Availability, Accessibility and Use of Internet Services in Medical Library for Research by Medical Science Undergraduate Students in College of Health Sciences, Makurdi

Tofi Simon Ternenge (CLN)
Librarian II
Benue State School of Nursing
Makurdi, Nigeria
e-mail: ternengetofi@gmail.com

Abstract *- The study investigated availability, accessibility and use of internet services in medical library for research by medical science undergraduate students in College of Health Sciences, Makurdi, Benue State, Nigeria. Five (5) objectives with corresponding research questions guided the study. The study adopted survey research design, the population of the study was 490 medical science undergraduate students registered with the College of Health Science medical library. The sample for the study was 220 medical students who were sampled using simple random sampling techniques. Two (2) instruments were used for data collection titled "Checklist on Availability of Internet Services in Medical Library for Research (CAISMLR)" and "Availability, Accessibility and Use of Internet Services in Medical Library for Research Questionnaire (AAUISMLRQ)" which was validated by three experts who are professionals in their respective fields. The reliability of the questionnaire was established using Cronbach Alpha method and a reliability coefficient of 0.729 was obtained. Data was collected and analyzed using frequency counts, simple percentages and mean scores to answer the research questions.Findings of the study revealed that, there are several types of internet services available in medical library for research by medical science undergraduate students such as World Wide Web, Email, File Transfer Protocol (FTP), newsgroups, internet chatting, search engines, among others. Findings also revealed that, except for Bulletin Board Services and Gopher, all internet services presented by the medical science undergraduate students are available in medical library for research to a great extent. Also, it is revealed from the findings that, the medical students to a great extent access and utilized the available internet services for research in medical library. Findings further revealed that, lack of computers in the library, poor internet connectivity, lack of computer skills, low internet bandwidth, irregular power supply, among others were the problems militating against effective use of internet services in medical library for research by medical science undergraduate students in college of health sciences, Makurdi. It was recommended that, internet services such as Bulletin Board Services (BBS) and Gopher should be made available in medical library for research by medical science undergraduate students; medical library should give more education to users on the available internet services for better use of the services by the medical students among others.*

Keyword: Availability, Accessibility, Utilization, Internet Services, Research, Medical Library.

1.1 Introduction/ Background of the study:

The use of technology is changing the way things are done, including the work in tertiary institutions where the teaching and learning process required a great deal of improvement. Knowing fully that internet is an essential tool for facilitating academic activities in colleges of health and medical sciences in Nigeria, for a number of years now, the managers of these tertiary institutions of learning have invested heavily in establishing internet services in their schools. The services provided by internet have had a major impact in the university context, in organisation and in teaching and learning methods (Jibrin, Musa & Shittu, 2017).

The internet has made computers across the globe interconnected for medical science research. Over the last several years studies have shown the use of internet by medical students is increasing (Ayatollahi, Jamshid, Fatemeh, Reza & Seyed, 2014). According the source, the major goals of education are to encourage medical students to increase their knowledge of medical science and maintain update knowledge by becoming life-long learners. The internet is cost-effective and fast. The information can be accessed from any source with an internet connection and with no time limitation. Internet medical sites containing up-to-date clinical, laboratory, radiographic, treatment, prophylaxis and outcome data of diseases create an environment for medical students to study at their own pace. Availability of medical full- text articles and other databases may have a major impact on the selection of information resources among students. Students can review cases reports and can have the opportunity to learn about different views on controversial topics. In addition, the computer and internet can motivate medical students to undertake research and help them to develop skills in collecting and analyzing data (Ayatollahi, et al, 2014).

According to Emeka and Nyeche (2016) the internet today is a worldwide entity whose nature cannot be easily or simply defined. To many, the internet is a large computer network linking together millions of smaller computers at numerous sites in various countries belonging to thousands of business, government, research, educational and other organisations. To the internet users, the internet is a global community-one with a very active life. Technically and functionally, the internet is defined as a worldwide network of computers, and a network of people using computers that make vast amounts of information available. The internet is also defined as the creation of a continuous stream of computers linked together to form one grid, which enables interaction among hundreds of millions of people browsing the net.

The awake magazine cited by Ugwulebo and Okoro (2016) has it that internet began as “an experiment by the US department of defence in the 1960s to help scientist and researchers from widely dispersed areas work together by sharing scarce and expensive computer and files. This goal required the creation of a set of connected networks that would act as a co-ordinated whole”. In his own view of the origin of the internet, Ibegwam (2002) opines that the internet is a huge computer network made up of many individual computers as servers’, which commenced in 1969 under a contract by the Advanced Research Project Agency (ARPA). While awake cited in Ugwulebo and Okoro (2016) has it that the internet came as a result of the generation of interest in a “bombproof” network during the era of the cold war so much that if a part of the network were destroyed, data would still travel towards its destination with help from the surviving parts. Ibegwam (2002), posits that, the internet was designed in parts to provide communication network that would work even if some of the sites were destroyed by nuclear attack.

Internet services on the other hand, are the services provided by the internet through its resources such as e-mail, World Wide Web (WWW), File Transfer Protocol (FTP), Newsgroups, etc. In support of this Okafor, Imhonopi and Urim (2011) stated that the internet has been considered to have revolutionised the way people collaborate and communicate through the global services it offers. Such services according to the source include electronic mail, file transfer protocol, Gopher, Wais, tenet, to mention but a few. Jadoon cited by Anyaoku, Nwafor-Orizu and Oguaka (2015) described the internet as an important learning tool in medical education by providing access to latest evidence anytime and anywhere. It is especially useful for students from developing countries helping them to keep abreast of ever expanding knowledge bridging the gap resulting from scarcity of medical resources and books.

In today world, the Internet plays a vital role in the teaching, research and learning process in academic institutions. Thus, the advent of the Internet has heralded the emergence of a new form of knowledge production and distribution (the soft form). This new form of information resources have as their greatest advantage, a virtually unlimited wealth of information resources which is widely readily available and accessible to hundreds of millions of health professionals and students simultaneously in many parts of the world (Kumar & Kaur 2006). In addition, Amaoge and Igwebuike (2016) believe that the internet has increasingly become an invariable asset in education in terms of learning, teaching and research. The use of internet in the tertiary institutions is an exciting prospect especially when the rugged terrain is the significant impediment to obtain information for the vast majority of people.

Fasae and Aladeniyi (2012) pinpoint that for the developing countries like Nigeria to grow and attain its economic and social status; such country must be fully ready in strengthening and empowering its academic institutions, both in science and technological capacity. Hence, the students in their respective fields will need an array of reliable and interactive means of accessing and retrieving information without wasting much time. Similarly, the use of this Internet is greatly dependent on some associated factors such as purposes, students experience, locations, Internet facilities and services available, among others on academic pursue of the students in their institutions.

Availability of internet services in this study means the extent to which internet services which are electronically present in the medical library are provided for medical science undergraduate students to satisfy their specific information needs in support of research. Availability of internet services has to do with the services and resources attainable at hand to meet the quest of information needed by users which are stocked in the medical library and are in online and electronic format. It should be noted that the availability of internet services alone does not guarantee automatic accessibility and use due to one factor or the other. In the words of Unagha cited in Onwubiko (2012), “the availability of internet service and easy accessibility to it enhances the quality of research work and results of academics. It introduces new ideas and thought, and widens the horizon of medical students as well as reduces the tendency for blind copying and plagiarism.”

Accessibility of internet services in this study means the extent to which library users (Medical students) can gain entry and use the services and resources of the internet for research. Azubuike (2014) viewed accessibility as the ability to access and benefit from some system or entity. Accessibility also means the opportunity to use or retrieve internet services and resources. Accessibility to internet services provides users with a variety of electronic

information resources available. The use of the Internet for learning is seen as a means to improve accessibility, efficiency and quality of learning by facilitating access to resources and service as well as remote exchanges and collaboration (Kamba 2009). Within the Nigerian context, many people have attributed students' non-challant attitude to reading which culminates in mass failure of students in examinations to the use of the Internet. Internet's seemingly infinite information offers access to up-to-date research reports and global knowledge so it has become an important component of electronic services in academic institutions. Therefore, the Internet has become a valuable tool for learning, teaching and research (including collaborative research) in Nigeria (Nwokedi, 2007).

Utilization of internet services in this research means the extent to which medical undergraduate students are able to exploit and benefit from internet services in online format for teaching, learning and research project writing. Effective utilization of internet services by undergraduate students of medical sciences enhances knowledge and overall academic and research performance of students. Today's students in medical school have lived in the omnipresence of online technology in their whole lives. They prefer new media technologies and online learning. Their technology-integrated lives create new ways of learning and research. The internet is cost-effective, fast and has the advantage of assessing information from any source. In the era of information and computer technology scenario of health and medical education has changed with the availability of medical literature on internet. All the fields of medical and allied sciences require adequate computer skills and internet knowledge. In order to improve quality of health care, information processing and information technology is essential in this modern world. This helps the students to acquire the knowledge of medical science as well as recent advances in their respective field.

Research is a process of systematic inquiry that entails collection of data; documentation of critical information; and analysis and interpretation of that data/information, in accordance with suitable methodologies set by specific professional fields and academic disciplines.Research is conducted to evaluate the validity of a hypothesis or an interpretive framework; to assemble a body of substantive knowledge and findings for sharing them in appropriate manners; and to generate questions for further inquiries.Research is creative and systematic work undertaken to increase the stock of knowledge, including knowledge of humans, culture and society, and the use of this stock of knowledge to devise new applications (Wikipedia, 2019). It is used to establish or confirm facts, reaffirm the results of previous work, solve new or existing problems, support theorems, or develop new theories. A research project may also be an expansion on past work in the field. Research projects can be used to develop further knowledge on a topic, or in the example of a school research project, they can be used to further a student's research prowess to prepare them for future jobs or reports. To test the validity of instruments, procedures, or experiments, research may replicate elements of prior projects or the project as a whole.

According to Wikipedia (2019) Medical research encompasses a wide array of research, extending from "basic research" (also called bench science or bench research), involving fundamental scientific principles that may apply to a preclinical understanding to clinical research, which involves studies of people who may be subjects in clinical trials. Within this spectrum is applied research, or translational research, conducted to expand knowledge in the field of medicine. Both clinical and preclinical research phases exist in the pharmaceutical industry's drug development pipelines, where the clinical phase is denoted by the term clinical trial. However, only part of the clinical or preclinical research is oriented towards a specific pharmaceutical purpose. The need for fundamental and mechanism-based

understanding, diagnostics, medical devices, and non-pharmaceutical therapies means that pharmaceutical research is only a small part of medical research. Medical research on humans, has to strictly follow the medical ethics sanctioned in the Declaration of Helsinki and hospital review board where the research is conducted. In all cases, research ethics are expected.

The term undergraduate student is most commonly associated with a student in a college or university who has not yet received a degree. Bukky (2006), regarding the nature and category of students stated that the term undergraduate is used in this context as an adjective. Rajeev and Kaur (2006) stated that an undergraduate student is a person who studies, or is studying at a college, school or university. He should therefore be a person who is learning to fulfil his powers and to find ways of using them in the service of mankind.

From the research conducted by Glenda, Sonia, Dwayne, Phimore and Alleyne cited by Ugabgir (2016) one can deduce that this concept embraces all undergraduate students irrespective of gender difference and faculties. Park and Snow (2009) asserted that an undergraduate student is someone who is studying in a higher institution or in a university for a first degree programme in any discipline.Operational definition of undergraduate students for this study is students admitted in a college or university who are yet to receive a certificate of first degree for the completion of their course of study.

Anyaoku, Nwafor-Orizu and Oguaka (2015) assert that the major barrier to the use of internet for the medical students is lack of internet access. According to the authors, this is not unexpected because the internet facility in the college is currently not functional so students source for their own internet services. This is an important issue that needs to be rectified to ease the problem and costs these students face in accessing the internet for their education most especially in the area of research. Another barrier raised by the medical science students is subscription based publications which deny access to important they need on the internet.
No study has been carried out in Benue state relating to Availability, accessibility and Use of internet services for research by medical science undergraduate student's college of health sciences, Makudi. Therefore, the focus of this research is to determine the internet service available for research by medical science undergraduate students, extent of availability of internet services, extent of accessibility of internet services, extent of utilization of the internet services as well as the challenges hindering the effective utilization of the available internet services for research by medical science undergraduate students in Benue State University College of Health sciences, Makurdi.

1.2 **Statement of the Problem**:

Internet appearance in higher education was used as a tool for researchers to communicate and share research information. The internet is the fastest growing communication technology and has emerged as a major source of information that connects people, data and computers thereby reducing the world to a global village. Every form of information resources needed to support teaching, learning and research in education is available on the internet both retrospective and current. For medical science undergraduates, many of the tools that support and transmit medical education and health research are now available through the internet services. The use of internet service is now essential for medical (biomedical) research and for the development of health systems. With the services available on the internet, medical science students can now find information to solve a learning or research problem on any topic and improve their knowledge. Medical students can also do their

research assignments conveniently with ease. This makes the internet a great tool for medical education and research.

Despite the relevancy of internet in higher education in Nigeria, its impact has not been fully felt by medical science students for research. Preliminary observation by the researcher revealed that though internet services are available in the college medical science library but their medical science students rarely use them for their research studies. Could it be that the student's action is as a result of lack of awareness about the existence of internet services? Or could it be that the internet services are available but medical students find it difficult to access them for research? Or could it be that students are faced with challenge why accessing and utilizing the internet services available for research? More so, it is imperative to find out how the medical science students are maximally accessing and utilizing the internet services that has the potential to enrich learning, research experience as well as build their knowledge base. These are the gaps in knowledge that this study intend to fill. Therefore, it is in light of the above reasons that the researcher focuses set out to investigate on the availability, accessibility and use of internet services in medical library for research by medical science undergraduate students in college of Health science, Makurdi.

1.3 Objective of the study:

The main objective of this study is to investigate Availability, accessibility and use of internet services in medical library for research by medical service undergraduate students in college of Health sciences, Makurdi. Specifically, the study seeks:

1. To find out the types of internet services available in medical library for research by medical science undergraduate students in college of Health sciences, Makurdi.
2. To ascertain the extent of availability of internet services in medical library for research by medical science undergraduate students in college of Health sciences, Makurdi.
3. To determine the extent of accessibility of internet services in medical library for research by medical science undergraduate students in college of health sciences, Makurdi.
4. To evaluate the extent of utilisation of internet services in medical library for research by medical science undergraduate students in college of health sciences, Makurdi.
5. To find out the problems militating against effective use of internet services in medical library for research by medical science undergraduate students in college of Health sciences, Makurdi.

1.4 **Research Questions**:

The study was guided by the following research questions:

1. What are the types of internet services available in medical library for research by medical science undergraduate students in college of health sciences, Makurdi?
2. What is the extent of availability of internet services in medical library for research by medical science undergraduate students in college of health sciences, Makurdi?
3. To what extent does internet services available in medical library for research are accessible by medical science undergraduate students in college of health sciences, Makurdi?
4. To what extent does internet services available in medical library for research are utilise by medical science undergraduate students in college of health sciences, Makurdi?

5. What are the problems militating against effective use of internet services in medical library for research by medical science undergraduate students in college of health sciences, Makurdi?

1.5 Scope of the study:

The geographical scope is Makurdi, Benue state. This study covered only Benue state university college of health science, Makurdi.The content scope is to examine the availability, accessibility and use of internet services to improve quality of research by medical science undergraduate students as well as types of internet services available in medical science library, the extent of availability, extent of accessibility, extent of utilization and the problems militating against effective use of internet services for research by medical science undergraduate students in college of health sciences, Makurdi-Benue state, Nigeria.The population scope is the medical Library registered students inBenue state university college of Health sciences, Makurdi.

2.1 Review of Related Literature Review

Empirical studies have been conducted on internet services both within and outside Nigeria. Most of these studies concentrated on availability, accessibility, utilization, impact of internet services, and challenges on undergraduate research.

Ayatollahi, Jamshid, Fatemeh, Reza and Seyed (2014) carried out a study on Computer and Internet use among Undergraduates Medical Students in Iran. Findings of the study revealed that, Medical Science Undergraduate Students utilized the internet services for various academic purposes. Findings also revealed that Medical Students access internet services and used it to access subjects on medical topics such as PubMed, Medical Journals, and e-resources in health sciences. Finding further revealed that, 78.9% of the Medical Students declared using internet for text, 67% clinical photographs, 17.4% for radiographic slide and 17.4% for film. 59.6% of the female medical students in Iran used the internet for general information; this frequency was 40.4% for male students. Medical science undergraduate students were faced with challenges in utilizing and accessing internet services such as slow speed of internet, lack of time, and less familiarity to internet use. Use of dental contents in English form (67%) was more significant compared to dental contents used in Persian form (21%). Probably this difference could be due to more accessibility of Persian literature in medicine as against Persian literature in dentistry or may be better knowledge of English in dental students.

A similar study was conducted by Al-Hariri and Al-Hattami (2015) on utilization of internet by Health College's students at the University of Dammam, Saudi Arabia. Findings of the study revealed that, 89% of students in the health colleges showed positive attitudes towards using the internet for educational purposes. Moreover, nearly three-quarters (70%) of students felt they were able to study effectively using the internet, and felt that it makes teaching and learning more interesting and improves their scores. Finding also revealed that, Facebook was the most used social media site visited by the participants. The results of the study clearly showed that approximately 94% of students are using the internet to obtain information for research. In addition, 70% of the students agreed that the use of internet services enhances their academic skills and academic grades. The findings further revealed that almost all of the students are using Google as their search engine if they need any

information over the internet. The results also revealed some of the challenges faced by the students in the health colleges at the University of Dammam, students revealed that there was no wireless internet, that technology tools need maintenance and that they need training. It was reported that student's use of the internet will improve if Institutions provide free internet services and training on the use of the internet to obtain information.

Another study was conducted by Anyaoku, Nwafor-Orizu and Oguaka (2015) on internet information seeking and use by Medical Students of Nnamdi Azikiwe University, Nigeria. Findings of the study revealed that, 88.2% of the medical science students have access to the internet. Internet was used daily by 72% of the respondents and this access is mainly through their small phones. Internet was used mainly to search for medical information (82%), social media communication (77.6%) and for course assignment (62.2%). The findings also revealed that, there is low use of academic resources such as online databases, e-journals, e-books and library websites to finding information. More so, the most frequently used website is Wikipedia, Medscape and PubMed. Lack of internet access, restriction of important information for payment, too many results returned for search, difficulty to get local information, limited access to a computer, as well as lack of internet search skills for effective search were revealed as barriers identified by the medical science students to effective use of the internet services. The study finally concluded that, medical librarians have a role in improving student's use of educational resources on the internet through an extensive and curriculum based information literacy program.

Tofi (2019)investigate perceived impact of internet services on Computer Science undergraduate research in universities in Benue State, Nigeria. Findings of the study revealed that, Internet services such as World Wide Web, E-mails, File Transfer Protocol, Internet Chatting, Search Engines, List Servs/Discussion Groups and Telnet /Usenet are to a high extent, available for research by Computer Science undergraduate students in universities in Benue State. E-mail, World Wide Web and File Transfer Protocol has significant perceived impact on Computer Science undergraduate research in universities in Benue State. The finding also revealed that the challenges affecting effective utilization of internet services for research by Computer Science undergraduate in universities in Benue State include slow internet access speed, longer time to view/download web pages, difficulty in finding relevant information, offline internet connectivity, electricity failure, high cost of accessing the internet, lack of computers, Low internet bandwidth and lack of internet search skills for effective search among others.

Shehu, Urhefe & Aworo (2015) conducted a study on Accessibility and utilization of the internet services in Nigeria libraries: An empirical study. The outcome of the study revealed that majority of the participants was from academic library asserted that internet services were not accessible to them at all. It was also found that the participants strongly agreed that the reasons for which staff used internet services in Nigeria libraries was for research purpose, for current awareness services/update of knowledge. It also revealed that, lack of search skills, information overload, power outage, irrelevant information, difficulties in navigation of website, in accessibility of some sites and unavailability inaccessibility of the internet services were some of the challenges faced by the staff in Nigeria libraries.

In the same vein, Aba, Beetseh, Ogban, and Umogbai (2015), carried out a study on the use of internet services by postgraduate students for research in Francis Idachaba library, university of Agriculture, Makurdi. The findings revealed that 37.78% had received internet training from external sources. The internet skill of 144.44% was rate average. Only 22%

used the internet daily and 87.41% claimed that digital libraries had greatly enhanced their academic performance. Majority of 51.11% used internet facilities outside the University Mainly for research and education activates. Findings revealed that problems encountered include longtime to view or download web pages and insufficient computers. The study further revealed that the use of internet had led to decreased in the use of traditional library facilities but only 94% were fully satisfied with the internet facilities. A large majority of 92.96 were of the opinion that proper guidance of students in the use of e-resources was need.

3.1 Methodology

The study adopted descriptive survey research design. The study is conducted in Makurdi, Benue State which is in North Central, Nigeria. The population of the study comprised of four hundred and ninety (490) medical science students who are registered with the College of Health Science Library (**Source**: Readers Services Division, College of health science Medical library, 2019).To select the respondents, the overall sample sized for this study was 220 registered users (medical science students) of the medical library college of health sciences, Makurdi. This was determined using Taro Yamene's formula for sample size as seem below:

$$N = \frac{N}{I + N(E)^2}$$

Where, N= the sample size
N= the population size
E=level of significance
N=? N= 490, E = 90% (0.05)

$$N = \frac{490}{1 + 490(0.05)^2}$$

$$N = \frac{490}{2.225}$$

=220
N=220

Thus a sample size of 220 was used to represent a total population of 490medical library users (medical students), hence simple random sampling was used to draw the sample from the population of the study so that each member of the population is given equal or independent chance of being selected.Two instruments were used for data collection. They were: Checklist (part 1) and questionnaire (part 2) which were self-developed by the researcher titled "Checklist on Availability of Internet Services in Medical Library for Research (CAISMLR) and Availability, Accessibility and Use of Internet Services in Medical Library for Research Questionnaire (AAUISMLRQ).The instrument for data collection was validated by two experts in the field of librarianship within the department of library science and information technology Gboko Polytechnic, Makurdi Study Centre and one expert in test and measurement, University of Agriculture, Makurdi. Face and content validity was done for the purpose of adequacy of the instruments, clarity of instrument, relevance of items, and proper wordings of the items.In order to establish the reliability of the instrument, the questionnaire was administered to 30 students of veterinary medicine university of Agriculture, Makurdi who were not part of the main study but had similar characteristics to

that of the study for trail testing. Cronbach Alpha was used to determine internal consistency of items and the reliability coefficient obtained from the respondents was 0.729.Considering the high reliability coefficient yielded, it was deem fit for the research to be conducted using the questionnaire designed for data collection. Questionnaire was used as instrument for data collection for this study.The data collected was analyzed using descriptive statistics. Descriptive statistics of frequency counts, simple percentages, and mean scores was used to analyze data generated by the research questions. Items with percentages ranging from 50% and above was accepted and regarded as available (AVA) while items with percentages ranging from 49% and below was rejected and regarded as Not Available (NA). A criterion (a mid-point mean score) of 2.50 was adopted. The average of the response on a 4 point type scale is 2.50 (4+3+2+1=10/2=2.50). Any mean that rank from 2.50 and above is regarded as positive and accepted while 2.49 and below is regarded as negative and rejected.

4.0 Results and Discussions

4.1 Results

The result of the study was organized around the research questions as follows:

4.4.1. Research Question 1: What are the types of internet services available in medical library for research by medical science undergraduate students in College of Health Science, Makurdi?

4.4.2.

Table 1: Responses on types of internet services available in medical library for research.

			Responses		
S/N	**Item Statement**	**N**	**Available (%)**	**Not Available**	**Decision**
1	World Wide Web	220	214(97%)	6 (3%)	Available
2	Email	220	220 (100%)	0 (0%)	Available
3	File Transfer Protocol (FTP)	220	178 (81%)	42 (19%)	Available
4	Bulletin Board Services	220	22 (10%)	198 (90%)	Not Available
5	Newsgroups	220	163 (74%)	57 (26%)	Available
6	Internet Chatting	220	213 (97%)	7 (3%)	Available
7	Search Engines	220	214 (97%)	6 (3%)	Available
8	List Servs/Discussion groups	220	156 (71%)	64 (29%)	Available
9	Telnet/Usenet	220	198 (90%)	22 (10%)	Available
10	Gopher	220	20 (9%)	200 (91%)	Not Available

Source: Field Survey, 2019

Table 1 showed the percentage score of the types of internet services available in medical library for research by medical science undergraduate students in College of Health Sciences, Makurdi. As shown in the table above, items 1,2,3,5,6,7,8 and 9 were the available types of internet services in medical library for research, while items 4 and 10 were not available.

4.4.2 Research Question 2: What is the extent of availability of internet services in medical library for research by medical science undergraduate students in college of health sciences, Makurdi?

Table 2: Mean scores of the extent of availability of internet services in medical library for research.

		Responses					
S/N	**Item Statement**	**VGE**	**GE**	**LE**	**VLE**	**Mean (X)**	**Decision**
1	World Wide Web	68	114	33	5	3.11	Great Extent
2	Email	100	66	34	20	3.12	Great Extent
3	File Transfer Protocol (FTP)	120	20	62	18	3.10	Great Extent
4	Bulletin Board Services	34	26	98	62	2.14	Low Extent
5	Newsgroups	77	46	63	34	2.75	Great Extent
6	Internet Chatting	54	99	27	40	2.76	Great Extent
7	Search Engines	84	22	72	42	2.66	Great Extent
8	List Servs/Discussion groups	66	22	109	23	2.59	Great Extent
9	Telnet/Usenet	88	33	42	57	2.69	Great Extent
10	Gopher	23	14	122	61	1.99	Low Extent

Source: Field Survey, 2019.

Table 2 above showed mean of the responses to extent of availability of internet services in medical library for research by medical science undergraduate students in College of Health Sciences, Makurdi. From the table above, item 1,2,3,5,6,7,8 and 9; medical students indicated that the listed items are available for research to a great extent with mean scores above the bench mark. While items 4 and 10 were available to a low extent with mean scores of 2.14 and 1.99 below the benchmark.

4.4.3 Research Question 3: To what extent do internet services accessible in medical library for research by medical science undergraduate students in College of Health Sciences, Makurdi?

Table 3: Mean score of the extent of accessibility of internet services in medical library for research.

		Responses					
S/N	**Item Statement**	**VGE**	**GE**	**LE**	**VLE**	**Mean (X)**	**Decision**
1	World Wide Web	160	20	26	14	3.48	Great Extent
2	Email	96	89	18	17	3.20	Great Extent
3	File Transfer Protocol (FTP)	96	62	21	41	2.97	Great Extent
4	Bulletin Board Services	36	44	114	26	2.41	Low Extent
5	Newsgroups	111	32	15	62	2.87	Great Extent
6	Internet Chatting	89	78	9	44	2.96	Great Extent
7	Search Engines	97	60	11	52	2.92	Great Extent
8	List Servs/Discussion groups	80	86	29	25	3.00	Great Extent
9	Telnet/Usenet	88	33	42	57	2.69	Great Extent
10	Gopher	10	102	80	28	2.42	Low Extent

Source: Field Survey, 2019.

Table 3 above indicates the extent of accessibility of internet services in medical library for research by medical science undergraduate students in college of health sciences, Makurdi. From the table above, items 1,2,3,5,6,7,8 and 9 are accessible by medical science undergraduate students for research to a great extent, while items 4 and 10 are not accessible therefore indicating low extent of accessibility for research by medical students in college of health sciences, Makurdi.

4.4.4 Research Question 4: To what extent do internet services utilize in medical library for research by medical science undergraduate students in college of health sciences Makurdi.

Table 4: Mean score of the extent of utilization of internet services in medical library for research.

		Responses					
S/N	**Item Statement**	**VGE**	**GE**	**LE**	**VLE**	**Mean (X)**	**Decision**
1	World Wide Web	68	114	33	5	3.00	Great Extent
2	Email	97	86	14	23	3.17	Great Extent
3	File Transfer Protocol (FTP)	77	100	35	8	3.12	Great Extent
4	Bulletin Board Services	49	57	41	73	2.37	Low Extent
5	Newsgroups	70	48	80	22	2.75	Great Extent
6	Internet Chatting	82	73	11	54	2.83	Great Extent
7	Search Engines	54	122	20	24	2.94	Great Extent
8	List Servs/Discussion groups	66	22	109	23	2.59	Great Extent
9	Telnet/Usenet	88	33	42	57	2.69	Great Extent
10	Gopher	63	62	15	80	2.49	Low Extent

Source: Field Survey, 2019.

Result from table 4 above showed that for extent of accessibility of internet services in Medical Library for research by medical science undergraduate students in college of health sciences, Makurdi. From the table above, item 1,2,3,5,6,7,8 and 9 are a great extent utilized by medical science undergraduate students for research with mean score above the benchmark. While item 4 and 10 had mean scores of 2.37 and 2.49 which are below the benchmark. Therefore, item 4 and 10 are utilized by medical students to a low extent for research.

4.4.5 Research Question 5: What are the problems militating against effective use of internet services in medical library for research by medical science undergraduate students in college of health sciences, Makurdi?

Table 5: Mean score of problems militating against effective use of internet services in medical library for research.

		Responses					
S/N	**Item Statement**	**VGE**	**GE**	**LE**	**VLE**	**Mean (X)**	**Decision**
1	Inadequate computers in the library	106	40	30	44	2.95	Accepted
2	Poor internet connectivity	130	14	26	50	3.02	Accepted
3	Lack of computer skills	23	124	33	40	2.59	Accepted
4	Low internet bandwidth	46	100	10	64	2.58	Accepted
5	Irregular power supply	98	49	42	30	2.97	Accepted
6	Lack of internet search skills for effective search	144	9	44	23	3.25	Accepted
7	Slow internet access speed	100	59	50	11	3.13	Accepted
8	Longer time to view/download web pages	117	12	43	48	2.90	Accepted
9	Difficulty in finding relevant information	98	49	42	30	2.97	Accepted
10	Lack of awareness	86	68	26	40	2.91	Accepted

Source: Field Survey, 2019

Result from table 5 above shows the mean scores of the responses to problems militating against effective use of internet services in medical library for research by medical science undergraduate students in college of health sciences Makurdi. From the above table, it is clearly indicated that all the respondents accepted the entire items as being the problem militating against effective use of internet services in medical library for research. This is because, the mean scores of all items are above the benchmark of 2.50. Hence medical students accepted the whole item as problems militating against effective use of internet services in medical library college of health sciences, Makurdi.

4.3 Summary of Major Findings

The following findings emanated from the study based on the research questions answered.

1. There are several types of internet services available in medical library for research by medical science undergraduate students such as World Wide Web, Email, File Transfer Protocol (FTP), Newsgroups, Internet Chatting, Search Engines, List servs/discussions groups and Telnet/Usenet.
2. Except for Bulletin Board Services and Gopher, all internet services presented by the medical science undergraduate students such as World Wide Web, Email, File Transfer Protocol (FTP), Newsgroups, Internet Chatting, Search Engines, List Servs/discussion groups, as well as Telnet/Usenet are available in medical library for research to a great extent.
3. Internet services are to a great extent accessibility in medical library by medical science undergraduate students for research.
4. Medical science undergraduate students utilized the available internet services in medical library to a great extent for research.
5. There are several problems militating against effective use of internet services in medical library for research by medical science undergraduate students in college of health sciences, Makurdi.

4.4 Discussion of Findings

Based on the findings derived from the results of the study, the following were discussed.
Findings of the study as shown on table 1 revealed that, there are several types of internet services available in medical library for research by medical science undergraduate students such as World Wide Web, Email, File Transfer Protocol (FTP), Newsgroups, Internet Chatting, Search Engines, List Servs/discussions groups as well as Telnet/Usenet.This finding is in line with that of Aba, Beetseh and Ogban (2015) that majority of the respondents use www and email at Francis Sulemanu Idachaba Library. Findings also corroborate with that of Ayatollahi, Jamshid, Fatemeh, Reza and Seyed (2014) who reported that, Medical Science Undergraduate Students utilized the internet services for various academic purposes such as research.

The findings of the study as shown on table 2 revealed that, except for Bulletin Board Services and Gopher, all internet services presented by the medical science undergraduate students such as World Wide Web, Email, File Transfer Protocol (FTP), Newsgroups, Internet Chatting, Search Engines, List Servs/discussions groups as well as Telnet/Usenet are available in medical library for research to a great extent. This finding corroborates that of Tofi (2019) whose study on impact of internet services on computer science undergraduate

research in Universities in Benue State revealed that, internet services such as World Wide Web, Email, File Transfer Protocol (FTP), Newsgroups, Internet Chatting, Search Engines, List Servs/discussions groups as well as Telnet/Usenet are to a high extent, available for research by undergraduate students. This finding also corroborate the observation by Adomi (2008) that internet is becoming increasing available to most Nigerians due to the provision of internet services by various mobile telecommunication operations. Anyaoku, Nwafor Orizu and Oguaka also revealed that, for medical students many of the tools that support and transmit medical education and health research are now available online through internet services.

The finding of the study on table 3 above shows that, internet services are to a great extent accessible in medical library by medical science undergraduate students for research. This finding is in agreement with that of Bola and Ogunlade (2012) who revealed that internet services are accessible by students and staff for academic research. This finding is also in line with the findings of Tushar, Swapnali, and Pooja (2016) who revealed that, student used internet as first preference in using computers, 95.6% medical science students had access to internet. This finding further corroborates the finding of Shehu, Urhefe and Aworo (2015) whose study on accessibility and utilization of internet services in Nigeria libraries revealed that, majority (96%) of the participants were from academic library said that the internet is very accessible to them for research and other academic activities.

The findings of the study on table 4 above revealed that, medical science undergraduate students utilized the available internet services in medical library to a great extent for research. This agrees with Anyaoku, Nwafor-Orizu and Oguaka (2015) who attested that medical students use internet services frequently (72%) mainly to search for medical information, social communication and for course research assignments. The finding is also in line with Lal et al (2006) in a research on internet use among medical students and residents of medical college of North India ranked medical students use of the internet as email surfing, chatting, entertainment, and education. According to the finding, internet services was used by medical students to a very high extent. In support of this, Almarabeh, Rajab and Majdalawi (2016) in their study on awareness and usage of computer and internet among medical faculties' students at University of Jordan revealed that, the state of computer and internet use by medical students is encouraging. This encouragement might be due to affordability and also the easy availability of new generation of mobile forms of communication which internet can be accessed and they can be carried easily. According to the researchers, medical students utilized internet services frequently to a high extent for academic and research purposes.

The finding also revealed that, there are several problems militating against effective use of internet services in medical library for research by medical science undergraduate students in college of health sciences, Makurdi. The problems includes; inadequate computers in the library, poor internet connectivity, lack of computer skills, low internet bandwidth, irregular power supply, lack of internet search skills for effective search, slow internet access speed, longer time to view/download web pages, difficulty in finding relevant information as well as lack of awareness. Findings of the study is in agreement with that of Tofi (2019) who revealed that slow internet access speed, longer time to view/download web pages, difficulty in finding relevant information, offline internet connectivity, electricity failure, high cost of accessing the internet, lack of computers, low internet bandwidth and lack of search skills for effective search as challenges affecting effective utilization of internet services for research by computer science undergraduates in Universities in Benue State. The finding is also in line

with that of Anyaoku, Nwafor-Orizu and Oguaka (2015) who revealed that, the major barrier to the use of the internet for the medical students was lack of internet access (81.3%) and subscription based publication which denies access to important medical information they need on the internet (78.3%).

5.1 Conclusion and Recommendations

5.2 Conclusion

Based on the findings of the study, the researcher concluded that, internet services such as World Wide Web, Email, File Transfer Protocol (FTP), Newsgroups, Internet Chatting, Search Engines, List Servs/Discussions groups as well as Telnet/Usenet are available, accessible and utilized to a great extent by medical science undergraduate students in medical library for research in college of health sciences, Makurdi. However, there are problems militating against effective use of these internet services in medical library for research.

5.3 Recommendations

Based on the findings of the study, the following recommendations were made:

- Internet services such as Bulletin Board Service (BBS) and Gopher should be made available in medical library for research by medical science undergraduate students in college of health sciences, Makurdi.
- Medical library should give more education to users (user education) on the available internet services. The medical librarians working in college of health science have a role in improving medical student's use of educational resources on the internet through an extensive and curriculum based information literacy programme. This is highly needed considering the growing concern on the quality of information on the internet.
- Medical librarians in the college of health sciences should create awareness as well as impact skills that are needed to harness quality medical information resources on the internet. This will empower the medical students to use the internet effectively in their education and most especially in the area of medical research.
- There should be inclusion of interest literacy course into the general studies programme of the college of health science to enhance medical student's knowledge of online medical information for learning and research.
- Constant power supply should be provided within the library to enhance student's access to the internet services in order to utilize them.
- Efforts should be made to increase the speed of the internet access and shorten the time it takes to view and download web pages.
- Provisions of more computers in the medical library for medical students to use in accessing and utilizing information on the internet.

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