Knowledge and Use of E-Resources by Medical Researchers in Lagos State University College of Medicine: A Case Study

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ABSTRACT

Background: E-resources are one of the major sources of scientific information which provides the user with more precise and quick information. The completeness and quality of information accessible on electronic resources makes it dependable, reliable sources of information and knowledge production in the academic community. Information accessibility is pivotal in the health research environment as it helps in quick and effective response to challenges and complexities as they arise. However, the level of knowledge possessed by medical researchers in Lagos State University College of Medicine (LASUCOM) is important for teaching, learning and research. Hence, this study evaluated knowledge and use of e-resources by medical researchers in LASUCOM.
Methods: The study adopted a descriptive research design. The population is 400 postgraduate students (MPH, resident doctors) and research scholars. The sample size is 200, representing 50% of the total population. Data were collected with the use of a structured questionnaire on knowledge and use of e-resources by the respondents. Frequency counts, percentages, mean, and standard deviation, were used reporting the data.
Results: The results revealed the knowledge of medical researchers about electronic resources including journals (91.8%), books (89.4%), theses/dissertations (82.3%). Also, electronic resources were used for the purpose of obtaining current information (78.8%) and for academic /study purposes (78.8%). PubMed/MEDLINE (96.5%), PubMed Central (92.9%), African Journals Online (92.9%) were the most preferred electronic resources used by postgraduate and medical researchers in LASUCOM.
Conclusion: The study concluded that librarians should be trained to support researchers in the research process. The study recommended that librarians should create awareness about electronic resources available and accessible in the library. Also, the library should provide adequate user education on database interface usage and optimal search skill techniques for retrieval of relevant information in the Medical Library.
Keywords: Knowledge, E-Resources, Medical Researchers, Postgraduate students

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Introduction

The advent of Information and Communication Technology in library services has made a landmark effect on ease of searching and up-to-date recovery of information resources. This change in library services has also improved teaching and learning techniques, research methods, access to medical information databases, and electronic resources (Azami, 2016). Information that is only accessible electronically or through computer networks are known as "electronic resources," which are usually data stored in the cloud (Sebastian & Muthumari, 2020). In the research process, Olatoye et al. (2020) writes that electronic resources are essential tools that support the print resources in a functional library.

E-resources can be of two types: online and offline. E-books, e-journals, e-magazines, e-newspapers, e-theses, e-databases, repositories, etc. are examples of online resources, while offline resources include CD-ROMs, pen drives, and other external devices that use computer systems (Mashaba, 2023). One of the main sources of scientific knowledge that gives users access to more accurate and timely information is electronic sources (Indira, 2020). The completeness and quality of information accessible on electronic resources makes it dependable, reliable sources of information and knowledge production in the academic community. Its availability and accessibility enable new innovation in teaching, promote timeliness in research discovery, and facilitate the birth new fields of inquiry.

Information accessibility is pivotal in the health research environment as it helps in quick and effective response to challenges and complexities

as they arise. Moreover, information has become a unified force that supports medical research, teaching and clinical services. Therefore, it becomes a necessity for medical librarians to be conversant with the type of information materials required by medical researchers in order to effectively support their research activities. Work environment and job specification determines the type of information acquired, selected and used. In the academic community, sufficient knowledge of the type of information required by medical researchers in carrying out research work is important for medical librarians.

Statement of the problem

Lagos State University College of Medicine (LASUCOM) Medical library invests in a variety of information resources, ranging from print to electronic, to satisfy both faculty and students' information needs. Medical researchers require validated information to meet their varied needs of teaching, learning, research, solving problems, patient care, etc. These needs appear insatiable as there arises new knowledge daily and published online which can only be accessed with an adequate subscription by the institution or individual to the relevant database.

Despite the medical library's significant yearly investment through the consortium, consumption of these online services falls short of expectations. This can be because medical researchers are unaware of the online resources available through the LASUCOM Medical Library, are not well trained to use database interfaces, or are not using the best search skills to get the information they need. Furthermore, medical researchers might be restricted from using the e-resources due to the low level of satisfaction of the e-resource services in the library and this might affect the frequency of usage.

However, there are few studies that look into how medical researchers use electronic resources to meet a variety of their information needs, or how much they know and use the resources. Thus, this study is conducted to investigate the knowledge and use of e-resources available to medical researchers in Lagos State University College of Medicine medical library. It aims to provide methods for enhancing library services as well as areas the library can explore further and support management in making decisions regarding database subscriptions.

Research objectives

The objectives of the study are to:

1. determine knowledge of e-resources among medical researchers and postgraduates
2. ascertain the purpose of use by medical researchers
3. determine the databases preferred by medical researchers
4. determine the level of satisfaction among medical researchers of the database accessed
5. suggest method of improving the services on e-resources in the library

Literature review

New knowledge appears frequently in the field of medicine that requires an update of the medical researcher's information bank. This will keep them ahead of new discoveries in their field of study and improve their teaching and research quality. Medical researchers need information that is accessible, authoritative, reliable, accurate and timely. The literature must be searched, selected, and reviewed in order to identify and use the most up-to-date, finest information in any discipline. Electronic databases have been the subject of extensive research regarding awareness, usage, accessibility, relevance, preference, orientations and training. It has been discovered that there can occasionally be a gap between awareness and utilization of electronic resources. Users may be conscious of the resources and use them, conscious but not using them, occasionally unaware and not using them, or all three. Previous studies (Ankamah et al., 2021; Fossum et al., 2022; Mashaba et al., 2023) found that users were aware of and accessed digital information resources.

Ehioghae and Madukoma (2021), citing Ajuwon (2015), pointed out that the volume of medical information published online in the last two decades has been on the rise daily. She further

explained that databases like Web of Knowledge, EMBASE, MEDLINE/PubMed, Scopus, and Africa Index Medicus uploads recent, trustworthy, high-quality, and up-to-date material to keep up with the rapidly accelerating speed of medical research. Medical databases are convenient to use, take multiple users concurrently, economical, available all the time and accessible (Abdullah et al., 2021). This makes medical libraries spend more than half of their budget on database subscription for effective and efficient service delivery (Alajmi, 2019).

Anhwere et al. (2019) posit that medical researchers place high expectations in discovering new knowledge and feel dissatisfied when the library does not meet their expectation or when they could not use the library resources on their own. The internet is the storehouse of knowledge, medical library subscription to different databases help in updating medical researcher's knowledge and ease the research process (Anhwere et al., 2019; Jegede et al., 2011).

According to Sachin and Divyananda (2017), information needs of medical researchers could arise as a result of several reasons such as patient care, continuing medical education, teaching, locating current information, locating pertinent studies and data, and coming up with research concepts. Different categories of needs for information may arise in the medical field based on some factors: current knowledge, solving new problems, reviewing existing knowledge, adding another specialty while treating a patient, identifying uncommon patient care issues, and implementing new organizational programs (Vogels-Broeke et al., 2022).

Rehman and Ramzy (2004), conducted a study on the use of the Internet by healthcare workers at Kuwait University's health sciences center (HSC). According to the report, 92.1% of respondents used their offices to access the Internet, while 73.2% also used their homes. The HSC Library was also used by 28.3% of students to access the Internet. According to the study, 80.3% of respondents utilized the Internet daily, 15% did so once per week, and 2.5% did so once every month. The majority of

respondents—88.2%—felt that the Internet offered greater access to information in the health sciences, 77.2% said it improved their professional contacts, and 57.5% said it allowed them to use different channels of communication for patient care and research.

Iranian Medical Sciences University (MUI) was the subject of a case study conducted by Asemi in 2005. The study's findings showed that every responder frequently used the web because every faculty had access to the Internet. The university's researchers were found to be using the Internet to get access to reliable medical knowledge and patient treatment. Furthermore, the university library gave students, faculty, and staff access to databases and online publications, 55% of respondents said they looked for scientific health information online.

At the University College Hospital (UCH) in Ibadan, Nigeria, Ajuwon (2006) conducted a research on the usage of the Internet by doctors for patient care. Ninety-eight percent of the respondents have used the Internet, according to the results. Cyber cafes were used by the majority (76%) to access the Internet. Ninety percent of respondents said they had used the Internet to research information for patient care; of these, 76.2% had looked up information in a database.

Olowu and Adedokun (2023), cited Nemati Anaraki and Babalhavaeji (2013), in their study of three universities in Iran, and found that when students are unaware of the e-resources that are available to them, they frequently turn to general search engines to meet their informational needs. While only 16.0% of the respondents claimed to be familiar with the resources that were accessible, the respondents acknowledged that this was their biggest issue. Ahmed (2013) discovered through a survey carried out in two specialized public institutions in Bangladesh that respondents were utilizing free electronic resources more frequently than resources that the university had paid for due to ignorance.

Ahmed et al. (2017) carried out a study on the knowledge and use of electronic information resources by medical students at Al-Jouf University

in Saudi Arabia. The study's findings showed that Clinical Key 104 (67.5%), AccessMedicine - Internal medicine 101 (65.6%), Science Direct (40.2%), McGraw-Hill (29.2%), and PubMed (34%) were used on average by medical students. The outcome was not what was anticipated because Clinical Key is the most popular database while AccessMedicine is the most well-known e-resource. This is most likely because both of these e-resources offer e-books, but Clinical Key is more extensive and also permits downloads, whilst AccessMedicine is less so and just permits online reading. The study found that Clinical Key 50 (32.4%), AccessMedicine 33 (21.4%), Science Direct 21 (13.6%), and Ovid 16 (10.4%) were the most frequently used electronic resources by medical and dentistry students. The remainder of responders fell under 10%. This result is in line with the e-resources they used and were aware of, particularly for the top two in the ranking. Students in medical colleges appeared to prefer using e-resources like Clinical Key and AccessMedicine over those in dental colleges.

Maraiki et al. (2018) acknowledged the significance of these e-resources for their day-to-day professional practice. Micromedex, Lexicomp, and UpToDate were the three primary pre-paid e-resources. Lexicomp had a 93% awareness rate, UpToDate a 70% awareness rate, and Micromedex a 57% awareness rate for pre-paid e-resources. 90% of participants had access to Lexicomp, 66% had UpToDate, and 50% had Micromedex, which was practically identical to the awareness level. Lexicomp, UpToDate, and Micromedex were the three most frequently used pre-paid e-resources, with usage rates of 60, 31, and 16% of participants, respectively. Comparing institutional e-resources to pre-paid e-resources, institutional specific e-resources had lower overall awareness, access, and frequency of use. Fewer than 50% of the survey participants could access, were aware of, or frequently used institution-specific online resources.

Methods

This study is limited to lecturers in the health sciences (medical researchers) and post-graduate students of the Lagos State University College of Medicine(LASUCOM), Ikeja. The questionnaire was constructed and administered by the researchers. The descriptive survey design was used for this study because it analyzes a sample of a population to produce a qualitative description of that population (Creswell, 2014).

Keeping in view the above objectives in mind, a structured questionnaire was designed to collect data from the medical researchers in four (4) faculties in LASUCOM. The population of faculty and post-graduate students from the four (4) faculties is 400. From the population of 400 medical researchers, a sample size of 200 representing 50% of the population was used. This is in agreement with Nwana (2001) who posited that if a population is in the few hundreds, 50% of the population could be determined as a sample size from a given population. Statistical Product and Service Solutions (SPSS) version 21.0 was used for the analysis. Descriptive statistics such as frequency counts, percentages, charts etc. were used in reporting the data.

Results

Table 1: Demographic information

Demographic Information		Freq	%
Gender	Male	117	58.5
	Female	83	41.5
Departments	Surgery	81	40.5
	Peadiatrics	10	5.0
	O&G	29	14.5
	Medicine	12	6.0
	CH&PH	21	10.5
	Medical Biochemistry	10	5.0
	Physiology	13	6.5
	Dentistry	9	4.5
	Pharmacology	15	7.5
Academic Status	Postgraduate	102	51.0
	Research Scholar	98	49.0

Table 1 above shows the demographic information of respondents. The table reveals that (58.5%) of the postgraduate students were males and 83 (41.5%) females while for medical researchers, there were more males than their female

counterparts. The study reveals the number of participants from the various departments in LASUCOM; surgery 81 (40.5%) O & G 29 (14.5%), CHS/PHS 21(10.5%), Pharmacology 15(7.5%), Physiology 13 (6.5%) and Medicine 12 (6.0%), The table shows that 102 (51.0%) of the respondents are Postgraduates and 98 (49.0%) are research scholar.
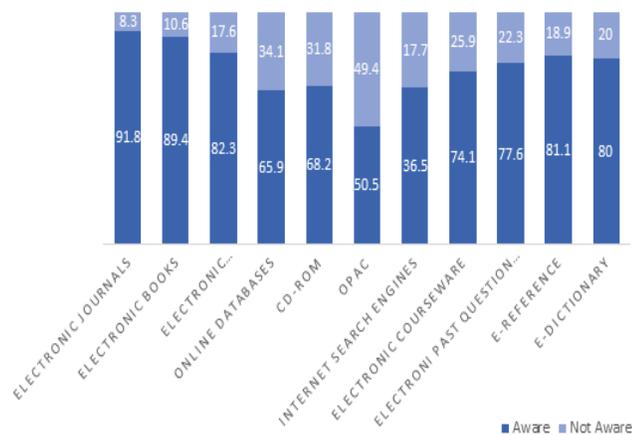
Knowledge about electronic resources

Figure 1: Respondents' level of knowledge about electronic resources

Figure 1 shows the knowledge of electronic resources by respondents. The study revealed that medical researchers are aware of Electronic journals (91.8%), Electronics books (89.4%), Theses/ dissertation (82.3%), E-reference (81.1%) and E-dictionary (80.0%).

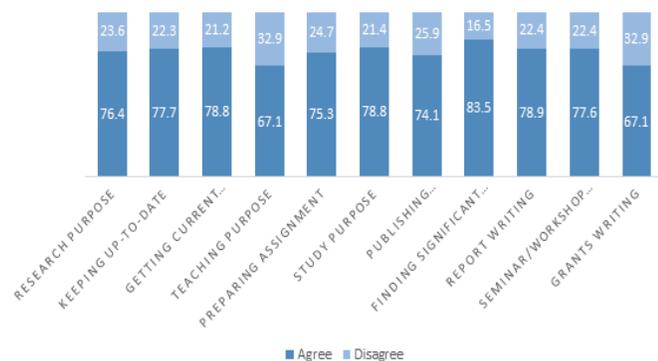## **Purpose of using electronic resources by respondents**

Figure 2: purpose of using E-resources

Figure 2 shows the purpose of using electronic resources. 83% of the respondents agreed that electronic resources were used for the purpose of finding significant information in the area of specialization, (78.9%) for report writing, (78.8%) for getting current information and study purpose respectively, while teaching purpose and grant writing were (67.1%) respectively.

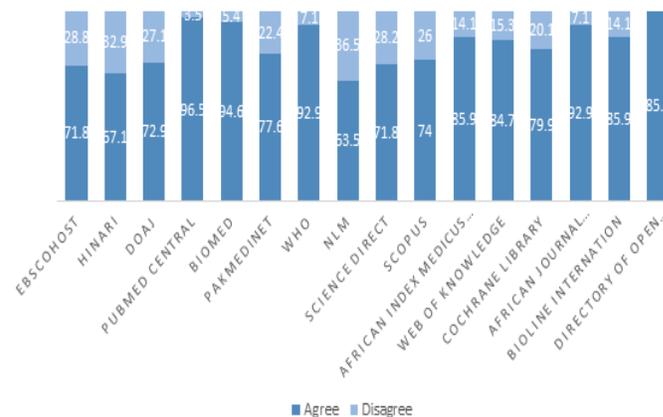## *The preferred database used by respondents*

Figure 3: The preferred database used by respondent

Figure 3 above shows the preferred database used. It reveals that the PubMed/MEDLINE database (96.5%) is the most preferred database by medical researchers in accessing current medical information. WHO, PubMed Central and African Journals Online (AJOL) databases had (92.9%) respectively in preference ranking. National Library of Medicine (NLM) (63.5%) has the least rate of preference.

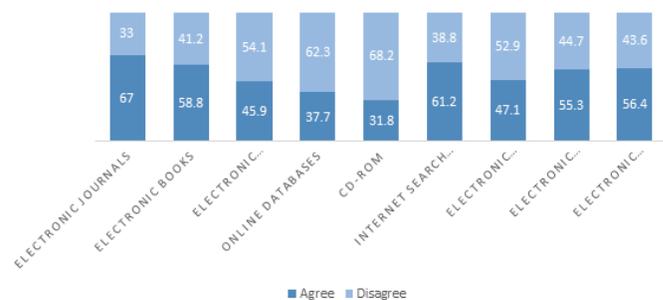## **Level of satisfaction of respondents on use of electronic resources.**

Figure 4: Level of satisfaction of respondents on use of electronic resources

The level of satisfaction of respondents on usage of electronic resources is shown in Figure 4. It reveals that Electronic Journal (67%) ranked the highest in usage, followed in succession by Electronic books (58.8%) while CD-ROM (31.8%) appears to be least satisfied in usage.
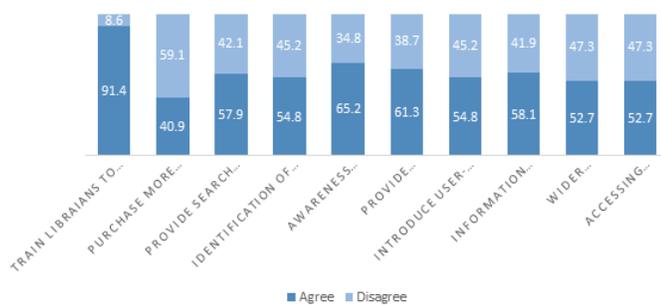
Suggestions on areas of improvement in the delivery of electronic resource services
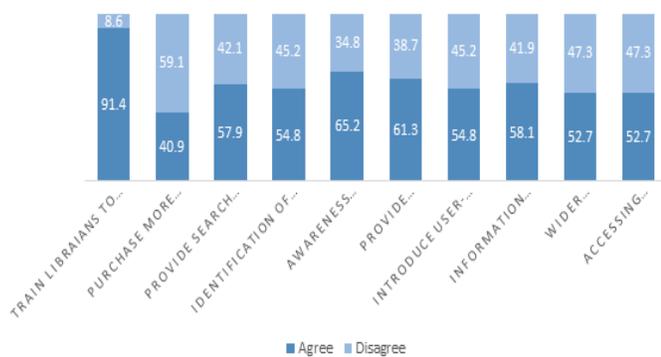

Figure 5: Suggestions on areas of improvement in the delivery of electronic resource services

Figure 5 shows the areas of improvement in electronic resources services. Majority (91.4%) of respondents agree that librarians should be trained to work with researchers, (65.2%) agree that more awareness campaigns about the subscribed database should be made while (40.9%) agree that

more network computers should be purchased and made available to users.

Discussion of findings

The findings on knowledge about using e-resources reveals that medical researchers have the knowledge about E-journal, E-books, E-reference, E-dictionary, Theses/ dissertation, Electronic past question paper, Electronic courseware, Online databases. Electronic journals were ranked higher with 91.8%. These findings agreed with Ajuwon (2015), who pointed out that the number of medical information published on the internet in the last two decades has been on the rise daily. She went on to say that to keep up with the accelerating speed of medical research, databases like MEDLINE/PubMed, Scopus, Web of Knowledge, EMBASE, and African Index Medicus upload recent, dependable, high-quality, and current medical information.

Additionally, the findings also correlate favorably with those of a number of researchers, like Singh (2019), Sivakami and Rajendran (2019), and Ankamah, et al., (2022), who find that most respondents are aware of the electronic resources the library has to offer. Based on the respondents' usage patterns, PubMed and ScienceDirect are ranked as the top databases. The bulk of users are postgraduate students and researchers. This led to additional research and academic work being done because a significant portion of the respondents added online resources to their lecture notes. Consequently, it can be claimed that researchers regularly use electronic resources to support their academic work.

The results also differ from those of Kwafoa et al., (2014), who asserted that research scholars did not regularly use the library's electronic resources because they were unaware of them. Marketing library services is essential for increasing usage and increasing user awareness of the contents offered online.

The findings on the purposes of using electronic resources reveal that finding information for

research purposes, getting current information, study purpose, keeping up-to-date subject information, report writing, seminar/workshop presentation, publishing. The results support Konappa's findings from 2014, which suggest that most respondents use e-resources to prepare study notes, conduct ongoing research, complete projects and dissertations, attend seminars, write articles for publications, and plan curricula. The findings of Maitato (2020) further confirmed the finding that respondents use electronic resources for keeping up with subject-related information, research purposes, and seminars.

The findings reveal that preferred database used were PubMed Central, African Journals Online (AJOL), Science direct, WHO, Biomed Central, Directory of Open Access Journal, Bioline International, African Index Medicus, Web of knowledge, The Cochrane Library, Hinari, Scopus, Pak Medinet, EBSCOHost, DOAJ and MEDLINE/PubMed were the major preferred database used by postgraduate and medical researchers. MEDLINE/PubMed was ranked higher 96.3%. MEDLINE is the most frequent among other e-resource, according to Kathel (2017), proving that it is a useful tool for answering clinical queries and for affecting patient care. We found that the top ten most often used e-resource combinations all included MEDLINE. As more resources were employed to respond to the clinical inquiry, MEDLINE was more likely to be among the top 10 most frequently used resource combinations. This is due to the fact that everyone with internet connection can use the MEDLINE/PubMed database without paying a monthly or annual subscription, in contrast to other databases.

Also, the level of satisfaction reveals that Electronic books, Internet search engines, Electronic dictionary, Electronic reference service, Electronic thesis/dissertation, Electronic past examination question, Electronic courseware, Online databases, CD-ROM, OPAC really satisfied the postgraduate and medical researchers. In contrast to the findings, Kumar (2016) finds that respondents are generally not very satisfied with e-resources.

However, on the areas of improvement, it was revealed that more network computers be purchased, comprehensive indexing, Search engines that index sources be provided, identification of free articles, accessing subscribed databases, wider institutional repository, awareness campaign on subscribed data, information literacy training, introduction of payment of e-resources fee by users and provision of information on new library resources were the major area of improvement by the postgraduate and medical researchers. Trained to work with researchers was ranked higher 91.4%. According to Konappa (2014), library staff members need to receive appropriate training in order to instruct patrons on how to use the different electronic resources.

Conclusion

The amount of knowledge possessed by medical researchers(postgraduate and research scholar) in the college of medicine is important for teaching, learning and research. To access a wide number of information resources, medical libraries are currently adopting information technology in the provision of services. The Lagos State University College of Medicine is primarily responsible for providing the most recent biomedical resources to support medical researchers.

Out of many electronic resources available, medical researchers are only aware of a few (electronic journals, electronic books, these/dissertations, e-reference, and e-dictionary) that can be utilized to locate specific information in their specialty. PubMed/MEDLINE and AJOL were preferred by medical researchers because they are easily accessible sources of up-to-date medical knowledge. There is a need for the medical library to spread the word more widely about new databases or the availability of new electronic resources for medical researcher.

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