
PERCEPTIONS OF COUNSELLORS AND HEALTH PRACTITIONERS ON THE USE OF ONLINE TELE-HEALTH AND MEDICINE SERVICES IN SELECTED TEACHING HOSPITAL IN EDO STATE

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ABSTRACT

This study examined online telemedicine services in the teaching hospitals in Edo States as perceived by counsellors and health practitioners. The teaching hospitals covered are: Irrua Specialist Teaching Hospital (ISTH) and Irrua, University of Benin Teaching Hospital (UBTH). The descriptive survey design was adopted for this study. The population of the study covered all the 3,224 staff in Irrua Specialist Teaching Hospital (ISTH) and Irrua, University of Benin Teaching Hospital (UBTH). The staff covers the 700 counsellors and counsellor educators, 591 Doctors, 1,515 Nurses, 267 Laboratory Scientists, 105 Pharmacist, 22 Physiotherapists, and 23 Radiographers. A sample of 1612 staff was drawn for the study. The proportionate random sampling technique was used to draw a sample. 50 percent of the staff was drawn as sample from each of the teaching hospitals. The questionnaire titled: Online Telemedicine Service Survey Questionnaire (OTSSQ) was used. Descriptive such as frequency count (%), means and charts were used to analyse the data collected. The result obtained showed that only Teledermatology, Telenursing, store and forward and real time (interactive) are the telemedicine services provided in the teaching hospitals among several others – Telecardiology, Teleradiology, Telepathology, Telepharmacy, and remote monitoring. Telemedicine are greatly applied within specific specialties, applied for clinical problems and applied for practitioner support in the teaching hospitals in Edo State. Inadequate medical practitioners, inadequate patient record, time consumption, insufficient medical records, difficulty in retrieving record, unfavorable government policy, poor funding, poor internet facilities, challenges to patient privacy, and inadequate of infrastructure are the perceived challenges associated with the use of telemedicine in the teaching hospitals in Edo State. It was therefore recommended that there is need for basic training and familiarity with the computer and associated communication systems in order to facilitate the use of telemedicine and telehealth applications and systems.

Keywords: Counselling, Online Tele-health, Tele-medicine, Health Services, Teaching Hospital.

1. INTRODUCTION

Health is one of the major components of human capital development and the basis for carrying out any meaningful activity on a day to day basis. It is considered an asset and one of the goals most valued by human beings throughout the world. The role of health in the social-economic development of any economy cannot be overemphasized. Therefore, Imahe (2018) submitted that investment in health is a life resource because investment in health is for the living and not the dead. This is the reason the government opens the right to provide health services to both the private and public sectors.

Many developing countries are facing various problems in delivering health care and medical services to their population. Lack of funds as well as a dramatic shortage of trained and experienced doctors and nurses, poor roads, limited transportation facilities and long distances is severe obstacles for providing health care services to rural communities and remote areas. Good quality services and medical specialists are often concentrated in urban areas (Awolola, 2015; Zayyad, & Toycan, 2018). Patients cannot often afford transportation to the nearest health care center providing the necessary medical services. Provision of support and continuous medical education for those health care professionals working in rural areas are extremely difficult (World Health Organization, 2015). Telemedicine is a feasible tool to address at least some of these issues.

The term “telemedicine” technologies is composed of the two Greek words ‘*tele*’ meaning ‘*far*’, and *medicine* (James, Odimayomi, Kayode & Halilu, 2015). This can be translated to mean the delivery of medical based services to cater for far distance travelling. Telemedicine which is a subset of e-health is an integrated system of health-care delivery that employs telecommunications and computer technology as a substitute for face-to-face contact between health service provider and client) (Nakajima & Chida, 2008). This means that telemedicine services and technologies deals with the transfer of electronic medical data (that is, images, sounds, live video, and patient records) from one location to another. It includes the use of electronic information and telecommunication technologies to support long-distance clinical health care, patient and professional health-related education, public health, and health administration (Wamala & Kaddu, 2013).

The American Telemedicine Association (ATA) was established in 1993, as a nonprofit organization whose goal is to promote access to medical care and health professional via telecommunication and information technology (alternatively referred to as telemedicine) and all aspect of clinical telemedicine practice, technical advances and enabling technologies and eradicates the existing problem ranging from the following: inadequate medical professional; inaccurate patient record; time consumption; insufficient storage for medical records; and difficult remote access; and difficult to retrieve patient record (Hamid, Asefeh, Behjat, & Mehran, 2015).

Telemedicine may be as simple as two health professionals discussing a case over the telephone, or as complex as using satellite technology and video-conferencing equipment to conduct a real-time consultation between medical specialists in two different countries. It can also involve the use of an unmanned robot (Van, Soyannwo, Odebunmi, Dania, Van Selm, Van, & Hasselaar, 2015). The fact that economic health depends on medical health, since health is wealth, implies that health care needed to be accessible to all including the rural communities which if compromised could undermine the entire socioeconomics fabrics of the country. Today, patients are able to acquire healthcare information through the Internet, resulting in smarter patients with higher expectations and a demand for high-standard quality care. The review of the health-care system, the level of its decline, the services provided, and the general health status of Nigerians, with the available data revealed that the Nigerian health-care system is characterized by poor infrastructure, high infant mortality rates, and poor nutritional status of children. This problem is equally compounded by high fertility rates and high maternal mortality rates (Awolola, 2015).

The healthcare system of Nigeria consists of primary, secondary and tertiary levels of care. These levels are under the three tiers of government namely Federal Ministry of Health

(FMOH), State and Local respectively. The local governments provide primary level of services (lowest level of service) through Primary Health Care (PHC) centers. The state governments are responsible for secondary level of healthcare and deliver service through general hospitals. Finally it is the responsibility of the Federal Ministry of Health to deliver tertiary care through highly specialized services in teaching hospitals and federal medical centers (Duru & Nwagbos, 2007). The responsibilities of these three tiers of government in the delivery of health service overlap in a way. State governments provide some tertiary care through state-owned teaching hospitals, tertiary institutions also provide PHC services through their general outpatient department while the Federal Ministry of Health through National PHC Development Agency develops policies, develops PHC physical structures and supervises the operations of PHC centers (Nigeria Demographic and Health Survey, 2014).

With the Nigeria's health care system undergoing profound changes and experiencing relentless financial pressures, there is need to consider telemedicine application in urban as well as rural settings. In many countries (Nigeria for example), Telehealth has also recently reemerged as a potentially clinically appropriate, cost effective means of supporting patients and providers in the changing health care system (Ajala, Adetunji, & Akande, 2015). It has been considered as a promising tool that addresses many of the problems of delivering health care to remote areas, as well as to areas underserved by health care professionals (Wamala, & Kaddu, 2013).

The terrible failure of public health care system in Nigeria has attracted comments and criticisms from local and national levels. The provision of adequate medical services to the citizens, particularly those residing at the rural areas has left much to be desired. Today there is rapid increase in population growth so the problem of managing health effectively becomes very difficult and in spite of the current health sector reforms by the government, the public health care system in Nigeria is still inefficient in all ramifications. Adenuga, Iahad, & Miskon (2017) argued that the problems facing the public health care system in Nigeria could be traced to poor implementation of National Health Policy as well as other health-related policies and programmes. When caring for people, the focus must always be on ensuring the patient receives the best quality care at all times. Using Telemedicine technologies can ensure that more people receive top quality care, faster and more efficiently from top medical specialists, no matter where they live. The fundamental problem of healthcare delivery in Nigeria includes poor funding and access to good health services by the needy in the rural areas and the poor urban city dwellers.

Guidance counsellors, counselor educators and practicing counsellors have often been applauded for the vital role they play in health promotion and health enhancing technology through their various services like counselling, information and orientation services (Arfasa & Weldmeskel, 2020). Adegboyega (2020) pointed that the increase in scientific discoveries and technological advancement in recent times has made information, counselling and orientation services of school counsellors quite needful and accessible in every area of fostering health and safety, managing various non-communicable diseases and promoting healthy living among people; particularly the aged and vulnerable.

In Nigeria, Telehealth has also recently emerged as a potentially clinically appropriate, cost effective means of supporting patients and providers in the changing health care system. It has been considered as a promising tool that addresses many of the problems of delivering health care to remote areas, as well as to areas under served by health care professionals (Imouokhome and Osubar, 2012). Several recent studies have been carried out on telemedicine services in

Nigeria. For instance telemedicine acceptability in South Western Nigeria was carried out by Ajala, Adetunji and Akande (2015) to examine the prospects and challenges of telemedicine services. Similar study was carried out in Abuja, Nigeria by James, *et al.*, (2015). With focus on teaching hospitals in Kwara State, Awolola (2015) conducted a study on how telemedicine and e-Health helps with capacity building of healthcare professionals in Africa.

From the foregoing studies, many of the literature relied on selected primary and secondary health institutions in their geographical area of investigation. In Lagos State University Teaching Hospital (LUTH) in Lagos State and University of Benin teaching Hospital (UBTH), Edo State, a case study report on availability, utilization, prospects, challenges and possible solutions for promoting telemedicine service seeming to be lacking as no recent literature on this area of interest is known to the researcher; particularly with respect to perspectives of counsellors and health practitioners within the teaching hospital settings. This constitutes the knowledge gap that this study seeks to fill.

Research Questions

This study was guided by the following research questions:

- 1) What is the degree of availability of telemedicine services in selected teaching hospital in Edo State?
- 2) What are the types of telemedicine in medical services delivery in selected teaching hospital in Edo State?
- 3) What is the degree of application of telemedicine in selected teaching hospital in Edo State?
- 4) What are the effects of telemedicine on medical service delivery in selected teaching hospital in Edo State?
- 5) What are the challenges associated with the use of telemedicine in selected teaching hospital in Edo State?
- 6) What are the possible solutions to the challenges of the use of telemedicine in selected teaching hospital in Edo State?

2. METHOD OF STUDY

The descriptive survey design was adopted for this study. Descriptive survey is a research design in which the researcher interacts with the participants through interview or questionnaire to collect the necessary data required for a study (Leedy & Ormrod, 2005). The population of the study covered all the 3,224 staff in Irrua Specialist Teaching Hospital (ISTH) and Irrua, University of Benin Teaching Hospital (UBTH). The staff covers only the 591 Doctors, 1,515 Nurses, 267 Laboratory Scientists, 105 Pharmacist, 22 Physiotherapists, 23 Radiographers and 700 counsellors and counsellor educators.

A sample of 1612 staff was drawn for the study. The proportionate random sampling technique was used to draw a sample. 50 percent of the staff was drawn as sample from each of the teaching hospitals. The choice of the sample size was informed by the need to draw a representative sample of staff from each of the teaching hospitals in the state. This procedure was supported by scholars (Bils & Klenow, 2000; Adelman, 2000) who noted that when a population is less than four thousand, a sample size of 50% of the population suffice a representative sample for the study.

The instrument that was used for the collection of data is a questionnaire developed by the researcher. The questionnaire was titled: Online Telemedicine Service Survey Questionnaire (OTSSQ). The instrument was divided into Sections A and B. Section A contains information on the personal data of respondents such as their sex, staff cadres/position. Section B is sub-divided into four parts. Part 1 address the online telemedicine services available while Parts 2, 3 and 4 deals with the online telemedicine services available, the perceived benefits, challenges and measures of promoting its usage respectively. Each of the items was rated on a four point likert scale type: Strongly Agree - 4; Agree - 3; Disagree -2 and Strongly Agree - 1. The instrument (OTSSQ) was subjected to face and content validity.

The test-retest method was used to determine the reliability of the instrument (OTSSQ). This was done by administering copies of the items on a pilot group of mothers or caregivers. The pilot study was conducted among 25 mothers or caregivers outside the target rural communities (Emaudo and EbuteUke). The data needed for the study were collected through the use of a researcher administered questionnaires. Descriptive such as frequency count (%), means and standard deviation used to analyse the data collected.

3. RESULTS

Research Question 1: What is the degree of availability of telemedicine services in the teaching hospitals in Edo State?

Table 1: Mean Ratings and Standard Deviation (S.D) of Respondents on the Degree of Availability of Telemedicine Services in the teaching hospitals in Edo State

s/n	Items	N	\bar{X}	SD	Remark
1	Reliable internet service	1602	2.53*	.79	High Extent
2	Computerized laboratory system	1602	1.81	.85	Low Extent
3	Computerized pharmacy system	1602	1.08	.88	Low Extent
4	Search and locate patient system	1602	1.94	1.01	Low Extent
5	Real-time patient consultations	1602	2.95*	.88	High Extent
6	Remote monitoring of patient’s vital signs and conditions	1602	1.95	.58	Low Extent
7	The storing and forwarding of critical health information for analysis and diagnosis	1602	3.09*	.95	High Extent
8	The provision of specialized services over long distances	1602	1.95	1.03	Low Extent
9	The wide availability of health information to patients and care givers	1602	3.46*	.82	High Extent

N= number of respondents, \bar{X} = mean of respondents SD = Standard deviation of respondents.

Result in Table 1 showed the responses of respondents on degree of availability of telemedicine services in the teaching hospitals in Edo State. The result showed that reliable internet service, real-time patient consultations, the storing and forwarding of critical health information for analysis and diagnosis and the wide availability of health information to patients and care givers were attested to be the available services at a mean scores ranging from 2.95 to 3.46. This showed that only reliable internet service, real-time patient consultations, the storing and

forwarding of critical health information for analysis and diagnosis and the wide availability of health information to patients and care givers are fully available in the telemedicine services to a high extent while computerized laboratory system, computerized pharmacy system, search and locate patient system, search and locate patient system, remote monitoring of patient’s vital signs and conditions, the provision of specialized services over long distances were poorly available (at a low extent). The low standard scores shows that there is less variability in the opinion of the respondents on the degree of availability of telemedicine services in the teaching hospitals in Edo State.

Research Question 2: What are the types of telemedicine in medical services provided in the teaching hospitals in Edo State?

Table 2: Mean Ratings and Standard Deviation of Respondents on Types of Telemedicine in Medical Services provided in the teaching hospitals in Edo State

S/N	Types of Telemedicine	N	\bar{X}	SD	Remark
1.	Telecardiology	1602	2.01	.75	Disagreed
2.	Teledermatology	1602	2.71*	.94	Agreed
3.	Teleradiology	1602	2.13	.91	Disagreed
4.	Telepathology	1602	2.03	.65	Disagreed
5.	Telepharmacy	1602	1.84	.63	Disagreed
6.	Telenursing	1602	2.87*	.70	Agreed
7.	Store and forward	1602	2.82*	.65	Agreed
8.	Remote monitoring	1602	2.44	.65	Disagreed
9.	Real time (interactive)	1602	2.84*	.69	Agreed

N= number of respondents, \bar{X} = mean of respondents SD = Standard deviation of respondents.

Data presented in Table 2 shows the types of telemedicine in medical services delivery. The result shows that only Teledermatology, Telenursing, store and forward and real time (interactive) at a mean score ranging from 2.71 to 2.84 indicating that their mean values were above the cut-off point of mean 2.50. This showed that other telemedicine services – Telecardiology, Teleradiology, Telepathology, Telepharmacy, and remote monitoring are the rarely provided telemedicine services in the teaching hospitals. The Table further showed that the standard deviation of the items ranged from .63 to .94, indicating that there was less variability in the opinion of the respondents on the types of Telemedicine in Medical Service provision in the teaching hospitals in Edo State.

Research Question 3: What is the degree of application of telemedicine in the teaching hospitals in Edo State?

Table 3: Mean Ratings and Standard Deviation of Respondents on the Degree of Application of Telemedicine the Teaching Hospitals in Edo State

Degree of Application of Telemedicine	N	\bar{X}	SD	Remark
Management of specific diseases	1602	1.83	.62	Low Extent
Use within specific specialties	1602	2.78*	.65	High Extent
Classification according to technology	1602	1.76	.61	Low Extent

Types of clinical problems	1602	2.80*	.63	High Extent
Provide access for their local populations	1602	1.76	.61	Low Extent
Bring specialty services to the local area in a collaborative fashion	1602	2.44	.67	Low Extent
Decrease out migration of patients based on perception of available services and the quality of those services;	1602	2.33	.73	Low Extent
Decrease unnecessary transports to tertiary care facilities;	1602	2.18	.77	Low Extent
Provide practitioner support	1602	2.96*	.77	High Extent
Increase utilization of local ancillary services	1602	2.28	.65	Low Extent

N= number of respondents, \bar{X} = mean of respondents SD = Standard deviation of respondents.

Data presented in Table 3 shows that the mean values on use within specific specialties, types of clinical problems and provision of practitioner support were within the real limits of mean 2.78 and 2.96. The Table further showed that the standard deviation of the items ranged from .61 to .77, indicating that there was less variability in the opinion of the respondents on the degree of application of Telemedicine in the teaching hospitals in Edo State.

Research Question 4: What are the effects of Telemedicine on Medical Service delivery in the teaching hospitals in Edo State?

Table 4: Mean Ratings and Standard Deviation of Respondents on Effects of Telemedicine on Medical Service Delivery in the teaching hospitals in Edo State.

S/N	Effects of Telemedicine	N	\bar{X}	SD	Remark
1.	Rapid and efficient communication	1602	3.30	.72	Agreed
2.	Alleviate imbalances in geographical allocation of resources	1602	2.81	.75	Agreed
3.	Decreases patient anxiety	1602	2.81	.76	Agreed
4.	Increases access to health facilities	1602	2.94	.81	Agreed
5.	Elimination of real – time interaction	1602	2.86	.88	Agreed
6.	Reduces cost	1602	2.87	.79	Agreed
7.	Reduction of waiting / travel time	1602	2.85	.60	Agreed
8.	Increases patient comfort	1602	3.32	.87	Agreed
9.	Several medical practitioners can work on a patient concurrently	1602	2.95	1.06	Agreed

10.	Higher reliability of the diagnosis	1602	3.43	.83	Agreed
11.	Increases patient security and satisfaction	1602	3.09	.76	Agreed
12.	Increases convenience	1602	3.30	.82	Agreed

N= number of respondents, \bar{X} = mean of respondents SD = Standard deviation of respondents.

Table 4 shows the effects of telemedicine on medical service delivery. Results obtained revealed that all the twelve items recorded mean scores ranging from 2.81 to 3.43 indicating that their mean values were above the cut-off point of mean 2.50. This showed that all the items were agreed by respondents as the perceived effects of telemedicine on medical service delivery in the teaching hospitals in Edo State. The Table further showed that the standard deviation of the items ranged from .60 to 1.06, indicating that there was less variability in the opinion of the respondents on the effects of telemedicine on medical service delivery in the teaching hospitals in Edo State.

Research question 5: What are the challenges associated with the use of Telemedicine in the teaching hospitals in Edo State?

Table 5: Mean Ratings and Standard Deviation of Respondents on Challenges Associated with the Use of Telemedicine in the teaching hospitals in Edo State

S/N	Challenges of Telemedicine Utilization	N	\bar{X}	SD	Remark
1.	Inadequate medical practitioners	1602	2.84	.92	Agreed
2.	Inadequate patient record	1602	3.26	.68	Agreed
3.	Time consumption	1602	2.86	.93	Agreed
4.	Insufficient medical records	1602	3.62	.68	Agreed
5.	Difficult remote access	1602	3.59	.71	Agreed
6.	Difficulty in retrieving record	1602	2.80	.92	Agreed
7.	Unfavorable government policy	1602	2.84	.92	Agreed
8.	Poor funding	1602	3.23	.66	Agreed
9.	Poor internet facilities	1602	2.83	.94	Agreed
10.	Ethics and legal issues	1602	2.19	.68	Disagreed
11.	Challenges to patient privacy	1602	3.19	.69	Agreed
12.	Insecurity	1602	2.21	.70	Disagreed
13.	Poor level of satisfaction	1602	2.18	.70	Disagreed
14.	Inadequate of infrastructure	1602	2.80	.95	Agreed

N= number of respondents, \bar{X} = mean of respondents SD = Standard deviation of respondents.

Table 5 shows the challenges associated with the use of telemedicine. With exception of ethics and legal issues, Insecurity and Poor level of satisfaction, the results obtained revealed that all the other eleven items were agreed on at a mean scores ranging from 2.80 to 3.62 indicating that their mean values were above the cut-off point of mean 2.50. This showed that inadequate medical practitioners, inadequate patient record, time consumption, insufficient medical records,

difficulty in retrieving record, unfavorable government policy, poor funding, poor internet facilities, challenges to patient privacy, and inadequate of infrastructure were agreed by respondents as the challenges associated with the use of telemedicine in the teaching hospitals in Edo State. The Table also showed that the standard deviation of the items ranged from 0.66 to 0.95, indicating that there was less variability in the opinion of the respondents on the challenges associated with the use of Telemedicine in the teaching hospitals in Edo State.

Research Question 6: What are the strategies for mitigating challenges associated with the use of telemedicine in the teaching hospitals in Edo State?

Table 6: Mean Ratings and Standard Deviation of Respondents on Strategies for overcoming the Challenges Associated with the Use of Telemedicine

S/N	Strategies	N	\bar{X}	SD	Remark
1.	Amendment of telemedicine laws	1602	3.19	.70	Agreed
2.	Clarification of liability policies	1602	3.17	.71	Agreed
3.	Incorporation of telemedicine in the curricula of medical schools	1602	3.17	.73	Agreed
4.	Adequate funding	1602	3.16	.71	Agreed
5.	Public enlightenment	1602	3.60	.76	Agreed
6.	Provision of adequate facilities	1602	2.81	.96	Agreed
7.	Improvement in licensing issues	1602	2.07	.94	Disagreed
8.	Reimbursement from insurance companies	1602	2.20	.95	Disagreed

N= number of respondents, \bar{X} = mean of respondents SD = Standard deviation of respondents.

Table 6 shows the strategies for overcoming challenges associated with the use of telemedicine. With exception of improvement in licensing issues and reimbursement from insurance companies, the results obtained revealed that all other strategies recorded mean scores ranging from 2.77 to 3.60 indicating that their mean values were above the cut-off point of mean 2.50. This showed that the strategies - amendment of telemedicine laws, clarification of liability policies, incorporation of telemedicine in the curricula of medical schools, adequate funding, public enlightenment and provision of adequate facilities were agreed strategies needed for mitigating the challenges associated with the use of telemedicine in the teaching hospitals in Edo State. The Table also showed that the standard deviation of the items ranged from .70 to .96, indicating that there was less variability in the opinion of the respondents on strategies for mitigating the challenges associated with the use of telemedicine in the teaching hospitals in Edo State.

4. CONCLUSION

Based on the finding of the study, it was concluded that only Tele dermatology, Telenursing, store and forward and real time (interactive) are the telemedicine services provided in the in the teaching hospitals among several others– Telecardiology, Teleradiology, Telepathology, Telepharmacy, and remote monitoring. Telemedicine are greatly applied within specific specialties, applied for clinical problems and applied for practitioner support in the teaching hospitals in Edo State. Inadequate medical practitioners, inadequate patient record, time consumption, insufficient medical records, difficulty in retrieving record, unfavorable government policy, poor funding, poor internet facilities, challenges to patient privacy, and inadequate of infrastructure are the challenges associated with the use of telemedicine in the teaching hospitals in Edo State.

5. RECOMMENDATIONS

Based on the findings from this study, the following recommendations are made:

- 1) There is need for basic training and familiarity with the computer and associated communication systems in order to facilitate the use of telemedicine and telehealth applications and systems.
- 2) There is need for increase funding by the government to enable administrators of teaching hospitals purchase modern facilities and technology infrastructure needed for improved telemedicine services.
- 3) Health professionals should devise methods of approaching medical schools to encourage them to integrate courses into their programmes that instruct the students on the most commonly used forms of telemedicine and the forms likely to be used in the future.
- 4) Establishing a basic understanding of what this medical technology can lead to will help counselor educators enlighten the telemedicine debate by turning unique insights into more adequate approaches that will enrich and humanize mediated channels of health communication, thereby offering remedies and clarifications for effective health care exchange and delivery.

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