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Usage of electronic information resources (EIRs) for improved nursing research and health-care delivery in Nigeria

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Introduction

Any organization depends on information, and in the twenty-first century, information has undergone a tremendous metamorphosis. Information on health is important for medical practice everywhere in the world. According to Nwfor-Orizu and Nwachukwu (2012), this information is comparable to knowledge, facts, and news gathered from diverse sources and required for human health on both a physical and mental level. Research is the primary source from which health information can be produced and distributed. Regardless of the type of health information, it is disseminated through informational sources such journals, books, encyclopedias, conference proceedings, and most recently, the Internet.

Many people today think that the most recent way to find the information they need is through the use of electronic information sources. Every medical professional needs health information to provide patients with healthcare services. To perform their tasks, medical workers require access to current, pertinent, and trustworthy information. Healthcare delivery is the process through which health professionals offer healthcare services to a person or a group of individuals in order to enhance their health. As a result, the nation benefits from the work of health professionals. Because information is a tool for the medical profession, medical personnel need a variety of information sources to access pertinent information resources to fulfill their information demands and carry out their clinical responsibilities. As a result, nurses play a crucial part in the delivery of healthcare, helping to promote healthcare services within the communities they work in and supporting doctors as they go about their everyday duties. As a result, in order for nurses to carry out their tasks effectively, they need to have access to current, pertinent, and readily available health information, particularly online sources. However, According to Oduwole and Idowu (2012) and Aina (2014), the information explosion has made it challenging for many professional groups, including nurses, to access and make use of the massive amounts of information embedded in the electronic world. The majority of nurses lack the computer and information literacy abilities necessary to do web searches, making it impossible for them to locate the data necessary for providing treatment. Momoh, Oni, and Oshinebo (2015) discovered that most nurses still struggle to obtain current and pertinent information resources online to aid them in managing their patients, which lends weight to this assertion. It is in view of the above, this research sought to investigate the usage of electronic information resources (EIRs) for improved nursing research and health-care delivery in Nigeria.

Objectives of the Study

The general objective of the study is to examine the usage of electronic information resources (EIRs) for improved nursing research and health-care delivery in Nigeria. The specific objectives were:

1. To identify the sources of e-resources for research in nursing used by nurses in Grimmard School of Nursing;
2. To identify the type of e-resources used for nursing research by nurses for healthcare delivery under study;
3. To investigate the level of information literacy skill of nurses on the utilization of E-resources for healthcare delivery;
4. To examine the influence of e-resources for nursing research on enhancing healthcare delivery under study;
5. To identify the challenges hindering effective utilization of electronic information resources by nurses.

Literature Review

Electronic information resources are very important to the university setting and most especially in the academic libraries. In the words of Madondo (2017), electronic resources refer to the materials that require computer access whether through a personal computer mainframe or smart technologies, students are increasingly expected to use electronic resources while at the university. Some of the resources include e-books and journals among others. Electronic library resources are computer readable file that occupies lesser space compared to the traditional library resources. Aina (2003) opines that access and usage of e-resources can only be from computer and/or a closely related device. Microcomputers, mainframe, mobile phones and many others are means through which individual or group could use and or access electronic resources via a local or remote area network (Tenopir, 2003). Electronic resources consist of data (information represented by numbers, text, graphics, images, maps, moving images, music, sound, and many others) programs (instructions that process data for use) or a combination of data and programs. The material is available in monograph, serial, e-book and sometimes on a website. The rate at which information and information materials are being stored and distributed electronically is on the increase per day. Resources such as books, journals, indexes, dictionaries, encyclopedias and recreational materials are available for use in electronic form in present electronic age. Electronic materials are acquired via purchase, subscription or freely from their source. Publishers of various e-resources adhere to some standard features, though; some electronic resources have features unique to their usage.

According to Ankral et al (2017), e-resources satisfy the unique needs of students, faculty and research scholars faster and at much low cost than borrowing or purchasing low cost because they are readily available online and the delivery of the resources virtually to desktop. Electronic resources have the potential power to increase students learning opportunities because of the interactive and multimedia components provided by the electronic media which offers multiple learning experience more than the print documents. Students can easily access, experience and learn diverse content without facing much difficulty in accessing and understanding. A physical

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library must spend large sums of money paying for staff, book maintenance, rent, and additional books. Electronic library may reduce or, in some instances, do away with these fees (Aguolu and Aguolu, 2012). Ukoh (2015) explained that both types of library require cataloguing input to allow users locate and retrieve material.

Okebukola (2002) argued that electronic information resources would improve the quality of teaching and research through the provision of current e-books, journals, and other library resources. It will also enhance scholarship, research and lifelong learning through the establishment of access to shared global virtual archival collections. Isaac, Philip and Mamo (2018) explained that the importance of an electronic information resources in this modern era also known as the information age cannot be over emphasized. Interestingly, according to Olashola (2019) the rapid development of the internet in the 1990s and its embrace by the library and information community enabled the concept of the electronic libraries, whose function can be defined as the collection, storage and processing of vast information and knowledge into a systemic project through digitalization and the internet, while providing convenient and highly efficient retrieval and inquiry services.

Daniel in Akpoghome and Jerome (2010) asserted that the role and importance of an electronic library is essentially to collect, manage, preserve and make accessible digital objects. The following are some of the function of digital library: to provide friendly interface to users, to avail network facilities, to support library functions, to enhance advanced search, access and retrieval of information, to improve the library operations, to enable one to perform searches that is not practical manually, to protect owners of information, to preserve unique collection through digitization. Also, Chore and Salwe (2010) also gave the advantages of electronic library as: preserve the valuable documents, rare and special collections of libraries, archives and museums; protected information source; facility for the downloading and printing; provide faster access to the holding of libraries worldwide through automated better catalogues; help to locate both physical and digitized versions of scholarly articles and books through single interface; search optimization, simultaneous searches of the Internet make possible, preparing commercial databases and library collections; the user can peruse them instant; cross references to other documents; making short the chain from author to user; save preparation/ conservation cost, space and money; digital technology affords multiple, simultaneous user from a single original which are not possible for materials stored in any other forms; and full text search.

According to a study by Arvind and Maheswarappa (2014), 97% of nurses mostly used community health centers for information, followed by 95% of doctors and 81% of libraries and neighbors. However, 93% of nurses consulted written materials like posters, periodicals, and newspapers for health-related information, and 40% turned to their neighbors. 55% of respondents used family members, while 45% used friends and family. The aforementioned findings demonstrate that nurses do not use electronic outlets to obtain information for the

provision of healthcare services, as none of the literature evaluated mentions any nurses who use e-resources as their primary information sources.

Nurses today have access to a wide variety of new electronic information sources because to the rise in the number of publications in the nursing field and the development of the internet. The accessibility of the internet has given the most recent and trustworthy information sources opportunity. In light of this, Anyanwu and Oparaku (2016) discovered that 28% of nurses used the internet as their information source, followed by 22% who used journals, while 21% used books. Additionally, 32.1% of nurses used other health professionals, such as doctors and nursing colleagues, 29.3% of them, and 28.6% used health/medical libraries, while only 11.4% used electronic databases.

The bulk of research showed that nurses primarily consulted their professional peers for information, indicating that very few nurses used the internet or electronic databases.

Nevertheless, according to Dee and Stanley (2005), cited in Adamu and Olaide (2013), just 8% of nursing students accessed internet databases more than six (6) times each week, 84% of them did so once to five times per week, and 8% reported using them less frequently than once per week. Conversely, only 4% of clinical nurses conducted searches in databases more than six (6) times per week, 32% conducted searches between one and five times per week, and 64% did not conduct any searches at all.

The utilization statistics amply demonstrated the various database access and prior training for each group. Additional analyses of characteristics influencing database searching by clinical nurses and nursing students revealed that 76% of clinical nurses reported having enough time, compared to 28% of nursing students, as a deterrent.

According to Yusuf (2012), the advancement of contemporary societies and of individuals depends on the availability of the appropriate knowledge at the appropriate moment and from the appropriate source. Accordingly, Davies (2011) claimed that using information more effectively results in a greater comprehension of a phenomenon. Similar to this, Kostenik, Morgan, and D'Arcy (2013) pointed out that someone who reads, views, or browses information resources is making the expected use of such materials. In other words, a demand that was made has been met, and utilization has occurred. However, data must be properly gathered, categorized, and easily accessible to users in order to be used efficiently. Accordingly, nurses do not frequently use other types of information sources like medical textbooks, journals, and the internet. This was discovered in a study by Adamu & Oloide (2013), Anyanwu et al. (2016), and Momoh et al. (2015), which also found that most nurses in Nigeria used their professional colleagues and only a small number of printed resources as their primary information sources.

Methodology

The study employed a descriptive survey method. The justification for the adoption of this design is because it provides comprehensive collection of information about the opinion, attitude,

feeling, belief and behaviour of the people through administration of questionnaire, interview and observation to a relative large representative sample of the population. The area of the study is at Grimmard School of Nursing and Midwifery in Anyigba at Dekina Local Government Area of Kogi State which is in the North Central Zone of Nigeria. The population consisted of 120 nursing and midwifery students and 5 healthcare providers at Grimmard School of Nursing and Midwifery, Anyigba totaling 125. These 125 respondents were used to form the population of the study. In determining the sample size of the study, Anaekwe (2016) recommended that when a population is 125, 97 respondents should be sampled. In view of the foregoing, a census enumeration technique was used to adopt the entire population as the sample for the study, this is because the entire population size was relatively small and manageable. The instrument for data collection was a structured questionnaire. The questionnaire was administered personally by the researchers by hand and in face-to-face contact. The exercise lasted for a period of two weeks. The data collected was analysed using descriptive e statistics – mean and standard deviation. Any variable with a mean of 2.50 and above is considered positive, while variables with a mean below 2.50 are considered negative.

Analyses and findings

Demographic variables were analysed using frequency count and percentages while the research questions were analysed using mean and standard deviation. In so doing, a total of 97 questionnaires were distributed to nursing students in Grimmard School of Nursing, Anyigba, Kogi State of Nigeria and 70 copies of the questionnaires were returned representing 72.1%. Therefore, it is justified to apply the returned questionnaires for the analyses of this study, hence the outcome of this study can be justifiably generalised.

Table 1: Demographic Distribution of Respondents

Demographic Variables	Frequency	Percentage (%)
Gender		
Male	14	20
Female	56	80
Age		
21 – 30	49	70
31 – 50	21	30
51 – 70	-	
Level		
Year 1	24	34.2
Year 2	29	41.4
Year 3	17	24.2

Table 1 above shows that 14 (20%) respondents were male, while 56 (80%) respondents were female. This implies that female respondents were more than the fmale ones. Also, data in the table showed that 49 (70%) respondents were between 21 and 30 years, 21 (30%) were between 31 and 50 years and none of the respondents were between 41 and 50 years. This means that majority of respondents were between 51 and 70 years of age. Furthermore, the result revealed

that 24 (34.2%) were in Year 1, 29 (41.4%) were in Year 2 and 17 (24.2%) were in Year 3. This means that majority of respondents were in Year 2.

Table 2: What are the sources of E-resources for research in nursing used by nurses in Grimmard School of Nursing?

S/N	Sources of e-resources	SA	A	D	SD	N	X	Decision
1.	Smart phones	40	20	6	4	70	3.3	Accepted
2.	Data files	20	8	18	24	70	**2.3**	Rejected
3.	Online databases	41	15	8	6	70	3.4	Accepted
4.	Institutional repositories	35	22	7	6	70	3.2	Accepted
5.	Search engines	38	17	8	7	70	3.2	Accepted

Key: SA=Strongly Agree, A=Agree, D=Disagree, SD=Strongly Disagree, N=Sampled Population, X=Mean

Data in table 2 shows the sources of e-resources for research in using by nurses in Grimmard School of Nursing. Data further indicates that, nursing and midwifery students sourced e-resources through online databases (3.4), smart phones (3.3), institutional repositories (3.2) and search engines (3.2). Meanwhile, data files were not sourced by majority of the nursing students.

Table 3: What are the type of E-resources used for nursing research by nurses for healthcare delivery under study?

S/N	Types of e-resources	SA	A	D	SD	N	X	Decision
1.	Medline biomedical and health resources	30	16	I7	7	70	2.9	Accepted
2.	PUBMED and Excerpta Medica Database (EMBASE)	41	15	8	6	70	3.4	Accepted
3.	CIHAHL Plus and COCHRANE library	8	6	34	22	70	2.0	Rejected
4.	HINARI POPLINE and TOXNET	15	0	18	37	70	1.9	Rejected
5.	LILACS and TRIP Pro	27	18	5	20	70	2.7	Accepted
6.	Global Infectious Disease and Epidemiology Network (GIDEON)	38	17	8	7	70	3.2	Accepted
7.	Nursing Reference Centre Plus	41	12	9	8	70	3.2	Accepted

Key: SA=Strongly Agree, A=Agree, D=Disagree, SD=Strongly Disagree, N=Sampled Population, X=Mean

The table 3 above shows the types of e-resources used for research by nurses for healthcare delivery under study. Data shows that pubmed and excerpta medica database (EMBASE), global infectious disease and epidemiology network (GIDEON), nursing reference centre plus, medicine biomedical and health resources and lilalcs and trip pro were available types of e-resources to nurses. However, items 3 and 4 were regarded rejected as they were unavailable to nurses under study. This implies, there is a considerable availability of e-resources to the needs of nurses under study.

Table 4.5: What is the level of information literacy skill of nurses on the utilization of E-resources for healthcare delivery?

S/N	Level of information literacy	VHE	HE	LE	VLE	N	X	Decision
1.	Ability to formulate questions based on my information	31	25	9	5	70	3.1	Accepted
2.	Ability to distinguish potential information resources	38	17	8	7	70	3.2	Accepted
3.	Ability to construct strategies for locating information	41	12	9	8	70	3.2	Accepted
4.	Ability to evaluate information obtained from different sources	40	20	6	4	70	3.3	Accepted
5.	Ability to use information in critical thinking and problem solving.	35	22	7	6	70	3.2	Accepted

Key: VHE: Very High Extent, HE: High Extent, LE: Low Extent, VLE: Very Low Extent, N=Sampled Population, X=Mean

The table 4.5 above shows the level of information literacy skills of nurses on the utilization of e-resources for healthcare delivery. Responses show the mean value ranging from (3.3) to (3.1), all of which agreed on the various levels of information literacy skills of nurses for utilization of e-resources. These skills ranged from ability to evaluate information obtained from different sources, ability to construct strategies for locating information, ability to distinguish potential information resources, ability to use information in critical thinking and problem solving and ability to formulate questions based on information.

Table 4.6: What is the influence of E-resources for nursing research on enhancing healthcare delivery under study?

S/N	Influence of e-resources	SA	A	D	SD	N	X	Decision
1.	Provision of current nursing information to patients on contemporary diseases	36	18	8	8	70	3.1	Accepted
2.	Providing health education in preventing the spread of diseases using empirical findings	35	22	9	4	70	3.3	Accepted
3.	Applying new trends of patients examination based on findings from empirical studies	31	25	9	5	70	3.1	Accepted
4.	Modern ways of admitting and discharging patients with prior notice electronically	38	17	8	7	70	3.2	Accepted
5.	Learning new ways of measuring and monitoring patients' vital signs using EIRs	41	12	9	8	70	3.2	Accepted
6.	Promoting health status of patients through enlightenment campaigns	40	20	6	4	70	3.3	Accepted

Key: SA=Strongly Agree, A=Agree, D=Disagree, SD=Strongly Disagree, N=Sampled Population, X=Mean

The table 4.6 above shows the influence of E-resources for nursing research on enhancing healthcare delivery under study. Responses show the mean value ranging from (3.3) to (3.1), all of which agreed on the influence of E-resources for nursing research on enhancing healthcare delivery. These influence include providing health education in preventing the spread of diseases using empirical findings, promoting health status of patients through enlightenment campaigns, modern ways of admitting and discharging patients with prior notice electronically, learning new ways of measuring and monitoring patients' vital signs using EIRs, provision of current nursing information to patients on contemporary diseases and applying new trends of patients examination based on findings from empirical studies.

Table 4.7: What is the challenges hindering effective utilization of electronic information resources by nurses?

S/N	Items	SA	A	D	SD	N	X	Decision
1.	Inability to seek and obtain information.	22	30	13	5	70	2.9	Accepted
2.	Lack of requisite computer use skills	38	17	8	7	70	3.2	Accepted
3.	Knowledge of availability of resources	41	12	9	8	70	3.2	Accepted
4.	Unstable power supply	40	20	6	4	70	3.3	Accepted
5.	Poor internet connectivity	35	22	7	6	70	3.2	Accepted
6.	Inadequate facilities for using eresources.	41	15	8	6	70	3.4	Accepted
7.	Inability to evaluate information sources.	31	25	9	5	70	3.1	Accepted

Key: SA=Strongly Agree, A=Agree, D=Disagree, SD=Strongly Disagree, N=Sampled Population, X=Mean

The table 4.7 above shows the challenges hindering effective utilization of electronic information resources by nurses. Responses show the mean value ranging from (3.4) to (2.9), all of which agreed on the challenges hindering effective utilization of electronic information resources by nurses. These challenges ranged from Inadequate facilities for using e-resources, unstable power supply, lack of requisite computer use skills, knowledge of availability of resources, poor internet connectivity, inability to evaluate information sources and inability to seek and obtain information.

Discussion of the Findings

Findings regarding the sources of e-resources for research in using by nurses in Grimmard School of Nursing revealed that, nursing and midwifery students sourced e-resources through

online databases, smart phones, institutional repositories and search engines. This is in line with the study of Song and Buba (2017) who reported that professional nurses accessed e-resources majorly through their mobile phones.

The results of the study revealed that pubmed and excerpta medica database (EMBASE), global infectious disease and epidemiology network (GIDEON), nursing reference centre plus, medicine biomedical and health resources and lilalcs and trip pro were available types of e-resources to nurses. The findings indicated in general that, the nurses make use of a few medical e-resources. This could be as a result of conducive environment for using e-resources. The findings of the study disagrees with the findings of Adamu, Buba and Song (2021) that nurses lack awareness of the various types of medical e-resources as this is a result of institutional irresponsibility.

Findings showed that the level of information literacy skills of nurses on the utilization of e-resources for healthcare delivery ranged from ability to evaluate information obtained from different sources, ability to construct strategies for locating information, ability to distinguish potential information resources, ability to use information in critical thinking and problem solving and ability to formulate questions based on information. The implication is that, nurses possess a significant level of information literacy skills. This validates the findings of Adamu, Buba and Song (2021) who admitted that, nurses possessed significant level of information literacy skills for accessing e-resources in nursing research.

Findings revealed the influence of E-resources for nursing research on enhancing healthcare delivery which include providing health education in preventing the spread of diseases using empirical findings, promoting health status of patients through enlightenment campaigns, modern ways of admitting and discharging patients with prior notice electronically, learning new ways of measuring and monitoring patients' vital signs using EIRs, provision of current nursing information to patients on contemporary diseases and applying new trends of patients examination based on findings from empirical studies. This study did not the validate the findings of Adamu and Olaide (2013) who found that only 8% of the nursing students used online databases or any form of electronic information resources for their medical research work.

Findings showed the challenges hindering effective utilization of electronic information resources by nurses ranged from inadequate facilities for using e-resources, unstable power supply, lack of requisite computer use skills, knowledge of availability of resources, poor internet connectivity, inability to evaluate information sources and inability to seek and obtain information. This findings collaborates the findings by Omoike (2013) that among the various factors that militate against effective utilization of medical information resources are poor electricity supply and unstable internet connectivity.

Conclusion and recommendations

This study comes to the conclusion that electronic information resources are essential for nursing research, primarily because they give nurses easier, quicker, and better access to

information than print media, which helps them improve the efficient provision of healthcare services in their hospital. The survey finds that nurses in Kogi state use Google, smart phones, and online databases on various sorts of nursing research from Medline Biomedical and Health resources, Global Infectious Disease and Epidemiology Network (GIDEON), and Nursing Reference Center Plus. The study also comes to the conclusion that nurses are capable of developing questions based on information needs and having the capacity to evaluate information from various sources in order to improve the delivery of health education and stop the spread of infectious diseases using empirical data from electronic resources. This study's findings include inadequate facilities for using e-resources, poor internet connectivity, inconsistent power supplies, a lack of awareness of available resources, and an inability to evaluate information sources. Based on the findings of the study, the following recommendations were made:

1. Government and other stakeholders should assist private and public nursing colleges to provide libraries with adequate and relevant electronic information resources (EIRs) for the usage by student nurses.

2. The management of nursing schools should enhance internet connectivity, infrastructures and access points at strategic locations at the college library.

3. Schools of nursing need to subscribe to relevant databases and make them readily available to the nurses for them to keep abreast of the new and trending issues pertaining healthcare delivery.

However, the limitations of the study lie on the fact that, it focused on only one (1) nursing college in Kogi State of Nigeria and as a result, the findings of the study cannot be generalized. In subsequent research, this study can be replicated in other nursing colleges in Nigeria as more comparative differences or similarities could be produced. Consequently, the study contributes to knowledge in the areas of literature, practice and will be useful for policy makers on the necessary steps for ensuring the available of electronic health resources and usability by nursing students. In addition, the study provides fresh data on the usage of electronic information resources for improved nursing research and health care delivery in Nigeria.

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