

Internet Use in Management of Patients by Medical Doctors: A Survey of Private Hospitals/Clinics in Jos Metropolis

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This research investigated the internet use by medical doctors in the management of patients in privately owned hospitals/clinics in Jos metropolis. The entire population of 153 medical doctors from 41 privately owned hospitals were adopted in the research. Survey research design was the research method adopted for this investigation. The instrument used for data collection was questionnaire. Descriptive statistics such as frequency counts and percentages were used to analyse the data generated. The findings of this research revealed among others that most 54 (59.34%) of the medical doctors working in private hospitals in Jos metropolis had good internet competencies; majority 47 (51.65%) of the doctors accessed the internet in their consulting rooms; the medical doctors did not know how to refine their searches using search engines, hence majority 59 (64.85%) of them restricted their searches to Google search; and the major challenges the doctors faced in the use of the internet were slow internet network connection and frequent electricity power failure. It was therefore, recommended among others that the Nigerian Medical Association (NMA) which is the umbrella association of medical doctors in Nigeria, should organise workshops for their members in Jos metropolis. The workshop should be centred on the internet use and more emphasis should be on the use of search engines; owners of private hospitals in Jos metropolis should acquire generators to ease the problem of constant power failure. The research therefore, concludes that even though more than half of the medical doctors working in private hospitals/clinics in Jos metropolis know how to use the internet to manage their patients, there is still need to train the medical doctors on internet use. This will refine/ improve their searches and reduce the frustration normally associated with managing large quantity of down loads/hits produced when searching for information.

Key words: Medical, Doctors, Jos, Private, Hospitals, Internet, Patients, Management

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INTRODUCTION

Background of the Study

The Internet is a global network of networks that

enables computers of all kinds to directly and transparently communicate with each other throughout the world. It is usually described as a global network and

an 'Information Super-highway' (Computer Hope, 2010). It is defined as a world-wide broadcasting capability, a mechanism for information dissemination, and a medium for collaboration and interaction between individuals and their computers without regard to location (The Internet Society 2010). The internet is a major technological breakthrough of our time. The Internet is a popular source of health information for health care providers and consumers.

A great variety of information resources are now available and accessible online. These include among others search engines (Google, Yahoo, Alta Vista, Lycos, Mama, etc), databases (MEDLINE/PubMed, Scopus, Web of Knowledge, EMBASE, African Index Medicus), portals, gateways, digital archives, libraries and institutional repositories. Recent, reliable, quality and up-to-date healthcare information are also available in websites of academic and health institutions, professional associations, governmental and non-governmental organizations. In addition, some governmental and not-for-profit organizations such as the National Institutes of Health (NIH) and Bioline International have digital archives for free full-text articles. Also available online are medical dictionaries, encyclopedias, abstracts and indexes, bibliographies, atlases, videos and drug information sources.

The Internet has enabled health care practitioners to obtain and share health information and to track and monitor diseases (Centre for Disease Control 2003). In addition, it has made it easy and possible for physicians throughout the world to collaborate, communicate, and interact with each other (Manhas, 2008). In the last two decades, there has been a tremendous increase in the volume of healthcare information published online. The amounts of online health information available to users keep growing on daily basis than can ever be imagined ten years back (Manhas, 2008).

The use of these internet resources by medical doctors in patients care is an already established phenomenon and well documented in developed countries. However, the use of internet services in patient management by medical doctors in developing countries like Nigeria is not well documented. Hence, there are scanty reports on internet use by medical doctors in patients' management in Nigeria. However, there is no report on how medical doctors use the internet for patients care in private hospitals/clinics. It was on this scenario that this research was designed to examine how medical doctors in privately owned hospitals/clinics in Nigeria use the internet for patients' management, using medical doctors in private hospitals/clinics in Jos metropolis as a study group.

Background Information on Jos North Local Government Area, Plateau state

Jos North Local Government Area (LGA) of Plateau state is one of its seventeen Local Government Areas and its main metropolitan. It extends over an area of 291km² with a total population of 429,300, projected from the 2006 National Population and Housing Census, with 266,66 (62%) being urban dwellers and 163,134 (38%) rural dwellers. In 2009, the National Population Commission estimated population of Jos North LGA as 439,217 comprising of 220,856 males and 216,361 females.

Jos North LGA shares boundaries to the west with Bassa LGA, to its North with Toro LGA of Bauchi state, to its East with Jos East LGA and Jos South LGA southward.

Jos North LGA was created in 1987, with twenty political wards: Tafawa Balewa, Aba Nashehu, Ahwol, Alikazaure, Angwan Rogo/Rimi, Gangare, Garba Daho, Ibrahim Katsina, Jenta Adamu, Jenta Apata which shares boundaries with Katakko Market, Jos Jarawa, Kabong, Lamingo, Mazah, Naraguta A, Naraguta B, Rigiza/Targwong, Sarki Arab, Tudun Wada, Vander Puye

Ethnic Groups in Jos North: Jos is an administrative and cosmopolitan city consisting of diverse ethnic groups including: Berom, Anaguta, Mwachavul, Rukuba, Ngas, Irigwe. There are also Hausa, Fulani, Yoruba, Igbo and other minorities.

Civil service, farming, small scale businesses are the predominant occupation and majority of the population are members of either Christianity or Islam religions.

List of Hospitals in Jos North LGA Used in the Investigation

There are forty-one (41) private Hospitals/Clinics in Jos Metropolis. This include: Daisyland Orthopaedic and Trauma Hospital, Oasis Medical Centre, Adoose Specialist Hospital, Chilas Specialist Hospital, Ecwa Evangel Hospital, Federal Low Cost Clinic and Maternity, Focus Hospital, Jama'a Medical Centre, Nassarawa Medical Centre, New Crescent Hospital, Samantha-Lucil Hospital, Tadam Medical Centre, Victoria Memorial Hospital, OLA Hospital, Dauda Clinic, Gwash Specialist Hospital, StaHealth Specialist Hospital, Matanmi Hospital, Hope Clinic and Maternity Hospital, Health Care Clinic, Faith Alive Foundation Hospital, Hope Hill Medical Centre, Cocin Hospital, Advertist Medical Centre, Sunnah Hospital, Graville Multispecialty Hospital, Sowako Specialist Hospital, Solat Women Hospital, Fertile Ground Hospital, Fomas Hospital, Ray field Medical Services, Tudun Wada Angwan Clinic, Park View Hospital, New Era Hospital, Kauna Specialist Hospital, Maranatha Specialist Hospital, Sauki Hospital, Abnira Medical Centre, Solace Women Hospital, ALPS Hospital,

and Gynaeville Specialist Hospital.

SIGNIFICANCE OF THE STUDY

The use of internet services for the management of patients is a well-established phenomenon in developed countries. However, the use of internet services in the management of patients by medical doctors in developing countries including Nigeria has not been well documented (Ukwe, 2010). More also that this is the only way medical doctors in developing countries could bridge the gap in information resources on current medical issues between them and their colleagues in developed countries. This is because sciences, which include medicine is dynamic in nature. Every second, minute, hour, day, week, etc, new and better methods, and drugs on patient management are developed and published first in the internet (Bhatti, 2014). So, there is a great need for medical doctors to be able to gain access to internet resources. The failure of medical doctors to access latest information or resent developments in their field could seriously hamper their ability to safe life. It was on this scenario that this research was designed to characterize the internet usage patterns of medical doctors in private hospitals in Nigeria, using medical doctors working in privately owned hospitals/clinics in Jos metropolis as a focal population. The findings of this study will expose how the medical doctors utilize the internet resources to manage patients, the challenges they faced and possible solution on how to improve the situation in Nigeria. The findings of this investigation will be useful to health providers like: Nigerian Government; Ministry of Health; Management of Teaching Hospitals and Federal Medical Centres; Private Clinic owners and Non-governmental Organisations.

OBJECTIVES OF THE STUDY

The main objective of this investigation was to evaluate the internet use amongst medical doctors, in the management of patients in privately owned hospitals/clinics in Jos metropolis. Specifically, this research seeks to determine the:

- i. Internet competencies of the medical doctors working in private hospitals/clinics in Jos metropolis;
- ii. Sources of acquisition of Internet competencies by the medical doctors
- iii. Preferred medical doctors' internet access point;
- iv. Means of accessing the internet;
- v. Medical doctors preferences for search engine usage;
- vi. Medical doctors purpose of internet use;

- vii. Average number of patients the medical doctors see per week;
- viii. Medical doctors level of satisfaction with the Internet resources;
- ix. Medical doctors' need for further training on the internet use;
- x. Challenges the medical doctors faced in accessing the Internet resources.

LITERATURE REVIEW

Health care practitioners need information for efficient and effective management of their patients. They also need information to update their knowledge as well as for teaching and research. Ocheibi & Buba (2003), in their study of information needs and information gathering behavior of medical doctors in Maiduguri reported that doctors need specific medical information to enhance their knowledge on a day-to-day basis, particularly with the information explosion such as e-mail and Internet facilities (Ocheibi & Buba 2003). According to Okoro and Okoro (2009), the primary reason why medical doctors need information is to obtain answers to clinical questions; they also need information to stay abreast of developments in clinical medicine.

Internet has become an integral tool for the 21st Century physicians. Medical doctors who are not willing or ready to accept and use this technology will be missing valuable information relevant to their daily practice. A substantial amount of work has been done by information professionals and medical researchers addressing information needs, seeking and use among health care practitioners in a wide range of occupations and settings (Dee and Stanley 2005; Nwagwu, 2008). Previous researchers have investigated the use of electronic information resources by physicians and their preferred type of information sources and perceived barriers to accessing information for patient care (Wong and Veness, 2005).

Traditionally, printed materials such as books, journals held in personal libraries, were physicians' main sources of information (Bhatti, 2014). However, with the increase in the pace of health care research and the introduction of computers and the Internet, many new electronic information resources and systems are now available (Dalon, 2011). The availability of computers and especially the Internet has provided the possibility of immediate access to the most recent and reliable results of clinical research in everyday medical practice in developed countries (Gyapong, 2002). In developing countries on the other hand, the Internet is still only available to a minority of health professionals, and often it is not available at the point of care (Davin & Nilan, 2003).

Several studies have explored the use of the Internet to obtain clinical information for patient care by medical

practitioners in diverse health institutions across the globe. For example, Comscore (2012), study of resident physicians' adoption of information technology in Pennsylvania, United States, showed that 98% of the respondents used the Internet and two-thirds used it for health related purposes. Comscore (2012), studies from the United States also reported that physicians sought information from the Internet for patient care. Wong and Veness (2005), Findings from New Zealand studies showed that a greater proportion of General Practitioners (GPs) and Family Physicians (FPs) have access to the Internet and the majority used it for patient care. A similar finding was also reported by Dee and Stanly (2005), among Australian and New Zealand radiation oncologist and registrars; 85% of the respondents considered medical research findings 'useful' in day-to-day management of patients.

Among currently available technologies, only the Internet has the potential to deliver universal access to up-to-date health care information (Okoro & Okoro, 2009). Accurate and up-to-date medical information is vital to maintain quality of health care. During the past decade, many health information resources have been developed and available online for use by health care professionals. The Internet has been used by healthcare medical practitioners to obtain and share large amounts of medical information and to monitor diseases. The knowledge of the Internet as an important health information resource for medical doctors have greatly improved during the past decade as a result of patterns of use and medical impact measures (Okoro & Okoro, 2009).

These opportunities, the internet presented to medical practitioners world over are not actually utilized by many medical doctors, especially doctors in third world countries like Nigeria (Tang, & Ng, 2006). It was on this scenario that this research was designed to examine how medical doctors in Jos metropolis use these internet technologies in managing patients, with a view on the problems/challenges, prospects and how to improve the situation.

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 beliefs over a wide population. This technique is relevant to this study because it involved sampling of opinions of users (Medical Doctors in Private Hospitals/Clinics in Jos Metropolis) on Internet use in Management of Patients.

Population of the Study

The targeted population for this study comprises all the 153 Medical Doctors working in Forty one (41) Private Hospitals/Clinics in Jos Metropolis. It should be noted, that the total number of Doctors working in private hospitals in Jos Metropolis is not static. This is because the doctors can withdraw their services at any time. Since, this population (153) is manageable; there was no need for sampling. Hence, all the doctors were adopted in the research.

Research Instrument

The instrument used for data collection was questionnaire. A 52 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 Internet competencies of the medical doctors working in private hospitals/clinics in Jos metropolis; Sources of acquisition of Internet competencies by the medical doctors; Preferred medical doctors' Internet access point; Means of accessing the internet; Medical doctors preferences for search engine usage; Medical doctors purpose of internet use; Average number of patients the medical doctors see per week; Medical doctors level of satisfaction with the Internet resources; Medical doctors' need for further training on the internet use; Challenges the medical doctors faced in accessing the Internet resources.

Validation of the Instrument

The questionnaire went through content validity check. Copies of the questionnaire were given to senior colleagues in the profession. The essence of this exercise was to ensure that the questions were clear, simple and appropriate for the study. On the basis of their suggestions and modifications, some of the items were modified to suit the objectives of the study. A final draft of the questionnaire was then prepared and used for the study.

Pretest

A pretest of the study was conducted using test and re-test method. Twenty (20) medical doctors working in private hospitals in Bauchi metropolis were used to test the reliability of the questionnaire. The reliability coefficient of $r=0.86$ was obtained, and the coefficient was considered high enough for reliability (Tiraieyari, et al, 2011). This enabled the researcher to ascertain

whether or not the questions asked were able to generate the required data. The questionnaire was then distributed.

Administration of Questionnaire

Based on the total number (153) of the Medical Doctors in the private hospitals/clinics in Jos metropolis, 153 copies of the questionnaire were produced and administered to the Doctors in their offices and collected the next day.

Method of Data Analysis

Data collected were analyzed using descriptive statistics of frequency counts and percentages for answering the research questions. Tables were also provided where necessary.

Response Rate

One hundred and fifty three (153) copies of the questionnaire were administered to the respondents in all the forty one (41) hospitals surveyed. Out of the 153 copies distributed ninety one (91) copies were filled, returned and found usable. This gave a response rate of 59.48%. The low response rate was largely because of the insecurity in Jos metropolis at the time of the distribution of the questionnaire. (Table 1)

Data Analysis

Table 2, shows the gender of the respondents. This revealed that there were 62 (68.13%) males and 29 (31.87%) females. This revealed that the respondents were dominated by males.

Table 3, shows the age range of the respondents. This indicated that 36 (39.56%) of the respondents were between the age range of 46 - 55 years. This age range was followed by 56 years - above, 36 - 45 years, 26 - 35 years, with 21 (23.08%), 19 (20.88%) and 15 (16.48%) respondents respectively. This shows that the age range with the highest population of respondents was 46-55 years.

Table 4, presents the Internet competences of the respondents. This shows that the majority 43 (47.25%) of the respondents indicated that their Internet competencies were good. This was followed by 37 (40.66%) and 11 (12.09%) respondents who submitted that their Internet competencies were fair and very good respectively.

Table 5, shows the respondents source of Internet

competencies. This revealed that the largest proportion 38 (41.76%) of the respondents acquired their Internet competencies through seminars and workshops. While, 28 (30.77%), 13 (14.28%) and 12 (13.19%) of the respondents acquired their Internet competencies through conferences/lectures, reading books, and friends respectively.

Table 6, reveals the respondents preferred Internet access point. Majority 47 (51.65%) of the respondents indicated consulting room. While, 15 (16.48%), 12 (13.18%), 10 (10.99%) and 7 (7.69%) of the respondents indicated anywhere, home, office and cyber café respectively.

Table 7, shows the respondents' means of accessing the Internet. Majority 56 (61.54%) of the respondents indicated laptops while 20 (21.98%), 12 (13.19%) and 3 (3.29%) of the respondents indicated smartphones, personal computers (PC) and others respectively.

Table 8, shows the respondents preferences for use of search engines. This revealed that majority 59 (64.84%) of the respondents indicated Google. While, 26 (28.57%), 4 (4.39%), 2 (2.19%) respondents preferred Yahoo, Ask.com, and Bing respectively. However, none of the respondents agreed using AOL.com and Baidu search engines.

Table 9, reveals the respondents purpose for Internet use. This showed that majority 60 (65.93%) of the respondents purpose for using the Internet was for patients' management. While, 15 (16.49%), 9 (9.89%) and 7 (7.69%) of the respondents submitted that they used the Internet for job seeking, latest news, and general knowledge respectively.

Table 10, shows the average number of patients the respondents see per week. This revealed that majority 46 (50.55%) of the respondents see 31 - 60 patients per week. This is followed by 30 (32.97%), 10 (10.99%), and 5 (5.49%) respondents that submitted that they averagely see 61-90 patients, 1-30 patients, and 91-above patients per week respectively.

Table 11, reveals the respondents level of satisfaction with Internet resources. Majority 51 (56.04%) of the respondents agreed that they were satisfied with the Internet resources. While 27 (29.67%), and 13 (14.29%) of the respondents admitted that they were very satisfied, and undecided with the internet resources respectively. Generally, 78 (85.71%) of the respondents agreed that they were satisfied with the medical resources in the Internet.

Table 12, illustrates the need for further training of the respondents. This revealed that majority (94.51%) of the respondents admitted that they need further training on how to use the internet to source for information.

Table 13, shows the challenges faced by the respondents in the use of the Internet. This revealed that the highest proportion 28 (30.87%) of the respondents indicated slow Internet network (usually caused by low

Table 1: Distribution of Medical Doctors into their various Specializations

Specialization	Frequency (No.)	Percentage (%)
Obstetrics and Gynecology	18	19.78
Ophthalmology	10	10.98
Surgery	13	14.28
Psychiatry	4	4.39
Pediatrics	17	18.68
Medicine	26	28.57
Radiology	3	3.30
TOTAL	91	100.00

Source: Field Work

Table 2: Gender of the Respondents

N=91

S/N	Gender	Frequency (No.)	Percentage (%)
1	Male	62	68.13
2	Female	29	31.87
	Total	91	100

Source: Field work

Table 3: Age Range of the Respondents

N=91

S/N	Age Range	Frequency (No.)	Percentage (%)
1	26 – 35	15	16.48
2	36 – 45	19	20.88
3	46 – 55	36	39.56
4	56 - Above	21	23.08
	Total	91	100.00

Source: Field work

Table 4: Internet Competencies of the Respondents

N=91

S/N	Competencies	Frequency (No)	Percentage (%)
1	Very Good	11	12.09
2	Good	43	47.25
3	Fair	37	40.66
4	Not Good	-	-
	Total	91	100.00

Source: Field work

Table 5: Sources of Acquisition of Internet Competencies by the Respondents

N=91

S/N	Sources	Frequency (No)	Percentage (%)
1	Friends	12	13.19
2	Seminar/Workshop	38	41.79
3	Reading Books	13	14.28
4	Conference/Lectures	28	30.77
	Total	91	100.00

Source: Field Work

Table 6: Respondents Preferred Internet Access Point
N=91

S/N	Access Points	Frequency (No.)	Percentage (%)
1	Consulting Room	47	51.65
2	Office	10	10.99
3	Home	12	13.18
4	Cyber Café	7	7.69
5	Any Where	15	16.48
	Total	91	100.00

Source: Field work

Table 7: Respondents Means of Accessing the Internet
N=91

S/N	Means of Internet Access	Frequency (No.)	Percentage (%)
1	Laptop Computer	56	61.54
2	Personal Computer	12	13.19
3	Smart Phone	20	21.98
4	Others	3	3.29
	Total	91	100.00

Internet bandwidth) was their major challenge. While 21 (23.08%), 13 (14.28%), 12 (13.19%) , 9 (9.89%) and 8 (8.78%) respondents submitted that their major challenges in using the Internet were frequent electricity power failure, coping with large amount of downloads /hits, lack of time, and lack of computers respectively.

DISCUSSION OF FINDINGS

Findings in table 4, shows that at least 54 (59.34%) of the respondents agreed that their Internet competencies were good. This finding could possibly be because the Internet houses a lot of medical resources. For the medical doctors to access these resources, they must acquire Internet competencies that will enable them access the resources in the Internet. Hence, most of the doctors were forced to acquire the internet competencies. This finding corroborates the work of Akpan-Obong (2007), who posited that the Internet is an indispensable allied for most medical practitioners because of the large amount of resources it houses.

Findings in table 5, revealed that the largest proportion 38 (41.76%) of the respondents acquired their Internet competencies through seminars and workshops. This finding could possibly be because workshops/seminars are mostly conducted as a practical class, hence most of the respondents acquired their internet competencies through workshops/seminars. This finding is in line with the works of Manhas (2008), and Ajuwon (2006), who on separate occasions highlighted that workshops are more

impactful when adopted as a means of impacting knowledge than other means of impacting knowledge.

Table 6, reveals the respondents preferred internet access point. Majority 47 (51.65%) of the respondents indicated consulting room. This finding revealed that the respondents preferred internet access point was consulting room. This could possibly be because the respondents used the internet services to manage their patients. This finding corroborates the works of Ladner, Nadir, Abdelaziz, Benmaïza, Alaoua, and Tavalacci (2010), who on different occasions noted that medical doctors now access the internet resources with their cell phones in the consulting rooms to classify their patients' sicknesses.

Table 7, shows the respondents' means of accessing the Internet. Majority 56 (61.54%) of the respondents indicated laptops. This finding could be because laptop computers and smartphones are portable. Hence they can be carried along easily. This finding agrees with the work of Nwagwu (2008), who observed that medical doctors now carry laptop computers and smart phones as a means of sourcing for information in the consulting rooms, for patients' management.

Table 8, shows the respondents preferences for use of search engines. This revealed that majority 59 (64.84%) of the respondents indicated Google. This finding shows that the respondents had no deep knowledge of search engines, hence most of them used Google search engine. This observation is in line with the findings of Isah (2010), and Ukwé (2010), who on separate occasions posited that most internet users often preferred using

Table 8: Respondents Preference for Search Engines Use

N=91

S/N	Search Engines	Frequency (No.)	Percentage (%)
1	Google	59	64.85
2	Yahoo	26	28.57
3	BING	2	2.19
4	Ask. com	4	4.39
5	AOL.Com	-	-
6	BAIDU	-	-
	Total	91	100.00

Source: Field Work

Table 9: Respondents Purpose for Internet Use

N=91

S/N	Purpose of Internet Use	Frequency (No.)	Percentage (%)
1	For Employment/Job Seeking	15	16.49
2	For Latest News	9	9.89
3	Patients Management	60	65.93
4	General Knowledge	7	7.69
	Total	91	100.00

Source: Field work

Table 10: Average Number of Patients the Respondents See per Week

N=91

S/N	No. of Patients	Frequency (No.)	Percentage (%)
1	1 – 30	10	10.99
2	31 – 60	46	50.55
3	61 – 90	30	32.97
4	91 - Above	05	5.49
	Total	91	100.00

Source: Field work

Google search engine in sourcing for information from the internet.

Table 9, reveals the respondents purpose for Internet use. This showed that majority 60 (65.93%) of the respondents purpose for using the Internet was for patients' management. This observation could possibly be because, doctors are often interested in their patients care and management. This finding agrees with the work of Ahmed and Yousif (2007), who stated in their research that medical doctors are usually seeking for latest information on patients' management. This is largely because medicine is dynamic and often there are improvements on the existing techniques on patients' management. So, for doctors to be abreast with the latest development in medicine, they must visit the internet often.

Table 10, shows the average number of patients the respondents see per week. This revealed that majority 46 (50.55%) of the respondents, see 31 - 60 patients per week. This observation shows that the number of patients the respondents see every week was very low. This could be because of sharp increase in the number of hospitals/clinics in Jos metropolis due to bad economy in the country. This therefore, forced most doctors to seek for other means of generating additional income to augment their salaries. Hence, more private clinics/hospitals are established. This view is in line with the findings of Ocheibi and Buba (2003), who pointed out that the poor economic situation in the third world countries often lead to the development of more private businesses including private hospitals/clinics.

Table 11, reveals the respondents level of satisfaction

**Table 11: Respondents Level of Satisfaction with the Internet Resources
N=91**

S/N	Level of Satisfaction	Frequency (No.)	Percentage (%)
1	Very Satisfaction	27	29.67
2	Satisfaction	51	56.04
3	Undecided	13	14.29
4	Not Satisfied	-	-
	Total	91	100.00

Source: Field work

**Table 12: Need for Further Training on Internet Use
N=91**

S/N	Need For Further Training	Frequency (No.)	Percentage (%)
1	Yes	86	94.51
2	No	5	5.49
	Total	91	100.00

Source: Field Work

**Table 13: Challenges Faced by the Respondents in the Use Internet
N=91**

S/N	Challenges	Frequency (No.)	Percentage (%)
1	Frequent Electricity Power Failure	21	23.08
2	Slow Internet Network	28	30.78
3	Coping With Large Amount of Down Loads/Hits	13	14.28
4	Lack of Computers	8	8.78
5	Cost of Internet Access	12	13.19
6	Lack of Time	9	9.89
	Total	91	100.00

with internet resources. Majority 51 (56.04%) of the respondents agreed that they were satisfied with the Internet resources. This observation could be because the internet hosts hug amount of medical resources, hence, the doctors were satisfied with the internet resources. This finding corroborates the works of Okoro and Okoro (2009), who on different occasions stated that most of the medical information resources have migrated to the Internet. Therefore, medical doctors must acquire internet skills if they are to still remain relevant in their profession.

Table 12, illustrates the need for further training of the respondents on the internet use. This revealed that majority (94.51%) of the respondents admitted that they need further training on how to use the internet to source for information. This observation could be because the respondents did not know how to use the different types of search engines. Hence, their searches were not deep enough to enable them obtain their needed information. This finding supports the works of Idowu and Oduwole

(2011) and Dolan (2011), who on separate occasions asserted that the inability of users of the internet to master the different types of search engines usually, limit the ability of the internet users to find their needed information in the net.

Table 13, shows the challenges faced by the respondents in the use of the Internet. This revealed that the highest proportion 28 (30.87%) of the respondents indicated slow Internet network (usually caused by low Internet bandwidth) was their major challenge. This could possibly be because the internet networks in most African countries are usually discouragingly slow. This situation is very frustrating. This observation supports the works of earlier researchers such as Bhatti (2014) and Oduwola (2003), who on separate accounts posited that Internet bandwidth and constant electricity power failure are the major challenges the Internet users in most developing countries faced in accessing internet resources. They further pointed out that if nothing is done to ameliorate these problems, time will come, most of the third world

countries will be cut off from development. This is because information is needed in the development of every aspect of a Nation.

SUMMARY OF MAJOR FINDINGS

1. Majority 62 (96.81%) of the medical doctors working in private hospitals/clinics in Jos metropolis are males;
2. Highest proportion 36 (39.56%) of the medical doctors working in private hospitals/clinics in Jos metropolis are within the age range 46 – 55 years;
3. The findings also revealed that most 54 (59.34%) of the medical doctors have good internet competencies;
4. The doctors' major source of acquisition of the internet competencies was through organized seminars/workshops;
5. Most 47 (51.65%) of the doctors accessed the internet in their consulting room;
6. Majority 56 (61.54%) of the doctors' means of accessing the internet was computer laptops;
7. The medical doctors did not know how to use search engines in their searches, hence majority 59 (64.85%) of the doctors used only Google search engine in their searches;
8. Most 60 (65.93%) of the doctor's purpose of using the internet was for patients' management;
9. The average numbers of patients the doctors see per week were between 31 – 50 patients;
10. Majority 78 (85.71%) of the doctors are satisfied with the internet resources;
11. Majority 86 (94.51 %) of the doctor admitted that they need further training on how to use the internet to source for information;
12. The major challenges the doctors faced in the use of the internet were slow internet network and frequent electricity power failure in that order.

CONCLUSION

This research was designed to assess the internet usage patterns of medical doctors in the management of patients in privately owned hospitals/clinics in Nigeria, using the medical doctors working in private hospitals in Jos metropolis as a focal population. The findings of this research has established that the use of the internet resources for patients' management is a known phenomenon among the medical doctors in Jos metropolis; however, its use in respect to its potential as a reservoir of health resources is less, as most of the doctors lacked the knowledge, and use of suitable search engines to retrieve information from the internet. Hence,

their searches were not deep. Even though most of the doctors claimed knowledgeable in the use of the internet, majority of them agreed that they still need more training in the use of the internet. It was therefore, recommended among others, that Nigerian Medical Association (NMA), which is the umbrella association of the medical doctor in Nigeria, should organise workshops for their members in Jos metropolis on the use of internet resources for patients' management with emphases on use of search engines.

RECOMMENDATIONS

Based on the findings of this study the following recommendations were proffered:

1. The Nigeria Medical Association should organise workshops for their members in Jos metropolis, on internet use in patients' management. The workshops should emphasize on the use of search engines to retrieve health information resources from the internet. This will help reduce excessive downloads of unwanted information, which many of the respondents identified as one of their major challenge;
2. The owners of private hospitals/clinics in Jos metropolis should acquire generators. This will ease the problem of constant electricity power failure. Hence the internet facilities will be powered for smooth operation of the Internet;
3. All the consulting rooms should be furnished with fast internet network services, this will encourage the medical doctors to use the internet effectively for patients management;
4. Computers preferably laptops should be acquired for the doctors. This will really relieve them from the troubles of using their phones or not being able to access the Internet;
5. Owners of private hospitals/clinics in Jos metropolis should offset the cost of Internet access, instead of allowing the doctors to use their data and smartphones to access the resources in the internet for patients care;
6. The owners of private hospitals/clinics should employ more doctors. This will create enough time for the doctors to have enough time to access the internet. This is because if the doctors are overloaded with many patients they may not have time to use the internet.

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