

## PURPOSE OF UTILIZATION OF HEALTH INFORMATION RESOURCES BY MEDICAL DOCTORS IN NIGER STATE HOSPITALS

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### Abstract

The paper examined the purpose for which medical doctors utilised health information resources. The study adopted quantitative research methodology and used survey research design to achieve the stated objectives raised. The population for the study comprises 182 medical doctors. A total of 116 doctors were selected using multi stage sampling technique a combination of stratified, simple random and purposive sampling techniques. The instrument used for data collection was questionnaire, while the data collected were analyzed by descriptive statistics using frequency counts, percentages and mean. The findings from the study revealed that majority of the respondents utilized textbooks more than the other sources of health information. Majority of the medical doctors reported that they used these information sources for diagnosis, disease conditions to mention but a few. The study concluded that because of the busy nature of the respondents' jobs, a number of strategies that would assist to increase the use of the preferred health information sources, depending on their individual choice such as setting up mobile libraries would not be a bad idea. Mobile apps that contain the types of information available would also help bring this health information straight to the palm of the doctors. The researchers therefore recommended among others the need to set up libraries and provide adequate information resources to these libraries in order to provide the needed information to the medical doctors; further in service training of medical doctors, and provision of hospital libraries with ICT facilities and current information sources for better services.

**Keywords:** Medical doctors; Hospitals; Health Information; Utilization; Niger State.

### Introduction

The right treatment can thus be given if the medical doctors in Nigeria find and use accurate and quality health information based different available resources of health information in order to achieve the objectives of Federal Government of Nigeria's Policy on quality health for all. Health information for medical practitioners comes from both formal (textbooks, conference proceedings, encyclopedias and research findings) and informal (interactions with colleagues and personal experiences) sources. However, the origins are usually sourced from the library and the Internet. Anjuwon (2015) stated that the Internet is a popular source of health information and has been recognised as a significant means for transforming medical care. Even though the traditional libraries have not featured prominently in the recent literature as a source of health information, the introduction of digital libraries, archives and institutional repositories have made libraries to be at par with the Internet. In fact, library has the additional advantage of incorporating the Internet as one of its resources by providing access to it.

Naik and Kumar (2019) in a study revealed that dental science teachers and students of Baba Farid University of Health Sciences used the Internet for perceiving the health/ dental science information, followed by patient care with 26.5%, 18.3% for research and 12.6% used the Internet for other reasons. It was revealed that the dental science teachers and students of the university of Health Sciences were getting quality health information and patient care through the Internet. Doran *et al.* (2010) evaluated the usability of mobile information terminals to improve access to information resources for nurses in Ontario, Canada. The study revealed that the nurses frequently consulted Google and Nursing PLUS for drug and medical reference information. This may be due to the fact that google and Nursing Plus have the potential of providing quick and accurate information for the drugs and medical reference information.

Mohamed-Arraid (2011) compared the purposes of using health information by rural and urban doctors in Libya. Findings revealed that the purpose for using health information sources in both cases were not entirely different, although a statistical difference (39%-rural, 22.8%-urban) was noticed in the use of online databases to manage patient care. This study would adopt Mohammed's methodology but not comparatively. The respondents (teaching staff of Schools of Nursing) in Idiegbeyan-ose, *et al.*, (2019) study indicated that they used information resources for research, preparation of lesson notes, clinical work and for studying educational advancement. In another study, Haleema, *et al.*, (2017), investigated



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physicians and surgeons of Jammu and Kashmir to find out what the health information they sought were used for. Their study revealed that 83-100% wanted updates on information pertaining to drugs and medical products/equipment. All of the practitioners wanted information on drugs while 73-76% wanted information on new medical products.

Labrique, *et al.*, (2018) focused on the best practices in scaling digital health in low and middle income countries. Their study confirmed that health workers' need up-to-date, simple information in formats that can be useful for program management, policy development and service delivery. D'Adamo *et.al.* (2012) focused on the health information needs of health workers in India, Senegal and Malawi. Their study confirmed that health workers' need up-to-date, simple information in formats that can be useful for program management, policy development and service delivery.

Fogelson, Robin & Ault (2013), Househ (2013) and Cheretien & Kind (2013) all posited that physicians most often join online communities where they can read news articles, listen to experts, research medical developments, consult colleagues regarding patient issues, and network. They further stated that in these online communities, they can share cases and ideas, discuss practice management challenges, make referrals, disseminate their research, market their practices, or engage in health advocacy. Similarly, Bomman, Sornam and Kumar (2014) used descriptive survey to investigate allopathic medical practitioners from five districts in India. Their study revealed that the practitioners used clinical information for etiology, diagnosis, disease description, complication and prognosis, drugs adverse effects, treatment efficacy, follow-up and emergency protocol. Further analysis their information needs by experience, their study revealed that experienced practitioners needed the clinical epidemiology information more. They also found a significant difference in the need of the diagnostic procedures information and the educational qualification of the practitioners. The same significant difference was noted for gender and workplace.

Ventola (2014) research literature review on the use of social media by health care professionals for activities which included professional networking, professional education, patient care, organizational promotion, patient education, public health program etc. the review indicated that the use of social media for professional development was on the increase. The researcher concluded that social media sites and platforms offer the potential to promote individual and public health when used wisely and prudently. Ajuwon (2015) investigated resident doctors in south west Nigeria using descriptive survey design and questionnaire. The study revealed that 98.8% of resident doctors in south west Nigeria used health information resources for preparation of Ground round/seminar presentations, 94.5% used them for examination, 93.1% for research, 90.3% used it for communication and 88.55 used it for patient care. Olajide and Otunla (2015) investigated the use of information resources by nursing students of three schools of nursing in south west Nigeria using descriptive survey. Their findings revealed that 77.8% used the information resources for their assignments while 59.7% used information resources to get information about patients' diagnosis/intervention. Because information resources provide valuable information through convenient electronic sources may which may address some of the barriers that inhibit their access to and use of new researches.

Kostenuik *et al.* (2013) in a study investigated family physician's views on the accessibility, reliability and relevance of these and other commonly used information sources. Medical journals, clinical practice guidelines and Internet website were the most frequently used sources, although medical textbooks, CME/CPD/CPL courses or programs and medical journals were ranked high in terms of reliability. In terms of accessibility, colleagues, medical journals and medical textbooks were ranked highest while most of the respondents found CME, CPD/CPL courses or programs, medical journals and clinical practice guidelines. Naik and Kumar, (2019).study analyses the patterns of use of E-resources in dental sciences colleges and hospitals affiliated to Baba Farid University of Health Sciences, India.

Using a questionnaire, all willing dental sciences teachers and students were investigated. The study revealed that 71.3% were fully satisfied with the Internet and e-resources for their information needs while 22.2% of the respondents felt partially satisfied and only 6.5% were least satisfied. Shabi (2008) investigated 125 family physicians in Nigeria. The study found out that most of the family medicine trainees (58.8%) preferred to seek information from their colleagues. Majority of the family physicians (51.7%) preferred seeking information from Internet medical databases while only 29.8% of the



respondents were satisfied with the library services provided to meet their information needs. Doran *et al.* (2010) study revealed that nurses in Ontario, Canada were satisfied with the resources from Registered Nurses Association of Ontario (RNAO) BPGS and rated it as the easiest resource to use. The study also reported significant improvement overtime in perceived quality of care and job satisfaction. Adeoye and Popoola (2011) reported that teaching staff of schools of nursing in Osun and Oyo states Nigeria used textbooks more than the other information resources sought after from the library. Salinas (2014) investigated US practicing physicians in several specialties. The researcher reported differences between and among demographic subsets of physicians and changes over time compared to a similar study in 2009. From the study, peer-reviewed journal articles and continuing medical education were the most preferred sources of medical information by physicians.

Respondents in Anjuwon (2015) study ranked search engines, health e-resources databases as the most used source of information based on accessibility while conference proceedings were the least used based on occasional inaccessibility. Bradley *et al.* (2015) exploratory study on satisfaction with online clinical information resources revealed that majority of the practitioners were satisfied with up-to-date and Google citing availability as the main reason. Those that used PubMed (is a free search engine accessing primarily the MEDLINE database of references and abstracts on life sciences and biomedical topics) were not satisfied citing difficulties mostly with regard to lack of access to full-text articles and time spent searching. Medical Literature Analysis and Retrieval System Online (MEDLINE) is a bibliographic database of life sciences and biomedical information.

### Statement of Problem

Availability of health information from these sources nevertheless does not indicate use or utilisation. Utilisation of information according to Bitagi (2012) is the extent to which available information resources is consulted to meet the information needs of the users. This implies that it is incumbent on medical practitioners to make maximum use of the available information resources to ease the performance of their respective duties as prescribed and arranged. If this is achieved it is expected that the medical practitioners will provide sufficient and reliable medical services to all the citizens of the state. However, the health information in their different forms and sources need to be found for effective use. Recent studies in information sciences have been concerned with the manner in which information sought is used. Cox and Jantti (2012) maintained that usability studies are concerned with discovering, articulating, understanding, influencing and when appropriate the elimination or at least minimisation of those obstacles between the user and his information goals. Studies by Eison (2010) equally inquired on the use of information, found out differences in the use of information, sources and types exist among professionals.

Medical practitioners all over the world make use of different types of information for patient care which includes but not limited to the following; patient data, population statistics, medical knowledge, logistic information, and social influence. However, most of the clinical information they apply while examining patients are out of date or wrong, thus, some patients have died as a result of wrong diagnosis and treatment (Arulogun, Oluwole and Musbahu, 2011). Hence the need for doctors to seek and keep abreast with current clinical information. (Naeem, Ahmed & Khan, 2013). Many a times, patients are misdiagnosed for the wrong ailments and are treated based on the wrong diagnosis, which on most occasion would lead leads to complications that includes: death, paralysis and susceptibility to other more dangerous diseases. The existence of many sources of health information equally determined the various purposes for which the health information workers use them. The main objective of this study is to examine the purpose by which medical practitioners in Niger state utilize health information resources available to them.

### Objectives of the study

The main objective behind conducting the present study is to investigate the purpose for utilisation of health information by medical doctors in Niger State. The specific objectives of the study are to:-

1. find out the purpose for utilizing health information by medical doctors.
2. determine the level of satisfaction of utilization of health information resources.



## Methodology

Survey method was used for the conduct of this study as it is considered most suitable for this descriptive kind of study. The aim was to investigate the purpose of health information utilisation by medical doctors in Niger State Hospital Management Board Minna. Based on the qualities and nature of survey research design, the researcher considered it appropriate to adopt the research method. The population for this study comprised of 182 medical doctors in Niger State Ministry of Health and Hospital Management Board Minna.

The respondents group of the study comprises medical doctors working in the hospital in Niger State who are responsible for day-to-day medical needs of the citizenry. The questionnaire developed for this study was validated by supervisors and lecturers of the department to ascertain their construct, face and content validity in order to allow for reliability of use. Observations and suggestions were incorporated in to the final draft of the questionnaire. To select the needed sample from the population of the hospitals that were used, all the doctors found during the period of the research were purposively selected for this study. A total of 116 respondents were selected from nine hospitals in the nine (9) selected local government areas of Niger State as shown in the table below:

**Table 1: Sample of the study**

S/No	ZONE	LGA	HOSPITAL	RESPONDENT
1.	Niger East (Zone A)	Bida	G/Hospital Bida	10
		Agai	G/Hospital Agai	3
		Lapai	G/Hospital Lapai	3
	Total			16
2.	Niger West (Zone B)	Minna	G/Hospital Minna	62
		Suleja	G/Hospital Suleja	14
		Kagara	G/Hospital Kagara	6
	Total			82
3.	Niger North (Zone C)	Kontagora	G/Hospital Kontagora	13
		Nasko	G/Hospital Nasko	3
		Wushishi	G/Hospital Wushishi	2
	Total			17
	<b>TOTAL</b>			<b>116</b>

Source: Field Study 2019

The data collected through the questionnaire were analysed using descriptive statistics of frequency counts, percentage and mean scores, to investigate the level of utilization for patient health information by medical practitioners. Data generated, through the questionnaire were tabulated for easy statistical analysis, using statistical package for social sciences (SPSS) 2010 version. Responses from research question one to four were analyzed using mean scores. A total of one hundred and sixteen 116 copies of the questionnaires were administered to the medical doctors of the sampled hospitals. Out of this figure, 86(74.1%) were properly filled, returned and used for the purpose of the analysis, while the thirty 30 (26%) were either not returned or unusable.

**Table 2: Purpose of the utilisation of Health Information Resources**

Respondents' view on the purpose of utilizing health information resources is presented in table.

Types	To be up to date	Patient Care	Education Purpose	To write journal articles	Answer patients/families questions	Answer colleague questions	Mean x
Patient data	30(35%)	56(65%)	-	-	-	-	1.65
Diagnosis	57(66%)	29(34%)	-	-	-	-	1.34
Physical symptoms	85(99%)	1(1%)	-	-	-	-	1.01
disease conditions	40(46%)	46(54%)	-	-	-	-	1.53
Disease Aspects	29(34%)	57(66%)	-	-	-	-	1.66

lab tests & results	29(34%)	12(14%)	1(1%)	-	44(51%)	-	3.22
Treatment	29(34%)	12(14%)	1(1%)	-	44(51%)	-	3.22
Drugs	1(1%)	40(46%)	1(1%)	-	-	44(51%)	4.06
Medical Knowledge	45(52%)	41(48%)	-	-	-	-	4.07
Population statistic	1(1%)	29(34%)	1(1%)	-	-	55(64%)	1.48
Referral Information	45(52%)	41(48%)	-	-	-	-	2.33
New Med. Equip.	1(1%)	29(34%)	1(1%)	-	-	55(64%)	4.28

Results from Table 1 indicated that majority of the medical doctors in Niger State used different types of information resources so as to be up-to-date and also to answer patients. This finding agreed with that of Mohammed-Arraid (2011) stated that medical doctors in Libya used the different health information sources to be more up to date. This indicates that doctors must be up to date with all the activities in their profession which in the opinion of the researcher would assist in the other purposes like patient care, educational purposes to mention but a few. D'Adamo *et.al.* (2012) focused on the health information needs of health workers in India, Senegal and Malawi. Their study confirmed that health workers' need up-to-date, simple information in formats that can be useful for program management, policy development and service delivery. Doctors handle lives of individuals and it is only pertinent for them to be up-to date in their profession to avoid unnecessary casualties. Librarians can leverage on this finding to provide more current ground breaking treatment and diagnosis techniques for their doctors to keep them updated at all times.

**Table 3: Level of Satisfaction with access and utilisation of Health Information Resources by Medical Doctors.**

Respondents' view on the level of satisfaction Health Information resources that was accessed and utilized is presented in table.3

**Table 3: Assessment of the Level of Satisfaction of Health Information Resources Accessed and Utilized by Medical Practitioner**

S/N	Information Sources utilized	Very Satisfied	Satisfied	Unsatisfied	Very Unsatisfied	Mean X
1.	Inter personal contact	30(35%)	-	11(13%)	45(52%)	2.17
2.	Use of Library	30(35%)	-	11(13%)	45(52%)	2.17
3.	Text Books	75(87%)	-	-	11(13%)	3.62
4.	Electronic resource and Internet	56(65%)	-	-	30(35%)	2.95
5.	Audio visual Materials	86(100%)	-	-	-	4.00
6.	General Medical Website (e.g. Medline)	45(52%)	-	41(48%)	-	2.95
7.	Encyclopedia	45(52%)	-	-	41(48%)	2.57
8.	Use of electronic Medical records	45(52%)	-	-	41(48%)	2.57
9.	Hand Books	45(52%)	-	-	41(48%)	2.57
10.	Thesis/Dissertations	45(52%)	-	-	41(48%)	2.57

Key: VS=Very satisfied. S=satisfied. UN=Unsatisfied. VN= Very Unsatisfied



Table 2 showed that the doctors were very satisfied with encyclopedia, electronic medical records, handbooks, Theses/Dissertations, audio visual materials and paper resources. While majority of the respondents indicated that they were not satisfied with use of Library, and interpersonal contact in their respective hospitals. The findings of D'Adamo, et al (2012) corroborated this finding of the present study as the authors indicated that the limited information that is available to health workers in India, Senegal and Malawi is often outdated, unreliable, incomplete, inappropriately packaged, and not action oriented.

### Summary of Major Findings

The major findings of the study are:

1. The purpose of utilising health information as indicated by the doctors working with Niger- State include: being up to date with latest trends in the field, for patient care, answering patients'/ families' questions, and answering colleague questions.
2. Majority of the respondents indicated that they were very satisfied with the health information gotten from encyclopedias, electronic medical records, handbooks, theses/dissertations, audio visual materials and paper resources.

### Conclusion

Based on the findings of this study, it is pertinent that librarians develop and design trending library services for the medical doctors. Due to the busy nature of their jobs, a number of strategies that would assist to increase the use of the preferred health information sources, depending on their individual choice such as setting up mobile libraries would not be a bad idea. Mobile apps with that contain the types of information available would also help bring this health information straight to the palm of the doctors.

### Recommendations

Based on the findings of this study the researcher recommends the following:

1. The systematic and periodic organization of product promotion/book show by the Niger state Hospital Management Board.
2. The provision of information that caters for the medical doctors' personal factors on the effective utilization of health information resources which will enhance their services.

### References

- Adeoye, M.O. and Popoola S.O., (2011) Teaching Effectiveness, Availability, Accessibility and Use of Library and information Resources among teaching staff of Schools of Nursing in Osun and Oyo States, Nigeria. *Library Philosophy and Practice* 2011. Available at: <https://digitalcommons.unl.edu/libphilprac/525/>
- Anjuwon, G. A., (2015) "Internet Accessibility and Use of Online Health Information Resources by Doctors in Training Healthcare Institutions in Nigeria. *Library Philosophy and Practice (e-journal)*. Paper 1258. <http://ir.library.ui.edu.ng/handle/123456789/4657>
- Arulogun, O., Oluwale, S.K., & Musbahu, T. (2011) Prescription Errors prevalent in four Units of University Teaching Hospitals in Nigeria. *Journal of public Health and Epidemiology*. 3(11), 513-519.
- Bitagi, A. (2012) Information resources utilization for research by scientist in Agricultural Research Institute in Nigeria. PhD Thesis presented to the Department of Library and Information Science, University of Nigeria Nsuka.
- Bomman, S. M., Sornam, S.A. & Kumar, M.V., (2014), Clinical information needs of the Allopathic medical practitioners in developing country, India: A descriptive analysis with workplace. Library philosophy and practice Paper. Delhi: Skyline.
- Bradley, P.V., Getrich, C. M. & Hannigan, G. G., (2015), New Mexico Practitioners' access to and satisfaction with online clinical information resources: An interview study using qualitative data analysis software. *Journal of Medical Library Association*, 103 (1), 31-35.



- Chartterley, T., Storie, D., Chambers, T., Buckingham, J., Shiri, A. & Dorgan, M. (2012). Health information support provided by professional associations in Canada. *Health Information and Libraries Journal*, 29(3), 233-41.
- Chretien K.C., Kind T., (2013), Social media and clinical care: ethical, professional, and social implications. *Circulation*, 127(13),1413-1421.
- Cox, B. L. & Jantti, M. H. (2012). 'Capturing business intelligence required for targeted marketing, demonstrating value, and driving process improvement', *Library & Information Science Research*, 34, (4), 308-316.
- D'Adamo, M., Fabic, M. S. & Ohkubo, S. (2012). Meeting the health information needs of health workers: what have we learned?. *Journal of Health Communication*, 17(2), 23-29.
- Doran, D. M., Haynes, R. B., Kushniruk, A., Straus, S., Grimshaw, J. & Hall, L. M. (2010), Supporting Evidence-Based Practice for Nurses through Information Technologies. *World views on Evidence-Based Nursing*, 7(1).4-15.
- Eison, J. (2010). Using Active Learning Instructional Strategies To Create Excitement and Enhance Learning. Available at: <http://www.cte.cornell.edu/documents/presentations/Active%20Learning%20%20Creating%20Excitement%20in%20the%20Classroom%20-%20Handout.pdf>
- Fogelson N. S, Rubin Z. A. & Ault K.A. (2013). Beyond likes and tweets: an in-depth look at the physician social media landscape. *Clin Obstet Gynecol* 56(3):495-508.
- Haleema, B., Siddique, M. A. A., & Bhat, M. A. (2017). Ethnomedicinal appraisal of medicinal plants used by ethnic communities of District Anantnag and Budgam of Kashmir Himalaya, India. *Plant Archives*, 17(2), 1563-1576.
- Health statistical bulletin (2011). Niger State Ministry of Health and Hospital Services, health system development project II .Minna: Niger State Ministry of Health.
- Hesse, B.W, Moser R.P., Rutten, L. (2010) Surveys of physicians and electronic health information. Letter to the editor. *New England Journal of Medicine* 2010;362(9), 859-860.
- Househ M. (2013). The use of social media in healthcare: organizational, clinical, and patient perspectives. *Stud Health Technol Inform* 183:244-248.
- Idiegbeyan-ose, J., Ilo, P., & Isiakpona, C. (2019). The 21st century library and information services for the enhancement of teacher education. In *Pre-Service and In-Service Teacher Education: Concepts, Methodologies, Tools, and Applications*(pp. 1899-1913). IGI Global.
- Kostenuik, J., Morgan, D., & D'Arcy, C., (2013) Use and perceptions of information among family physicians: Sources considered accessible, relevant and reliable. *Journal of the Medical Library Association*:DOI: <http://dx.doi.org/10.3163/1536-5050.101.1.006>
- Labrique, A. B., Wadhwani, C., Williams, K. A., Lamptey, P., Hesp, C., Luk, R., & Aerts, A. (2018). Best practices in scaling digital health in low and middle income countries. *Globalization and Health*, 14(1), 103.
- Manhas. R. (2008). Use of the Internet and electronic resources for dental science information; A Case study. *Library philosophy and practice*. Available at <https://core.ac.uk/download/pdf/188045797.pdf>



- Mohamed-Arraid, A. S. (2011). *Information needs and information seeking behaviour of Libyan doctors working in Libyan hospitals* (Doctoral dissertation). Doctoral thesis submitted to Loughborough University. Available at: <http://pstorage-loughborough-53465.s3.amazonaws.com/17034158/Thesis2011MohamedArraid.pdf>
- Naeem, B. S., Ahmed, S. & Ishfaq, K. (2013). *Information needs and Sources of Doctor Working at Remote Government Health Facilities in Pakistan*. *Journal of Health Information In Developing Countries*. 7(2). 141- 152.
- Naik, L., & Kumar, K. (2019). *Internet use Among Faculty and Students of College Libraries in Bangalore, India*: Skyline publications.
- Olajide, A.A. & Otunla, A. O. (2015), "Use of Information Resources by Student Nurses". *Library Philosophy and Practice (e-journal)*. Available at: <https://digitalcommons.unl.edu/libphilprac/1255/>
- Salinas, G. D., (2014). Trends in physician preferences for and use of sources of Medical information in response to questions arising at the point of care 2009-2013. *Journal of Continuing Education Health Professional* , 34(1): S11-6. doi: 10:1002/chp.2.21224
- Ventola, C. L. (2014). Social media and health care professionals: benefits, risks, and best practices. *Pharmacy and Therapeutics*, 39(7), 491.