

Knowledge and Perception of Telemedicine and E-health by Some Nigerian Health Care Practitioners

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Abstract

Telemedicine and e-health is the use of electronic information and advanced telecommunication technologies to support long distance clinical health care, patient's health records, patients and professional health related education, public health and health administration. As Nigeria enters the world of telehealth, there are concerns about the level of information and knowledge of health care providers who are to operate the programme.

In this study, 200 healthcare providers including doctors, nurses, pharmacists, laboratory scientists, medical records officers radiographers, senior nursing and senior medical students were respondents in the assessment of their knowledge and perception using interviews and semi-structured questionnaire. 83 (41.5%) of the respondents had poor knowledge of telehealth and only 42 (21%) were aware of the country's proposed telehealth programme. 141 (70.5%) will use telehealth services and 138 (69%) will recommend its use to others. 134 (67%) believed it should be included in the three tier health system while 114 (57%) thought it should be a special programme. 162 (81%) of the respondents were positive on the relevance and benefits of telehealth introduction to the Nigerian health system.

This result underscored the need for stake holders wide consultation and public enlightenment prior to the formulation of government policy on telemedicine due to current poor level of information. Furthermore, there is need for man power development for this programme which possesses the potential of taking specialized healthcare services to the otherwise unreached while also improving the knowledge and skills of healthcare practitioners in remote locations through distance learning.

Key words: *telemedicine, healthcare, distance learning and telecommunications.*

INTRODUCTION

Tele- is the Greek word for "far off" or distant connoting "over a distance (e.g telegram, telephone, television, telecommute).

Telehealth is the use of electronic information and advanced telecommunication technologies to support long distance clinical health care, patient and professional health related education, public health and health administration (OAT bulletin 2005 www/telehealth.hrsa.gov)

Telemedicine a subset of Telehealth includes remote diagnosis, consultation, treatment and education using interactive voice, video and data communications delivered over broad bandwidth telecommunication linkages (OAT workfile 2005)

The promise of Telemedicine is the provision of significantly improved and cost effective access to quality health care. The potential of Telemedicine is helping to transform the delivery of healthcare and improve the health of millions of people throughout the world (Editorial A.T.A 2001).

Those historical words spoken by Alexander Graham Bell to Dr. Watson in 1876 when he requested for medical assistance after he had spilled acid on himself marked the first complete sentence ever to be transmitted over a telephone could also be regarded as the first telemedicine consultation(University of Virginia 2005)

Overall, Telehealth is expected to cause a reduction in healthcare cost and enable accessibility to specialized healthcare services where they are lacking (OAT workfile 2005).

Early Telemedicine may have been as simple as a doctor telephoning another doctor for advice and consultation. Today, Telemedicine can bring a physician located hundreds of miles away into the actual examination room via a live interactive system (Adams & Grigsby 1995).

Telehealth is generally used as an umbrella to describe all possible variations of healthcare services using electronic communications and information technology.(Barton & Huston 1998)

Persons who live hours from advanced medical care or even from basic medical services can directly access high quality medical expertise without leaving their community. It includes the facilitation of health assessment and diagnosis, intervention, consultation, supervision, education and the conveyance of information via analogue and digital media (Adams & Grigsby 1995).

Telehealth application is therefore an important tool for enhancing healthcare delivery particularly in rural and remote areas where health care resources and expertise are often scarce or non existent.

For telehealth to be successful, it has to be designed, implemented supported and sustained in the proper manner (Elford . et al 1999)

If improperly introduced, telehealth could result in a form of technological thalidomide” creating new problems and taking resources away from other needed services.(Field 1996)

When caring for people the focus must always be on ensuring the patient receives the best quality care at all times. Using Telehealth 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.

An easy way out of the problems seems to have been found as Nigeria formally enters the world of Telemedicine and e-Health on October 20, 2005, joining other countries of the world like India, Germany, Norway and the United States of America (Akinwunmi 2005).

There is therefore serious concern about the modalities and implementation of this program to ensure its success. The current reforms in health which gave birth to the National Health Insurance scheme is yet to be fully operational. Incorporating telemedicine and E-health no doubt poses many more challenges.

Some of these challenges include:

(i) Funds to start the whole programme and the modalities of reimbursement by the health insurance organizations

(ii) Legal issues which includes confidentiality and liabilities that are expected from, the practice of telehealth.

(iii) Human factors: inadequate orientation and training of clinicians and other health workers who are to operate the program poses a big challenge.

Secondly, patients satisfaction with traditional health care services has been found to depend upon at least eight values and these include quality, safety, confront, privacy, confidentiality, efficacy, communication cost. While the patients perspective of telemedicine has not been well documented, preliminary indicators in some advanced countries are positive. (Darkins & Cary 2000

Loss of face to face contact is a key concern to many clinicians, face to face contact is considered essential to the development of a therapeutic relationship. A physician's ability to touch a patient is often considered essential for a correct diagnosis. A key question is whether the physician and patient at the

remote site can adequately describe tactile sensation to the specialist. However use of telehealth still seems a better alternative to not seeing the specialist at all. (Cukor & Baer 1994).

The application of telemedicine within those specialties where face to face contact is not necessarily required e.g. radiology, and pathology appears to have gained widespread clinical acceptance.

(iv) Technological and infrastructural factors

The irregular power supply and developing telecommunication technology is a source of worry. The country with a population of one hundred and fourty million is under telephoned. Since successful telehealth programs depends on Integrated Services Digital Network (ISDN), there is need to pay tariffs to telecommunications company which will provide the services. The strength of telehealth services depend on the ability and the capacity of the (ISDN) provider. (Joseph Tracy 2004)

There could also be technophobia on the part of telehealth providers and the patients. The patients might be taken aback with the technology while he or she needs to respond to specific instructions. The whole change process can be daunting if not properly managed. (Cukor & Baer 1994)

The focus of this study is therefore to assess the level of knowledge and information of providers to ensure the success of the program.

METHODS

Subjects

The study was limited to respondents in Obafemi Awolowo University teaching Hospital and College of Health Sciences Obafemi Awolowo University, Ile-Ife Osun State of Nigeria.

The sample size of 200 representing approximately 10% of the sample population of 1,997 was selected using a table of random figures for the study.

The study population includes Lecturers of the College of Medicine (135), doctors and Dentists (471), Nurses (654), Radiographers (12), Laboratory scientists (530 Pharmacists (41) Physiotherapists (17) Medical records officers (27) Senior Medical Students (510) and Senior Nursing Students (71)

Data Collection

Primary and Secondary sources of data collect were utilized in this study. Primary data source employed for the study was the conduct of interview and administration of semi structured questionnaire to the 200 respondents.

Secondary sources of data used in this study included medical journal, books, health statistical records and Internet facilities.

Analysis of Data

Data generated from questionnaire were coded and imputed into the Computer System and analysed Statistically using the statistical package for social science (SPSS) Software. Observations made by respondents during the interview were also noted.

Results

In this study, of the 200 respondents, 128 representing 64% fall between the age group of 20-30 years, 52 representing 26.0% were in the age group 31-40 years 17(8.5%) were in the age group 41-50 years and 3 representing 1.5% were in the age group 51-60 years (Table: 1).

Table 1: Frequency distribution of respondents by age

Age-Group	Frequencies	Percentage (%)
20-30	128	64.0
31-40	52	26.0
41-50	17	8.5
51-60	3	1.5
Total	200	100.0%

Source: Field Survey July 2007

With regards to gender, 109 i.e. (54.5%) of the respondents were males while 91 (45.5%) were females (Table: 2)

Table 2: Frequency distribution of respondents by gender

Gender	Frequency	Percentage (%)
Male	109	54.5
Female	91	45.5
Total	200	100.0

Source: Field Survey July 2007

Considering the Occupational distribution of the respondents, 14 (7.0%) were academics, 47 (23.5%) belong to the medical and Dental professions, 65 (32.5%) were nurses, 2 (1%) were medical laboratory scientists. Others were 5 (2.5%) Pharmacists, 4 (2.0%) were senior medical students and 7 (3.5%) were senior nursing students (Table 3).

Table 3: Frequency distribution of respondents by occupation

S/No	Occupation	Frequency	Percentage (%)
1	Academics	14	7.0
2	Medical/Dental	47	23.5
3	Nursing	65	32.5
4	Medical lab. Science	2	1.0
5	Pharmacy	5	2.5
6	Radiography	4	2.0
7	Medical Records	2	1.0
8	Physiotherapy	3	1.5
9	Senior medical students	51	25.5
10	Senior nursing students	7	3.5
	Total	200	100.0%

Source: Field Survey July 2007

In assessing the quality of the Nigerian health systems, 68(34%) rated it poor while 2(1%) rated it excellent and 103 (51.5%) and 21 (10.5%) rated it fair and good respectively. The knowledge and understanding of National health insurance were also assessed with 69(34.5%) and 65(32.5%) of the respondents having fair and good knowledge respectively. The probability of success of the telehealth programme was observed to be high among respondents with 94(47%), 67(33.5%) and 18(9.0%) giving it fair, good and very good respectively. The contribution of international agencies to Nigerian health care system were acknowledged by respondents with very high ratings (Table 4).

Table 4: Frequency Distribution of Test Parameters with multiple Options

S/No	Test parameters	Poor		Fair		Good		Very Good		Excellent		%	Total
1	Current country health rating	68	34	103	51.5	10.5	10.5	6	3.0	2	1.0	100	200
2	Knowledge understanding of NHIS	32	16.0	69	34.5	37.5	37.5	17	8.5	7	3.5	100	200
3	Knowledge of telehealth	83	41.5	81	40.5	23	11.5	10	5.0	3	1.5	100	200
4	Probability of success of NHIS	20	10.8	94	47.0	67	33.5	18	9.0	1	0.5	100	200
5	Probability of success of Telehealth	52	26.0	79	39.5	49	24.5	15	7.5	5	2.5	100	200
6	Rating of contribution of international agencies to Nigerian health system	10	5.0	59	29.5	97	48.5	27	13.5	5	2.5	100	200

Source: Field Survey July 2007

42 (21%) of the respondents were aware of the proposed Nigerian Telehealth Programme and 141 (70.5%) will use the services if available and 138 (69.0%) will recommend its use to others. 134 (67%) of respondents believed it should be integrated into the existing three tier health system, however, 114 (57%) think it should be a special programme. On the relevance and benefit of Telehealth to Nigeria, 162 (81%) were in the affirmative. (Table 5)

Table 5: Frequency distribution of Test Parameters with single Option.

S/No		Yes (%)		No (%)		Total (%)	
1	Knowledge of Nigerian Telehealth program	42	21.0	158	79.0	200	100
2	Will you use Telehealth if necessary?	141	70.5	59	29.5	200	100
3	Will you recommend Telehealth to others?	138	69.0	62	31.0	200	100
4	Should telehealth be in three tier health system?	134	67.0	66	33.0	200	100
5	Should Telehealth be a special program?	114	56.8	46	23.0	200	100
6	Relevance and benefit of Telehealth to Nigeria's health system	162	81.0	38	19.0	200	100

Source: Field Survey July 2007

Some of the challenges the respondents believed the Nigerian Telehealth Programme might face included; adequate funding, adequate infrastructures, maintenance of facilities, sustenance of services, power supply, coordination, fraud in disbursement of professional fees, inadequate training personnel and criminal or professional liabilities. The degrees of their perception of these challenges are thus represented.(Table 6)

Table 6: Frequency Distribution of Probable Challenges Expected from Telehealth Introduction in Nigerian Health System by Occupation.

		Academics		Medical/dental		Nursing		Med.Lab.Sciences		Pharmacy		Radiography		Medical Records		Physiotherapy		Senior medical. Students
1	Adequate funding	10	5.0	26	13.0	34	17.0	1	0.5	4	2.0	2	1.0	2	1.0	2	1.0	28
2	Adequate infrastructures	8	4.0	24	12.0	25	12.5	1	0.5	2	1.0	4	2.0	0	0	0	0	23
3	Maintenance of facilities	11	5.5	21	10.5	30	15.0	1	0.5	4	2.0	2	1.0	2	1.0	2	1.0	27
4	Sustenance of services	12	6.0	23	11.5	35	17.5	1	0.5	2	1.0	2	1.0	0	0	1	0.5	25
5	Power supply	9	4.5	19	9.5	29	14.5	1	0.5	3	1.5	3	1.5	2	1.0	2	1.0	28
6	Coordination	6	3.0	12	6.0	22	11.0	1	0.5	1	0.5	2	1.0	0	0	0	0	21
7	Fraud in reimbursement	6	3.0	14	7.0	26	13.0	1	0.5	1	0.5	2	1.0	1	0.5	1	0.5	25
8	Inadequate trained personnel	5	2.5	16	8.0	23	11.5	1	0.5	3	1.5	1	1.5	1	0.5	1	0.5	25
9	Criminal and professional liabilities	6	3.0	12	6.0	27	13.5	2	1.0	3	1.5	1	0.5	1	0.5	1	0.5	20

Source: Field Survey July 2007

Discussion and Recommendation

The proposed Nigeria telehealth program is a welcome development which is expected to bring health care services to the hitherto unreached citizens in sub-urban towns and villages .

From our study however, it was observed that there was poor knowledge of telehealth by the healthcare practitioners and this underscored the need for manpower development and public enlightenment for the programme to succeed.

Telehealth will no doubt cause a paradigm shift in health care provision and administration if well operated. It will positively impact primary healthcare services, cause reduction in costs, reduce risks and costs of transportation of patients that can benefit from telemedicine consult. Furthermore, centralised patients records system will enable physicians, irrespective of location to have access to patients records. Health administration and continuous professional education of healthcare practitioners will become easier with meetings and distance education and seminars being held by teleconferencing

The programme has good chances of success if well promoted, funded and constantly monitored and evaluated at every stage of implementation. Also, it should be a special programme of the Federal Ministry of Health.

In addition, there should be a comprehensive consultation of all stakeholders during the formulation of the country's policy on telemedicine on e-health. (Sanni 1999)

Strategies to address expected challenges should be seriously considered before policy formulation and equipment purchase and legal implications of operations of the programme should be well articulated. (Bailey 2000)

It is also imperative that a study of Health Systems running a successful telehealth programme be undertaken to learn from their areas of strength and pitfalls (Forkner et al 1996, Freir et al 1999 and <http://www//telehealth.hrsa.gov> 2005)

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