

Full Length Research

Online Journals and Databases Usage Patterns amongst Medical Doctors in Jos University Teaching Hospital (JUTH), Nigeria

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The research was undertaken to investigate the Online Journals and Databases Usage Patterns Amongst Medical Doctors in Jos University Teaching Hospital (JUTH). The entire population of 360 Medical Doctors in JUTH was adopted for the research. Descriptive survey was the research method used for the study. The instrument used for data collection was questionnaire. Descriptive statistics such as frequency counts and percentages were used to analyze the data. The findings revealed among others that most of the Doctors admitted using the free online journals and databases in JUTH; and preferred HINARI database as their most used and useful online journals and databases; they used the online journals and databases mostly for research and patients care; the doctors preferred print-out with PDF format articles from the online journals and databases; Nevertheless, many of the doctors were averagely satisfied; and claimed that frequent electricity power failure; and slow internet connectivity were their major constraints to the effective use of the online journals and databases in JUTH. It was therefore, recommended among others that the JUTH Management in association with the University Library should continue to organize workshops and seminars for the Doctors to showcase the resources in the free online journals and databases. The JUTH Management should also acquire generators to check the frequent electricity power failure.

Keywords: Online Journals, Databases, Usage, Medical Doctors, J.U.T.H

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INTRODUCTION

The internet is defined as a network of networks of millions of computers in the world, communicating and sharing information with each other, using the Transmission Control Protocol/Internet Protocol (TCP/IP).

It is an information superhighway that provides unlimited access to a wealth of information on different topics contributed by people throughout the world (Ibanye, 2012, and Scholastic, 2003). In spite of the plethora of

resources on the Internet, only an Internet literate individual can use the resources for enriching teaching, learning, and research.

The Internet has broken down barriers of communication access from anywhere in the world. It is fast, reliable and does not have restrictions on content or format; it also has a limitless range of facilities, which assist users to access almost infinite information on the net. It offers the opportunity for access to up-to-date research reports and knowledge globally. It has thus become an important component of electronic services in academic institutions. Hence, the Internet has become an invaluable tool for learning, teaching and research.

The web resources and the use of web as a tool is changing the way users live and learn. In the early phase, the World Wide Web was mainly used for push type applications to provide information and resources to users. The recent development of Web 2.0 and the spread of open sources and shared use concepts have focused on user-generated content and applications for sharing. This led to additional development and popularity of web resources.

Remote access to online journals has been a major boon to academic and research libraries. Online journals are considered a central feature of any library's collection and have become indispensable for research in any field. The quantity of online journals is growing larger and has become a quite visible component of serial publication.

Numerous academic institutions are currently building substantial collections of full-text journals and continue to increase access to various online databases. Many online journals and databases are available through open access. However, for those that are not available via open access, subscription to online journals and databases through the consortium(s) are much more economical for the libraries than individual purchase.

It is on this note that JUTH management built computer laboratories with free Internet services for both staff and students in all the Departments in the University Teaching Hospital. Nevertheless, the JUTH management has been organizing series of sensitizations, workshops and seminars for its staff on its subscribed online journals and databases which it acquired for teaching and research activities.

Nevertheless, medical library had conducted sensitization seminars for the doctors on the free available online journals and databases resources in the internet and how to use these resources for teaching, research and learning. However, the medical librarian was surprised to hear some of the doctors in the faculty board meetings complaining of lack of resources for their academic activities. This motivated the researcher to examine the awareness and usage patterns of the free online journals and databases amongst the medical doctors in Jos university teaching hospital (JUTH), Nigeria.

Brief History of Jos University Teaching Hospital (JUTH)

The Jos University Teaching hospital was established by an act of parliament in 1981 by the then Shehu Shagari administration. The General Hospital was established by the colonial administration in 1929 as a native hospital to serve the general public, unlike its then counterpart the European Hospital (Plateau Specialist Hospital) which served the colonial masters and later a few Nigerians of the high echelon in the civil service as well. In 1976 the general hospital was renamed Murtala Muhammed General Hospital in Honor of the then head of state.

The Jos University Teaching Hospital has had a checkered history as it evolved to its present status of a Teaching Hospital. It all started in 1978 when the University of Jos established its faculty of medical sciences at the premises of the general hospital. Subsequently, the general hospital was converted to a specialist hospital for the training of medical students of the university, following an agreement to that effect, between the university authorities and the Plateau state government. The 1981 act of parliament gave legal backing and recognition to the institution as a teaching hospital and empowered it to act as such.

Mission and Vision Statement

The focus of the hospital is to pursue excellence in the provision of tertiary health services and training using appropriate technology and research, supported by a disciplined and dedicated staff in a conducive environment for patient care to enhance the health status of our community by:

- Providing tertiary health services to the public.
- Providing training facilities for the medical students of the University of Jos and other medical personnel.
- Carrying out research projects so as to expand the frontier of medical knowledge.
- Promoting primary health care.
- Training specialists on the different fields of medicine through the residency training program.

University of Jos Library

The university of Jos medical library is situated very close (2.0KM) to the Jos University Teaching Hospital (J.U.T.H.). Naturally, the medical library becomes the doctors most used library.

The University of Jos library was established in February 1972 and is presently divided into three broad

units: Administration and Systems unit, Subject Libraries and Support Service.

Like other traditional libraries, the University of Jos library has a physical structure which houses 169, 404 volumes of books, 25, 824 bound journals and 20,263 materials in the document section. The library also has a seating capacity of about 1, 869 for its users.

With the emergence of Information and Communication Technology (ICT), the library through the Administration and Systems unit has put in place 2 computer laboratories with about 80 computers and free internet service. In 2002, the Wider Net Project Team from the University of Iowa (USA) established the e- granary digital library in the University of Jos. Later an Institutional Repository was established, then in November 2010 the library successfully launched its Online Public Access Catalogue (OPAC).

Presently, the library has digitized its list of serial collection and is in the process of digitizing the records in the Circulation unit. The theses and dissertations in the documents section are also being digitized into the Database of African Theses and Dissertations (DATAD).

Finally, the library subscribes for some important databases such as HINARI, JSTOR, AGORA and OARE which are accessible through user name and pass word that could be obtained from the various subject librarians.

All the e-resources contained in the digital library are usually updated regularly and the library intends to acquire more as time goes on.

LITERATURE REVIEW

A large number of studies of users of online journals have appeared in the last few years (Roger, 2001). Tenopir (2002), in a major survey of the literature on the subject, analyzed the results of over 200 studies of the use of electronic resources in libraries published between 1995 and 2003. Results drawn from this literature survey indicate that electronic resources have been rapidly adopted in academic spheres, though the behaviors related to this adoption vary according to the discipline. This finding corroborates the work of Dilek-Kayaoglu (2008). In a significant study, Jamali and Huntington (2005) presented the conclusions of several studies that used log analysis to study the use and users of electronic journals. These papers focused on the formats preferred by the end users, and documented that the users preferred PDF rather than HTML format. This study also noted the growing preference for searching (as opposed to browsing) as the main means of accessing information. This observation corroborates the findings of Roger, S.A. (2001) and De Groote and Dorsch, (2003). Bar-Ilan and Fink (2005), in a study particularly important to this paper, presented the following findings:

The results of these studies will enable the inference of many interesting features. The major finding is as follows:

- The usage of electronic journals increases with time.
- Increased age and/or academic position are inversely related to the use of electronic format and journals.
- The increased use of the electronic format corresponds with a decrease in the use of printed journals.
- Users access the electronic format more frequently over time.
- The use of an electronic journal is not necessarily an indication of the preference of users, but may also occur because the traditional print format is no longer easily available.

Tyagi (2012) in his article titled "Awareness and use of Online Journals and Databases: A Study of P.K. Kelkar Library at the Indian Institute of Technology Kanpur" draw the following conclusions:

1. There are growing interest in the online journals and databases among the users at IITK P.K. Library.
2. Awareness among the users about the availability of online journals was found satisfactory;
3. Online journals were mostly used for research needs and PDF was the most preferred format

These findings supported the works of earlier researchers like: Tenopir, et al (2004); Moghaddam and Talawara, (2007); and Rusch-Feja and Siebeky(1999)

According to this review, the benefits of electronic journals most often mentioned are accessibility factors such as desktop access, home access, ease of retrieval, and hyperlinks to outside content. On the other hand, the most-referenced disadvantages of electronic journals were the lack of back issues and problems associated with reading a text from the computer screen.

OBJECTIVES OF THE STUDY

The main objective of the work was to examine the usage patterns of online journals and the databases by the Medical Doctors in JUTH. The specific objectives of the study include:

1. To determine the level of awareness of free Online journals and databases in JUTH by the doctors; and preferred mode of information;
2. To examine the doctor's use of the free online journals and data bases; and preference to access point;

3. To determine the doctor's most used and useful online journals and databases;
4. To determine the doctors purpose of using online journals and databases.
5. To determine the doctor's online journals and databases usage patterns;
6. To assess the doctors preferred formats of the online journals and databases;
7. To examine the doctors linking patterns to the online journals and databases;
8. To assess the number of articles the doctors read in a week;
9. To find out the satisfaction level of the doctors with the online journals and databases;
10. To examine the constraints that affects the effective use of the Online Journals and databases by the doctors.

METHODOLOGY

Research Design

Survey Research Design was adopted for this study. According to Busher and Harter (1980) survey research design enables specific issues to be investigated through information gathering on people's opinions and believes over a wide population. This technique is relevant to this study because it involved sampling of opinions of users (Medical Doctors in JUTH) on Online Journals and Databases Usage Patterns.

Population of Study

The targeted population for this study comprises all the 360 Medical Doctors in JUTH. Since, this population (360) is manageable; **there was no need for sampling**. The Medical Doctors that were used in the research were spread over fourteen departments - see table 1.

Research Instrument

The instrument used for data collection was questionnaire. A 49 items structured questionnaire was designed. The questionnaire was divided into 2 sections. Section 'A' sought for information on personal (Demographic) data of the respondents. Section "B" sought for information on the awareness of free Online Journals and Databases in JUTH; Preferred mode of information; Use of the free Online Journals and Databases; Preference of access point; Most Used and Useful Online Journals and Databases; Purpose of Using Online Journals and Databases; Usage Patterns of Online Journals and Databases; Preferred Formats of

Online Journals and Databases; Number of Articles Read in a Week; Linking Patterns of Online Journals and Databases; Satisfaction Level; and Constraints to Effective Use of the Online Journals and Databases.

Pretest

A pretest of the study was conducted using ten (10) Medical Doctors from University of Maiduguri Teaching Hospital were used to test the validity of the questionnaire. This enabled the researchers to ascertain whether or not the questions asked would generate the required data. However, the results of the validation of the instrument revealed that all the questions in the questionnaire were able to generate required response. Hence, the instrument was able to measure the variables in the study.

Administration of Questionnaire

Based on the total number (360) of the Medical Doctors in JUTH, 360 copies of the questionnaire were produced and administered to the Doctors in their offices and collected the next day. The completed copies of the questionnaire were analyzed using simple statistics such as frequency counts and percentages, and tables were provided where necessary.

Data Analysis and Discussions

Response Rate: Out of the 360 copies of the questionnaire distributed, 346 were completed correctly, returned and found usable; this figure gave a response rate of 96.11%

Table 2 illustrates the respondent's awareness of the free online journals and databases in Jos University Teaching Hospital (JUTH). This revealed that majority 321 (92.77%) of the respondents are aware of the online services. Nevertheless, few 25 (7.23%) of the respondents claimed ignorant of the free online services in JUTH.

Table 2b shows the preferred mode of information by the doctors. This revealed that most 201(62.62%) of the doctors preferred online journals and databases. However, 120(37.38%) of the doctors preferred information on print/book format. This result has shown that the doctors preferred online articles than the print formats.

Tables 3 examined the Doctor's use of the free online journals and databases. This revealed that all the Doctors admitted using the free online journals and databases in JUTH. This observation is encouraging and not surprising, considering the series of workshops and seminars organized by the Management of the Teaching Hospital to encourage e-learning (electronic learning) in JUTH.

Table 1: Distribution of Medical Doctors into their various Departments

	DEPARTMENTS	NUMBER OF DOCTORS
1	Medical Microbiology	10
2	Family Medicine	46
3	Community Health	24
4	Pediatrics	32
5	Radiology	5
6	Surgery	49
7	Psychiatry	17
8	Chemical Pathology	7
9	Histopathology	19
10	Hematology	7
11	Ophthalmology	16
12	Anesthesia	14
13	Obstetrics and Gynecology	75
14	Medicine	39
	TOTAL	360

Source: JUTH 2012 Annual Report

Table 2: Awareness of Free Online Journals and Databases in JUTH
n=346

Awareness	Response	Percentage (%)
Yes	321	92.77
No	25	7.23
TOTAL	346	100.00

Table 2b: Preferred mode of information

n=321

Preference	Response	Percentage (%)
Prints/Book Form	120	37.38
Online Journals and Databases	201	62.62
TOTAL	321	100.00

Table 3: Use of the Free Online Journals and Databases in JUTH

n=321

Use	Response	Percentage (%)
Yes	321	100.00
No	0	0.00
TOTAL	321	100.00

Table 3b illustrates the doctor's preference to access point. Most 243 (75.70%) of them preferred accessing the internet in their office. This was followed by those 52 (16.20%) that indicated home. Nevertheless, 26 (8.10%) admitted using the internet in the library. This observation has shown that the doctors preferred accessing the online journals and databases in their offices.

Table 4 highlights the most used and useful online journals and databases. This revealed that most of the doctor 298 (92.83%) chose HINARI database. This observation is not surprising because HINARI database is broad and contain so many databases and journals. In fact, HINARI database is a mega database and often referred to as the Medical Doctors' BIBLE. Although

Table 3b: Preference of access point
n=321

Preference	Response	Percentage (%)
My Office	243	75.70
Library	26	8.10
Home	52	16.20
TOTAL	321	100.00

Table 4: Most Used and Useful Online Journals and Databases
n=321

Online Journals/Databases	Response	Percentage (%)
HINARI	298	92.83
EBSCO HOST	13	4.05
Oxford Journals Online	5	1.57
Journal Storage Project (JSTOR)	2	0.62
Science Directory	2	0.62
Nature	1	0.31
TOTAL	321	100.00

Table 5: Purpose of Using Online Journals and Databases
n=321

Purpose	Response	Percentage (%)
Research	103	32.09
For Writing Paper	32	9.97
For Course Work	21	6.54
Teaching	15	4.67
Assignment	18	5.61
Emerging Trends	31	9.66
General Knowledge	11	3.42
For Patient's Care	90	28.04
TOTAL	321	100.00

medical faculty would be expected to use HINARI as their primary database, low use of the other databases is a concern. Presumably, some of the databases such as EBSCO HOST, JSTOR, and Oxford Journals Online would be of great benefit to those individuals involved in research. The doctors may not have used the other resources because of a lack of awareness of the databases or a lack of knowledge regarding the scope of the databases. Alternatively, the doctors may not have used the other databases because all their needs were met with HINARI. However, it should be noted that the other online databases appeared to be neglected.

Table 5 shows the Doctor's purpose of Using Online Journals and Databases. This revealed that most 103 (32.09%) of the doctors indicated Research. This was followed by 90 (28.04%) of the doctors that claimed patient care. However, 32 (9.97%) of the doctors

indicated writing papers. This finding is not surprising because most of the doctors are resident doctors and consultants who are mandated to carry out researches and publications for their promotion. Nevertheless, the doctors are also expected to treat patients that come to the hospital. This could also explain why many of the doctors indicated patient care. However, few 11 (3.42%) of the doctors claimed general knowledge.

Table 6 illustrates the doctor's online journals and databases usage patterns. It revealed that the majority 301 (93.77%) of the doctors preferred the print out from the online journals. This was followed by those 16 (4.98%) that indicated download in storage devices. However, 4 (1.25%) of the doctors preferred using the online journals and databases on the computer screen. This finding supports the work of Bar-ilan, J., et al, (2003) and further amplify the preference of print outs from the

**Table 6: Usage Patterns of Online Journals and Databases
n=321**

Pattern	Response	Percentage (%)
On Computer Screen	4	1.25
Down load in Storage Devices	16	4.98
Print Out	301	93.77
TOTAL	321	100.00

**Table 7: Preferred Formats of Online Journals and Databases
n=321**

Formats	Response	Percentage (%)
PDF	304	94.70
HTML	17	5.30
TOTAL	321	100.00

**Table 8: Number of Articles Read in a Week
n=321**

No. of Articles	Response	Percentage (%)
Less than 5	196	61.06
5 – 10	82	25.55
11 – 15	41	12.77
More than 15	2	0.62
TOTAL	321	100.00

internet to any other means of using the internet resources by internet users.

Table 7 highlights the doctors preferred formats of the online journals and databases. This showed that majority 304 (94.70%) of the doctors preferred format was PDF format. However, 17 (5.30%) of the doctors preferred documents with HTML format. This finding could possibly be because of the high quality features (clarity and neat presentation) of PDF documents.

Table 8 reveals the number of articles the doctors read in a week. This showed that majority 196 (61.06%) of the doctors read less than 5 articles per week. This was followed by 82 (25.55%) of the doctors that indicated 5 – 10 articles per week. Nevertheless, 41 (12.77%) of the doctors claimed that they usually read 11 – 15 articles per week. However, only 2 (0.62%) of the doctors admitted reading more than 15 articles per week. This finding is discouraging because most the doctors cannot read more than 5 articles per week. This observation could possibly be because the doctors are more engaged in patient care than in research. Hence, they have just little time to concentrate on research and publication.

Table 9 shows the doctors linking patterns to the online journals and databases. This shows that majority 218 (67.92%) of the doctors indicated Linking through JUTH's

website. Others indicated Linking through search engine 81 (25.23%), through publishers website 15 (4.67%), and through online journals website 7 (2.18%) in that order.

Table 10 reveals the satisfaction level of the doctors with the online journals and databases. This showed that most 158 (49.22%) of the doctors indicated Average. However, 90 (28.04%) of the doctors indicated at least satisfied. Nevertheless, 73 (22.74%) of the doctors were not satisfied with the online journals and databases. This finding showed that the doctors were confused and could not indicate neither satisfied nor not satisfied. Therefore, they chose a middle position i.e. average. This has simply revealed that they rarely use the free online journals and databases. This observation also supports the findings in table 8.

Table 11 shows the constraints that affect the use of the Online Journals and Databases by the doctors. This revealed that majority 206 (64.17%) of the doctors indicated frequent electricity power failure. This was followed by those 61 (19.00%) doctors that claimed that internet connectivity is usually slow. Others indicated problem of formulating search terms 30 (9.35%); lack of time 21 (6.55%); and no personal computer 3 (0.35%) respectively. These responses simply show that so many factors affect the doctor's use of the online journals and

**Table 9: Linking Patterns of Online Journals and Databases
n=321**

Linking	Response	Percentage (%)
Linking through JUTH website	218	67.92
Linking through Search Engines	81	25.23
Linking through Publishers Website	15	4.67
Linking through Online Journals Website	7	2.18
TOTAL	321	100.00

**Table 10: Satisfaction Level
n=321**

Level	Response	Percentage (%)
Highly Satisfied	19	5.92
Satisfied	71	22.12
Average	158	49.22
Not Satisfied	73	22.74
TOTAL	321	100.00

**Table 11: Constraints to Effective Use of the Online Journals and Databases
n=321**

Constraints	Response	Percentage (%)
Frequent Electricity Power Failure	206	64.17
I have No Time	21	6.55
Internet Connectivity is Usually Slow (Bandwidth Problem)	61	19.00
No Personal Computer	3	0.93
Problem of Formulating Search Terms	30	9.35
TOTAL	321	100.00

databases. However, most of the doctors claimed that the frequent electricity power failure was their major constraint. This observation is not surprising because frequent power failure is the major problem facing all sectors in Nigeria. They also complained about the issue of lack of internet connectivity. This is a major problem of internet users in Africa. The internet bandwidth in Africa are very small compare to internet users, hence the internet connectivity in Africa are usually discouragingly slow.

SUMMARY OF THE MAJOR FINDINGS OF THE RESEARCH

1. Majority 321 (92.77%) of the respondents are aware of the free online journals and databases in JUTH; and they 201 (62.62%) preferred online articles;
2. Most of the Doctors admitted using the free

3. online journals and databases in JUTH; and admitted using it mostly in their offices; Most of the doctor 298 (92.83%) chose HINARI database as their most used and useful online journals and databases; and most 243 (75.70%) of the doctors admitted using the online journals and databases in their offices;
4. The doctors used the online journals and databases mostly for research and patients care;
5. The majority 301 (93.77%) of the doctors preferred the print out from the online journals and databases.
6. Majority 304 (94.70%) of the doctors preferred PDF format.
7. Majority 196 (61.06%) of the doctors read less than 5 articles per week.
8. Majority 218 (67.92%) of the doctors admitted Linking into the internet through JUTH's website.

9. On the level of satisfaction, the doctors were confused and could not indicate neither satisfied nor not satisfied. Hence, most of them chose a middle position i.e. average.
10. Majority of the doctors indicated frequent electricity power failure; and slow internet connectivity as their major constraints to the effective use of the online journals and databases in JUTH

CONCLUSION AND RECOMMENDATION

The finding of this research has shown that the era of online information, although in its infancy, has been embraced by medical doctors in Jos University Teaching Hospital.

Most of the doctor 298 (92.83%) chose HINARI database as their most used and useful online journals and databases, mostly for research and patients care; On the level of satisfaction, the doctors were confused and could not indicate neither satisfied nor not satisfied. Hence, most of them chose a middle position i.e. average. This finding is not surprising because HINARI database is a mega database. This means that it contains large information resources. This finding also agrees with the works of Tyagi (2012) and Roger (2001) who on separate occasions reported the popularity of HINARI database amongst medical doctors.

However, majority of the doctors indicated frequent electricity power failure; and slow internet connectivity as their major constraints to the effective use of the online journals and databases in JUTH. This finding corroborates with the work of Nwokedi (2009) who lamented on the effects of low internet bandwidth and constant electricity power failure on the internet use amongst academics in Nigerian Universities. This observation is pathetic when one considers the huge amount of money the management of Jos University Teaching Hospital invested in providing computer laboratories and e-resources – particularly e-databases – for their doctors. Yet, these e-resources are not patronized maximally due to frequent electricity power failure and low internet connectivity.

Many questions are yet to be formulated about the effect online collections will have on libraries. However, some of the questions that remain to be answered sound very familiar. How do librarians best organize resources to meet users' information needs? How do libraries integrate new formats with existing formats? How do librarians obtain a meaningful measure of what resources are used, by whom, and how much? How do librarians educate users about resources? How do librarians ascertain if collections are meeting the information needs of diverse clientele?

Supporting online collections involves functions across

the library: collection development, information services, access services, and technical services. The success of online journals and databases will depend on how well these various functions come together to produce a system of immediate and seamless access to online information.

The findings in this study confirm that a large percentage of users in an academic health sciences environment prefer online resources to print. The doctors access the resources remotely rather than in the library. The preference for electronic resources to the print is not surprising because of the currency of electronic resources. This view was supported by the works of Ibiyanke (2012) and Scholastic (2003), who on separate occasions pointed out that electronic resources are more current and could be accessed at the same time by many users – ie it allows multiple users at a time. Changing the use patterns of the doctors will require librarians to examine collection development policies, instructional programs, and reference services to meet information needs in the online environment.

RECOMMENDATION

Based on the findings of the study, the following recommendations are put forward to improve the use of electronic information sources among the medical doctors in JUTH.

1. The emergence of different formats of electronic information resources necessitates the need for help, support, and explanation at appropriate times for the users. Therefore JUTH Management in association with the University Library should continue to organize workshops and seminars for the Doctors to showcase the resources in the free online journals and databases. In addition, the doctors should be provided with manuals and handbooks on the use of electronic information resources. This could be done annually. Since, over 90% of the doctors used only HINARI database, during the sensitization, the importance of the resources in the other databases like: EBSCO HOST, JSTOR, Oxford Journals Online etc. should be highlighted.
2. The JUTH Management should also acquire generators to power the ICT infrastructures that support the online services in case of power failure.

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