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Original Article

UTILIZATION OF DIGITAL HEALTH CARE SYSTEM IN ENUGU EAST SENATORIAL ZONE OF ENUGU STATE: AN IMPLICATION FOR COUNSELLING

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Abstract

This study was to determine the extent of utilization of digital health care system in Enugu East Senatorial zone of Enugu State. Two research questions and two null hypotheses guided the study. Descriptive survey research design was adopted for the study. The population of 433 doctors, nurses and the Community Health Extension Workers (CHEW) in the primary health care centers in Enugu East Senatorial District of Enugu State was involved in the study. The population was made up of 308 rural and 125 urban doctors, nurses and the Community Health Extension Workers (CHEW) in the primary health care centers in Enugu East Senatorial District of Enugu State. No sampling was done because the population is manageable. A structured questionnaire named "Utilization of Digital Health Care System" (ADHCS), was used for data collection. The instrument was validated by three research experts. The reliability of the instrument was determined using Cronbach Alpha Reliability Estimate: The overall reliability coefficient was .80. The questionnaire was administered and retrieved by the researcher with the help of six research assistants. Data collected with the questionnaire were analyzed using Mean ($\bar{x}$) with Standard Deviation (SD) to answer the research questions, while, the null hypotheses were tested using t-test statistic at .05 level of significance. From the result of the findings, there was low extent of utilization of telehealth services in the primary health care system in Enugu East Senatorial Zone of Enugu State, while to a great extent, health information technology services was utilized in the primary health care system. Also it was found that there was no significant difference in the mean ratings of urban and rural primary health workers regarding the extent health information technology services and telehealth services were utilized in the primary health care system in Enugu East Senatorial Zone of Enugu State. Based on the findings, the researcher recommended among others that, Government / health authorities should ensure the provision of digital health facilities in the primary health care system in Enugu East Senatorial Zone of Enugu State, so as to boost health care activities and services in Enugu East Senatorial Zone of Enugu State.

Keyword: Utilization, Digital Health, Implementation, Primary Health Care System.

Introduction

Digital health (DH) is the intersection between technology and healthcare. It looks at how technology can be used to improve the quality of treatment given to a patient. According to the World Health Organization (WHO) (2018), digital health includes all concepts and activities at the intersection of health and ICT. The Australian Digital Health Agency (2016), refers to digital health as any application of information and communication technologies in order to improve healthcare and health outcomes. The Canada Health Infoway (2018), saw digital health as the use of information technology/electronic communication tools, services and processes to deliver healthcare services to facilitate better health. Digital health is the range of services and technologies that allows patient to seek help without physically going to a hospital or clinic (Erickson, 2018). Mitchell (2019), explains digital health as having a profound effect on health system, changing the balance of power between provider and patient, enabling new models of care and shifting the focus of health system towards client-centered healthcare within low and middle-income countries. Mitchell further stated that though many of these changes are just been felt due to reluctant to change the status quo, the explosive growth of digital technology globally means that these changes are inevitable. Sonnier (2017), describes digital health as the convergence of the digital and genomic revolutions with health, healthcare living and society. From the perspective of Sonnier's description, digital health is seen as technology-driven and enabled but as health and healthcare in the context of society which has evolved to rely on and use digital information and technology in virtually every facet of life.

The Universal health coverage will not be achieved without a significant change in how health care is delivered in low-income countries. The current doctor-centered, facility based system cannot be expanded sufficiently to achieve "health for all", something we have been trying to do since the Alma Atta declaration of 1978 (Lena, 2019). However, the use of digital technology in health care delivery has the potential to provide a needed breakthrough in achieving access to high-quality care to everyone no matter where they live. In the opinion of Zuniga (2013), current healthcare delivery models are largely based on top-down medical model, driven by the World Health Organization, the doctors and nurses as the surveyors of knowledge and the arbiters of care. Care is primarily assessed through health facilities whether at the hospital or in the communities and information is delivered primarily by medical personnel. Although lip service is given to the need for client-centered care, the reality remains that services are primarily designed for and the medical establishment with little regards for the convenience or need of the client/patient. The problem with this model according to Ritcher (2015), is that it is difficult to expand to meet the growing needs of the population who wants more convenience, better information and better access to care where and when they want it. Digital health care delivery has the potential to provide a needed breakthrough in achieving access to high-quality care to everyone no matter where they live (Siwicki, 2018).

Digital health is not limited to wealthier countries. According to the Global System for Mobile Communications, there are over five billion unique digital phone subscribers reaching an estimated two thirds of the global population, including 2.27 billion monthly active Facebook users in 2018. The highest growth of digital technologies is now in the low-income countries, where according to the Pew Research Center (2018), 84% of people in developing and emerging economies own a cell phone compared to 90% of people in the United

States and are quickly catching up to those in advanced nations in terms of access to technology and beyond the growth in number of users. Digital technology is having a great impact on the lives of the poor in low-income countries. Recent studies in Zanziba, Tanzania, has shown how the use of digital technology has been able to significantly increase the ability of women to access safer delivery services. In India, Uganda and Tanzania, ambulance services focused on the use of digital protocols and access have placed the largely nonexistent public system. In South Africa, two million young women have access to accurate information about sex, health and motherhood through a national online service, run by the government. The National Health ICT Strategic Framework (2016), provides a vision and guide for alignment of current investment in technology within the health system towards a digitalized system that will help Nigeria achieve Universal Health Coverage (UHC) by 2020. As Africa's largest economy and most populous nation, Nigeria is experiencing substantial economic expansion, yet the country's health system is strained.

The government of Nigeria has introduced the necessary building blocks to facilitate the digitalization of the health system (Ibeneme, 2020). This development is followed by installation and inauguration of digital health care system in the health system across the 36 states of the Federation including the Federal Capital Territory (FCT) and among the recent inauguration of Digital Health across the state health care system is the inauguration of Telemedicine in Abeokuta. Akanove (2018), states that beginning in late 2014 and in the first half of 2015 the Nigerian Federal Ministry of Health (FMOH) and Federal Ministry of Communication Technology (FMCT) led the multi-sectorial and stakeholder development of the National Health Information and Communication Technology (Health ICT) strategic framework. The framework which incorporates the efforts and input of over 150 public and private health and technology sector stakeholder is a three part document that articulates the collective vision and necessary actions of stakeholders involved in the system in Nigeria. Borne out of the recognition for the opportunities that ICT present to support health systems strengthening and the achievement of health system goal, the National Health ICT strategic framework positioned Health ICT (Digital Health) within the current context of the health system. This means addressing Universal Health Coverage (UHC), one of the main priorities of the Federal Government of Nigeria.

There are existing privacy and security policies that are applicable to health ICT / Digital Health, including Nigeria's Medical Code of Ethics, constitution of the Federal Republic of Nigeria and National Health Law 2014. The code of ethics contains a special telemedicine provision; the provision covers the safety and maintenance of personal health information when that information is stored, sent or received by fax, computer, e-mail, or other electronic means. Sections 37, 45 and 46 of the constitution established a general right of privacy for Nigerians citizens, which can be applied to health. Gillan (2016), states that the National Health Law 2014 also provided for authorized access and storage of patient records. Awareness, education and capacity building of these provisions are limited, thus the need to explore extent of utilization of Digital Health in primary health care systems in Enugu East Senatorial Zone in Enugu State.

Primary Health care is the first level of health service contact for individuals, families and communities and the national health system at large. World Health Organization (2018), saw primary health care as an essential health care based on practical scientifically sound and socially acceptable method and technology, and universally accessible to individuals and families in the community through their full participation and at a cost that the community and the country can afford to mention at every stage of their development in the spirit of self-reliance and self-determination. Gillan (2016), refers to primary health care as an approach to health care that promotes the attainment by all people of a level of health that will permit them to live socially and economically productive lives. In the opinion of Akanove (2018), primary health care is a system of health care that is essential, scientifically sound (evidence-based) ethical, accessible, equitable, affordable and accountable to the community.

Primary health care is a term used to describe the first contact a person has with the health system when they have a health problem or issue that is not an emergency, (Orji, 2015). Markaki (2018), asserts that primary health care is not only primary medical or curative care, nor is it a package of low-cost medical interventions for the poor and marginalized. Primary health care is the provision of health services including diagnosis and treatment of health condition and support in managing long-term health care, including chronic conditions like diabetes (Siwicki, 2018). PHC include seeing health professionals to help individuals maintain good health, with regular health checks, health advice and support for ongoing care, (Gillan, 2016). Primary health care is essentially aimed to promote health, to cure diseases and to rehabilitate (Gillan, 2016). Von (2020), notes that primary health care promotes health and wellness and seeks to prevent injuries and illness. Von further noted that primary health care is about delivering health services, creating the conditions that help people to become and stay healthy and well. Primary health care forms an integral part of both the country's health system of which it is the central function and the main focus of the central community (Abimbola, 2012). Primary health care according to Yolanda (2019), plays a vital role in deployment of all resources channels in promoting, maintaining as well as improving health.

Mismanagement from poor policy formulation, analysis and implementation of programs has had detrimental effect on Primary Health Care in the country, (Olalubi and Bello, 2020). Olalubi and Bello added that corrupt practices such as falsification of reports diversion of resources for personal use among others have also plagued the implementation of various policies and interventions that are meant for the development of Primary Health Care. Yolanda (2019), reveals that funds released for the provision of PHC services in various communities have been embezzled by the various personnel in charge; Yolande further noted that the limited resources available accessible and affordable to the populace are spent in misguided and unfair way such that the underprivileged continue to suffer more. Temitope (2017), observes that a common situation in most PHC centers is the lack of materials and basic equipment such that patients have to purchase drugs and other medical goods at relatively high price in drugs or patent stores. This has been evidently proven to reduce patronage of PHC centers.

Basic social amenities are necessary for effective PHC impact and the health status of communities as

they stand as supporting pillars (Orji, 2015). Orji added that lack of basic social amenities such as safe drinking water, sewage or disposal system, good housing, adequate power supply and good road, impeded the development of PHC. Poor power supply and lack access to Information Communication Technology (ICT) forms serious challenge to Primary Health Centers in Nigeria and many African countries (Olabuli & Bello, 2020). Imhonopi & Urim (2015), supports that there is need for the utilization of Information Communication Technology (ICT) in primary Health centers (PHC) in both rural and urban areas of Nigeria to provide quality and easy access to health care services. Akanove (2018), asserts that the adoption of (ICTs) in the health sector could enhance the capacity to monitor and repot outbreaks of diseases, disseminate guideline for controlling and treating such disease and share science knowledge and research findings among professionals in the health community, Ibeneme (2020), opine that the sustainable development goals (SDGs) and the Universal Health Coverage(UHC) can only be attained through efficient application of Digital Health care in the Primary Health Care Centers in Nigeria. Thus, the need for the study to assess the extent of application of Digital Health Care system in Enugu East Senatorial Zone of Enugu State. Exploring the extent of utilization of digital health in the primary health centers in this study is considered timely, as the gap created by it is long overdue. Significant to this is the Health Information Technology (HIT).

Health Information Technology (HIT) is the application of information processing involving both computer hardware and software that deals with the storage, retrieval, sharing and use of health care information, health data and knowledge for communication and decision making (Ashley, 2019). Health Information Technology (Health IT) is a broad term that describes technology and infrastructure used to record, analyze and share patient health data, (Health IT, 2015). Kirsten (2019), notes that Health Information Technology is the area of health care that oversees the technology system healthcare providers used to manage patients data. According to the office of the National Coordinator for Health Information Technology (2018), Health IT include technology like e-prescription as well as tech tools that help patients meet health goals such as quitting smoking, or managing diabetes. Health IT include various technologies that span from simple charting to more advanced decision support and integration with medical technology (Alobo, 2021).

Health Information Technology present numerous opportunities for improving and transforming healthcare which include; reducing human errors, improving clinical outcomes, facilitating care coordination, improving practice efficiencies and tracking data over time (Alotaibi, 2017). Health IT makes it possible for health care providers to better manage patient care through the secure use and sharing of health information by developing secure and private electronic health records and making health information available electronically when and where it is needed (Hossian, 2021). Alobo (2021), notes that health IT can improve the quality of care even as it makes health care more cost effective. The integration of Health IT into primary care include a variety of electronic methods that are used to manage information about people's health and health care, for both individual patients and groups of patients. Okala (2013), asserts that the use of Health IT in primary health IT in primary health care

centers include the following, clinical decision support, computerized disease registries, computerized provider order entry, consumer health IT applications, Electronic Medical Record Systems (EMRs, EHRs and PHRs), electronic prescribing and Telehealth.

The Nigerian Medical Association (NMA) urge Nigerians to adopt health information technology in driving health care delivery in Nigeria (Uzor, 2019). Uzor added that the National President NMA, Dr. Francis Faduyile noted that the introduction of the usefulness of health information technology system in Nigeria's health system in medical curricula at all levels is important. Igbo (2013), asserted that there is need for collaboration between relevant agencies and professional associations such as information technology, health and NMA, PSN, NAMNM and other stakeholders to ensure the full deployment of Information Technology in the health sector in Nigeria. Okala (2013), opines that there is need to encourage local capacity building in the deployment of information technology in the health sector as this will enhance the development access and maintenance of the system. Adeleke (2014) notes that there is lack of effective health information management system in Nigeria due to the prevalence of cumbersome paper-based and disjointed health data management system. In the opinion of Alotaibi (2017), there is no doubt that health IT is an important tool for improving health care quality and safety; however, there is need to find out the extent of utilization of the Health IT as well as telehealth in the primary health care centers in Enugu East Senatorial Zone of Enugu State.

Telehealth refers to the practice of caring for patients remotely when the provider and patient are not physically present with each other (Sadeghian, 2018). It is the distribution of health-related services and information via electronic information and telecommunication technologies, (Chonin, 2014). Orji (2015), noted that telehealth allows long distance patients long-distance contact, care, advice, reminders, education, intervention, monitoring, and remote admissions. Amuta (2020), defines telehealth as the delivery and facilitation of health and health-related services including medical care, provider and patients' education, health information services and self-care via telecommunication and digital technologies. Amuta added that live video conferencing, mobile health apps, "store and forward" electronic transmission, and Remote Patient Monitoring (RPM) are examples of technologies used in telehealth.

The term "telehealth" and telemedicine are often used interchangeably, but telehealth has evolved to encapsulate a broader array of digital healthcare activities and services. Where telemedicine refers specifically to the practice of medicine via remote means telehealth is a blanket term that covers all components and activities of health care and the healthcare system that are conducted through telecommunications technology (Catalyst, 2020). In the opinion of Bababola (2021), the use of technology to deliver health care has several advantages, including cost savings, convenience, and the ability to provide care to people with mobility limitations, or those in rural areas who don't have access to a local doctor or clinic. Arinze (2017), observes that telehealth has become even more essential during the coronavirus (Covid-19) pandemic.

One of the challenges today in health care system in many countries including Nigeria is to reach the whole population with adequate health care services

and to ensure adequate utilization of the services provided. Weiss and Reo (2012), states that primary health care systems in developing countries have not responded adequately to people's need; meanwhile, health care systems are failing in many developing countries because the system are not kept abreast of the challenges of a changing world. Research by Hassain and Hassan (2017), reveals that primary health workers in Kano State significantly do not utilize telehealth devices and services in discharging their duties. The study equally found that the major challenges to ICT application in the Nigerian health sector are; epileptic power supply, illiteracy, high cost of ICT, lack of clear-cut policy, and lack of expertise. Patrick (2015), asserts that telehealth is growing constantly to offer health care worldwide, as it is an avenue to assess, diagnose, plan, implement and evaluate data over time or distance. Arinze (2017), regrets that despite the enormous features of Information Communication Technology, telehealth is hardly been utilized in the Nigerian health sector particularly in Enugu East Senatorial District of Enugu State. This study is therefore imperative to finding the extent of the utilization of telehealth in the PHC centers in Enugu East Senatorial Zone with reference to location.

Location refers to whether an institution or facility is in an urban or rural area; it is the place where a particular point or object exists. Researchers by Patrick (2015), and Victor (2017), revealed that primary health care in urban areas is more equipped than those in rural areas. According to Orji (2015), there are accepted indices on which the conferment of an urban status deepen, they include among others; a good network of usable roads, reliable security, water supply, electricity and the general upliftment of luxury standard. In the rural areas, these conditions improve the condition of life and living and add to the nuances of comfort and motivation are generally not in place.

Allocation of medical facilities and the distribution of health works according to Patrick (2015), are largely influenced by location that are imbued by the aforementioned facilities. Patrick added that chances are that urban areas predominantly attract efficient medical facilities and their highly motivated human resources as against the rural areas. Imhonopi and Urim (2015), reported that there is no utilization of digital health in primary health care centers (PHC) in both rural and urban areas in Nigeria to provide easy and quality access to health care services. Abimbola (2012), stated that the digital health reality in the urban centers differs greatly from the rural areas; Orji (2015) observes that the urban centers are the beneficiary of most intervention and allocation while the rural are still deprived of the basic health services. Therefore, the gap between the rural and urban primary health care facilities calls for serious concern as the location of the primary health care system may be assumed a challenge to the utilization of digital health in the PHC. It is against this background that the researcher seeks to assess the extent of utilization of digital health care system in Enugu East Senatorial Zone of Enugu State.

Statement of Problem

The stipulations of the National Health ICT Strategic Framework 2015-2020 as published by the federal ministry of health is assumed not implemented nor applied in the primary health care systems as information communication technology (ICT) are not applied in health care services in the various primary health care system. The health ICT Strategic Framework is a roadmap of actions for strategic utilization of digital health in primary health care

system to help achieve universal health coverage and other health goals and priorities particularly in Enugu East Senatorial Zone of Enugu State.

One of the challenges of the health care system in many countries including Nigeria is to reach the whole population with adequate health care services and to apply the services provided. Digital health stands to curb these challenges of the health care system if properly utilized in the primary health care system in Enugu East Senatorial Zone of Enugu State. But the reverse seems to be the case. Several researches have been carried out on different health system including the primary health care system in Enugu East Senatorial Zone of Enugu State, however, none researches has been carried out on the extent of utilization of digital health in the primary health care systems in Enugu East Senatorial Zone, to the best knowledge of the researcher. These prevailing conditions informed the researcher's interest to carry out this study. Thus the problem of this study posed in question form is, "what is the extent of utilization of digital health care system in Enugu East Senatorial Zone of Enugu State"?

Purpose of the Study

The main purpose of the study is to determine extent of utilization of digital health care care system in Enugu East Senatorial Zone of Enugu State. Specifically, the study sought to determine the:

1. Extent of utilization of health information technology services in the primary health care system in Enugu East Senatorial Zone of Enugu State.
2. Extent of utilization of telehealth services in the primary health care system in Enugu East Senatorial Zone of Enugu State.

Research Questions

The following research questions were posed to guide the study:

1. What is the extent of utilization of health information technology services in the primary health care system in in Enugu East Senatorial Zone of Enugu State?
2. What is the extent of utilization of telehealth services in the primary health care system in Enugu East Senatorial Zone of Enugu State?

Hypotheses

The following null hypotheses will be tested at .05 level of significance.

HO_1: Significant difference will not exist in the mean rating of urban and rural primary health workers regarding the extent health information technology services is utilized in the primary health care system in Enugu East Senatorial Zone of Enugu State.

HO_2: Significant difference will not exist in the mean rating of urban and rural primary health workers regarding the extent telehealth services is utilized in the primary health care system in in Enugu East Senatorial Zone of Enugu State.

Method

Descriptive survey research design was adopted for this study. Descriptive survey research design according to Nworgu (2015), is one in which a group of people or items is studied by collecting and analyzing data from only a few people or items considered to be a representative sample of the entire group. The descriptive survey research design is considered suitable since the study solicited information from the respondents directly and afford all the respondents equal chance of being chosen for the study. The population for the study comprised all the 433 respondents made up of doctors, nurses and

Community Health Extension Workers (CHEW) in the primary health care centers in Enugu East Senatorial Zone of Enugu State. It is made up of 57 doctors, 78 nurses and 298 community health extension workers. This is based on data obtained from office of the director Public Health Service, Ministry of Health Enugu, 2022/2023.Using census sampling, the respondents' entire population of 433 [doctors, nurses and the Community Health Extension Workers (CHEW)] in the primary health care centers in Enugu East Senatorial Zone of Enugu State were the sample for the study. It was made up of 308 rural and 125 urban doctors, nurses and the Community Health Extension Workers (CHEW) in the primary health care centers in Enugu East Senatorial District of Enugu State. No sampling was done because the population is manageable.

A structured questionnaire named "Utilization of Digital Health Care System" (UDHCS), developed by the researcher was used for data collection. The instrument has two sections; A and B. Section A contains the respondents bio-data while section B is divided into two clusters with 18 items, structured to assist the researcher in providing answers to the research questions that guided the study. cluster 1 is on health information technology services with 8 items, while cluster 2 is on telehealth services with 10 items. The response format for the instrument was 4-point scale of Very Great Extent (VGE), Great Extent (GE), Low Extent (LE) and Very Low Extent (VLE). Each response option had a numerical value assigned to it as follows;

Very Great Extent (VGE) = 4 points
Great Extent (GE) =3 points
Low Extent (LE) =2 points
Very Low Extent (VLE) = 1 point

An introductory letter stating the rationale for the study was attached to the instrument for the respondents.

In order to ensure the validity of the instrument, draft copies of the instrument together with the research topic, purpose of the study, research questions, hypotheses, were given to three experts. One experts were from the Department of Human Kinetics and Health Education, another from Guidance and Counselling Department, while the other expert was from the Measurement and Evaluation Unit, Department of Mathematics and Computer Science Education, all from Faculty of Education, Enugu State University of Science and Technology, Enugu. The experts were requested to assess the relevance, adequacy, suitability and comprehensiveness of the items in addressing the research questions as well as the clarity of the instruction to the respondents. The validators' comments were used to draft the final instrument that was used for data collection. The reliability of the instrument was determined by administering 20 copies of the questionnaire to a sample of 20 nurses in Enugu North Senatorial Zone of Enugu State in a trial testing to ascertain the internal consistency of the instrument. Data collected from the respondents' responses were analyzed using Cronbach Alpha Reliability Coefficient to determine the internal consistency of the instrument. The instrument was divided into four sections, each section yielded the following reliability coefficient; cluster 1 had .79, and cluster 2 had .82. The overall reliability coefficient was .80, indicating that the instrument is reliable and suitable for the study. The questionnaire was administered and retrieved by the researcher with the help of six research assistants who were properly briefed on the content of the questionnaire and its administration to ensure that

the questionnaire is properly administered. The six research assistants were selected among the nurses from the various primary health care system in each Local Government Area under Enugu East Senatorial Zones of Enugu State. Appointments were booked through phone conversation with the respondents for collection at a later date for those who were not be able to fill their own copies of the instrument because of the nature of their job. Data collected with the questionnaire were analyzed using Mean ($\bar{x}$) with Standard Deviation (SD) to answer the four research questions, while, the null hypotheses were tested using t-test statistic at .05 level of significance. On the decision rule; real limit of the mean scores was applied, therefore, the upper and lower limits of the mean is as follows;

Mean scores from 3.50 – 4.49 Very Great Extent (VGE)
Mean scores from 2.50 – 3.49 Great Extent (GE)
Mean scores from 1.50 – 2.49 Low Extent (LE)
Mean scores from 0.50 – 1.49 Very Low Extent (VLE)

The null hypotheses were rejected when the significant level was less than 0.05 and were rejected when the significant level was more than 0.05 level of significance.

Results

Research Question 1

What is the extent of utilization of health information technology services in the primary health care system in Enugu East Senatorial Zone of Enugu State?

Table 1: Mean ratings and standard deviation of the rural and urban health workers on the extent of utilization of health information technology services in the primary health care system in Enugu East Senatorial Zone of Enugu State.

S/N	extent of utilization of health information technology services in the primary health care system include;	Rural N= 302		Urban N= 121		Overall		Decision
		$\overline{X_1}$	SD_1	$\overline{X_2}$	SD_2	$\overline{X_G}$	SD_G	
1	sharing of health information on websites	3.07	0.60	3.09	0.59	3.07	0.59	GE
2	online health education about a disease outbreak	2.92	0.70	2.93	0.71	2.92	0.70	GE
3	online sharing of research findings among health workers	2.99	0.66	3.01	0.65	3.00	0.66	GE
4	open access to clinical studies	3.14	0.52	3.14	0.52	3.14	0.52	GE
5	online storage of research findings	3.00	0.66	3.00	0.65	3.00	0.65	GE
6	open access to family planning information	3.35	0.48	3.36	0.48	3.36	0.48	GE
7	transfer of medical data	3.3	0.6	3.3	0.61	3.3	0.6	GE

8	dissemination of medical health alerts	6 3.3 5	1 0.6 1	4 3.3 6	0.62	5 3.3 5	1 0.6 1	GE
	Cluster Mean/SD	**3.1 5**	**0.6 1**	**3.1 5**	**0.60**	**3.1 5**	**0.6 0**	**GE**

X = Mean; SD = Standard Deviation; GE = Great Extent

The data presented in Table 1 above shows that the overall mean ratings of the nine items ranging from 2.92 to 3.36 indicating great extent. This shows that the primary health workers apply the items to a great extent. Showing that there is great extent of utilization of health information technology services in the primary health care system in Enugu East Senatorial Zone of Enugu State. The overall cluster mean of 3.36 further reveals great extent. The low standard deviation of 0.60 shows that the respondent's do not differ remarkably on their opinions to the items. Thus, health information technology services to a great extent is utilized in the primary health care system in Enugu East Senatorial Zone of Enugu State.

Hypothesis 1

Significant difference will not exist in the mean rating of urban and rural primary health workers regarding the extent health information technology services is utilized in the primary health care system in Enugu East Senatorial Zone of Enugu State.

Table 2: Summary of t-test analysis of mean rating of urban and rural primary health workers regarding the extent health information technology services is applied in the primary health care system in Enugu East Senatorial Zone of Enugu State

Variables	N	t	Df	Sig. (2tailed)	Mean Difference	Std. Error Difference	Decision
Rural	302	.132	421	.895	.03440	.26141	NS
Urban	121						

The data obtained from the t-test analysis in Table 2 shows that the t-value at 0.05 level of significant and 421 degree of freedom for the items is 0.132 with a significant value of 0.895. Since the significant value of 0.895 is more than the 0.05 level of significant the null hypothesis is not significant. This means that there is no significant difference with respect to the items on the mean rating of urban and rural primary health workers regarding the extent health information technology services is in the primary health care system in Enugu East Senatorial Zone of Enugu State.

Research Question 2

What is the extent of Utilization of telehealth services in the primary health care system in Enugu East Senatorial Zone of Enugu State?

Table 3: Mean responses and standard deviation of rural and urban health workers on the extent of utilization of telehealth services in the primary health care system in Enugu East Senatorial Zone of Enugu State

S/N	Extent of utilization of the health services in the primary health care system includes;	Rural N= 302		Urban N= 121		Overall		Decision
		$\overline{X}_1$	SD_1	$\overline{X}_2$	SD_2	$\overline{X}_G$	SD_G	
9	effective telephone line for quick ambulance services	2.36	0.90	2.34	0.89	2.36	0.90	LE
10	effective email services for medical consultation	2.08	0.59	2.06	0.60	2.08	0.60	LE
11	online drug prescription	2.29	0.80	2.27	0.80	2.29	0.80	LE
12	use of video-conferencing tools	2.07	0.59	2.07	0.60	2.07	0.59	LE
13	sending personal medical reminder to patients via e-mail	2.28	0.80	2.30	0.79	2.29	0.79	LE
14	monitoring of patients health condition wireless tools	2.07	0.70	2.07	0.71	2.07	0.70	LE
15	medical consultation via automated telephone calls	2.29	0.69	2.27	0.71	2.29	0.70	LE
16	provision of disease awareness to individuals through telecommunication	2.08	0.60	2.07	0.59	2.07	0.59	LE
17	effective patient medical intervention	2.36	0.61	2.36	0.62	2.36	0.61	LE
18	telecommunication clinical diagnosis delivery	1.94	0.71	1.90	0.70	1.93	0.70	LE
	Cluster Mean/SD	**2.18**	**0.70**	**2.17**	**0.70**	**2.18**	**0.70**	**LE**

X = Mean; SD = Standard Deviation; LE= Low Extent

The analysis of data presented in Table 3 above shows that the mean rating of the items ranges from 1.93 to 2.36 indicating low extent of utilization of telehealth services in the primary health care system in Enugu East Senatorial Zone of Enugu State. The overall cluster mean of 2.18 also depicts low extent. The standard deviation of 0.70 shows that the respondents have homogeneity in their responses to the items as low extent of utilization of telehealth services in the primary health care system in Enugu East Senatorial Zone of Enugu State. Therefore there is low extent of utilization of telehealth services in

the primary health care system in Enugu East Senatorial Zone of Enugu State.

Hypothesis 2

Significant difference will not exist in the mean rating of urban and rural primary health workers regarding the extent the health services is utilized in the primary health care system in in Enugu East Senatorial Zone of Enugu State.

Table 4: Summary of t-test analysis of mean rating of urban and rural primary health workers regarding the extent the health services is utilized in the primary health care system in in Enugu East Senatorial Zone of Enugu State.

Variables	N	t	Df	Sig. (2tailed)	Mean Difference	Std. Error Difference	Decision
Rural	302	.271	421	.787	.12369	.45679	NS
Urban	121						

The result of data analysis obtained from the t-test in Table 4 shows that the t-value at 0.05 level of significant and 421 degree of freedom for the items is 0.271 with a significant value of 0.787. Since the significant value of 0.787 is more than the 0.05 level of significant the null hypothesis is not significant. This means that there is no significant difference with respect to the items on the mean rating of urban and rural primary health workers regarding the extent telehealth services is utilized in the primary telehealth care system in in Enugu East Senatorial Zone of Enugu State.

Discussion

The findings indicated that to a great extent, health information technology services is utilized in the primary health care system in Enugu East Senatorial Zone of Enugu State. This finding disagrees with Adeleke (2014), who noted that there is lack of effective health information management system in Nigeria due to the prevalence of cumbersome paper-based and disjointed health data management system. The finding agree with Iveiner (2012), who observed that utility of mobile consultation on the telephone or via platforms such as Microsoft teams, zooms and WebEx is further underscored by the current Covid -19 pandemic where social distancing measures are critical to reducing the spread of the virus in clinical settings in Nigeria and across the globe. Thus, there is no doubt that health IT is an important tool for improving health care quality and safety.

Similarly, on the influence of location of counsellors, it was found in this study that there is no significant difference in the mean ratings of urban and rural primary health workers regarding the extent health information technology services is utilized in the primary health care system in Enugu East Senatorial Zone of Enugu State. The finding disagrees with Patrick (2015), who posited that medical facilities and the distribution of health works are largely influenced by location that are imbued by the aforementioned facilities. The finding also disagree with Orji (2015), who observed that the urban centers are the beneficiary of most intervention and allocation while the rural are still deprived of the basic health services. It is therefore necessary to

improve the provision and utilization of health information technology services in both urban and rural primary health care system in Enugu East Senatorial Zone of Enugu State.

The findings revealed that there is low extent of utilization of telehealth services in the primary health care system in Enugu East Senatorial Zone of Enugu State. This finding is in consonance with Arinze (2017), who stated that despite the enormous features of Information Communication Technology, telehealth is hardly been utilized in the Nigerian health sector particularly in Enugu East Senatorial Zone of Enugu State. The finding also agrees with Hassain and Hassan (2017), who noted that primary health workers in Kano State significantly do not utilize telehealth devices and services in discharging their duties. It should be noted that telehealth is growing constantly to offer health care worldwide, as it is an avenue to assess, diagnose, plan, implement and evaluate data over time or distance.

On the influence of location, it was found that there is no significant difference in the mean rating of urban and rural primary health workers regarding the extent telehealth services is utilized in the primary health care system in in Enugu East Senatorial Zone of Enugu State. This finding is at variance with Patrick (2015), who stated that primary health care systems in urban areas are more equipped than those of the rural areas. However that finding agrees with Imhonopi and Urim (2015), who report that there may be no utilization of digital health in primary health care centers (PHC) in both rural and urban area in Nigeria to provide easy and quality access to health care services. Thus utilization of telehealth services should cut across both urban and rural primary health care system in in Enugu East Senatorial Zone of Enugu State as it will help achieve universal health coverage and other health goals and priorities particularly in Enugu East Senatorial Zone of Enugu State.

Conclusion

From the discussion of the findings, it was concluded that there to a great extent, health information technology services is utilized in the primary health care system in Enugu East Senatorial Zone of Enugu State, while there is low extent of utilization of telehealth services in the primary health care system in Enugu East Senatorial Zone of Enugu State, On the influence of location, it was found that there was no significant difference in the mean ratings of urban and rural primary health workers regarding the extent health information technology services and telehealth services is utilized in the primary health care system in Enugu East Senatorial Zone of Enugu State.

Counselling Implications of the Findings

The ultimate aim of counselling is behavioural change. Counsellors are trained to modify behaviours of all categories of individuals because it is a helping relationship which is concerned with helping the individual and clients who are confused or are experiencing maladaptive behaviours to have positive change through self-understanding and environmental awareness. Being that utilization of digital health care system is a social issue which demands awareness. The findings of this study will assist guidance counsellors in creating awareness, encouraging and influencing health workers and patients in the use of health information technology services and telehealth services in the primary health care systems in Enugu East Senatorial Zone of Enugu State.

The study holds implication for counsellors and health workers as it explores appropriate strategies

and recommendations that will help to facilitate effective and efficient utilization of digital health services among workers in different primary health care centers. This will particularly reduce the hindrances to health care service and complications caused by inability to access health care facilities as well as barriers to health care delivery caused by distance.

The findings of this study will influence the guidance counsellor particularly health counsellors in making recommendations to the management of health facilities who are saddled with the responsibility of providing health services to patients as it will assist them in providing fast and reliable health care services to their patients. It will serve as a guide to the management of health facilities on the needed digital health facilities necessary for an improved health care delivery in their health facilities.

Recommendations

Based on the findings of the study the following recommendations were made.

- Telehealth services should be strengthened in the primary health care system in Enugu East Senatorial Zone of Enugu State.
- Government / health authorities should ensure the provision of digital health facilities in the primary health care system in Enugu East Senatorial Zone of Enugu State, so as to boost health care activities and services in Enugu East Senatorial Zone of Enugu State.

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