical library services by medical practitioners | 2.61 | Agree |
| 8 | Lack of adequate resources to boost usage of medical library services such as reference services | 2.76 | Agree |
| 9 | Low bandwidth and network problems to access medical library services | 2.81 | Agree |
| 10 | Poor power supply | 2.58 | Agree |
| 11 | Lack of awareness of the medical library services | 2.61 | Agree |
| 12 | Lack of data to access medical library services | 2.86 | Agree |
| 13 | Use of obsolete technology | 2.72 | Agree |

Table 4.4 shows that all of the challenges to the use of medical library services by medical practitioners for clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka were that visiting time are sometime restricted and not on a 24/7 basis mostly during after work period ( = 2.51), lack of social media tools to enhance usage of the medical library services ( = 2.68), librarians’ poor attitude towards the use of medical library services ( = 2.71), most clinical departments within the institution may be far away from the medical libraries ( = 2.86), some librarians practitioners are averse to the use of technology ( = 2.92), abuse of copyright issues by librarian ( = 2.51), poor technical competence and skills in using medical library services by medical practitioners ( = 2.61), lack of adequate resources to boost usage of medical library services such as reference services ( = 2.76), low bandwidth and network problems to access medical library services ( = 2.81), poor power supply ( = 2.58), lack of awareness of the medical library services ( = 2.61), lack of data to access medical library services ( = 2.86), and use of obsolete technology ( = 2.72). This implies that all the options on the table were the challenges to the use of medical library services by medical practitioners for clinical decision-making.

**Research Questions 5: What are the strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka?**

**Table 4.5: Mean responses on strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making.**

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Items** | **Mean** | **Decision** |
| 1 | Visiting time not restricted and should be on a 24/7 basis mostly during after work period | 2.51 | Agree |
| 2 | Availability of social media tools to enhance usage of the medical library services | 2.62 | Agree |
| 3 | Good attitude of Medical practitioners towards the use of medical library services | 2.75 | Agree |
| 4 | Clinical departments within the institution should be very close to the medical libraries | 2.81 | Agree |
| 5 | Medical practitioners should develop good interest to the use of technology | 2.96 | Agree |
| 6 | Ensuring that copyright issues are not abused | 2.52 | Agree |
| 7 | Good technical competence and skills in using medical library services | 2.64 | Agree |
| 8 | Low cost of carrying out medical library services with the advent of the new media | 2.77 | Agree |
| 9 | Adequate resources to boost usage medical library services | 2.81 | Agree |
| 10 | Subsidized cost of purchasing medical library resources and facilities | 2.91 | Agree |
| 11 | Low cost of maintaining needed infrastructure and equipment | 2.58 | Agree |
| 12 | High bandwidth and good network to access medical library services | 2.62 | Agree |
| 13 | Steady power supply | 2.74 | Agree |
| 14 | Regular awareness of the medical library services | 2.86 | Agree |
| 15 | Provision of data to access medical library services | 2.91 | Agree |
| 16 | Availability of new media and technology | 2.78 | Agree |

Table 4.5 shows that the strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka were that the visiting time not be restricted and should be on a 24/7 basis mostly during after work period ( = 2.51), availability of social media tools to enhance usage of the medical library services ( = 2.62), good attitude of medical practitioners towards the use of medical library services (), clinical departments within the institution should be very close to the medical libraries ( = 2.81), medical practitioners should develop good interest to the use of technology ( = 2.96), ensuring that copyright issues are not abused ( = 2.52), good technical competence and skills in using medical library services ( = 2.64), low cost of carrying out medical library services with the advent of the new media ( = 2.77), adequate resources to boost usage medical library services ( = 2.81), subsidized cost of purchasing medical library resources and facilities ( = 2.91), low cost of maintaining needed infrastructure and equipment ( = 2.58), high bandwidth and good network to access medical library services ( = 2.62), steady power supply ( = 2.74), regular awareness of the medical library services ( = 2.86), provision of data to access medical library services ( = 2.91), and availability of new media and technology ( = 2.78). By implication, this means that all the items on the table were the strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making.

**Summary of Findings**

The findings from this study indicated that:

1. Majority of the medical library services were not available in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka for use by the medical practitioners.
2. Majority of the medical library services in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka were used on a low extent by the medical practitioners for their clinical decision-making.
3. The available medical library services at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka has impacted on the medical practitioners in the following areas as it improves medical practitioners’ task and patient care, improves access to, and use of medical library services for medicare, and provides best prescription for their healthy living of patients, among others.
4. The challenges to the use of medical library services by medical practitioners for clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka were that visiting time are sometime restricted and not on a 24/7 basis mostly during after work period, lack of social media tools to enhance usage of the medical library services, and librarians’ poor attitude towards the use of medical library services, among others.
5. The strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka were that clinical departments within the institution should be very close to the medical libraries, medical practitioners should develop good interest to the use of technology, as well as ensuring that copyright issues are not abused, among others.

**CHAPTER FIVE**

**DISCUSSION, CONCLUSION AND RECOMMENDATIONS**

**Discussion of findings**

Findings of this study were discussed in this chapter as follows:

**Available medical library services**

Data gotten from the results in table 1 shows that majority of the medical library services such as CD-ROM searching, abstracting and indexing services, compilation of reading list, repackaging services, play–therapy services, recreation/leisure services, translation services, UMLS (unified medical language system) services, digital technology library services, telemedicine services, backmed email discussion service, information therapy services, online services through social networking, folksonomy, really simple syndication (RSS), slide shares, video shares and photos shares, podcast, wikis, and blog were not available in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka. This result was in line with the study ofAlemna and Dodoo (2013) who posited that medical library services as key areas for supporting the task of medical practitioners and other users of the medical library have not been able to have the needed medical library services in her stock. The authors also opined that key services such as play–therapy services, recreation/leisure services, translation services, UMLS (unified medical language system) services, digital technology library services, telemedicine services, backmed email discussion service, and information therapy services were not available in many medical libraries. Furthermore, medical library services such as CD-ROM searching, abstracting and indexing services, compilation of reading list, repackaging services were not seen or provided in many medical libraries and this have affected the medical practitioners and users of the library.

**Extent of use the medical library services by the medical practitioners**

From the result in table 2 of chapter 4, it was evidenced that the extent at which the medical practitioners use the medical library services in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka was low on majority of the services such as current awareness services, user education, inter-library loan (ill), CD-ROM searching, abstracting and indexing services, compilation of reading list, repackaging services, play–therapy services, recreation/leisure services, translation services, UMLS (unified medical language system) services, digital technology library services, telemedicine services, backmed email discussion service, information therapy services, online services through social networking, folksonomy, really simple syndication (RSS), slide shares, video shares and photos shares, podcast, wikis, and blog. This result was in line with the study of Chatterjee (2016) who stated that medical library services in many medical libraries were not fully utilized by the users of these libraries due to the fact that they were not available and not even provided or seen in these medical libraries. Low extent of use of these medical library services such as play–therapy services, translation services, UMLS (unified medical language system) services, digital technology library services, telemedicine services, backmed email discussion service, and information therapy services were contributory to the poor decision making that most medical practitioners do take which have been detrimental to the health of their patients.

**Impacts of the medical library services on the clinical decision-making**

Result from table 3, analysis shows that the impacts of the medical library services on the clinical decision-making of the medical practitioners in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka were that it improves medical practitioners’ task and patient care, improves access to, and use of medical library services for medicare, best prescription for their healthy living of patients, improves the training and research programmes of medical practitioners on drug prescription for patients, improves health communication to the patients, improves access to health materials for clinical decision-making, high level of health information literacy on new drug information, improves the readability and comprehension in drug administration, facilitates the use of non-written materials such charts, diagrams, photographs, picture books, audio and videotapes, multimedia presentations to administer drugs, increases their role of giving genuine health prescription that will improve the quality of health life, eliminates disparities in healthcare decisions and health information among medical practitioners, supports medical practitioners towards the promotion of healthy lifestyles, improves the level of effectiveness of the medical practitioners in their clinical decision-making, helps rural medical practitioners to communicate better with the community members who may not understand English language better, and supports medical practitioners in acquiring relevant resources that will expose them to the new areas and emerging practices in their field. This result tallies with the study of Abubakar (2017) who stated that the medical library services has a lot of impacts of the medical practitioners which will tend to improve their job to their patients. These impacts were in from of supporting medical practitioners towards the promotion of healthy lifestyles as well as improving the level of effectiveness of the medical practitioners in their clinical decision-making. The need to improve the training and research programmes of medical practitioners on drug prescription for patients and to promote skills in health communication to the patients formed the fulcrum of the impacts that the medical library provides to the medical library users.

**Challenges to the use of medical library services by medical practitioners for clinical decision-making**

Finding as evidenced in table 4 in the analysis proved that the challenges to the use of medical library services by medical practitioners for clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka were that visiting time are sometime restricted and not on a 24/7 basis mostly during after work period, lack of social media tools to enhance usage of the medical library services, librarians’ poor attitude towards the use of medical library services, most clinical departments within the institution may be far away from the medical libraries, some librarians practitioners are averse to the use of technology, abuse of copyright issues by librarian, poor technical competence and skills in using medical library services by medical practitioners, lack of adequate resources to boost usage of medical library services such as reference services, low bandwidth and network problems to access medical library services, poor power supply, lack of awareness of the medical library services, lack of data to access medical library services, and use of obsolete technology. This finding is in agreement with the study of Ali (2014) who stated that medical library have been faced with myriad of problems in her services that has affected her mandate to ensure that the users are well informed and provided the needed services to support their job. Issues of librarians’ poor attitude towards the use of medical library services and the poor technical competence and skills in using medical library services by medical practitioners have formed part of the bedrock for the poor use of these libraries by the medical practitioners. Similarly, the imminent lack of adequate resources to boost usage of medical library services such as reference services and other key areas needed by the library users in the medical library has been a challenge that has affects their use for clinical decision-making.

**Strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making**

From the result in table 5 of chapter 4, it was evidenced that the strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka were that the visiting time not be restricted and should be on a 24/7 basis mostly during after work period, availability of social media tools to enhance usage of the medical library services, good attitude of medical practitioners towards the use of medical library services, clinical departments within the institution should be very close to the medical libraries, medical practitioners should develop good interest to the use of technology, ensuring that copyright issues are not abused, good technical competence and skills in using medical library services, low cost of carrying out medical library services with the advent of the new media, adequate resources to boost usage medical library services, subsidized cost of purchasing medical library resources and facilities, low cost of maintaining needed infrastructure and equipment, high bandwidth and good network to access medical library services, steady power supply, regular awareness of the medical library services, provision of data to access medical library services, and availability of new media and technology. This result was in line with the study of Haruna (2016) who stated that for medical library services to be effectively used by the medical practitioners for their clinical decision-making, there must be adequate resources to boost usage medical library services as well as the medical practitioners developing good interest to the use of technology. As part of the other strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making, Chatterjee (2016) opined that clinical departments within the institution should be very close to the medical libraries and that the library must operate on a 24/7 basis without restriction to use the services even on weekends.

Implications of the Study

The implication of the results from this study was that since majority of the medical library services such as play–therapy services, recreation/leisure services, translation services, UMLS (unified medical language system) services, digital technology library services, and telemedicine services were not available in many University Teaching Hospitals, it will affect the medical practitioners’ access and utilization of these relevant and important services that would have assisted them to make good clinical decisions. Lack of availability of these medical library services will also affect users’ patronage in the library since their needed information services are not available and by extension, their information needs cannot be solved therein.

Also, since the extent at which the medical practitioners use the medical library services in University Teaching Hospitals was low on majority of the services such as CD-ROM searching, backmed email discussion service, information therapy services, online services through social networking, folksonomy, really simple syndication (RSS), podcast, wikis, and blog, their clinical decision-making will be poor. Low usage of medical library services will not enable the medical practitioners to gain added knowledge on new trends and innovations within their profession as the needed motivation for them to use the medical library services is absent. Low usage of the medical library services will result to low patronage and as such, the library’s mandate will not be achieved and this will affect her image within the institution.

Similarly, since there is evidence that the impacts of the medical library services on the clinical decision-making of the medical practitioners in University Teaching Hospitals were to improve medical practitioners’ task and patient care and promote the training and research programmes of medical practitioners on drug prescription for patients, it will make the medical library management to procure and make available relevant and needed medical library services that are in demand by these medical practitioners. These impacts that the medical library services has on the medical practitioners will further improve their health communication to the patients and provided the medical practitioners with high level of health information literacy on new drug information.

Furthermore, since the imminent challenges to the use of medical library services by medical practitioners for clinical decision-making in University Teaching Hospitals were librarians’ poor attitude towards the use of medical library services and poor technical competence and skills in using medical library services by medical practitioners, it will affect their task and patronage. Problems of lack of adequate resources to boost usage of medical library services such as reference services and the low bandwidth and network problems to access medical library services will make the medical practitioners to lose interest in seeing the medical library as a place to solve their information needs. This will also result to poor service delivery and low satisfaction on the medical practitioners.

Finally, when University Teaching Hospitals as part strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making are provided adequate resources to boost usage medical library services, steady power supply, and regular awareness of the medical library services, it will increase the patronage of the medical practitioners to the library. making the visiting time to be on a 24/7 basis mostly during weekends, provision of data to access medical library services, and availability of new media and technology to facilitate the medical library services, it will make the medical practitioners to become more interested in using the library for their task. It will promote their confidence knowing full well that their information needs will be solved therein.

**Conclusion**

Based on the findings of this study, it can be concluded that the majority of the medical library services such as play–therapy services, recreation/leisure services, translation services, UMLS (unified medical language system) services, and telemedicine services were not available in many University Teaching Hospitals and this is a negative sign that most of these libraries will not and are not meeting up to their mandate. These medical library services are expected to be fully activated and available in these libraries to create room for wide patronage. Also, the low extent usage of these medical library services such as information therapy services, digital technology library services, podcast, wikis, and blog will sure affect the medical practitioners in their clinical decision-making since the needed medical library services are not used and accessible.

However, with the renewed impacts of which the medical library services have had on the medical practitioners, it has improved their clinical decision-making in University Teaching Hospitals. The medical practitioners’ use of the medical library services will improve their task and patient care and also promote the training and research programmes of medical practitioners on drug prescription for patients. The impacts of the medical library services has also made the medical library management to procure and make available relevant and needed medical library services that are in demand by these medical practitioners, thereby increasing patronage of the users. Notwithstanding the imminent challenges of poor technical competence and skills in using medical library services by medical practitioners, lack of adequate resources to boost usage of medical library services such as reference services and the low bandwidth and network problems to access medical library services which has affected the medical practitioners’ use of the medical library services, workable strategies to overcome the challenges such as provision of adequate resources to boost usage medical library services can reduce these problems. Steady power supply and regular awareness of the medical library services can serve as good strategies to increase the usage and promote the patronage of the medical library services by medical practitioners.

**Recommendations**

Based on the findings of the work, it was recommended that:

1. The medical library management should ensure that they make available the relevant and needed medical library services such as play–therapy services in their library to boast patronage and usage of these services by the medical practitioners.
2. To increase the usage of the medical library services to a high extent, good funding should be made available to the library to enable her procure relevant tools and gadgets that will activate the provision and use of the medical library services by the medical practitioners.
3. Since a key impact of the use of medical library services is to promote the medical practitioners’ clinical decision-making, concerted effort should be made to provided library use training for medical practitioners as a means to improve their task and patient care.
4. The challenges of poor data connection, low network and power supply should be improved upon to enable the medical practitioners have unhindered access and use of the medical library services for their clinical decision-making.
5. Regular funding and retraining of the medical practitioners should serve as a veritable strategy to curb the problems evidenced in the medical practitioners’ use of the medical library services.

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**APPENDIX A**

**QUESTIONNAIRE**

Department of Library and Information Science,

Nnamdi Azikiwe University, Awka,

Anambra State.

30th August, 2022.

Dear Respondents,

**REQUEST TO FILL QUESTIONNAIRE**

I am an undergraduate student of the above named institution. I am conducting a research on “use and impact of medical library services on clinical decision-making by medical practitioners in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka”.

I will be grateful if you would take few minutes from your busy schedule to answer the following questions in the questionnaire. Your information will be treated with confidentiality.

Thanks for your anticipated information.

Yours sincerely,

…………………

Okechukwu Precious Chidinma

**SECTION A - Observation Checklist on the available medical library services in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka?**

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Available medical library services** | **Available** | **Not available** |
| 1 | Online information services |  |  |
| 2 | E-mail services |  |  |
| 3 | CD-ROM searching |  |  |
| 4 | Current awareness services |  |  |
| 5 | Abstracting and indexing services |  |  |
| 6 | User education |  |  |
| 7 | Referral services |  |  |
| 8 | Bibliographical services |  |  |
| 9 | Reference services |  |  |
| 10 | Circulation services |  |  |
| 11 | Inter-Library Loan (ILL) |  |  |
| 12 | Compilation of reading list |  |  |
| 13 | Reprography services |  |  |
| 14 | Document delivery services |  |  |
| 15 | Bibliographic instructions |  |  |
| 16 | Selective dissemination of information |  |  |
| 17 | Repackaging services |  |  |
| 18 | Lending services |  |  |
| 19 | Internet services |  |  |
| 20 | Binding services |  |  |
| 21 | medical research services |  |  |
| 22 | play–therapy services |  |  |
| 23 | recreation/leisure services |  |  |
| 24 | translation services |  |  |
| 25 | UMLS (Unified Medical Language System) Serv |  |  |
| 26 | Digital Technology Library Services |  |  |
| 27 | Telemedicine services |  |  |
| 28 | BackMed email discussion service |  |  |
| 29 | Information therapy services |  |  |
| 30 | Online services through social networking |  |  |
| 31 | Folksonomy |  |  |
| 32 | Really Simple Syndication (RSS) |  |  |
| 33 | Slide shares, video shares and Photos Shares |  |  |
| 34 | Podcast |  |  |
| 35 | Wikis |  |  |
| 36 | Blog |  |  |
| 37 | Library 2.0 Services |  |  |

**QUESTIONNAIRE**

**INSTRUCTION:** Please read carefully and tick (√) against each opinion based on your level of agreement or disagreementusing any of: High Extent (VHE); High Extent (HE); Low Extent (LE); and Very Low Extent (VLE)

**SECTION B: To what extent do the medical practitioners use the medical library services**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S/N** | **Extent the medical practitioners use the medical library services for their clinical decision-making** | VHE | HE | LE | VLE |
| 1 | Online information services |  |  |  |  |
| 2 | E-mail services |  |  |  |  |
| 3 | CD-ROM searching |  |  |  |  |
| 4 | Current awareness services |  |  |  |  |
| 5 | Abstracting and indexing services |  |  |  |  |
| 6 | User education |  |  |  |  |
| 7 | Referral services |  |  |  |  |
| 8 | Bibliographical services |  |  |  |  |
| 9 | Reference services |  |  |  |  |
| 10 | Circulation services |  |  |  |  |
| 11 | Inter-Library Loan (ILL) |  |  |  |  |
| 12 | Compilation of reading list |  |  |  |  |
| 13 | Reprography services |  |  |  |  |
| 14 | Document delivery services |  |  |  |  |
| 15 | Bibliographic instructions |  |  |  |  |
| 16 | Selective dissemination of information |  |  |  |  |
| 17 | Repackaging services |  |  |  |  |
| 18 | Lending services |  |  |  |  |
| 19 | Internet services |  |  |  |  |
| 20 | Binding services |  |  |  |  |
| 21 | medical research services |  |  |  |  |
| 22 | play–therapy services |  |  |  |  |
| 23 | recreation/leisure services |  |  |  |  |
| 24 | translation services |  |  |  |  |
| 25 | UMLS (Unified Medical Language System) Services |  |  |  |  |
| 26 | Digital Technology Library Services |  |  |  |  |
| 27 | Telemedicine services |  |  |  |  |
| 28 | BackMed email discussion service |  |  |  |  |
| 29 | Information therapy services |  |  |  |  |
| 30 | Online services through social networking |  |  |  |  |
| 31 | Folksonomy |  |  |  |  |
| 32 | Really Simple Syndication (RSS) |  |  |  |  |
| 33 | Slide shares, video shares and Photos Shares |  |  |  |  |
| 34 | Podcast |  |  |  |  |
| 35 | Wikis |  |  |  |  |
| 36 | Blog |  |  |  |  |
| 37 | Library 2.0 Services |  |  |  |  |

**SECTION C: What are the impacts of the medical library services on the clinical decision-making of the medical practitioners in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka?**

**INSTRUCTION:** Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S/N | **Medical library services has helped us to an extent in the following areas** | SA | A | D | SD |
| 1 | Improving medical practitioners’ task and patient care |  |  |  |  |
| 2 | Improving access to, and use of medical library services for Medicare |  |  |  |  |
| 3 | Best prescription for their healthy living of patients |  |  |  |  |
| 4 | Improves the training and research programmes of medical practitioners on drug prescription for patients |  |  |  |  |
| 5 | Improving health communication to the patients |  |  |  |  |
| 6 | Improving access to health materials for clinical decision-making |  |  |  |  |
| 7 | High level of health information literacy on new drug information |  |  |  |  |
| 8 | Improves the readability and comprehension in drug administration |  |  |  |  |
| 9 | Facilitate the use of non-written materials such charts, diagrams, photographs, picture books, audio and videotapes, multimedia presentations to administer drugs |  |  |  |  |
| 10 | Increase their role of giving genuine health prescription that will improve the quality of health life |  |  |  |  |
| 11 | Eliminate disparities in healthcare decisions and health information among medical practitioners |  |  |  |  |
| 12 | Supports medical practitioners towards the promotion of healthy lifestyles |  |  |  |  |
| 13 | Improves the level of effectiveness of the medical practitioners in their clinical decision-making |  |  |  |  |
| 14 | Helps rural medical practitioners to communicate better with the community members who may not understand English language better |  |  |  |  |
| 15 | Supports medical practitioners in acquiring relevant resources that will expose them to the new areas and emerging practices in their field |  |  |  |  |

**SECTION D: What are the challenges to the use of medical library services by medical practitioners for clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka?**

**INSTRUCTION:** Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S/N | **Challenges to the use of medical library services by medical practitioners for clinical decision-making** | SA | A | D | SD |
| 1 | Visiting time are sometime restricted and not on a 24/7 basis mostly during after work period |  |  |  |  |
| 2 | Lack of social media tools to enhance usage of the medical library services |  |  |  |  |
| 3 | Librarians’ poor attitude towards the use of medical library services |  |  |  |  |
| 4 | Most clinical departments within the institution may be far away from the medical libraries |  |  |  |  |
| 5 | Some librarians practitioners are averse to the use of technology |  |  |  |  |
| 6 | Abuse of copyright issues by Librarian |  |  |  |  |
| 7 | Poor technical competence and skills in using medical library services by medical practitioners |  |  |  |  |
| 8 | Lack of adequate resources to boost usage of medical library services such as reference services |  |  |  |  |
| 9 | Low bandwidth and network problems to access medical library services |  |  |  |  |
| 10 | Poor power supply |  |  |  |  |
| 11 | Lack of awareness of the medical library services |  |  |  |  |
| 12 | Lack of data to access medical library services |  |  |  |  |
| 13 | Use of obsolete technology |  |  |  |  |

**SECTION E: What are the strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making in Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Amaku Awka?**

**INSTRUCTION:** Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S/N | **Strategies to overcome the challenges to the use of medical library services by medical practitioners for clinical decision-making** | SA | A | D | SD |
| 1 | Visiting time not be restricted and should be on a 24/7 basis mostly during after work period |  |  |  |  |
| 2 | Availability of social media tools to enhance usage of the medical library services |  |  |  |  |
| 3 | Good attitude of Medical practitioners towards the use of medical library services |  |  |  |  |
| 4 | Clinical departments within the institution should be very close to the medical libraries |  |  |  |  |
| 5 | Medical practitioners should develop good interest to the use of technology |  |  |  |  |
| 6 | Ensuring that copyright issues are not abused |  |  |  |  |
| 7 | Good technical competence and skills in using medical library services |  |  |  |  |
| 8 | Low cost of carrying out medical library services with the advent of the new media |  |  |  |  |
| 9 | Adequate resources to boost usage medical library services |  |  |  |  |
| 10 | Subsidized cost of purchasing medical library resources and facilities |  |  |  |  |
| 11 | Low cost of maintaining needed infrastructure and equipment |  |  |  |  |
| 12 | High bandwidth and good network to access medical library services |  |  |  |  |
| 13 | Steady power supply |  |  |  |  |
| 14 | Regular awareness of the medical library services |  |  |  |  |
| 15 | Provision of data to access medical library services |  |  |  |  |
| 16 | Availability of new media and technology |  |  |  |  |