AVAILABILITY AND UTILIZATION OF ON-LINE INFORMATION SOURCES AND SERVICES IN FEDERAL UNIVERSITIES' MEDICAL LIBRARIES IN NORTH WEST GEO-POLITICAL ZONE OF NIGERIA

BY

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DECLARATION

I declare that the work entitled "Availability and Utilization of Online Information Sources and Services in Federal Universities' Medical Libraries in North West Geo-Political Zone of Nigeria" has been carried out by me in the Department of Library and Information Science under the supervision of Prof. I. I Ekoja and Dr Abu Yusuf. The information derived from the literature had been duly acknowledged in the text and a list of references provided. No part of this thesis was previously presented for another degree or diploma at any Institution.

_____ _____

Elameyi Susan Unobe Date

CERTIFICATION

This project entitled "AVAILABILITY AND UTILIZATION OF ON-LINE INFORMATION SOURCES AND SERVICES IN FEDERAL UNIVERSITIES' MEDICAL LIBRARIES IN NORTH WEST GEO-POLITICAL ZONE OF NIGERIA" by Elameyi Susan UNOBE meets the regulations governing the award of the degree of Master of Library Science (MLS) of the Ahmadu Bello University, Zaria and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

I dedicate this work to my late parents Mr. and Mrs Umah Oklobia.

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All praises and honour to the Almighty God who made it possible for me to complete this work. Research work is no doubt a collective undertaking although I must accept responsibility for errors of fact or interpretation. I owe special thanks to those who have given me the necessary support during the process of putting this work together.

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Abstract

This study investigated the Availability and Utilization of On-Line Information Sources and Services in Federal Universities' Medical Libraries in North West Geo-Political Zone of Nigeria. Survey research method was used for the study. The study formulated three research questions. The total populations' studies were three thousand, five hundred and forty-five (3545). A proportionate stratified procedure was used to select 405 respondents out of the total population, 405 copies of the questionnaire were administered out of which 374 were duly completed and returned. The instruments used for data collection were close ended questionnaires which was categorized into two (for users and staff). A descriptive statistic was used to analyze the data and the data was presented in tabular form using frequencies and percentages. The study revealed that online information sources provisions such as online institutional repository, online databases and electronic resource consortium were not adequately provided, so also services such as E-mail, Electronic alerts and Selective dissemination of information were not adequately provided. The study therefore recommended that Separate budget should be made available by universities authority to medical libraries to enable them meet up with the new trend in providing adequate online information sources and services to their users.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The library as a repository of knowledge has undergone tremendous transformation from serving one client at a time. Resource acquisition at the discretion of the librarian and requiring physical presence of clients to serving several clients at the same time, empowering clients to dictate the types of resources to be acquired and the services operated do not require physical presence or to be within the walls of a library. This has been facilitated by the use of information and communication technologies which harnesses and disseminates information via several access points and formats. Information accessed on-line has really revolutionized the processes of classification, storage and retrieval of information resources. Resources accessible online are attested to provide the largest reservoir of vital information in all aspects of disciplines and field of knowledge. It offers variety of services used to browse, search, view, upload, download and communicate information on diverse topics.

According to Dhanavandan and Tamizhelvan (2012), the online sources are collection of hardware components and computers interconnected by communication channels that allow for sharing of resources and information. Online is the centerpiece that link servers and end users. Online sources have made it possible for computers to be connected locally in an institution or department to form what is referred to as an internal network, otherwise described as local area network (LAN). The online can be conceived as a rich, multi-layered complex, ever-changing textual environment.

Ekwelwm, Okafor and Ukwonia (2009) described online information sources as information sources that are available and can be accessed electronically through such

computer networked facilities as online library catalogues, the internet, the World Wide Web and digital libraries. Online information sources are advantageous as to the academia because it provides several opportunities and the mechanism for information dissemination and a medium for collaborative interaction between individuals and the institutions they represent, without geographic limitation and space.

The application of modern information and communications technology adds new services to medical libraries; it enables medical libraries users to be aware of online journals, online databases and other information services like multimedia application and use of CD-ROM databases, OPAC and Internet Service, creation of in-house database of books, serials, digitization of projects and theses. No wonder Bhardway and Walia (2012) stated that the reputation and status of any medical library depends on the quality of information services provided to clients. These days, it is difficult to ignore the advances and resolve to embed ICT, therefore medical libraries are encouraged to adapt the new mode of online information services through the use of CD-ROM database services, bibliographic database services, Internet services, OPAC services, references services, etc.

Medical Libraries

The main objective of the medical libraries is to serve the information needs of the target users generally and specifically to meet their education, research and patient care missions, through acquisition of resources that can support research, education and teaching. The library today must be able to provide unhindered access to global biomedical information sources and assists clientele to keep abreast of knowledge and information in their specialties. This necessitate why medical libraries strive to provide a conducive environment where users can study, seek and create information or explore new knowledge

sources. According to Oduwole and Idowu, (2011) medical libraries provide services to complement the teaching, learning and research activities of their institution.

Online Information Sources and Resources

The use of online information resources in today's world is increasing and expectedly varies from one field of knowledge to the other, this has affected its conceptualization and liken to information richness. According to Daft and Lengel (1984) and Daft *et al* (1987), information richness is a major factor in information processing and media selection by managers because it portrays the potential information carrying capacity of data and states the medium used in communicating. Olorunsaye (2008) opined that online information resources are very informative resources and that libraries today are more than shelves with books and argued that increasingly, libraries are providing patrons with access to on-line resources such as an e-mail, newsgroup, electronic journals, online databases and e-books. In the medical field, the transportation of multimedia information to various clinical care locations is now possible. To support the above assertion, Adeboye and Amusa (2013) described online information sources as a blessing. In their words online information sources provide more flexibility in search than their paper based counterparts and remote access at any time is a possibility.

Online information resources are important sources of up-to-date medical information. Walmsley (2003) stated that the information source is an increasingly popular medium of delivering educational materials. Baker et al (2002) posited that an online information resource has attracted considerable attention as a means to improve health and health care delivery. Online information resources are becoming increasingly invaluable communications and retrieval tool and means of information provision for those who have

discovered it. To accomplish the task of providing reliable information sources and its resources then, there must be necessary information services provided by information professionals.

Online Services

The online services have brought about some radical changes within libraries' organizational structure and in the way libraries provide information and services. Gbaje (2007) noted that online (Web) would not produce the totality of information that the users need and will not provide access to what it does not have easily and will be unable to separate virtual wheat from the chaff. Therefore, the medical library has a role to play to ensure provision, access and retrieval to the vast amount of information and digital resources.

For instance, the power of CD-ROM online and off line databases and other information carriers have made it possible for libraries to provide affordable and fixed cost database services for their patrons, popular among several used by medical libraries comprise of CD-ROM MEDLINE, Health Internet, Bioscience Internet Services (Biosis), World Health Organization (WHO) etc.

Online bibliographic database services are better means for searching journal, books, reference collections, and databases in medical libraries. The introduction of a bibliographic database aimed at provision of search facilities and access to local as well as foreign contents. The use of bibliographic databases has now been complemented with the use of Online Public Access Catalogue (OPAC) with additional array of descriptors and access points that are easily accessible and retrieve with the click of a button.

Information Services

Information services in a library involve the use of different and appropriate approaches to provide readers' with needed information. Ape (2007) stated that, information services are set out to identify, provide the use of document or piece of information that best helps the user in a study and for teaching or for research purposes. Information services are tailored and generally are required after careful planning for successfully meeting the goals and objective of a library.

The efficiency of the libraries in rendering effective information services and their ability to stimulate primary demands can only be achieved through functional information service that is capable of promoting academic attainment. According to Popoola and Zaid (2007), these services comprise of current awareness, document delivery, online databases searching, Selective Dissemination of Information (SDI), user education, reprographic services, indexing and abstracting, etc.

The essence of information gathering, processing and storage is for developmental use, which presupposes that the success of any academic library lies in the effective use of information. Malina (1989) pointed out that no planning and development can take place without information and further stressed that development is based on effective utilization of information which can be by reading, viewing, listening or browsing information resources to be able to achieve a purpose.

Online medical resources and services are rapidly expanding the field of medicine and involving numerous aspects of resource organization and retrieval of the most current medical knowledge as they are documented on the internet. Internet plays an increasing and significant role in ensuring and supporting available online information resources (Ape,

2007). This has made it the most efficient way to gather information from medical news, journal articles, medical educational materials, clinical guidelines, etc (Omekwu, 2010).

Consequently, medical libraries, being one of the key information providers to medical personnel, have realized the benefits of the on-line information resources for effective, efficient, resourceful and responsive service delivery to patrons. Therefore exploring medical research sources in Nigeria has now become quite convenient from major databases, store devices on and/ or off-line (CD-ROM databases). The resources accessed online undoubtedly, provide medical resources for medical research in forms of e-journals, e-books and other electronic materials that are capable of updating stocks compared with the off-line resources.

The Internet as the vehicle for online information is measured in bandwidth and made functional by ICTs and has continued to change the concept of library's services. The libraries seek ways to improve access to the vast collection of information over the Internet, some other type of remote electronic connection.

Nigerian Universities Medical Libraries of North-West Geo-Political Zone

Medical libraries in universities are established primarily to support the teaching, learning research activities of the medical schools and faculties of the parent universities and are expected to cater for information needs of students, teaching staff, doctors and other medical personnel as well as for the clinical studies. Others requiring medical libraries' service comprise medical consultants, specialists, researchers, and administrative staff of hospitals.

The North-West Geopolitical Zone of Nigeria comprise of the following states: Jigawa, Kaduna, Kano, Katsina, Kebbi, Zamfara and Sokoto. Federal universities with

teaching hospitals are those of Sokoto, Kano and Zaria. Usmanu Danfodiyo University, Sokoto formerly known as University of Sokoto was established by the Federal Government of Nigeria by Decree No. 85 of September, 1975. Like other universities in the country, its principal objectives amongst others are the provision of courses of instruction and other facilities for the pursuit of learning in all branches and to make those facilities available on proper terms to such persons as are equipped to benefit from them. The Medical Library, a branch of the University Main Library has been in existence since the inception of the University. The library was specially established to cater for the needs of the staff and students of the University Teaching Hospital. According to Balarabe and Tsafe (2000), the library has a rich collection of 19,600 volumes of books, 1002 journal titles as well as numerous publications of the World Health Organization and other research bodies and now it has the connection of Internet services.

Bayero University Kano (BUK) was founded in 1977, when it was renamed from Bayero University College and upgraded from University College to full University status in 1980 and it ceased functioning as a faculty of the Ahmadu Bello University. The Medical Library was established along with the University to cater for the information needs of pre-clinical, para-clinical and clinical students as well as members of the Faculty of Medicine. The coming into effect of Ahmadu Bello University law of October 4, 1962 saw the birth of the medical library. The main thrust medical libraries are to provide information sources and resources to improve access to health care delivery in health institution. To achieve this, it has to involve the development of viable medical libraries, with strong mandate to provide information sources and services to meet the information needs of medical personnel and

other stakeholders. Therefore, the study intent to find out if the various libraries under study meet up with the objectives of setting up libraries in institutions

1.2 Statement of the Problem

Online information sources are platforms containing rich sources of information that are current, topical, available and accessible. Utilization of on-line information resources by medical libraries is exciting and challenging in all facets of their services and functions. Today, medical libraries are required to provide quantitative and qualitative information sources and services to health care professionals in medical institutions.

However, it has been observed that students and medical professionals don't even make use of the medical library as they ought to. This is very disturbing because of the characteristic of the profession which rely on current information and best practices, making the library an inevitable media to salvage it from obsoleteness of print resources when compared to what is obtained on-line

Medical libraries are now faced with the challenge of responding to the online information needs of medical professionals, students, teachers and those who are working to improve the health of citizens. Upon this background, it becomes pertinent to assess the medical libraries information sources and services in Federal Universities Medical Libraries in North West Zone of Nigeria to report the event of availability and utilization of online information sources and services. It is tempting to ask whether online information sources and services are available in these libraries. If not, are there efforts to develop them? This investigation is necessary to determine whether they exist or not, and if they do, are users aware of their availability and use?

1.3 Research Questions

To guide this study were the following research questions:

1. What online information sources and services are available to users in Federal Universities Medical Libraries in North West Zone of Nigeria?
2. For what use and to what extent are available online information sources and services utilized in Federal Universities Medical Libraries in North West Zone of Nigeria?
3. How satisfied are the users of online information sources and services in Federal Universities Medical Libraries in North West Zone of Nigeria?

1.4 Objectives of the Study

The broad objective is to investigate availability and utilization of online information sources and services. However, the specific objectives are:

1 To identify online information sources and services available for users in Federal Universities Medical Libraries in North West Zone of Nigeria.

2 To ascertain the use and the extent to which online information sources and services utilize in Federal Universities Medical Libraries in North West Zone of Nigeria.

3 To identify the level of satisfaction to users of the online information sources and services in Federal Universities Medical Libraries in North West Zone of Nigeria.

1.5 Significance of the Study

In view of the assumed relevance of online information resource where more than half of today's current journal articles are published for research and in electronic format, it suffices to undertake a study of availability and utilization of online information sources and

services in the medical libraries to determine the extent to which students and health practitioners access and use these sources of information.

Secondly, the study would serve as a feedback mechanism of what is obtainable in the medical libraries of the Federal medical centers.

It will assist in policy formulation and implementation that can ensure availability and use of online information resources and services.

Thirdly, the findings of the study will contribute to the depth of literature of online information sources and services especially in the area of medical libraries.

1.6 Scope of the Study

The study covers the three university medical libraries in the North West Zone of Nigeria, namely, Ahmadu Bello University Medical Library, Zaria; UsmanuDanfodiyo University Medical Library, Sokoto and Bayero University Medical Library, Kano.

The study investigated the availability and utilization of online information sources and services in these medical libraries. That is the services rendered by the libraries via online information sources and the extent to which the students and health practitioners utilize them for their information needs.

1.7 Delimitation of the Study

The study is limited to the three university medical libraries in the North West and it is limited to only the provision of online information sources and services with focus on availability and the levels of utilization by students and health practitioners.

1.8 Operational Definition of Terms

The following terms are hereby defined in the context in which they are used in the study.

Online Sources: This is Internet resources which are in soft copy in the e- library

Information*:* an idea which is transmitted in the process of communication. It is a processed idea that conveys a message from the source through a medium to the receiver.

Internet: Computer-based global information system; comprising of many interconnected computer networks enabling them to share information.

Medical libraries: Special libraries with responsibility of collecting, organizing and maintaining biomedical information resource for the use of medical practitioners and the public.

Online information source: Is seen as a network of servers linked together by a common protocol, allowing access to millions of hypertext resources through compact disks, databases, CD-Rom etc.

Services: Activities that are performed to add value to the existing information resources in the library.

1245Utilization: The usage of the available resources and services in the library in order to acquire information for teaching, learning and research and also to facilitate improvement in the standard of academic performance of the clientele.

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CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

The chapter is organized under the following sub-headings:

2.2 Conceptual Framework

2.3 Online Information Sources and Resources in Medical Libraries.

2.4 Access and Use of Online Information Sources.

2.5 Adequacy of Information Resources

2.6 Information Services.

2.7 Availability and Accessibility of Information Sources in Medical Libraries.

2.8 Factors Influencing Users' Use of Online Information Sources and Services

2.9 Information Utilization

2.10 Constraints on the Use of Online Information Sources and Services.

2.11 Summary of the Review.

2.2 Conceptual Framework

The paradigm shift in medical library information sources and services with the advent of information and communication technology (ICTs) has dramatically changed the role and position of information services. Okom (2005) citing Etim (2004) observed that the rapid pace of development in the field of Information Technology (IT) and the advent of networked information sources and services has caused a fundamental shift from traditional information environment to an e-environment. Emphasis is placed more on the acquisition of e-resources such as e-books, e-journals and online database. Libraries could now provide users with a range of information sources, information can now be retrieve quickly from both

immediate and remote databases, as well as creating a need for library cooperation and consortium initiative (Okiy, 2005)

Thus, Medical Libraries are focusing more on providing services, all of which have led to transition and transformation of availability and utilization of the medical libraries services. The transition and the transformation are being accompanied with sophistication in the changing pattern in the information needs of users. According to Sigh and Kaur (2009) there is a paradigm shift from stand alone libraries to library and information networks, from print publications to digital documents, and from ownership to access. The transition according to them is as a result of the impact of ICTs, the internet and the web which is affecting all types of libraries.

Development of online information sources and services have now offered medical libraries an exciting and challenging opportunity. This will require them to respond positively in all facets of their services and functions if they are to remain relevant in the 21st century. Thus, medical libraries must devise means of survival, through provision of quantitative and qualitative information sources and services to ensure information richness, which is the conceptual framework on which this study is based. Therefore, this study seeks to identify the utilization of online information sources and services in medical library.

2.3 Online Information Sources and Resource in Medical Libraries

Online information sources are products of information and communication technologies (ICT) and they have been found relevant to the learning and research activities in medical libraries.

Odunewu (2004) posited that the most prominent form of ICT today is the internet and that it provides the largest reservoir of vital information in all kinds of disciplines all over the world. According to Olalude (2007), the Internet facility is a powerful and efficient source for searching, retrieving and disseminating information. As an electronic source, the Internet; currently has the most significant impact on almost all professionals. The strength of its impact is due to its multi-faceted nature, since it simultaneously fulfils three important roles in library services. First, it is a resource that can be consulted and used like any other reference resource. Second, it is more dynamic and far reaching than any other source used in the library setting. Lastly, it provides a medium of communication that has extended the potential of librarians to interact beyond the physical library with user colleagues and other professional activities and relationship.

Okiki and Asiru (2011) stated that medical libraries all over the world make available a wide variety of online information sources for use by the health practitioners and others in their respective institutions. Ekwelem, Okafor and Ukwoma (2009) describe online information sources as information sources that are available and can be accessed electronically through such computer networked facilities as online library catalogues, the Internet, the World Wide Web and digital libraries.

According to Adewale, et al., (2013), the advent of e-library (Virtual library) and different library consortia have made it possible for people to access vast collection of information over the Internet, cable television or some other type of remote electronic connection. Sunsnee and Wallin (2002) listed the prominent online information sources to include online databases, online public access catalogue (OPAC) e-conference, e-mail, discussion forums, CD-Rom, e-books, scholarly websites among others.

2.3.1 Online Medical Information Resources

There is so much to choose from in terms of information resources available online (internet). For medical libraries, choice could be made from the following:

- ***National Library of Medicine (NLM):*** It source is from US Bethesda and is the world's largest biomedical virtual library which explores the use of computer and communication technologies to improve the organization and use of biomedical information. According to Ajuwon and Olorunsaye (2009) NLM supports a national network of both local and regional and other national resources that have been electronically connected. The medical researcher can from his office click on few buttons on his connected personal computer and under few seconds, the needed information for this research are quickly transferred to his PC to be downloaded. He further stated that, National Medical Libraries can play a critical role in medical education and provide a balanced perspective on medical issues. In addition, a variety of services have been developed to improve information delivery. Information providers are convinced that medical libraries are useful; however, this is not enough. The value of our activities must be demonstrated regularly, using both qualitative and quantitative information. We must take our basic statistics and turn them into performance metrics, and then we must share that data.
- ***Medicine Online (MOL):*** started from Germany and it is a World Wide Web (www) directory of medical related sites. It is a service provider for hospitals and the medical community. MOL provides up-to-date medical resources, information, reference and connection in the medical field.

  According to Omekwu (2010), MOL, allows medical organizations such as hospitals, pharmaceutical and biotechnological companies to distribute information about their

products and services not just locally but globally via World Wide Web, e-mail, databases, programmes, firms and advertising. With these useful information or resources, medical researchers or practitioners can easily get connected to this directory thereby having the opportunity of getting to other medical organizations for better productivity.

- ***Medical Text Online****:* It source is from US and it is Mereck's Manual of Diagnosis and Therapy is the online version of the most widely used medical texts in the world. It covers symptoms of an extremely broad range of diseases, disorders and other medical conditions. Both medical and none medical professionals and researcher find it useful (Agboola, 2003).
- ***Online Medical Journal****:* OMICS group International is an open access publication; they are peer reviewed journals published and accessible via the internet. This has helped to publish medical results that are of high quality and to keep medical professionals abreast with current medical researches and practices.
- ***The Harvard Medical Web Cambridge:*** is a virtual library with various links and websites. They provide resources and services and have other websites and hyperlinks that medical researchers can access through the internet. It even has links with Harvard School of Dental Medical, Public Health, and Medical School, with affiliated hospitals and institutions.
- ***TOXNET:***

  TOXNET (Toxicology Data Network) is a group of databases covering chemicals and drugs, diseases and the environment, environmental health, occupational safety and health, poisoning, risk assessment and regulations, and toxicology. It is managed by

the Toxicology and Environmental Health Information Program (TEHIP) in the Division of Specialized Information Services (SIS) of the National Library of Medicine (NLM). A mobile version of TOXNET is available.

Information in the TOXNET databases covers:

Specific chemicals, mixtures, and products

Chemical nomenclature

Unknown chemicals

Special toxic effects of chemicals in humans and/or animals

Citations from the scientific literature.

TOXNET provides links to PubMed, NLM's free web interface to the world's biomedical literature, and to additional sources of toxicological information.

- ***Medical Web Catalogue Cambridge****:* The Harvard Medical Web catalogue has a link with Harvard University's online catalogue which is a collection of biomedicine related sites where medical researchers can access resources from basic science websites, dental medical websites, public health websites and even history of medical websites. This virtual library helps the medical researcher to access information on virtually every subject of medicine (Renwick, 2005).
- ***Medicine Net-com (e-encyclopedic dictionary):*** founded in US in 1996, Medicine Net.com is a free constantly revised e-encyclopedic dictionary of classic and contemporary medical terms. It contains lexicographically over 9,000 entries, written entirely by physicians for both professional and non-professional readers. This

dictionary includes patient scientific items, abbreviations, syndrome, eponyms, medical history, etc all having to do with medicine and biomedical sciences. It is an easy access to reliable reference material for medical researchers and professionals (Morris, 1999).

- ***Physicians Online (POL) California Research Center:*** According to Martins (2003), this is a leading medical information and communication network in the world. Physicians online is capable of connecting its physician members with the largest online community of press where they can discuss their common problems and share their interests. It offers the most up-to-date medical resources and direct links to physician associations; health plans pharmaceutical sponsors and health care organizations. Medical researchers and physicians can easily connect to this and get whatever information is sought for the success of their profession.

2.3.2 Medical Web Resources Online:

In the course of this study the following online websites resources were discovered:

http://www.hospitalweb.co.uk-Hospital Web UK

http://www.hon.ch-health on the Net

http://www.nlm.n.h.gov – US National Library of Medicine

http://www.who.int – World Health Organization

http://www.healthatoz.com – Reference site on health

http://www.health.net – Reference site on health

http://www.health.yahoo.com – Yahoo health

http://www.heartting.org cardiology site

http://www.abyworld.co.uk – Pediatric medicine

http://www.babycentre.com – Pediatric medicine

http://www.ud.com – Oncology and Radiology

http://www.mentalhealth.com – Psychiatry

http://www.vh.org – The Virtual Hospital

http://www.neurophamacology.com – Pharmacy

http://www.allnurses.com – Nursing Sciences

http://www.bmj.com – British Medical Journal

http://www.integrammed.com – Integrated medicine

http://www.naturamade.com – Alternative medicine

From the above resources, one cannot but believe that medical resources and sources available online offer and open the flood gate of medical information to students, health professionals, health care providers, scientists and patients as well. Remarkably also, is the fact that these sites consistently and frequently are updated as soon as they appear on the web. Information sources and resources are necessary prerequisite in all medical institute libraries to meet up with students and health practitioners information demands

2.4 Access and Use of Online Information Sources

The growing popularity of online information sources in most developing countries of the world has influenced and at the same time introduced a new form of information dissemination and use. This has caused governments and corporate bodies to develop interest in the technologies. They are vanguards of their establishments and encouraged numerous network centres within and outside libraries to enable dissemination, access and use of information available with online technologies.

Taimiyu (1999) conducted a study on World Wide Web/Online information and services in the new millennium. The study reviewed the infantile state of internet infrastructure and services in Nigeria, which was noted to be grossly affected and retarded by the dearth, unreliable and exorbitant cost of telecommunication equipments and services.

Several authors have revealed that scientific, technological and medical information has two unique features namely; their enormous quantity as a result of rapid growth and the great variety of forms in which they are represented make full use of online resources very difficult especially in developing countries. For instance, Omekwu (2005) pointed out that although information technology has theoretically brought about parity in access to scientific information between the developing countries and their counterparts in the developed ones, in reality, this remains a dream due to difficulties associated with their use. Agba (2004) opined that it is not an exaggeration to say that information technology availability and its effectiveness may facilitate its use. His reason was that there is a wider portfolio of information sources from which scientists and other researchers can choose on the different aspects and components covering scientific, technological and medical research. Adeoye and Popoola (2011) reported progress and support from donor agencies in uplifting numerous public organizations and libraries through the supply of computers for both internet connectivity and CD-Rom searches. The gesture has positively influenced medical research in Nigeria, and like any other developing country, it is improving due to access to quality research techniques.

The internet, which facilitates online access, is the interconnection of computers from different geographical locations. Databases are created by different organization on different subject fields, each of which is installed on a computer. Once such a system is connected to

the network, a user from any part of the world can have access to such information applying the necessary procedures.

Ojedokun (2001) conducted a study on online access and usage by students of University of Botswana and found out that there were two related problems, namely inadequacy of facilities and lack of skills. The study revealed that computer with Internet facilities at the time of the study were inadequate hence many of the students did not have access to the required information. It also revealed that though quite a number of students were aware of the immense benefit of its use to academic studies, they lacked the necessary searching skill to use them.

Suleiman and Katsekpor (2007) reported on a survey on convenient access to and use of electronic databases (CD-Rom and online) including full text journals and their effect on information seeking behaviours of health science faculty at the College of Health Science of the University of Ghana Medical School. The study tried to determine preference between print and electronic resources use, and the specific online database and full text journals that faculty found useful. The finding revealed faculty lack of awareness and recommended the need to reconsider and repackage the marketing and publicity strategies adapted by the library in promoting services and in particular, to promote awareness of the range of online databases and online resources subscribed to and available for use in the library. Therefore, Universities Medical Libraries in the North West Zone need to identify the importance of making adequate provision for access and usage of information sources and services

2.5 Adequacy of Information Resources

The role of medical libraries is to provide adequate information resources to support the objectives of the medical institutions which are mainly teaching, learning, research,

public services, conservation of knowledge and ideas. They design their collections and services to meet the institutional programmes of their parent institutions.

Fatoki (2004) stated that the opportunity brought about by electronic information source has in recent years exerted pressure on the educational institutions and their libraries. The pressure on the libraries is in the sourcing, acquisition and repackaging of these sources adequately, as well as the provision of necessary guidance to end users. Adequacy of information resource in this information age will be relevant only when librarians have competencies to foster information literacy and capable of identifying need, accessing needed information, evaluating, managing and applying information, and understanding the legal, social and ethical aspects of information use (Okiki and Asiru, 2011).

According Udoudoh (2009) the library is central to the provision of relevant information resources and services for adequate support of teaching, learning and research in any academic environment. The information resources and services provided by academic and research libraries are therefore expected to be able to adequately support these activities.

In similar vein, Hanif *et al* (1997) argued that a good library with well equipped online information sources in all subjects is essential for advanced study and research. They stressed further that:

> *In order to satisfy the diverse information needs and interests of the medical students and practitioners, the library collection must be adequate in terms of quantity, quality and currency. The collection must also be accessible to the community. The provision of quality information will invariably have positive impact on the learning environment; on the contrary, if the quality of the information provided leaves much to be desired, the result would be worse.*

Madu (2009) analyze frustrations felt by users who failed to find the information sources they want in the library that one may identify citation in indexes, but may not have

access to the sources containing the relevant articles. The more accessible information sources are the more likely they are to be used in the various libraries.

2.6 Online Information Services

The paradigm shift in the contemporary practice in medical library service in the 21st century is being propelled with an information explosion, and the inclusion of information and communication technologies in all aspects of library services. Kumar (2009) noted that medical libraries are changing dramatically by adopting new means of technology in all activities of point to e-environment where a variety of manual method, are replace by computerized systems, which provide opportunity for online accessibility. Gbaje(2007) observed that, the online has brought about a completely different way of providing library services resulting to the development of new services.

According to Eke (2011), digital library resources are stored and made available in electronic forms, and the services of the library are also made available electronically. Ibrahim (2004) noted that these services are made available frequently over the Internet so that users can access them remotely. This refers to e-services which most libraries are trying to embrace in the digital environment. According to him, as libraries embrace the digital environment, their most crucial role is not that of providing e-resources, but of establishing services that facilitate access to the information available.

These services facilitate the inter-change of library data, promote the inter-operability of library system and support national and international networking of libraries. These services play important role in improving users' access and enable them to utilize the library resources, which are held in their library collection, collection of other libraries or which are accessible in the World Wide Web (WWW) (Uganneya, Ape and Ugbagir, 2012).

Popoola (2008) enumerated information services used in the library as follows: current awareness services, statistical data analysis, selective dissemination of information (SDI), document delivery, loaning, computer word processing, photocopying, referral, Internet/e-mail, CD-Rom database searching, indexing and abstracting, translation, microfilming and facsimile. These library services are essential in building up the information required by the researchers. Emojorho and Nwalo (2009) emphasized that collection management is much more significant than collection building, because it entrails the use, storage and organization of collection and making it accessible to the users. Adeogun (2006) is of the opinion that the value of information service in the present information dispensation is not possessing information but in providing access to it, more importantly in developing the organizational and technological capabilities in the end-users to be able to identify and access information.

The medical libraries provide better online library services to the growing online patrons to patronize these services through the following services:

- ***Library Websites/Portal Service:*** the explosive growth of the web had necessitated the need for individual site. According to Gbaje (2007) librarians have reacted by using web site/portals as a means to facilitate access to specific Internet and other digital resources. This study agrees with Zhou, (2003) observation that a web portal is a doorway that can be customized by individual users to automatically filter information from the web.
- ***Online Reference Services:*** Online information service is a vital alternative to the traditional face-to-face reference services. According to Bhardwaj andwalia (2012) virtual reference service appeared in the form of e-mail in the early eighties and with

it there emerged chat based email services such as g-mail and yahoo. Consequently, it became necessary for libraries to provides website such as FAQ or internet resource gate way for their client. However, Ifijeh and Isiapkona (2013) have observed that shortage of trained and qualified personnel poses a great challenge to online reference services in libraries in Nigeria.

- ***Bibliographic Database Services:*** is a device that provides a comprehensive listing of organized digital collection of references to published literature, including journal and newspaper articles, conference proceedings, reports, government and legal publications, patents, books etc. A bibliographic database may be general in scope or cover a specific academic discipline. Many bibliographic databases evolve into digital libraries, providing full-text of the indexed contents. However, the networking and indeed, the computerization of the bibliographic data services in Nigeria is still at infant stages and the project has suffered setbacks due to lack of proper trained personnel to perform the various technical intellectual and other skill for the services.
- ***CD-ROM Database Service:*** the introduction of CD-ROMs brought about limited end-user searching the machine readable database. The power of CD-ROM technology has made it possible for libraries to provide affordable and fixed cost database service for its patrons. Olafineawe (2005) stated that CD-Rom has significantly changed the way in which library users access information. Patrons have quickly and enthusiastically adopted the technology as an exciting alternative to point, appreciating the online conveniences, ease of use and greater degree of control over the search. The current pace in technology innovation often creates challenge of digital migration and therefore at time creates inconveniences.

- ***Online Information Awareness/Instruction:*** Patrons using the library need to be informed of the current development in the library patrons to use the library more effectively through directed and structured instructional activities. The Internet has resulted to a great need for instructions in research skills at time and places convenient to users. Medical libraries are now beginning to meet these challenges by repackaging and customizing bibliographic and other relevant library instructions into online tutorials that provide users with options of time and place for instruction. Dewald (1999) concluded that web-based library tutorials are best he used to supplement and complement classroom instructions rather than in isolation. But it is undoubtedly that many people do not know how to get the information they need to solve their problems.
- ***Selective Dissemination Information (SDI):*** The selective dissemination information which is usually targeted to individual readers/professional information seekers is also another functional information services area designed to analyze information from different information sources. The professional library staff therefore must be able to identify information needs, aspirations and yearnings of the clients if they are to perform this function effectively.

- Oduwole (2000) articulated all these by noting that communication of medical information is an important factor in the delivery of quality medical care. Therefore, health information services should form an integral part of the national health policy in order to ensure availability of adequate, up-to-date and timely information in the medical libraries to enhance quality performance.

2.7 Availability and Accessibility of Information Sources in Medical Libraries

Medical research in Nigeria has always been closely associated with the collection, dissemination and use of medical data and information to enhance the efficiency of medical care delivery services. Therefore, the ability of the medical libraries to carry out this function effectively depends on availability and accessibility of information resources in print and non print (e-resources especially) formats. Adesoye and Amusa (2013) noted that the shift from print to electronic information sources as a result of advances in information and communication technologies (ICTs) affords users with availability of a vast array of information. However, Roy (2006), in discussing information accessibility added what can be termed as the right time factor. This concern stems from the idea that the internet can provide access to a vast array of information resources which may result in information overload. According to him information overload, may create problem of access to useful, current, reliable and affordable information and at the right time.

Accessibility of information sources is an important recurring theme in the literature. According to Aguolu and Aguola (2002), resources may be available in the library and even identified bibliographically as relevant to one's subject of interest, but the user may not be able to access them. Readers tend to use information source that require the least effort to access. These observations have been validated by empirical studies by Slater (1963), Allen

(1963) and Rosenberg (1967) who found that inability of some users to access information sources may arise from their lack of competences such as skills in information technology application. This findings is in line with Aguolu and Aguolu (2002) observed that availability of information source does not necessarily imply its accessibility, because the source may be available but access to it prevented or marred by lack of competencies required on the part of the users.

Ajayi and Akiniyi (2004) found frustration among information seekers due to the non-availability of sources in format they can access. In a similar study by Oyediran – Tidings (2004) at Yaba College of Technology, Lagos, the researchers discovered a strong correlation between low use of the library by students and lack of competencies of technical nature. This findings such that for medical libraries to be useful, they need to take congnisance of this necessary correlation between availability and accessibility of information sources.

2.8 Factors Influencing Use of Online Information Sources and Services

Students' utilization of digital technology has inspired college officials to rethink services provided on-campus and off campus to influence the users' use of online sources and services (Tyler & Hastings, 2011). Students no longer tie the resources traditionally associated with the library solely to its physical place. Online learning library support for virtual patrons has evolved into the digital or virtual component of the academic library (Moyo, 2004). Rapid changes to information and communication technology have altered the information-seeking behaviors of college students (Nicholas, 2008). Many researchers have found that a majority of students, regardless of location, prefer to access library resources online (Brandt, 2008). When exploring distance and traditional learners' use of libraries and

information access, Brandt (2008) reported *convenience* as the top factor for 73% of students when choosing an information source. As the growth in online information seeking continues, along with an increase in e-learning, librarians must approach the needs of virtual patrons with a measure of creativity and collaborative effort (Johnson, Trabelis & Fabbro, 2008). For example, Nicholas (2008) opines that the web is profoundly impacting the way virtual scholars seek, evaluate, and use information.

With the explosion of resources available, the services of librarians are a key factor in meeting the needs of virtual patrons. As Hall-Ellis (2006) has noted expanding access beyond the resources in local and regional collections to libraries worldwide has presented significant and unique issues to librarians who are expected to be familiar with metadata schemes to meet the challenges of an access-oriented global information environment. Consequently, the factors listed and discussed below may be considered as some of the factors that can influence the use of online information sources and services in Nigeria.

Perceived ease of use: Based on Bandura's (1982) self-efficacy theory, perceived ease of use is defined as ―the degree to which the prospective user expects the target system to be free of effort (Davis, Bagozzi & Warshaw, 1989). User acceptance is higher when a system is perceived to be easier to use than another. As users perceive a system to have more relevant information to their task, the more likely they are to evaluate a system effective and easy to use (Park et al., 2009). Davis (1989) found that perceived usefulness in user adoption of a computer information system is influenced by perceived ease of use which translates into both the attitude towards and intention to use a particular system.

Perceived usefulness*:* Perceived usefulness is defined by Davis (1989) as the degree to which a person believes that using a particular system would enhance his or her job

performance. User belief in the usefulness of a system may be affected by the power of the technology or the degree to which it improves productivity. Cheung and Huang (2005) examined undergraduates' Internet usage and distance learning in Hong Kong and found skills in the use of the Internet positively correlated with perceived usefulness and enjoyment. Specifically, Internet skills positively correlated with perceived usefulness, perceived enjoyment, general learning, distance learning, and constructive learning. Acceptance of the technology (the virtual resources or the Internet) is achieved based on satisfaction resulting from perceived ease of use and usefulness.

***Acceptance and satisfaction*:** Acceptance of an information system results when a user finds a system useful and easy to use to the extent it offers significant performance gains (Davis et.al., 1989). The technology acceptance model (TAM) provides a framework for determining students' satisfaction with the resources and services of a virtual library. In this study, satisfaction or acceptance equates to meeting the needs of virtual patrons accessing the online library's resources and services. Therefore, when applying the TAM, it is predicted that students who are more satisfied with the resources and services of the online library have achieved acceptance (satisfaction) of the information system.

2.9 Information Utilization

Information utilization theory states that a user will keep on demanding and using an information source, provided that he derives maximum satisfaction from its use, or that the source meets his need. Information utilization is the bedrock of collection development. It guides the acquisition librarian to buy more of useful titles, while discarding or weeding those that are no longer useful to the users.

Information utilization is a fundamental concept in the discourse of information seeking and use behavior. According to Tsafe (2004) the collections and services of medical libraries are usually consciously built up and organized for maximum utilization by the clientele they are meant for. It is therefore necessary for libraries to periodically examine the extent to which these facilities and services are utilized, as this will assist the library management in planning and strategizing the management of their activities as well as in evaluating the performance and achievement of the set goals.

Information utilization studies have, therefore, become a veritable tool for assessment. Thus, knowledge of the level and extent of the utilization of any information resource is seen as a vital component of the planning processes that provides librarians and library administrators with feedback information on services delivery, response to user needs and preferences. This knowledge is therefore considered an important factor in the management of medical libraries as well.

Okafor and Ukwoma (2007), in their study of utilization of electronic resources such as online databases, Online Public Access Catalogues (OPAC), e-mail, full text database, scholarly websites, pre-print archives and bulletin boards compared the utilization of formal and informal sources of information gathering and found out that 49.5% of the participants utilize journals to get information when applying for research grant, while 75.3% utilized them when undertaking a literature review. This shows that most people use information source in the library to improve on their academic work and research.

Information utilization leads to an increase in knowledge and understanding of a phenomenon. This is to say an expressed demand has been satisfied and use has taken place. However, for information to be used effectively, it has to be systematically collected,

organized and must be readily available for users on demand. These are key determining factors in effective information utilization are therefore important the evaluation of usefulness or otherwise of libraries including medical libraries.

2.10 Constraints on the Use of Online Information Sources and Services in Medical Libraries

There has been rapid progress in online information resources which has tended to present a radical challenge to existing and erstwhile traditional operations of the medical profession, education, practice and research. The development of the Internet as a vehicle for World Wide Web communication has made instantaneous access to much of the entire body of medical information exciting and challenging.

Ojo and Akande (2005) in a survey of 350 respondents examined students' capabilities to access, use and their awareness of electronic information resources at the University College Hospital (UCH), Ibadan and found that the level of usage of the electronic information resources is not high. A major problem however identified is lack of information retrieval skill for exploiting electronic resources thus making the level of usage of resources by medical students and medical practitioners low.

Ajuwon *et al* (2003) also carried out a study of uptake of ICTs by health science students at the University College Hospital, Ibadan. This study found that 57% of students sampled had never utilize online source either due to lack of awareness, lack of access to computers, insufficient training.

Dadzie (2005) carried out a survey of the use of ICTs in ten African Public Library Services. The survey found that, although most libraries had Internet connectivity, very few

were offering web-based information services to their users. The study however, identified four barriers to the effective provision of electronic resource in those libraries, namely:

- Insufficient number of terminals available for use despite high demand and inadequate electricity.
- Lack of consistent training for users in new ICT services
- Lack of strategic planning (Egberongbe, 2011)

Watts and Ibegbulam (2006) looked at the availability and uptake of electronic healthcare information resources in the Medical Library, College of Medicine, University of Nigeria Nnsukka. They examined the responses from series of interview with librarians to ascertain the barriers in providing these resources and found out, topping the list were lack of an adequate ICT infrastructure and affordable online access, problematic cybercafé and prohibitive cost of using the cybercafés. Lack of ICT skills and information seeking skills were also mentioned as constituting barriers. This is instructive for medical libraries in North-West Zone in Nigeria

2.11 Summary of the Review

From the various literature reviewed, it is certain that the introduction of online information sources in medical libraries has afforded health practitioners a wider variety of resources for their utilization in areas of teaching, learning, research and general medical practices. The reviewed literature was able to indicate that online information source provide more flexibility in searching and remote access to information at any time.

The studies reviewed the different types of online resources used and available in medical libraries across the world, their adequacies and relevance to the medical

practitioners. It also looked at how a library can make the online sources and resource available for utilization through provision of essential information services.

In conclusion, the summary shed more light on the constraints and challenges hindering the use of online information sources by health practitioners.

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CHAPTER THREE

RESEARC METHODOLOGY

3.1 Introduction

This chapter describes the procedures to be employed for the study under the following sub topics: Research method adopted for the study, population of the study, sample and sampling procedure, instrument for data collection, procedure for data collection and procedure for data analysis.

3.2 Research Method Adopted for the Study

The research method adopted for this study was survey. Survey is mainly interested in describing certain variables in relation to a population. According to Osuala (2005), survey research method is very useful in answering research questions, adding and very important to gather information from a target population numbering some hundreds or thousands. Obeka (2011) posited that survey research is concerned with the collection of data for the purpose of describing and interpreting existing condition and prevailing practices.

3.3 Population of the Study

The population of the study comprises students (pre-clinical and clinical students), medical practitioners (medical doctors, nurses, and laboratory technologists) and library staff of the North West Zone Federal University Medical Libraries. According to Omotosho (1991), population is the total number of objects in an area of interest and that they may be finite or infinite. Osuala (2005) also stated that population is a means of identifying characteristics which members of the universe have in common and which will identify each with unit as identifying a member of a particular group.

Table 3.1 Population of the Study

Universities	**Total No. of Library Staff**	**Students**	**Medical practitioner**	**Total**
Ahmadu Bello University Medical Library, Zaria	21	1020	402	1443
Bayero University Medical Library, Kano	19	854	230	1103
UsmanuDanfodiyo University Medical Library, Sokoto	17	768	214	999
Total	57	2642	846	3545

Source: Statistical Records of the Libraries

A total of 3545 people that constitute library staff, students and medical practitioners are the population of the study as revealed in Table 3.1

3.4 Sample and Sampling Procedure

The fact that the population of this study is very large, the use of sample becomes very necessary. Therefore, the study adopted stratified random sampling; stratified sampling is advantageous here to prevent an undue proportion of one type of stratum to appear in the sample. Therefore the population was stratified proportionately by the following strata which make up the population: library staff, medical practitioners and students. According to Ekeh (2003) it is impossible for a researcher to use as subject every member of a large population for reasons of limitations in financial resources, time, efforts and scope. Gay (1980) cited in Jan (2000) has argued that in such cases a minimum of 10 % of the population may be sampled. For these reasons the researcher used 10% in every category of the library users.

This implies the use of proportionate stratified random sampling procedure to draw the sample of the total population of the study.

Thus, from the population 10% of every stratum of user was used with the exception of library staff because their number was considered small. This brings the sample of 57 library staff, students 264 and medical practitioner 84, total sample size 405.

Table 3.2: Sample Size

Universities	**Library Staff**		**Students**		**Medical practice**	
	Population	**Sample**	**Population**	**Sample**	**Population**	**Sample**
Ahmadu Bello University, medical library, Zaria.	21	21	1020	102	402	40
Bayero University, medical library, Kano	19	19	854	85	230	23
Usmanu Danfodiyo University Medical Library, Sokoto.	17	17	768	77	214	21
Total	57	57	2642	264	846	84

3.5 Instrument for Data Collection

This study employed the use of two basic instruments for its data collection, which are questionnaire and observation.

3.5.1 Questionnaire

Questionnaire was used as the instrument for collecting data because it allows uniform question to be asked and to examine the different views of the respondents. According to Anikweze (2009), questionnaire is a technique that enables a researcher to gain insight into what is inside a person's mind and thus equips the researcher to measure what a respondent knows about the research topic.

For the purpose of this study, two sets of questionnaire were used; one was for soliciting responses of library staff to ascertain the condition of online information sources and services in the libraries while the other set of questionnaire solicit users' responses on the provision of online information sources and services.

The questionnaire for library staff was structured as follow: Section A: Demographic information, Section B: online information sources and services availability, section C: factors influencing the use of online information sources/services section D: challenges associated with acquiring information sources in libraries.

The questionnaire for users was structured as follow: Section A: demographic information, Section B: availability of online information source, Section C: adequacy of information sources and services, Section D: information services offered, Section E: access and utilization of information sources and services.

3.5 Validation of the Instrument

Validity refers to the accuracy of a measure. According to Oshodin (1995) a research design may be valid if it enables a researcher elicit the correct responses from the sample subjects, otherwise it will be faulty instrument and may not lead to correct findings. The research adopted content validation; the decision by the researcher to adopt content validation was based on the remark of Kerlinger (1973) that, validation by others is an effective method for content validation of research instrument.

In order to ensure that the instrument (questionnaire) was capable of eliciting the required data and information from the respondents, the instrument was subjected to content validation. In this kind of validation, the instrument was made available to experts to make necessary observations, corrections and amendments for the researcher to strengthen the

instrument. A team of experienced researchers comprising the two thesis supervisors and three others from School of Nursing Tundu-Wada, Zaria were used for this purpose. Correction and observation made was implemented before the instrument was finally administered.

3.6 Reliability of the Instrument

In order to determine the consistency of the instrument for data collection, a pilot study was conducted. The two sets of questionnaire were pre-tested by administering 15 copies (appendix I) to users and 5 copies (appendix II) to the library staff and users of School of Nursing Tundu-Wada, Zaria. The reliability of responses to the items of the instruments were analyzed using the Cronbach Coefficient Alpha formula for reliability using the Statistical Package for the Social Sciences (SPSS). The reliability coefficient shows that sections B-D of the first questionnaire yielded a reliability coefficient of 0.77. The second questionnaire has a reliability coefficient of 0.81 for items in sections B-E respectively. This shows that both instruments tested were reliable which were subsequently used.

3.7 Procedure for Data Collection

The questionnaire copies were administered by the researcher and research assistants within two weeks. This was to facilitate high response and speedy collection of the questionnaires. The researcher also personally held interview session with sampled subjects in various university medical certers, so as to help in the interpretation of the data collected

3.8 Procedure for Data Analysis

The study utilized descriptive statistics for presentation and analysis of data and result presented in tables, frequency distribution and percentages for coherence and explicit interpretation.

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CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1. Introduction

Data collected from the two groups of respondents (library staff and users of the libraries) on the availability and utilization of on-line information sources and services in the Federal Universities' Medical Libraries of North West Geo-political zone of Nigeria are descriptively and statistically analyzed in this chapter. The first aspect of the chapter consists of the description of their socio-demographic characteristics which are presented in tables of frequencies and percentages with graphical illustrations. In the second section, effort was made at answering the research questions of the study, which was accompanied with discussions of the findings.

4.2. Response Rate

The response rates of the staff of the medical libraries and Users of their on-line information sources and services are presented in Table 4.2.1 and 4.2.2 respectively.

Table 4.2.1: Response Rate of Library Staff

Universities	**Population**	**Number Administered**	**Number Returned**	**Percentage of Return**
Ahmadu Bello University, Medical Library, Zaria.	21	21	19	90.5
Bayero University, Medical Library, Kano	19	19	18	94.7
UsmanuDanfodiyo University Medical Library, Sokoto.	17	17	16	94.1
Total	57	57	53	93.0

A total numbers of 57 copies of questionnaire, were administered to staff of the medical libraries in the selected institutions. Table 4.2.1 shows that 21 were administered to staff of the Ahmadu Bello University Medical Library in Zaria, out of which 19 (90.1%) were successfully retrieved. For Bayero University Kano Medical Library, 19 were administered and 18 (94.7%) were found to be successfully filled and retrieved. Out of the 17 issued to staff of the Usmanu Danfodiyo University Sokoto Medical Library, 16 (94.1%) were completely filled and returned for the study. The total number of staff who were therefore involved in the study were 53 (93.0%) of the total number of the questionnaires administered to them. Table 4.2.2 shows the response rate of the Users from the medical libraries of the selected federal universities in the Northwest Geopolitical Zone.

Table 4.2.2: Response Rate of Users in the Selected Libraries

Universities	**Population**	**Number administered**	**Number returned**	**Percentage returned**
Ahmadu Bello University, Medical Library, Zaria.	1422	142	131	92.2
Bayero University, medical Library, Kano	1084	108	101	93.5
UsmanuDanfodiyo University Medical Library, Sokoto.	982	98	89	90.8
Total	3488	348	321	92.2

A total numbers of 142 copies of the questionnaire were administered to users of the Ahmadu Bello University Zaria, Medical Library but 131 (92.3%) were found to be completely filled and was therefore retrieved for the study. The table shows that 108 (93.5 %) questionnaire were issued to users of the Bayero University Kano Medical Library in Kano but 101 (93.5%) were retrieved while out of the 98 (90.8 %) questionnaire issued to users of the

Usmanu Danfodiyo University Sokoto Medical Library, 89 (90.8%) were retrieved. Overall, 321 (92.2%) of the total number of questionnaire issued to the users were retrieved and used for the study. Thus 53 staff and 321 users of the medical libraries were involved in the study.

4.3 Descriptive Analysis of the Socio-Demographic Characteristics

Fifty three staff from the three medical libraries along with 321 users of the libraries were involved in the study. The two groups of respondents were distinct in their socio-demographic characteristics in the sense that one group was mainly staff while the other consisted of different persons with diverse designations. The variables are therefore presented independently in this section in frequencies and percentages along with charts to enhance comprehension. Table 4.3.1 shows the classification of the users in their different categorizations. The percentages are graphically illustrated in Figure 1.

Table 4.3.1: Classification of Medical Library Users by their different designations

Designations of the users	Frequency	Percent (%)
Medical Students	91	28.3
Doctors	30	9.3
Pharmacist	44	13.7
Laboratory Technologists	23	7.2
Nurses	101	31.5
Others	32	10.0
Total	321	100.0

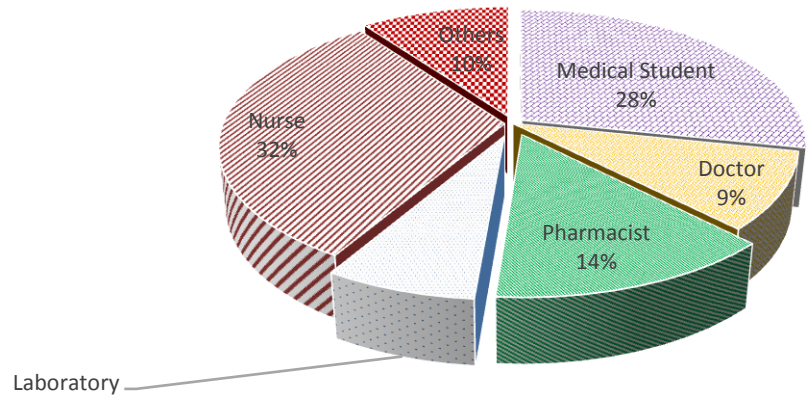


Fig. 4 1: Percentage Classification of the Users by Designation

The table and the chart show that nurses and medical students constituted the bulk of the medical library users. The two groups accounted for 101 (31.5%) and 91 (28.3%) of the users respectively. Other users were pharmacists 44 (13.7%), Doctors 30 (9.3%), Laboratory Technologists 23 (7.2%) and a group of users who did not classify themselves within the listed categories who constituted 32 (10.0%) of the total number of users of the medical libraries. This distribution clearly showed that all users of the medical libraries in the selected institutions could be said to be fairly represented in the study.

Table 4.3.2 and figure 4.2 show the classification of the users of the medical libraries under study by age grouping.

Table 4.3.2: Classification of the users by Age

Age range	Frequency	Percent (%)
Below 21years	47	14.6
21-25years	30	9.3
26-30years	37	11.5
Above 30years	207	64.5
Total	321	100

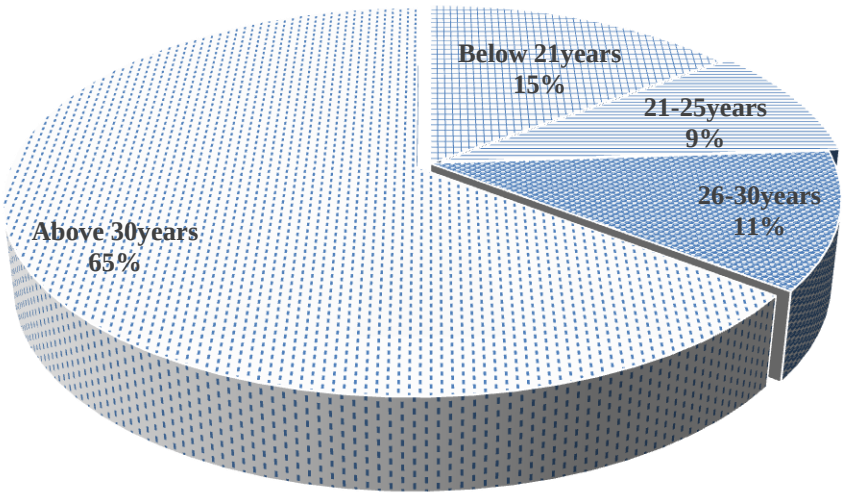


Fig. 4 2: Classification of Users by Age

From the table and the chart, users of above 30years of age were the dominant group in the study and were 207 (64.5%) of the total number involved in the study. Users who were below 21years were only 47 (14.6%) of the total, while 30 (9.3%) were between 21 and 25years with 37 (11.5%) in the range of 26 to 30years. This shows that all age groups involve in the study use the libraries.

There highest academic qualifications are tabulated in Table 4.5 with a graphical illustration in Figure 3.

Table 4.3.3: Classification of the users by their highest academic qualifications

Highest academic qualifications	**Frequency**	**Percent (%)**
Undergraduate	123	38.3
First Degree holder	75	23.4
Master Degree holder	36	11.2
PhD degree holder	57	17.8
Others	30	9.3
T**otal**	321	100

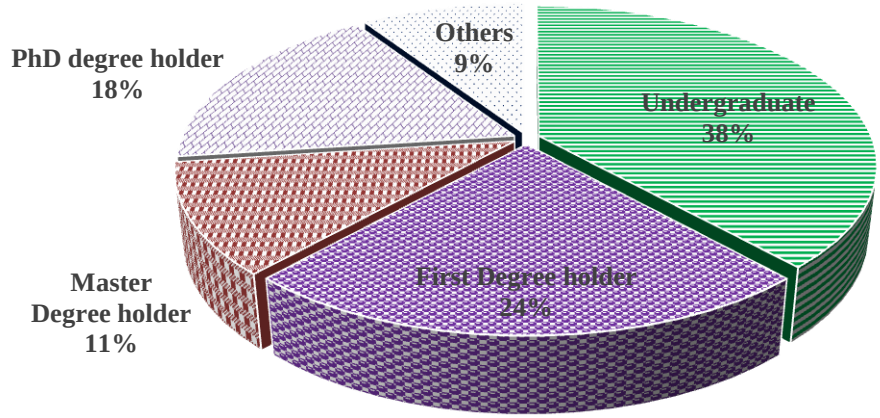


Fig. 4.3 Percentage Classification of the Users by their Highest Academic Qualifications

The table and the chart show that 123 or 38.3% of the library users were undergraduate students. This observation conforms with the above classification where it was observed that student nurses and medical student constituted the bulk of the users of the libraries. Users with other higher qualifications (75:23.4 %) were relatively low with having first degree, 36 (11.2%) with masters and 57 (17.8%) with doctorate. There were other 30 (9.3%) of the users with unspecified qualification. The staff highest educational attainment is tabulated in Table 4.3.4.

Table 4.3.4: Classification of the Library Staff by their Highest Educational Attainment

Staff highest educational attainment	**Frequency**	**Percent (%)**
First Degree holder	20	37.7
Master Degree holder	8	15.1
Diploma holder	5	9.4
Secondary	7	13.2
Others	13	24.5
Total	53	100

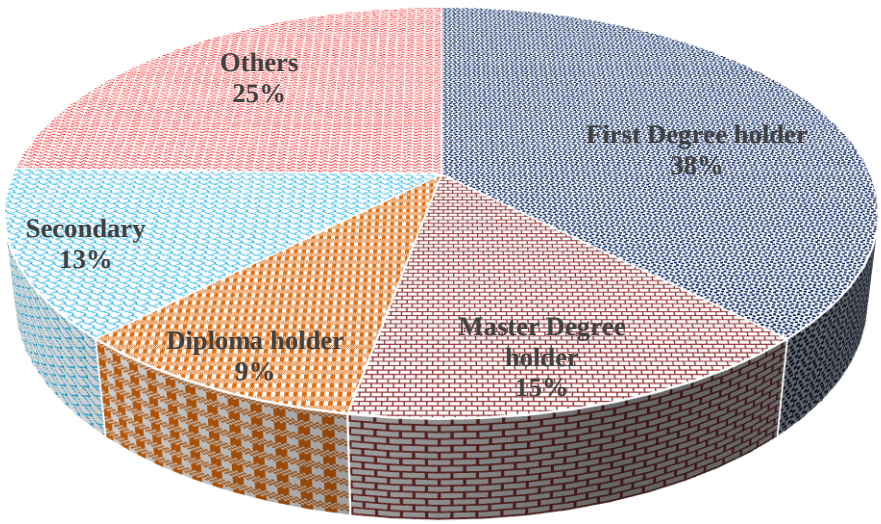


Fig. 4:4 Percentage Classification of the Staff by their Highest Academic Qualification

Among the staff, 20 (37.7%) had first degree as their highest educational qualification while 8 (15.1%) had master degree, 5 (9.4%) had diploma and 7 (13.2%) had secondary school certificates and 13 (24.5%) of the staff had other unspecified certificates as their highest educational qualifications. The distribution clearly shows that the staff could be said to have the necessary educational requirement to give adequate information on the availability and utilization of on-line information sources and services in the Federal Universities' Medical Libraries under investigation in the zone. Of the total number (53) of staff involved in the study, 27 (50.9%) were professionals while 26 (49.1%) were para-professional librarians with the medical libraries.

The years of experience of the staff are classified in frequencies and percentages in Table 4.3.5. The percentages are graphically illustrated in Figure 4.5.

Table 4.3.5: Classifications of the Staff by their Years of Working Experience

Years of working experience in the library	Frequency	Percent (%)
Less than 6years	24	45.3
6-10years	17	32.1
Above 10years	12	22.6
Total	53	100

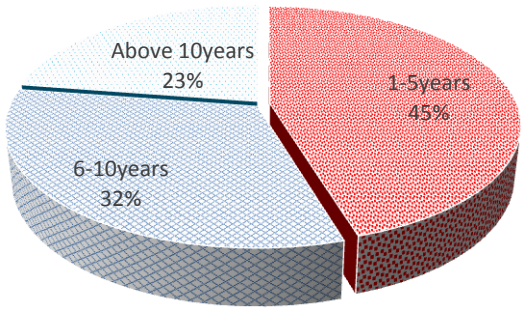


Fig. 4. 5: Percentage Cassification of the Staff by Years of Working Experience

The table and the chart reveal that 24 (45.3%) staff had less than six years of working experience in the libraries while 17 (32.1%) of the staff had between 6 and 10years of working experience. Only 12 (22.6%) of the staff had more than 10years of working experience. But considering the fact the use of online information resources and services are relatively new, these years of experiences could be said to be adequate for valid information on the availability and utilization of online information resources and services in the selected libraries.

4.4 Availability of Online Information Sources and Services in Federal University Medical Libraries

The information sources selected for assessment and the opinion of the two groups are

tabulated in Table 4.4.1. The percentage for affirmative ratings of the available online information sources are graphically illustrated in Figure 4.6.

Table 4.4.1: Available Online Information Sources in the Libraries

S/n	Online information resources available in the libraries	Library Staff				Users			
		Available		Not available		Available		Not available	
		Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	OPAC	33	62.3	20	37.7	236	73.5	85	26.5
2	Search engines	35	66.0	18	34.0	310	96.6	11	3.4
3	Online institutional repository	46	86.8	7	13.2	249	77.6	72	22.4
4	LAN databases	13	24.5	40	75.5	226	70.4	95	29.6
5	Online data bases	8	15.1	45	84.9	305	95.0	16	5.0
6	Electronic resources consortium	10	18.9	43	81.1	231	72.0	90	28.0
7	E-journal / conference proceedings	41	77.4	12	22.6	185	57.6	136	42.4
8	E-books	45	84.9	8	15.1	253	78.8	68	21.2
9	E-databases	45	84.9	8	15.1	297	92.5	24	7.5
10	E-encyclopedias/Dictionaries	40	75.5	13	24.5	202	62.9	119	37.1
11	Others	34	64.2	19	35.8	271	84.4	50	15.6

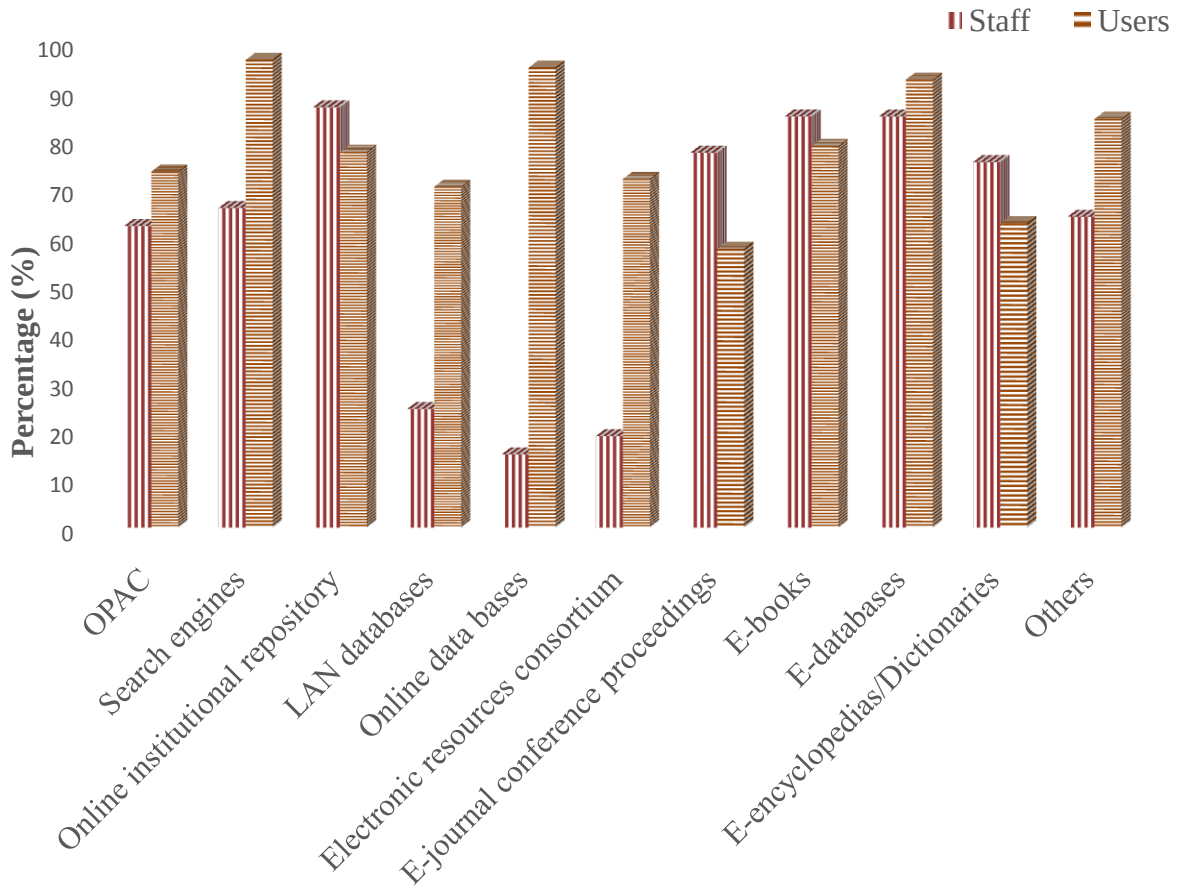


Fig. 4.7 Percentage Response of the Library Staff and Users on the Available Information Sources in the Library

From the response of the two groups on the available online information sources in the table and the chart, there were some of the online information sources that might be known to the staff principally because of the fact that they did not use or access such sources. Therefore the certainty is that each group tended to respond according to the type of online information sources they had access to. This could explain the differential in opinions on such online information sources like the online databases, Electronic resources consortium and others where such differences tended to have been observed. However, both groups agreed that OPAC (33:59.9%), Search engines (35:61.4%), and online institutional repositories

(46:80.7%) were available in the libraries. Other sources of consensus agreement by the two groups were E-journal/ conference proceedings (41:71.9%), E-books (45:78.9%), E-databases (45:78.9%) and E-encyclopedias (40;70.1%) along with Dictionaries. This finding agrees with Olorunsaye (2008) who argued that online information resources are very informative resources and that libraries today are more than shelves with books. Increasingly, libraries are providing patrons with access to on-line resources such as e-mail, newsgroup, electronic journals, online databases and e-books. In the medical field, the transportation of multimedia information to various clinical care locations is now possible.

The findings are consistent with the position of Ekwelwm, Okafor and Ukwonia (2009) who described online information sources as information sources that are available and can be accessed electronically through computer networked facilities as online library catalogues, the Internet, the World Wide Web and digital libraries, and that of Dhanavandan and Tamizhelvan (2012), who reported that the online sources are collection of hardware components and computers interconnected by communication channels that allow for sharing of resources and information.

In table 4.4.2 the opinions of the two groups on the available online information services in the libraries are presented. The percentages of the available online information services by the two groups are graphically illustrated in Figure 7.

Table 4.4.2: Available Online information Services in the Libraries

S/n	Online information services available in the libraries	Library Staff				Users			
		Available		Not available		Available		Not available	
		Freq.	%	Freq.	%	Freq.	%	Freq.	%
1	Library websites/portal services	50	94.3	3	5.7	219	68.2	102	31.8
2	Online reference services	38	71.7	15	28.3	187	58.3	134	41.7
3	Bibliographic databases	37	69.8	16	30.2	185	57.6	136	42.4
4	E-mail	47	88.7	6	11.3	87	27.1	234	72.9
5	Electronic alerts	34	64.2	19	35.8	139	43.3	182	56.7
6	Selective dissemination of information (social media)	22	41.5	31	58.5	134	41.7	187	58.3
7	Others	41	77.4	12	22.6	109	34.0	212	66



Fig. 4.7: Percentage Response of the Library Staff and Users on the Available Information Services

The opinion expressed by the two groups in the table clearly shows that the listed online services were available in the medical libraries. These included Library websites/portal services (50:59.2%), online reference services (38 :66.7%), Bibliographic databases (64.9%), Email services (47:82.5%), Electronic alerts (34:59.6%), Selective dissemination of information (social media) and other such services. The two groups differed in their opinions as shown by the percentage distribution and in the chart where the users rated Email services, Electronic alerts (59.6%), Selective dissemination of information (22:38.6%) which were low. This finding does not agree with Oduwole and Idowu (2011) who stated that medical libraries should provide services to complement the teaching, learning and research activities of their institutions. The findings are in line with that of Bhardway and Walia (2012) who stated that the reputation and status of any medical library depend on the quality of information services provided to clients.

4.5 Use and Extent of Available Online Information Sources and Services Utilized in Federal Universities Medical Libraries in North West Zone of Nigeria

The objective here is to ascertain the extent of utilization of online information sources and services available in Federal Universities Medical Libraries in North West Zone of Nigeria. Only the users' assessment was used for this purpose since they were the groups who have the vintage position of expressing the extent of such usage. In assessing the extent of utilization, the purpose for utilization, the extent the online information and services were used. The opinion of the group on the purpose for which online information were used are listed in Table 4.5.1 with the positive responses graphically presented in Figure 4.8:

Table 4.5.1: Purpose for Utilization of Online Information Sources in the Libraries

S/n	Purposes for utilization of online information sources and services in the libraries	Yes		No	
		Freq.	%	Freq.	%
1	Research	239	74.5	82	25.5
2	Assignment	254	79.1	67	20.9
3	Current information	149	46.4	172	53.6
4	Recreation	189	58.9	132	41.1
5	Patient care	215	67.0	106	33.0
6	Publication	122	38.0	199	62.0
7	Conferences/meeting proceedings	124	38.6	197	61.4
8	Others	104	32.4	217	67.6

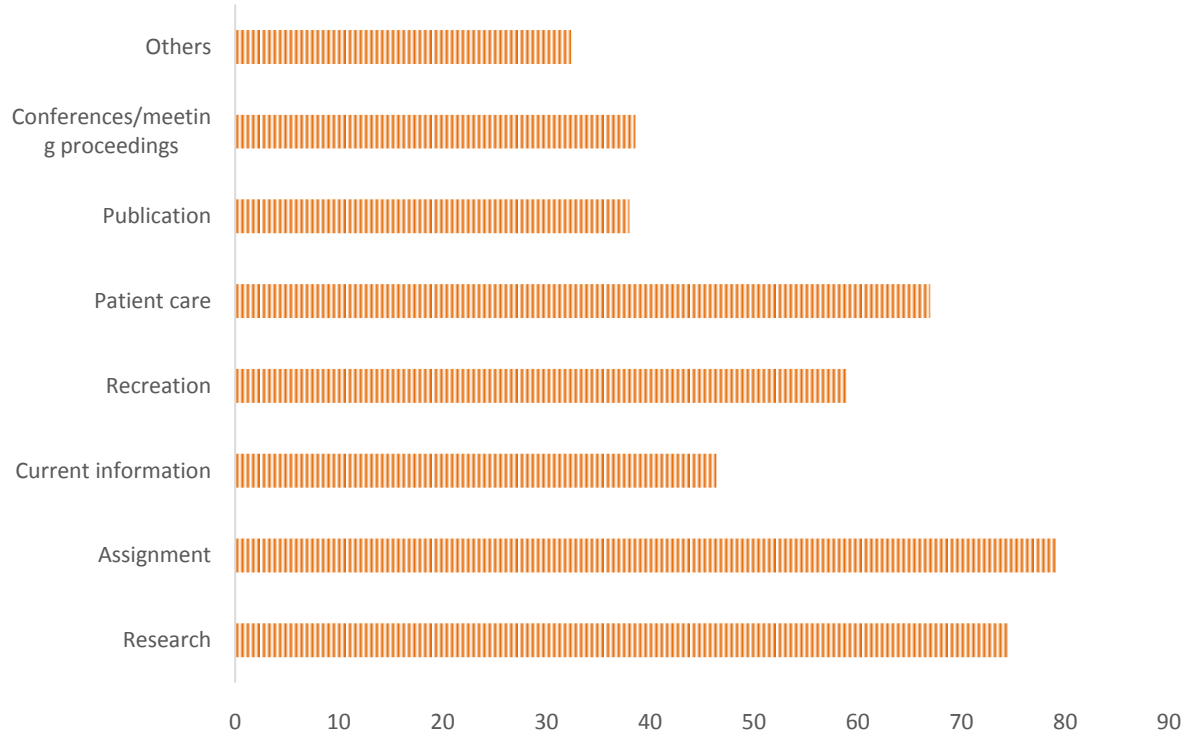


Fig. 4.8: Purposes for Utilizing Online Information Sources and Services in the Libraries

The table and the chart shows that Assignment (254 :72.9%), Research (239:68.7%), Patient care (215:61.8%) and Recreation (189:54.3%) were the major purposes for the online information sources and services available in the medical libraries. Other use but of less importance were Current information (149:42.8%), Conferences/meeting proceedings (124:35.6%) and Publication (122:35.0%). The observed hierarchy of purposes of the usage here agrees with Adeboye and Amusa (2013) who described online information sources as a mixed blessing. In their words online information sources provide more flexibility in search than their paper based counterparts and remote access at any time is a possibility.

The extent to which the sources are utilized for these purposes are listed in frequencies and percentages Table 4.5.2. The percentage of the positive responses for the respective items are graphically illustrated in Figure 4.9.

Table 4.5.2: Extent of Utilization of Online Information Sources in the Libraries

S/n	Extent of utilization of online information sources in the libraries	Very often		Often		Not often	
		Freq.	%	Freq.	%	Freq.	%
1	OPAC	259	80.7	19	5.9	43	13.4
2	Search engines	156	48.6	120	37.4	45	14.0
3	Online institutional repository	148	46.1	119	37.1	54	16.8
4	LAN databases	212	66.0	99	30.8	10	3.1
5	Online databases	172	53.6	122	38.0	27	8.4
6	Electronic resources consortium	144	44.9	132	41.1	45	14.0
7	E-journal/ conference proceedings	151	47.0	166	51.7	4	1.2
8	E-books	121	37.7	177	55.1	23	7.2
9	E-databases	84	26.2	155	48.3	82	25.5
10	E-encyclopedias/Dictionaries	173	53.9	125	38.9	23	7.2
11	Others	63	19.6	132	41.1	126	39.3

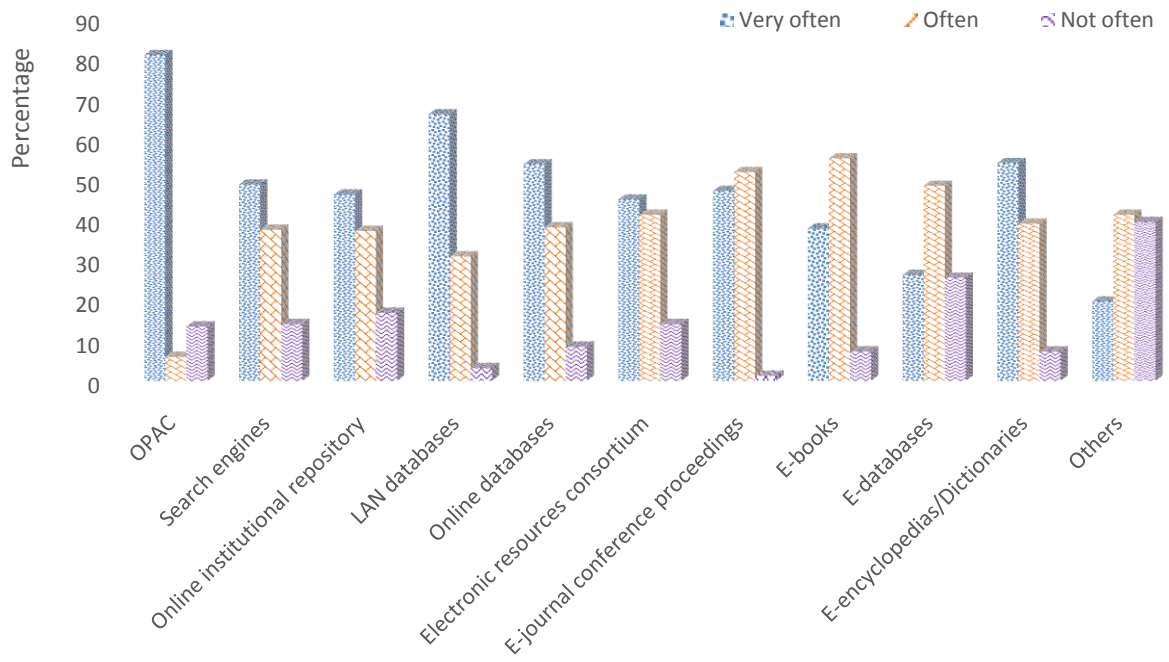


Fig. 4.9: Percentage Distibution of Utilization of Online Informatious Sources

The table and the chart showed that the online information sources were generally used by the users with more frequencies in such sources like the OPAC (259 74.4%), LAN Databases (212:60.9%), search engines (156:44.8%), and E-encyclopedias along with Dictionaries. Others with such high frequencies of utilization were online institutional repository (148:42.5%), Electronic resources consortium, E-journal/ conference proceedings and E-books. This would imply that the online information sources were frequently used by the library users. These findings are consistent with Walmsley (2003) who stated that the information source is an increasingly popular medium of delivering educational materials. Baker (2002) also reported that online information resources has attracted considerable attention as a means to improve health and health care delivery, online information resources

are becoming increasingly invaluable communications and retrieval tool and means of information provision.

For the extent of utilization of the services, Table 4.5.3 provides the expressed opinion of the users on the frequency of their usage of the online information services available in the libraries. The percentages of the extent of usage o the online information services are presented in a chart in figure 4.10.

Table 4.5.3: Extent of utilizing the online information services in the libraries

S/n	Extent of utilization of online information services in the libraries	Very often		Often		Not often	
		Freq.	%	Freq.	%	Freq.	%
1	Library websites/portal services	166	51.7	142	44.2	143	44.5
2	Online reference services	154	48.0	148	46.1	103	32.1
3	Bibliographic databases	129	40.2	138	43.0	107	33.3
4	E-mail	76	23.7	135	42.1	57	17.8
5	Electronic alerts	36	11.2	124	38.6	31	9.7
6	Selective dissemination of information (social media)	70	21.8	95	29.6	72	22.4
7	Others	223	69.5	29	9.0	69	21.5

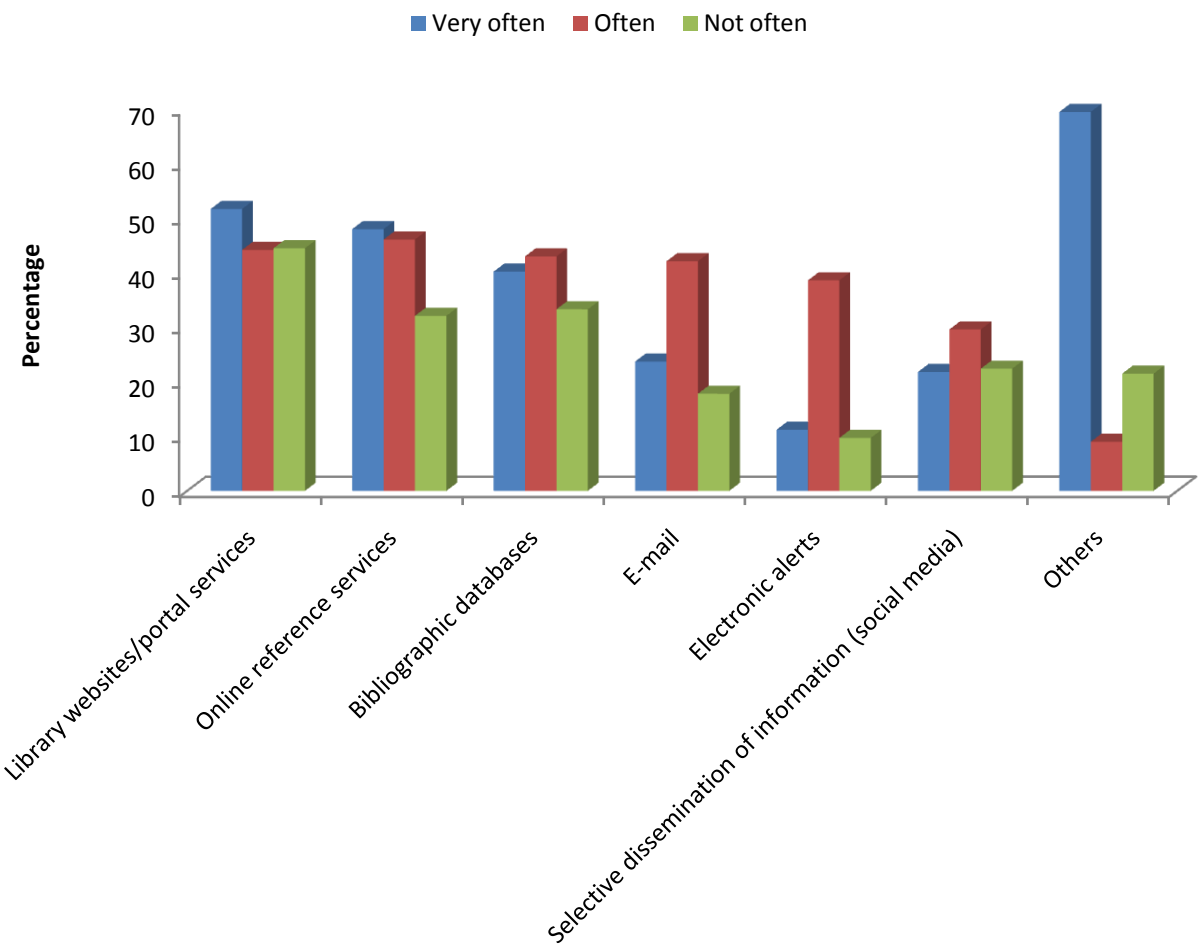


Fig. 10: Percentage Distibution of Utilization of Online Informatious Services

The table and the chart revealed that most of the online information services were frequently used by the users with the exception of the E-mail, Electronic alerts and Selective dissemination of information. This could be attributed to the fact that users as earlier observed utilize the services for their assignment and research. But for Online reference services, porter services or the library website Bibliographic databases, along with other unspecified services, the extent of their utilization was relatively high as indicated in the table and the chart. In other words, this would mean that the available online services were utilized to some great extent in the libraries. The finding is consistent with Ape (2007) who stated that information services are set out to identify, provide the use of document or piece

of information that best helps the user in a study and for teaching or research purposes. This finding contradicts the report of Gbaje (2007) who reported that online (Web) would not produce the totality of information that the users need and will not provide access to what it does not have easily and will be unable to separate virtual wheat from the chaff.

Respondents answers to questions on factors that influence use of online information sources and services in selected medical libraries in North wst zone of Nigeria are presented in Table 4.5.4 and Fig. 4.11. The opinion of the library staff was used for this purpose because of their vintage position in providing the services of the libraries to the users.

Table 4.5.4: Factors influencing the use of online information sources and services of Medical Libraries

S/n	Factors influencing the use of online information sources and services of Medical Libraries	Yes		No	
		Freq.	%	Freq.	%
1	Perceive ease of use	41	77.4	12	22.6
2	Perceive usefulness	30	56.6	23	43.4
3	Access to online medical resource	34	64.2	19	35.8
4	Access to medical web resources catalogue	27	50.9	26	49.1
5	Access to OPAC	36	67.9	17	32.1
6	Others	44	83.0	9	17.0

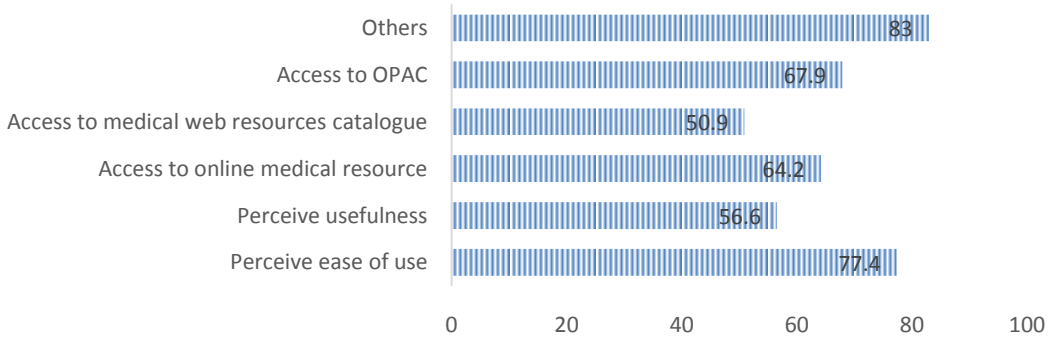


Fig. 4. 11: Percentage distribution of Perceived Factors Influencing the Use of Online Information Resources And Services in the Medical Libraries

The table and the chart shows that ease of use is the most influencing factor determining the use of the available online information sources and services in the libraries. Closely align with this factor is the accessibility to the available online information sources and services. The factors influencing the use of online information sources and services were access to online medical resources (34:59.6%), access to online medical web resources catalogue (34:59.6%) and access to OPAC (36:61.3%). The usefulness of online information sources and services were part of the factors which the staff agreed could influence their usage in the libraries.

Other unspecified factors were rated to be the highest with (44:77.1%) of the staff pointing to them as having such influence on the usage. It could therefore be said that accessibility and usefulness of online information sources and services are the major factors influencing their usage in the libraries. This finding is consistent with Omekwu, (2010) who reported that online medical resources and services are rapidly expanding the field of medicine and involving numerous aspects of resource organization and retrieval of the most current medical knowledge as they are documented on the internet and that this has made it the most efficient way to gather information from medical news, journal articles, medical educational materials, clinical guidelines.

Adequacy of online information sources and services available in Federal Universities Medical Libraries in North West Zone of Nigeria. The objective here is to ascertain the adequacy of online information sources and services that is available in Federal Universities Medical Libraries in North West Zone of Nigeria to their users. The opinions of the users was therefore used for this purpose. The perceived adequacy of the online information

sources of the libraries have been tabulated earlier. The expressed opinion are in frequencies and percentages in Table 4.5.5 and graphically illustrated in Figure 4.12.

Table 4.5.5: Users on the Adequacy of the Online Information Sources Available in the Libraries

S/n		Very adequate		Adequate		Not adequate	
	Online information sources	Freq.	%	Freq.	%	Freq.	%
1	OPAC	149	46.4	152	47.4	20	6.2
2	Search engines	90	28.0	171	53.3	60	18.7
3	Online institutional repository	53	16.5	130	40.5	138	43.0
4	LAN databases	122	38.0	123	38.3	76	23.7
5	Online databases	88	27.4	90	28.0	143	44.5
6	Electronic resources consortium	90	28.0	88	27.4	143	44.5
7	E-journal conference proceedings	99	30.8	167	52.0	55	17.1
8	E-books	113	35.2	142	44.2	66	20.6
9	E-databases	110	34.3	125	38.9	86	26.8
10	E-encyclopedias/Dictionaries	80	24.9	110	34.3	131	40.8
11	Others	70	21.8	101	31.5	150	46.7

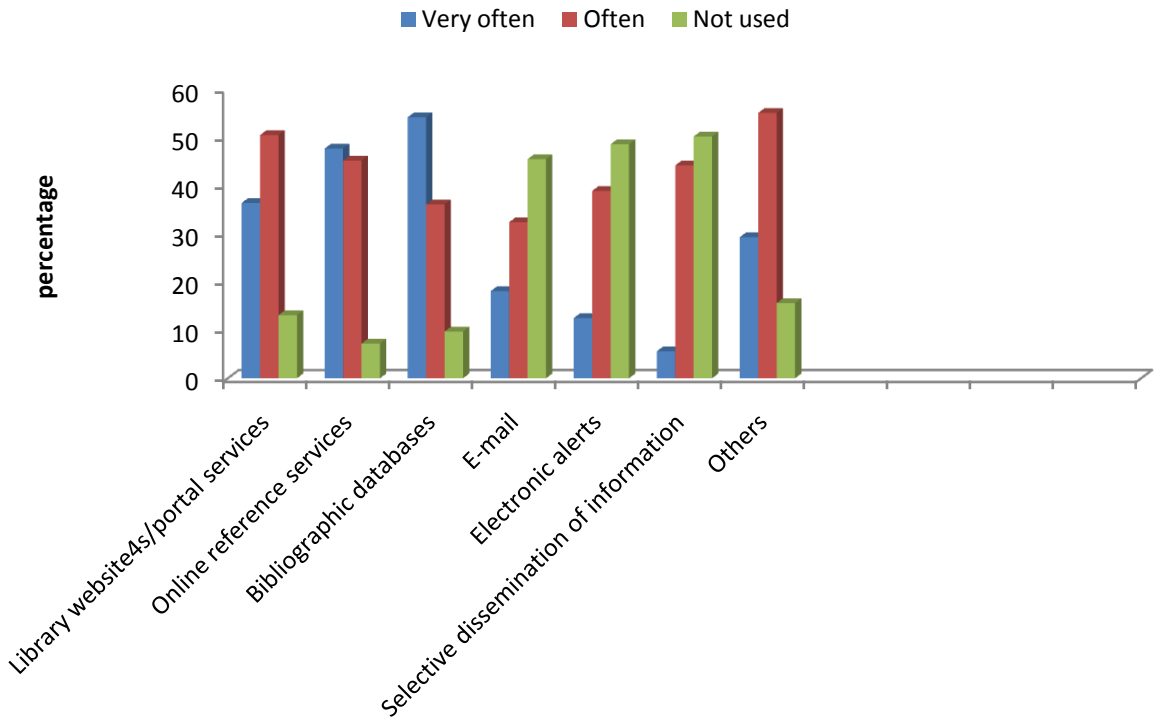


Fig. 4.12: Percentage Distribution of the Respondents by their Perceived Adequacy of the Online Information Sources in the Libraries

The indications in the table and the chart are that the available online information sources were not all adequate for the effective utilization in the library by the users are online institutional repository (53:15.2%), online databases (88:25.2%) and electronic resources consortium (90:25.9%) in the zone. Okiki and Asiru (2011) stated that medical libraries all over the world are expected to make available a wide variety of online information sources for use by the health practitioners and others in their respective institutions. In line with this finding Ekwelem, Okafor and Ukwoma (2009) describes online information sources as very important sources when the information are easily accessible.

The perceived adequacy of the online information services of the library users are tabulated in Table 4.15 with graphical presentation of the percentages in Figure 4.13.

Table 4.5.6: Users on the Adequacy of the Online Information Services in the Libraries

S/n		Very adequate		Adequate		Not adequate	
	Online information sources	Freq.	%	Freq.	%	Freq.	%
1	OPAC	149	46.4	152	47.4	20	6.2
2	Search engines	90	28.0	171	53.3	60	18.7
3	Online institutional repository	53	16.5	130	40.5	138	43.0
4	LAN databases	122	38.0	123	38.3	76	23.7
5	Online databases	88	27.4	90	28.0	143	44.5
6	Electronic resources consortium	90	28.0	88	27.4	143	44.5
7	E-journal conference proceedings	99	30.8	167	52.0	55	17.1
8	E-books	113	35.2	142	44.2	66	20.6
9	E-databases	110	34.3	125	38.9	86	26.8
10	E-encyclopedias/Dictionaries	80	24.9	110	34.3	131	40.8
11	Others	70	21.8	101	31.5	150	46.7

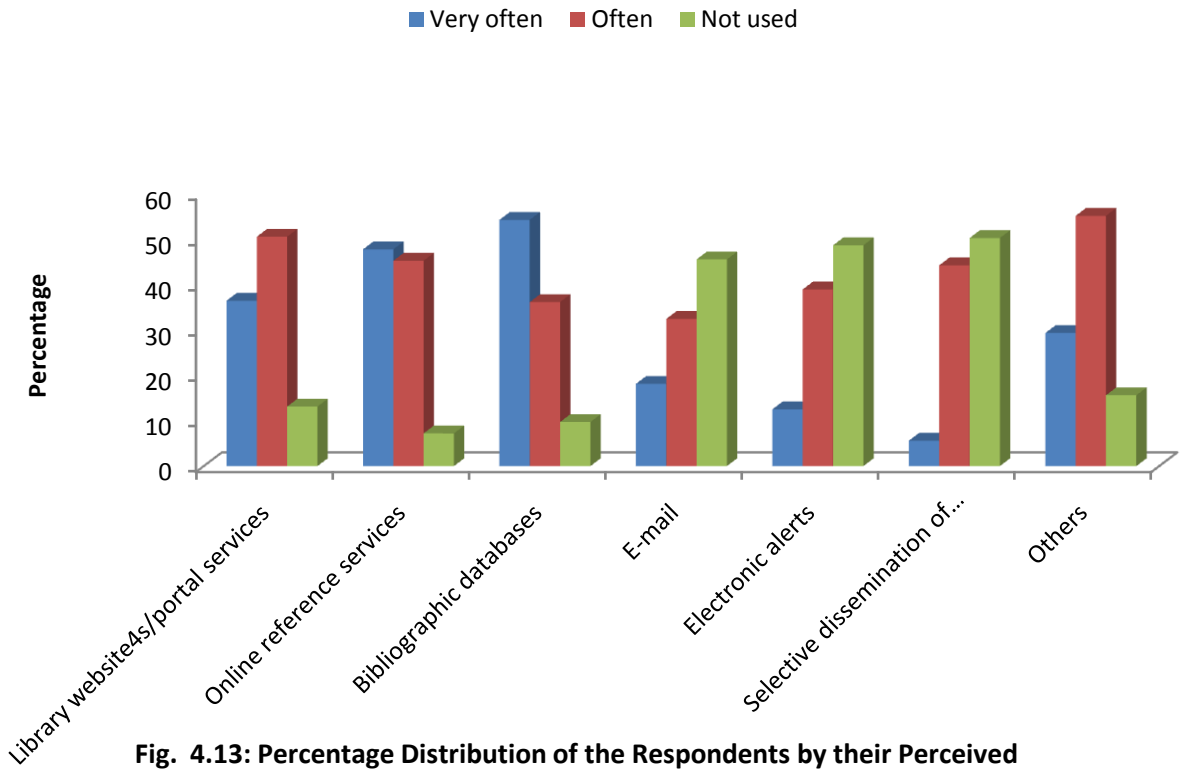


Fig. 4.13: Percentage Distribution of the Respondents by their Perceived Adequacy of the Online Information Services in the Libraries

The frequency and percentage scores in the table and in the chart clearly show that the users were of the opinion that the available online information services were not adequate in term of E-mail, Electronic alerts and Selective dissemination of information. This finding is not in agreement with Adewale, (2013), who posited that different library consortia have made it possible for people to access to services that will link them to vast collection of information over the Internet, cable television or some other type of remote electronic connection.

4.6 Satisfaction with online information sources and services in Federal Universities Medical Libraries in North West Zone of Nigeria

The objective here is to identify the level of satisfaction of the online information sources and services in Federal Universities Medical Libraries in North West Zone of Nigeria. To achieve this purpose, users' opinion on the satisfaction with the available online information sources and services were assessed. This is indicated in Table 4.6.1 and 4.6.2 with the corresponding percentage charted in Figures 4.14 and 4.15 respectively.

Table 4.6.1: Users Satisfaction with the Available Online Information Sources in the Libraries.

S/n	Satisfaction of the online information sources in Federal Universities Medical Libraries	Very satisfied		Satisfied		Not satisfied	
		Freq.	%	Freq.	%	Freq.	%
1	OPAC	159	49.5	143	44.5	19	5.9
2	Search engine	192	59.8	99	30.8	30	9.3
3	Online institutional repository	61	19.0	57	17.8	203	63.2
4	LAN databases	182	56.7	109	34.0	30	9.3
5	Electronic resource consortium	147	45.8	128	39.9	46	14.3
6	E-journal conference proceedings	74	23.1	96	29.9	151	47.0
7	E-books	44	13.7	106	33.0	171	53.3
8	Others	114	35.5	151	47.0	56	17.4

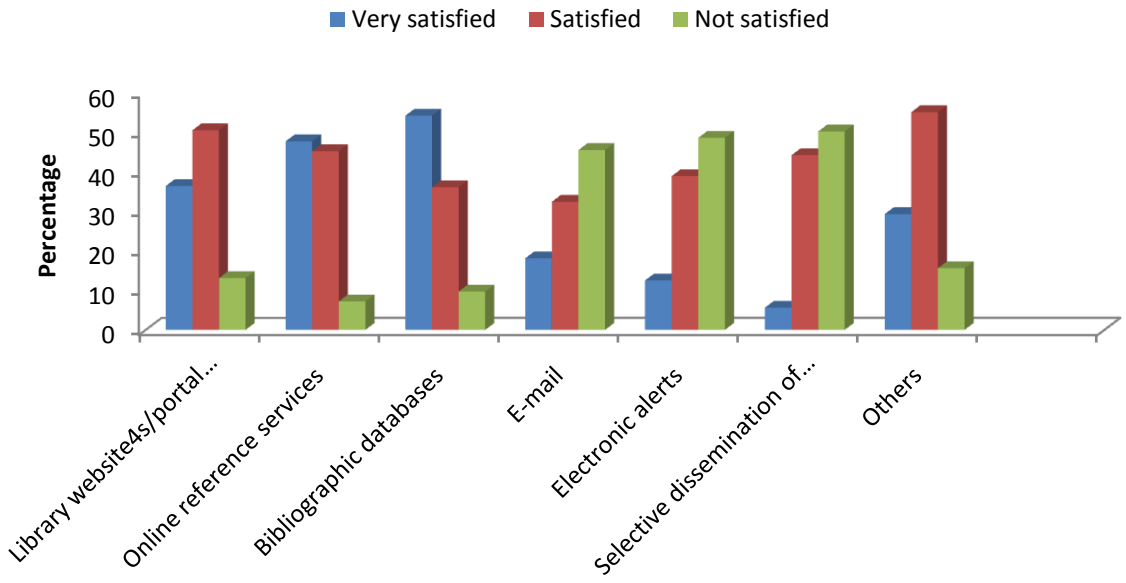


Fig. 14: Percentage Distribution of the Users on the Level of Satisfaction with the Online Information Sources in the Libraries

The table and the chart showed that the users were mostly satisfied with the services of the Search engine (192:55.1%), electronic resources consortium (147:42.2%) and LAN databases (182:52.2%). But they were not satisfaction with Electronic resource consortium E-book (44:12.6%) and E-journal/ conference proceedings (74:21.2%). Udoudoh (2009) stated that the library is central to the provision of relevant information resources and services for adequate support of teaching, learning and research in any academic environment. And that the information resources and services provided by academic and research libraries are therefore expected to be able to adequately support these activities.

The opinions of the users on the satisfaction with the online information services are presented in Table 4.6.2. The percentages are presented in graphical forms in Figure 4.15.

Table 4.6.2: Users on the Satisfaction with the Online Information Services of the Libraries

S/n	Satisfaction of the online information services in Federal Universities Medical Libraries	Very often		Often		Not used	
		Freq.	%	Freq.	%	Freq.	%
1	Library website4s/portal services	117	36.4	162	50.5	42	13.1
2	Online reference services	153	47.7	145	45.2	23	7.2
3	Bibliographic databases	174	54.2	116	36.1	31	9.7
4	E-mail	58	18.1	104	32.4	159	45.5
5	Electronic alerts	40	12.5	125	38.9	156	48.6
6	Selective dissemination of information	18	5.6	142	44.2	161	50.2
7	Others	94	29.3	177	55.1	50	15.6

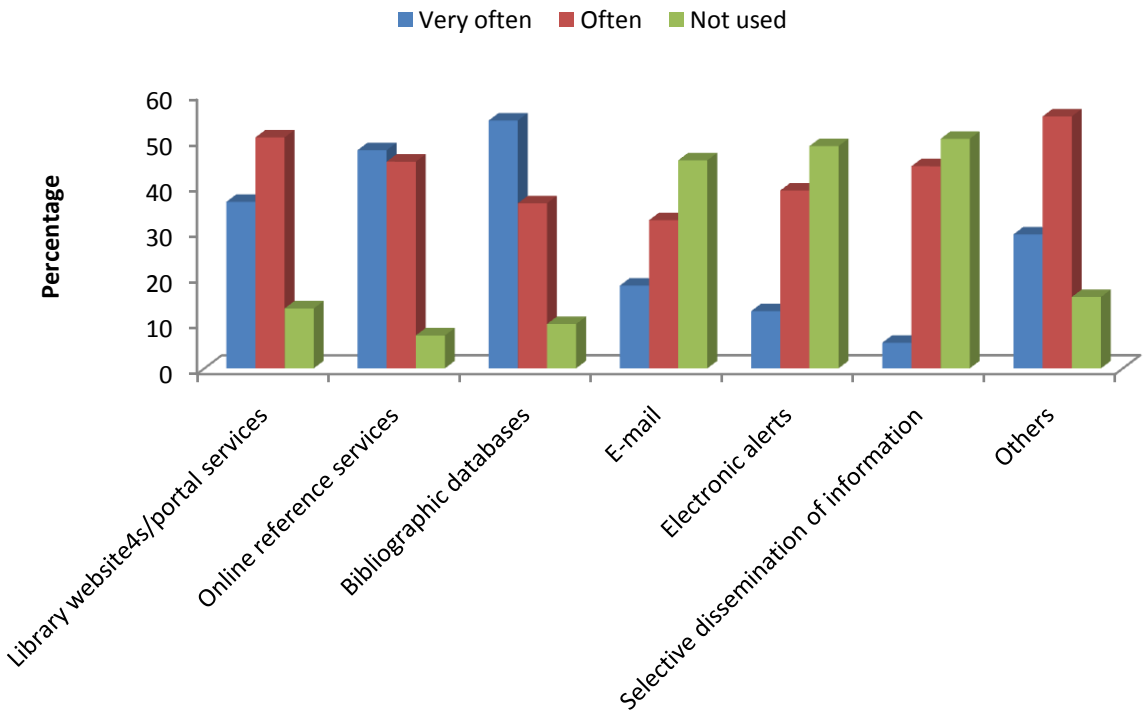


Fig. 4.15: Percentage Distribution of the Users on the Level of Satisfaction with the Online Information Sources in the Libraries

The table and the chart shows that the users were satisfied with the following: online reference services, Bibliographic databases (174:50%), library-website (117:33.6%) and online reference services (153:43.9%) are available in the libraries. But they were not satisfied with e-mail (58:16.7%), electronic alerts (40:11.4%) and Selective dissemination of information (18:5.17%) and others (94:27.0%). The finding here agrees with Kumar (2009) who noted that medical libraries are changing dramatically by adopting new means of technology in all activities of point to e-environment where a variety of manual methods, are replaced by computerized systems, which provide opportunity for online accessibility and Gbaje (2007) who observed that, the online has brought about a completely different way of providing library services resulting to the development of new services.

The overall observation shows that the online information sources and services in those libraries were not generally satisfactory. The findings agrees with Uganneya, Ape and Ugbagir, (2012) who stated that online information services play important role in improving users' access to information, but where the necessary services are not offered it makes it difficult for users to have access to information

The Challenges associated with the use of online information sources and service in Federal Universities Medical Libraries in North West Zone of Nigeria. The identification of the challenges associated with the use of online information sources and service in medical libraries in North West Zone of Nigeria was the last specific objective of the study. The opinions of the library staff was used for this purpose because they have the responsibility of providing the opportunities for the online information sources and services in the respective libraries. The percentages for affirming the challenges are plotted in Figure 4.16

Table 4.6.3: Challenges Associated with the Use of Online Information Sources and Service in the Libraries

S/n	Challenges associated with the use of online information sources and service	Yes		No	
		Freq.	%	Freq.	%
1	Lack of funds	41	77.4	12	22.6
2	Lack of separate budget for the library	48	90.6	5	9.4
3	Inflation in priced of information sources	42	79.2	11	20.8
4	Proliferation of information sources	38	71.7	15	28.3
5	Inadequate space for accessibility of information sources	38	71.7	15	28.3
6	All of the above	44	83.0	9	17.0
7	Others	39	73.6	14	26.4

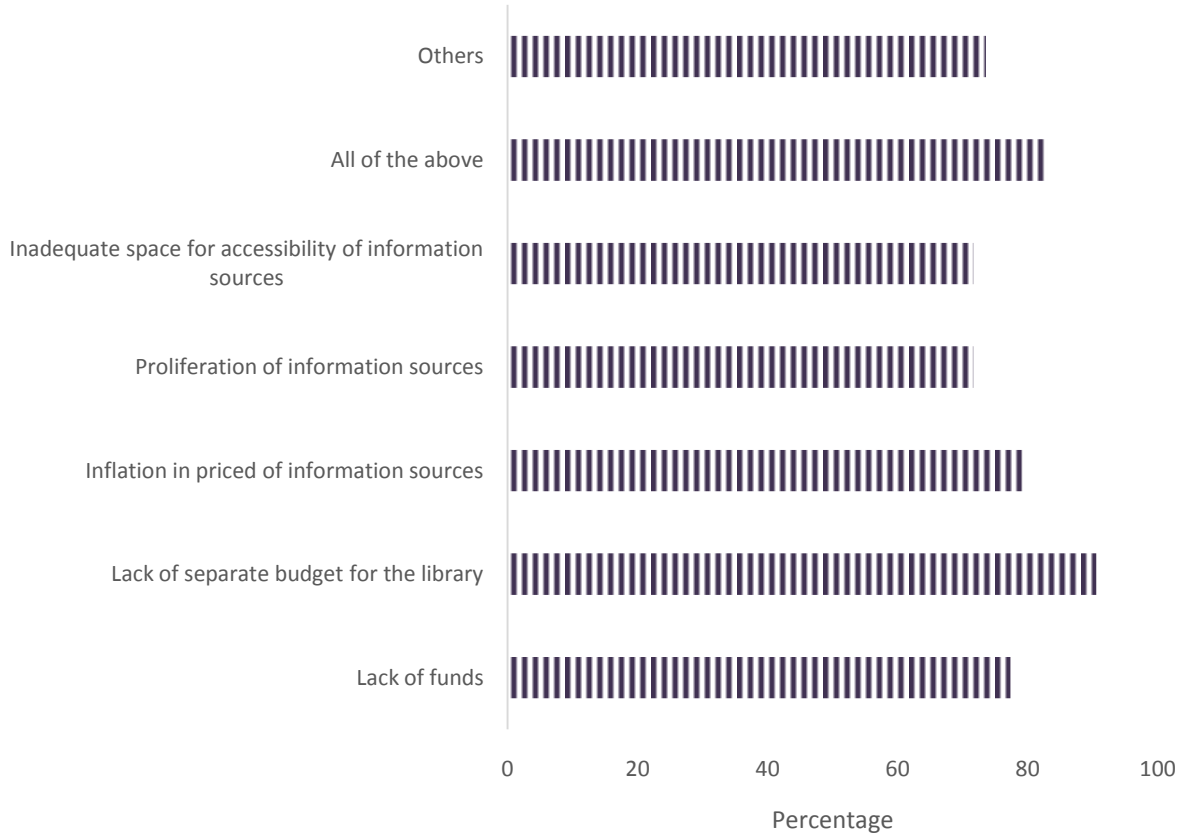


Fig. 4.16: Percentage distribution of the challennges associated with online information sources and services in the libraries

The table and the chart shows that funding is the most dominant challenges facing the medical libraries of the tertiary institutions. Part of these challenges arose from the lack of separate budget for the Medical libraries (48:84.2%) and those who indicated all of the above were (44:77.1%).

There was also the problem of Proliferation of information sources (38:10.9%) and inadequate space for accessibility of information sources in the libraries (10:10.9%). This finding agrees with Dadzie (2005) who carried out a survey of the use of ICTs in ten African Public Library Services and came out with the finding that although most libraries had Internet connectivity, very few were offering web-based information services to their users. The study however, identified four barriers to the effective provision of electronic resource in those libraries, namely: -Insufficient number of terminals available for use despite high demand and inadequate electricity and other associated with financing of the medical libraries.

CHAPTER FIVE

SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This study was undertaken with the objective of demonstrating through theoretical explanations and empirical evidence, the important role of libraries in the provision and delivery of qualitative health care services particularly by tertiary health institutions such as university teaching hospitals. It is presented in five chapters.

5.2. Summary

In chapter one, the central objectives of the study are presented in their broadest possible terms to include investigation into the role of medical libraries in the provision mud utilization of online information sources in the Federal University Teaching Hospitals in the North West Zone of Nigerian. The research problem is articulated from which were derived specific research questions and objectives .

Chapter two undertakes review of literature to facilitate clear conceptualization and proper location of the study's problematic within the ambit of existing theoretical and empirical knowledge in the area. In this context, the chapter can be seen as laying the foundations upon which the subsequent ones are built.

Chapter three is on research methodology. It describes the method adopted for collection of data and techniques used in interpreting and analyzing the data.

The survey research design method was adopted for the study in view of the nature or type of data required to address the central issues raised by the study's problematic.

Questionnaire was the major instrument used for the collection of data. Two sets of questionnaire were developed. One was used to collect data relating to availability of online

information sources in the medical libraries of the health institutions under study while the other was used to connect data on their accessibility and utilization. Simple descriptive statistics was used to present the data collected while tables, frequency distribution and percentages techniques were employed for their analysis and explanations.

Chapter four presents and analyses the data. As earlier stated, simply descriptive statistical methods in form of tables, frequency distribution and percentages were used for this.

5.3. Findings

The findings from the study are as follows:-

(i) Online information sources and services are available in the medical libraries studied although the library staff rated online database, electronic resources consortium and LAN database low. The users on their part also rated low e-mail electronic alert and selective dissemination of information.

(ii) Some of the client of the libraries utilized online information sources for the purpose of assignment, research and patient care services but with serious limitations.

(iii) The most important factors responsible for the level and rate of utilization of the available online information sources and services include the perception of users regarding the ease of use of the sources and services and their usefulness, access to OPAC, medical web catalogue and online information sources and services.

(iv) Inadequacy, and in some cases outright non-availability of services such as e-mail electronic alert, selective dissemination of information, online databases, electronic resource consortium and online institutional repository impacted negatively on utilization of available information sources and services.

(v) Inadequate funding and space are other important factors militating against availability and utilization of online information sources and services in medical libraries under studied.

Conclusion

5.4 From the findings of this study, it is clear that the medical libraries studied have online information sources and services. Also clear from the findings are that there are issues with the accessibility and utilization of the availability and utilization of the available sources and services. The study therefore clearly demonstrates through the provision and analysis of empirical data that availability of online information sources and services in libraries does not automatically translates to their accessibility to and effective utilization by clients.

5.5 **Recommendation**

The following recommendations, based on the findings of the this study are offered.

i. The provision of adequate online data based, electronic resources consortium, local area Network, e-mail, electronic alert service and selective dissemination of information by the Teaching Hospitals through their medical libraries.

ii. Recruitment of staff with appropriate competencies in the various areas of information technology and application and their regular training to enable them cope with new developments in such areas.

iii. Organization and holding of regular workshops and seminars by the medical libraries to inform their clients about the availability of online information sources and services and to teach them how to access and use them.

iv. Raising the awareness of the management of the teaching Hospitals regarding the important role of medical libraries in the provision of qualitative and effective health care

services and consequently the need to provide them with adequate finds and space to enable them carry out that role.

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APPENDIX 1

Department of Library and Information Science
Faculty of Education
Ahmadu Bello University,
Zaria

Date

Dear Respondents

RESEARCH QUESTIONNAIRE FOR LIBRARY STAFF

This questionnaire is aimed at collecting data for Master degree in Library Science (MLS) on the topic "online information sources and services in medical libraries in Northwest Geo-Political Zone of Nigeria"..

Kindly respond to the questions as honestly as possible as your response will be treated with utmost confidentiality. All responses will be used purely for academic proposes for a successful completion of the study.

Thank you.

Yours faithfully,

E.S Unobe

SECTION A
Demographic Information

1. Name of your University…….
2. **Library staff Status**
   a) Professional ( )
   b) Para-professional ( )
   c) Library supporting staff ( )
3. **Years of Working Experience**
   a) 1 – 5 years ( )
   b) 5 – 10 years ( )
   c) 10 years and above ( )
4. **Highest educational Qualification**
   a) First Degree holder ( )
   b) Master Degree holde r ( )
   c) Diploma holder ( )
   d) O'level holder ( )
   e) Others (please specify)

SECTION B
Availability of Online Information Sources/Services

1. **Availability of Online Information Sources**
   Please indicate by ticking any of these options that best express your view

S/No	Online Information Sources	Available	Not Available
1.	OPAC		
2.	Search engines		
3.	Online institutional repository		
4.	LAN databases		
5.	Online data bases		
6.	Electronic resources consortium		
7.	E-journal conference proceedings		
8.	E-books		
9.	E-databases		
10.	E-encyclopedias/Dictionaries		
11.	Others (please specify)		

2. **Availability of Online Information Services**

Please indicate by ticking any of these options that best express your view

S/No	Online Information Services	Available	Not Available
1.	Library websites/portal services		
2.	Online reference services		
3.	Bibliographic databases		
4.	E-mail		
5.	Electronic alerts		
6.	Selective dissemination of information (social media)		
7.	Others (please specify)		

SECTION C

1. Factors influencing the use of online information sources/services in your library (Please tick from these options)
    1. Perceive ease of use
    2. Perceive usefulness
    3. Access to online medical resource
    4. Access to medical web resources catalogue
    5. Access to OPAC
    6. Others (please specify)

……

……

SECTION D

Challenges associated with online information sources

1. What are the challenges faced by your library in acquiring online information sources (Tick as many as applicable)

a. Lack of funds
b. Lack of separate budget for the library
c. Inflation in priced of information sources
d. Proliferation of information sources
e. Inadequate space for accessibility of information sources
f. All of the above
g. Others (please specify)

……

…….

APPENDIX 2

Department of Library and Information Science
Faculty of Education
Ahmadu Bello University,
Zaria

Date

Dear Respondents

RESEARCH QUESTIONNAIRE FOR USERS

This questionnaire is aimed at collecting data for Master degree in Library Science (MLS) on the topic "online information sources and services in medical libraries in Northwest Geo-Political Zone of Nigeria"..

Kindly respond to the questions as honestly as possible as your response will be treated with utmost confidentiality. All responses will be used purely for academic proposes for a successful completion of the study.

Thank you.

Yours faithfully,

E.S Unobe

Demographic Information

1. Name of your University…….

2. **Category of user**
   a) Medical Student ( )
   b) Doctor ( )
   c) Pharmacist ( )
   d) Laboratory Technologist ( )
   e) Nurse ( )
   f) Others please specify

   ……

   ……...

3. **Age**

a) 16 – 20 ( )
b) 21 – 25 ( )
c) 26 – 30 ( )
d) 31 years and above ( )

4. **Academic Qualifications**

a) Undergraduate ( )
b) First Degree holder ( )
c) Master Degree holder ( )
d) PhD degree holder ( )
e) Others (please specify)

……..

SECTION B
Availability of Online Information Sources/Services

1. **Availability of Online Information Sources**

Please indicate by ticking any of these options that best express your view

S/No	Online Information Sources	Available	Not Available
1.	OPAC		
2.	Search engines		
3.	Online institutional repository		
4.	LAN databases		
5.	On line data bases		
6.	Electronic resources consortium		
7.	E-journal conference proceedings		
8.	E-books		
9.	E-databases		
10.	E-encyclopedias/Dictionaries		
11.	Others (please specify)		

2. **Availability of Online Information Services**

Please indicate by ticking any of these options that best express your view

S/No	Online Information Services	Available	Not Available
1.	Library websites/portal services		
2.	Online reference services		
3.	Bibliographic databases		
4.	E-mail		
5.	Electronic alerts		
6.	Selective dissemination of information (social media)		
7.	Others (please specify)		

SECTION C
Extent of Information Sources and Services Utilization

3. **Utilization of online information Sources**

Please indicate by ticking the rate to which you utilize any of these options that best express your view.

S/No	Online Information Ss	Very Often	Often	Not often
1.	OPAC			
2.	Search engines			
3.	Online institutional repository			
4.	LAN databases			
5.	Online databases			
6.	Electronic resources consortium			
7.	E-journal conference proceedings			
8.	E-books			
9.	E-databases			
10.	E-encyclopedias/Dictionaries			
11.	Others (please specify)			

4. **Utilization of online information Services**

Please indicate by ticking the rate to which you utilize any of these options that best express your view.

S/No	Online Information Services	Very Often	Often	Not often
1.	Library websites/portal services			
2.	Online reference services			
3.	Bibliographic databases			
4.	E-mail			
5.	Electronic alerts			
6.	Selective dissemination of information (social media)			
7.	Others (please specify)			

5. For what purposes do you use online information? Please indicate by ticking from the options below:

a. Research ( )
b. Assignment ( )
c. Current information ( )
d. Recreation ( )
e. Patient care ( )
f. Publication ( )
g. Conferences/meeting proceedings ( )

h. Others (please specify)……..

SECTION D

1. **Adequacy online information sources.**

Please indicate by ticking the rate to which you utilize any of these options that best express your view

S/No	Online Information Sources	Very adequate	Adequate	Not adequate
1.	OPAC			
2.	Search engines			
3.	Online institutional repository			
4.	LAN databases			
5.	Online databases			
6.	Electronic resources consortium			
7.	E-journal conference proceedings			
8.	E-books			
9.	E-databases			
10.	E-encyclopedias/Dictionaries			
11.	Others (please specify)			

2. **Adequacy online information services.**

Please indicate by ticking the rate to which you utilize any of these options that best express your view:

S/No	Online Information Sources	Very adequate	Adequate	Not adequate
1.	Library websites/portal services			
2.	Online reference services			
3.	Bibliographic databases			
4.	E-mail			
5.	Electronic alerts			
6.	Selective dissemination of information (social media)			
7.	Others (please specify)			

SECTION E

Level of satisfaction with Online information source/service

1. How satisfactory are the online information sources in your Library

S/No	Online Information Sources	Very satisfied	Satisfied	Unsatisfied
1.	OPAC			
2.	Search engine			
3.	Online institutional repository			
4.	LAN databases			
5.	Electronic resource consortium			
6.	E-journal conference proceedings			
7.	E-books			
8.	Others specify			

2. How satisfactory are the Online Information Services

S/No	Online Information Services	Very satisfied	Satisfied	Unsatisfied
1.	Library website4s/portal services			
2.	Online reference services			
3.	Bibliographic databases			
4.	E-mail			
5.	Electronic alerts			
6.	Selective dissemination of information			
8.	Others (please specify)			