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Availability and Use of Health Information Resources by Doctors in Teaching Hospitals in South East Nigeria

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Abstract

This is a survey of the health information resources availability and pattern of their utilization by doctors in teaching hospitals in South East Nigeria. A 25 -item structured questionnaire was used to collect data from 1, 995 medical doctors. The data collected were analysedusing Statistical Package for Social Sciences (SPSS 12.0), while Analysis of Variance (ANOVA) was adopted in testing the hypothesis. The results showed that health information resources are moderately available to doctors and that they use them for different purposes. The null hypothesis was rejected as there was significant difference between the mean responses of different categories of doctors on the purpose of use of health information resources. These findings implied that these doctors are being deprived of the privileges of making use of a wide and full variety of health information resources for their different information needs. It was recommended that full range of health information resources be made readily available to doctors in teaching hospitals in South East Nigeria for optimal performance.

Keywords: Information, health information, health information resources, medical doctors, teaching hospitals, information utilization.

1. Introduction

For the purpose of this paper, health information can be defined as that knowledge, facts and news generated from various sources, necessary for good physical and mental condition of human beings. It is in the main sought after and utilized by health professionals including doctors who are the fountainhead of health-givers. Health information resources are the medium of communication between scientists who conduct healthcare and biomedical research and doctors who use their results in medical practice and related purposes. These resources are text or print resources, internet or World Web resources and human resources. Medical text or print resources provide information or knowledge in printed format such as books, journals and grey literature. Books have been in existence and use for centuries now and are regarded as traditional sources of health information. They form the core collection of medical libraries and that of personal collection of the doctors. Medical journals are primary sources of health information as they contain authors own reports of their own studies. The knowledge contained in them represents the most recent in the field (Nworgu.2006). Medical libraries are known for stocking these journals for doctors, who in addition also subscribe to the journals for their personal collection. Grey (or gray) literature is another resource utilized by doctors for extracting health information. Essentially, non-commercial official and administrative documents make up grey literature (Reitz, 2007). Another resource utilized by doctors to acquire health information is the internet. The internet resources also referred to as electronic resources give doctors unlimited opportunity as they may use it for literature searching, accessing online journals and books, searching for patient specific information, professional association updates, consultation with colleagues, e-mails and prescription/patient orders. The internet has made abundance of health information handy for use by doctors just at the click of the mouse within seconds or minutes. Most prominent among the internet resources heavily used by doctors today are the electronic databases. These electronic online databases facilitate doctor's access to medical literature in books, journals, newspapers, unpublished materials and other relevant sources. Another information resource routinely used by doctors is 'human' source. This covers all those doctors contact for health information, and normally includes: specialty consultants, senior colleagues, informed peer and drug information pharmacists. This they do through face-to-face communication, e-mail or telephone contact (Davies: 2007).

All these resources though very vital for teaching and practice are not always available to doctors at the point of need. The extent of availability may also vary from one location to another. However, different factors and circumstances like costs, time, availability and purpose may influence the degree of utilization of the different resources. It is well known that the pace of rapid information generation is higher in health, than any other sector. This has resulted in the availability of vast range of health information resources, that it seems there are almost too many potential information sources for doctors to locate information, efficiently (Davies, 2007). Today, channeling this information to doctors is the major concern of global health bodies and governments.

This is more so with Millennium Development Goals (which are mostly health related) in focus. It is certain that this has resulted in the provision of funds and other resources by global agencies like World Health Organization to ensure that health information flows down from their sources of generation to medical doctors for use especially in developing countries. The open access policy is an example of this. What is not certain however are how available these resources are to the doctors in the teaching hospitals in South Eastern Nigeria, and into what use they put the information so extracted. It is in the light of this that this study was carried out.

Objective of the study

The study was intended to:

- Find out the extent of availability of health information resources to doctors in teaching hospitals in South East Nigeria.
- Ascertain the purpose of use of health information resources by different categories of doctors in teaching hospital in South East Nigeria.

Hypothesis

There is no significant difference in the mean rating of different categories of doctors with regards to purpose of use of health information resources in teaching hospitals in South East Nigeria.

Review of related literature

The role that health information can play in improving healthcare has been recognized for a number of years. It is generally known that knowledge is the enemy of disease. Writing on this as it concerns health information utilization Brice and Gray (2004) added a proviso thus: Knowledge is the enemy of disease *only if it is put into action.* According to them the utilization of available health information can prevent and reduce seven major healthcare problems observable in every system, namely: unknowing variations in policy and practice; waste; errors; poor quality clinical care; poor patient experience; the over-enthusiastic adoption of interventions of low value and the failure to implement interventions of high value. They also opined that to tackle the above global health problems, all three types of knowledge have to be mobilized and utilized namely;

- Knowledge derived from research sometimes called evidence;
- Knowledge derived from routinely collected or audit data, sometimes called statistics.
- Knowledge derived from experience

The emphasis here is on the utilization of generated information for healthcare. The value of health information lies in its utilization at the point of need.

Brice and Gray (2004) also demonstrate the idea of health information as a supply chain stretching from its source of production to the point of use. Here, the generation of the information that doctors need is the first step in the chain. This they say is necessary but not sufficient because information has to reach the point where it is needed and be available when it is needed. For doctors to save lives, it is imperative to ensure that their decisions are based on best current health information whenever and wherever those decisions are being made. This requires the supply chain to be organized from the producer to the consumer, ensuring that:

- The information that is needed in generated
- the information that is generated is organized
- The information that is organized is delivered to where decision makers need it before and during the process of decision – making.
- The organizations and individual within healthcare systems have the skills and resources to find, appraise and use the knowledge.

In the project titled “the information-seeking behaviour of doctors: a review of the evidence”, Davies (2007) reviewed empirical studies of between 1996 and 2006. His narrative review is concerned with medical doctors need for information, specifically in the clinical area. His aim was to review the literature on the information needs, literature searching and resources utilized by doctors within ten years (1996 to 2006). Most of the studies

he reviewed focused on clinical purposes of health information search. They found out that in the main doctors need information in the clinical setting for diagnosis, treatment, drug therapy and epidemiology.

Tenopir, King, Clarke, Kyoungsik, Na and Zhou (2007) carried out a research titled- the Journal Reading Patterns and Preference of Pediatricians. Their objectives were to describe the journal reading patterns of pediatrician members of the American Academy of Pediatrics (AAP) and compare results to similar surveys of medical faculty and physicians. The research also explored factors that might influence changes in reading patterns in the future, such as adoption of PDA technology. The researchers used survey method in which a sample of 2,000 AAP members was drawn from the AAP membership list. 666 pediatrician AAP members participated in a survey of reading behaviours with a total of 1,351 members answering some questions about technology use. This survey was conducted in mid – 2004. They concluded from their findings that current awareness is the principal purpose for reading, but that they also read heavily for treatment/diagnosis and other purposes. Though the study has to do with pediatricians, the researchers hypothesized that reading patterns of pediatricians would closely mirror those of other doctors.

Renwick (2005) investigated the knowledge and use of electronic information resources by Medical Sciences Faculty at the University of West Indies. The objective was to determine faculty's knowledge of electronic resources, access to a computer, use of electronic resources, (both number and frequency) available at the Medical Sciences Library and the areas of training needed and to identity areas for further research.

To achieve the objectives, a survey was administered to faculty in medicine, pharmacy, dentistry and veterinary sciences at the University of the West Indies. The questionnaire which was in four sections covered: demographic information; computer literacy, computer access and location; knowledge and use of electronic resources and training. From his result, with regard to reasons for using electronic resources, the highest use was for communication (86%), followed by professional research (79%) and for personal research (77%). Other purposes were teaching activities (74%), administrative purposes (41%) and recreation (38%).

The broadest spectrum of purposes for search for health information by doctors was reported by Bryant (2004) from study of the Information Needs and Information Seeking Behavior of Family Doctors in Aylesbury Vale, Buckinghamshire. The principal aim of the study was to explore the factors that motivate General Practitioners (GPs) to pursue information. Identifying differences in attitude and behaviours deriving from membership of a training practice and investigating the impact of a practice librarian. The method he used was a case study of General Practitioners in Aylesbury Vale. The researcher carried out a quantitative study of the use of the medical library and two qualitative techniques, in-depth interviews and group discussions. A total of 58 GPs, almost three quarters of those in the Vale, participated; 19 through individual interviews and a further 39 through two group discussions. Some of the purposes mentioned by his respondents are: clinical care, keeping up-to-date, information for patients, pharmacological information, gaps in knowledge, curiosity, uncertainty, external guidelines, vocational training, political bits, lectures, audit, clinical governance, examination, research, significant events, writing.

These full ranges of purposes drive doctors to search for information from resources. Though the range is wide, the researchers noted doctors' information desires at any time vary as determined by factors of personal interest and inclination. Altogether, in Bryants (2004) view, Doctors search for health information for purposes arising from professional responsibilities and personal inclination. Of all the purposes articulated by the literature reviewed, clinical care of individual patient is the primary purpose of their information search. The literature review in this section is relevant to this study basing on the observation by Gruppen (1990) that doctors are not uniform in their information needs. This research therefore focused on the peculiar purposes for which doctors in teaching hospital in South East Nigeria search for health information. Also most of the studies reviewed concentrated on clinical information needs rather than eliciting data on the full range of doctors' information requirements which is what this study did.

Research methods

This study adopted a descriptive survey design. The area of the study was the South East geographical zone of Nigeria, comprising five states of Abia, Anambra, Ebonyi, Enugu, and Imo. The population of the study consisted of all the 1,995 medical doctors in the six teaching hospitals in South East of Nigeria. All the doctors of the ranks of Consultants, Senior Registrars, Registrars, Senior House Officers and house officers were involved. The subjects were 156 doctors from Abia State University Teaching Hospital, 198 from Ebonyi State University Teaching Hospital, 228 from Enugu State University Teaching Hospital, 160 from Imo State University teaching Hospital, 503 from Nnamdi Azikiwe University Teaching Hospital and 702

from University of Nigeria teaching Hospital. The questionnaire tagged "Health Information Resources and Utilization Questionnaire" (HIRUQ) was used for collecting the data for this study. The copies of the questionnaire were personally delivered to the respondents through the researchers and research assistants and collected back as arranged. Ethical approval and certificates were obtained from the six participating teaching hospitals from their respective Ethical Committees following laid down procedure. Both the descriptive and inferential statistical methods were used to analyze the data. For the research questions the interpretation of the mean is based on limit of real numbers. The limit of real numbers is given as follows-

0.05 – 1.49 = Not Available/Utilized/Used;

1.50 – 2.49 = Rarely Available/Utilized/Used;

2.50 – 3.49 = Moderately Available/Utilized/Used; and

3.50 – 4.00 = Highly Available/Utilized/Used

For the hypotheses, Analysis of Variance (ANOVA) at probability of 0.05 was used. The computer software, Statistical Package for Social Sciences (SPSS 12.0) was used to analyze the data.

Results and Discussion

Items	Mean	Std. Deviation	Decision
1. Textbook	3.01	0.11	MA
2. Journals	2.93	0.25	MA
3. Newspaper reports	3.57	0.62	HA
4. Indexes	2.30	0.46	RA
5. Abstract	2.93	0.25	MA
6. Theses/dissertation	2.30	0.46	RA
7. Electronic Media Reports	3.00	0.10	MA
8. Electronic Databases	2.94	0.26	MA
9. Internet Resources	3.01	0.08	MA
10. My Colleagues	3.92	0.28	HA
11. Technical Reports	2.06	0.25	RA
12. Government Publications	2.01	0.13	RA
Overall	2.83	0.12	MA

Table 1: Mean and Standard Deviation of the Response of Medical Doctors on the Extent of Availability of Health Information Resources (N = 1417)

The results presented in Table 1 indicate that of the 12 health information resources listed in the instrument only two (Newspaper reports and My Colleagues) are rated as Highly Available with mean of 3.57 and 3.92 respectively. Six items (Textbook, Journals, Abstract, Electronic Media Reports, Electronic Databases, and Internet Resources) are rated as Moderately Available with mean 3.01, 2.93, 2.93, 2.94, 3.01, and 2.83 respectively. Similarly, four items (Indexes, Theses/dissertation, Technical Reports, and Government Publications) are rated as Rarely Available with the mean 2.30, 2.06, and 2.01. Finally, the overall indicates that health information resources are Moderately Available with the mean 2.83.

Table 2: Mean and standard deviation of the responses of different categories of medical doctors on the purpose of use of health information resources (N=1417)

Items	House Officers		Senior House Officer		Registrars		Senior Registrars		Consultants		Overall		Decision
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	
13 Clinical care of patients	3.99	.13	4.00	.00	3.99	.10	3.98	.14	3	.00	3.99	.12	HU
14 Professional examination	3.97	.19	3.99	.11	3.98	.16	3.98	.14	3.00	.00	3.98	.18	HU
15 Better practice of specialty	3.97	.21	3.98	.21	3.98	.22	3.98	.19	3.00	.00	3.97	.22	HU
16 Lecture purposes	3.02	.13	3.00	.00	3.99	.11	3.00	.00	3.00	.00	3.31	.51	MU
17 Updating knowledge	3.98	.21	3.01	.11	3.99	.11	3.99	.11	3.00	.00	3.93	.27	HU
18 Research purpose	2.03	.30	2.99	.11	3.97	.21	2.02	.20	3.00	.00	2.70	.90	MU
19 Journal publications	2.02	.30	.30	2.00	.00	3.97	.21	2.01	3.00	.00	2.60	.92	MU

The result presented in Table 2 indicates that the respondents utilize health information

for all the listed purposes. Four out of seven listed purposes of utilization are rated a High. These are Clinical care of patients, Professional examination, Better practice of specialty, and Updating knowledge. Their mean range between 3.93 and 3.99. On the other hand, Lecture purposes, Research purposes, and Journal publication are rated 'Moderately Utilized'. Their mean are 3.30, 2.65 and 2.58 respectively. The overall mean revealed that all the items are utilized for various purposes moderately.

Discussion

Extent of availability of health information resources

The analyses done on the availability of health information resources shows that textbooks, journals, newspaper reports, abstracts, electronic media reports, databases, internet resources and colleagues are all available in high or moderate extent. While in contrast indexes, theses/dissertation, technical reports and government publications are rated as rarely available.

Purpose of use of health information resources

The findings of this study on the purpose of use of health information resources showed that medical doctors utilize health information resources for all the variety of purposes listed in Table 2. The purposes are clinical care of patients, professional examination, better practice of specially, updating knowledge and research purposes and journal publication. This is in line with Bryant's (2004) view that doctors search for health information for purposes arising from professional responsibilities and personal inclination.

Although doctors use health information resources for a variety of purposes the findings from Table 2 also indicated that clinical care of patients in rated as the number one purpose with a mean score of 3.99.

This corroborates the idea that the primary purpose of health information use by doctors is for clinical care of patients. This is also in agreement with the findings of Davies (2007). He found out that in the main doctors need health information in clinical settings for diagnosis, treatment, drug therapy and epidemiology. From their contrary finding Tenopir, King, Clarke, Kyoungsik, Na and Zhou (2007) concluded that current awareness (updating knowledge) is the principal purpose for reading. But they agree that doctors also utilize health information resources heavily for treatment/diagnosis (clinical care of patients) and for other purposes.

Hypotheses

The postulated hypothesis was tested at 0.05 level of significance using Analysis of Variance (ANOVA).

Table 3: Summary ANOVA Table for Mean Rating of Doctors on Purpose of Use of Health Information Resources

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	68.510	4	8.564	134.131	.000
Within Groups	89.895	1408	.064		
Total	158.405	1416			

The result in Table 3 shows the summary ANOVA table for mean rating of doctors on purpose of use of Health Information Resources. The F-value (134.131) is significant at p = 0.000; this F-value is equally significant at 0.05; this is because p is less than 0.05. That is ($p<0.05$; p = 0.000). Therefore the hypothesis of no significant difference in the mean rating of responses based on category is not accepted. Hence, there is significant difference in the mean rating of different categories of doctors with regards to purpose of use of health information resources in teaching hospitals in South East Nigeria. This implies that category is a factor in their ratings.

Conclusion

The availability and use of adequate health information resources by medical doctors will no doubt improve the level of health care delivery and wellness of the populace of South East Nigeria. The findings and their interpretations in this study had revealed that doctors need to make use of health information resources for a range of purposes, yet these materials are not readily available as should be the case in apex medical institutions. However, if the recommendations made are implemented accordingly, health information resources will be highly available for doctors to meet up their information needs. With this the researchers had established the health information resources available to doctors in a teaching hospital setting, involving doctors of all ranks and specialties and their health information utilization pattern. This comprehensive extent was lacking in reviewed projects. Therefore the vacuum identified from the literature reviewed proceeding this study may have been so filled by the researchers.

Recommendation

The following recommendations were made based on the findings and implications of the study:

- Full range of health information resources should be made readily available to medical doctors in teaching hospital in South East Nigeria by relevant authorities.
- There is urgent need for regular provision of health information resources for doctors to meet the array of purposes for which they utilize the resources for effective healthcare delivery.
- Health Sciences librarians should be acquainted with the vast array of existing health information resources and doctors utilization patterns to inform collection development policy and management.

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