

Health Care Service Delivery for Rural Areas in the Digital Era: Challenges and Prospects

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ABSTRACT

Public and corporate management in the digital era whether in the urban or rural areas have the challenge of ensuring effective and efficient sustainable service delivery based on global best practices. The aim of this research is to critically examine the challenges that public and corporate management encounter in the bid to deliver quality services in rural areas using modern technological gadgets and machines to enhance their services. The research was carried out using secondary data and descriptive analysis to arrive at the conclusions drawn. The research found out that there are challenges that may hinder the sustainability of the transformational public and corporate management from achieving its aim in this era. These challenges range from power supply to run the machines; tools and equipment; financial constraints of rural dwellers; lack of qualified health personnel and other support staff to operate the equipment and run the health centers where they exist; communication barriers; inaccessible roads to most rural areas, inadequate or lack of physical structures to secure equipment and facilities that could sustain quality, effective and efficient health care service delivery in the rural areas. We therefore recommend that government and its agencies; non-governmental organizations as well as private individuals should collaborate and jointly equip and fund these health service outlets in the rural areas to enable the rural dwellers benefit from the digitized public service delivery in order to maximize the productivity of the rural people for sustainable development.

Keywords: *Challenges; Digital era; Public and corporate management; Rural areas; Sustainable health care delivery, Telemedicine.*

Subtheme: Public Administration

1.0 Introduction

A very significant proportion of the global population is made up of urban dwellers. The World Bank record keeps it at 56% making an approximated total of 4.4 billion IBRD (2022). It further projects that by the year 2050, that is, about 27 years from now, the figure will astronomically rise such that 7 out of every 10 inhabitant of the world would be

an urban dweller. Most of the developing countries of the world including Africa and indeed Nigeria are not left out in this surge of urban migration.

As at 2018, 42.5 per cent, 46.4 per cent and 39.8 per cent of African, West African and Nigerian population respectively live in the urban areas and there are projections

that by 2030, an additional 1.4 billion people will be living in cities within Africa (USAID, 2013; United Nations' Department of Economic and Social Affairs, Population Division, 2018). The major infrastructural developments and social amenities, comfortable accommodation, internet facilities, digitized transportation systems, digitized health care services and many other services are in the urban centers. Most of the development programmes and innovations whether in social orientation, provision of infrastructures or healthcare services including digitized government are often targeted and executed in the urban settlements. (Targomo, 2019; Smits, 2016) This accounts for the influx of population daily from the rural areas into the urban areas in search of better living conditions. Even multinational organizations such as USAID are making frantic effort to improve the facilities in urban areas.

The use of technology has permeated every facet of human existence. We find digitized technology and internet connections in all cities, suburbs and in its limited forms even in rural areas. In developed countries and even in most of the developing ones, one comes in contact with technology. The modern means of transportation involves digitization of their operation. Online booking of flights, trains, buses, cars for both long distance, short distance, town service and out of town transport services are digitized. Today, you can stay in your house and invite a ride that takes you to whatever destination you desire within the urban areas at a negotiable cost.

However when we consider the many diverse areas of the application of digitization, we find them in limited proportions or simply non-existent in the rural areas. Rural residents face daily challenges such as a lack

of portable drinking water, inadequate power supply, inaccessible roads where they exist, and insecurity. Health care facilities where they are found are mere reflection of reality because of the deplorable condition of the facilities. The facilities are either dysfunctional or expired and grossly lacking qualified manpower to run them.

The natural outcome of urban concentration of population is the urban concentration of major infrastructural developments and social amenities, comfortable accommodation, internet facilities, digitized transportation systems, digitized health care services and many other services. Most of the development programmes and innovations whether in social orientation, provision of infrastructures or healthcare services including digitized government are often targeted and executed in the urban settlements (Targomo, 2019). While this is good news for the urban dwellers, the case is different for the rest of the population that constitute rural dwellers. They are cut off from such basic facilities. The case is even more critical in the area of the very essential need for health care delivery service. This accounts for the influx of population daily from the rural areas into the urban areas in search of better living conditions. Even multinational organizations such as USAID are making frantic effort to improve the facilities in urban areas at the detriment of the rural dwellers. As this trend continues, it is worrisome what will become the fate of the rural dwellers. Since it is not possible for everyone to have the opportunity of urban migration, then those that are left within the rural areas need to be put into perspective in terms of health care delivery service which is the focus of this discourse. It is for this reason that this paper sets out to consider how health care delivery service can leverage on the many possibilities which the digital era offers in order to maximally reach the rural dwellers.

To explore this general objective, the paper is guided by the following objectives:

1. Identification of the challenges of sustainable health service delivery in rural areas
2. Examination of the challenges of public and corporate management in sustaining digitized service delivery in rural areas
3. Exploration of the prospects of sustaining digitized health service delivery in rural areas by public and corporate management.

2.0 Literature Review

Digital era

The Digital Era can be seen as the development of an evolutionary system in which knowledge turnover is not only very high, but also increasingly out of the control of humans, making it a time in which our lives become more difficult to manage. (Shepherd 2004)

Rural areas

Different countries define rural areas in their own terms. Some consider size of population, number of buildings, economic activities, such as percentage of the men whose occupation is agriculture and or land mass within which the people are located. (UK Department for Environment, Food and Rural Affairs, 2021); (US Census Bureau, 2020) A rural area is a broad strip of land whose occupants and the buildings are few in number and not very many people live in the rural area and also has high poverty index and inequality. In Australia, it is regarded as a place or small town with a population of between 200 to 999 people or lower than 10,000 people residing in it. (Dasgupta, Morton, Dodman, Karapir, Meza, Rivera-Ferre, Sarr and Vincent 2014; UK Department for Environment, Food and Rural Affairs, 2021) A rural area's population density is very low. US Census Bureau defines rural as a leftover of the urban, that is, when you define and carve out urban areas, the

remaining undefined area is rural. (US Census Bureau, 2020; US Department of Human & Health Services, 2020; IFAD, 2020) This attitude to rural areas is one of the factors why we find it necessary to advocate for rural areas. Rural areas are considered a leftover of urban areas. Despite the fact that the majority of the land mass is rural and in Africa, the majority of the population live in these rural areas. It is estimated that the rural area is home to about three-quarters of the world's poor and hungry people. (Smitz, 2016)

Sustainable Health Care Delivery

Health care delivery service is as an old practice almost as old as humanity. In every given human society, humans have always had to take care of their emotional, social, mental and physiological needs. (Bryant, 1998) In Nigeria, health care delivery has been in practice and is classified into first formal and non-formal. The non-formal health care service practitioners are the traditional birth attendants, bone setters, herbalists and naturotherapists. The second class of health care is the formal health care delivery. Here the patients are diagnosed and treated in a formal setting by professionals who have been formally trained to treat diseases,

The formal health care delivery is the one we have purposefully chosen here, Formal health care service delivery is further classified into three major categories: Primary health care, secondary and tertiary health care delivery. The primary health care services deal with the creating awareness and educating the community on certain health hazards, maintenance of basic hygiene and prevention and treatment of endemics, communicable diseases, maternal and child health care among others. Secondary health care goes further and deals with more difficult cases. Here health professionals such as doctors, nurses, pharmacists and laboratory technicians are involved. They attend to the needs of patients

referred from the primary health care and handle more complicated health issues such as surgeries, and many others. The patients are attended to in equipped hospitals. The last category is the tertiary health care delivery. This is more sophisticated than the secondary health care. Cases are brought based on referrals from both the primary and secondary health care service centres (Nworuh, 1998).

Health care is inevitable and its services cannot be over-emphasized. Societies that thrive in both human capital and economic development are the ones that pay maximum attention to health care services and they equally ensure that their citizens have the best health services to cater for the populace as at when due. Healthy citizens make the economy viable because of their human capital that they bring as a major factor in wealth creation and sustainable development. (Government of Western Australia, 2022)

Sustainability is the ability to maintain a standard of doing either business or offering goods and services at a particular volume and quality without compromise for an enduring period of time. Instead of the end of such relation between the giver and recipient to end, it is transformed into other similar or better services that would provide the needs of the present and future. Sustainable service delivery succinctly described as “the provision of infrastructure to customers at a standard or level that meets customer needs, regulatory requirements and accepted industry standards and requires the generation and expenditure of sufficient funds to achieve this on an ongoing basis”. (Law Insider)

Public and corporate management must operate outside the comfort zone of maintaining status quo. It's no longer business as usual but all efforts must be put in place by public and corporate management to ensure that health care services are delivered to the

rural areas. The bulk of people living in rural areas are a good source of revenue for government if they are able to provide reliable, satisfactory health care services for them at a reasonable rate.

The words of wisdom say “a healthy person is a wealthy person”, which implies that, if rural people are healthy, they will be meaningfully engaged in economic activities and their standard of living and means of livelihood would be guaranteed. Considering the population of rural areas, it further implies that there will be more productive workforce and that in turn would result in the sustainability of the health care services. A nation with healthy citizens is a wealthy nation. The ability to pay for the health care services would no longer be an issue of concern because, the rural areas would be economically viable and the standard and quality of rural life would improve. Sustainable service delivery means is an “approach to service delivery whereby current community service needs are met in a socially, economically, and environmentally responsible manner that does not compromise the ability of future generations to meet their own needs....” (Law Insider)

Since “sustainability relies on knowledge turnover.”, the more rural people are educated on the need for digitized system of health care services, the better the achievement of such service for them. The use of digitization such as telemedicine cannot be over emphasized in this digital age.

Public and Corporate Management

It is composed of the following among other factors “...efficiency, effectiveness, transparency and accountability, improved gender perception, elimination of quota system and improved ethics orientation could transform the Nigeria's civil service into an instrument for attaining sustainable development in the twenty-first century” (Dibie, 2003) For public and corporate

management to achieve their aim they must be inclusive and up to date with global trends in the quality and sustainable transformation of the services rendered to rural communities.

The public sector's use of information and communication technologies (ICTs) with the aim of improving information and service delivery, encouraging citizen participation in the decision-making process and making government more accountable, transparent, and effective. (UNESCO 2011) Researchers (Asgarkhani, 2007; Dibia, 2019, Nanjundaswamy, 2017; Gil-Garcia et al 2017) have worked on the relevance and importance of digital government and how it enhances effective public management.

Theoretical Framework

In order to properly situate this study academically, we adopted a few out of the myriad of existing theories because of their direct relevance and implications to this work. One of the first theories that come to mind when discussing issues such as rural inclusion in public management is standpoint epistemology. The standpoint epistemology readily comes to the fore, because of its insistence of viewing things from the perspective of the less privileged and in this study, we mean rural people. Social inclusion and by practice and social exclusion, refers to the manner in which society is demographically divide and creates disparity in distributing social amenities and dividend of democracy based on segments of the society by bureaucrats and public in areas not limited to religion; gender; geographical location such as rural and urban places; socio-economic status, health, among others. (Gidley, Hampson, Wheeler and Beredede-Samuel, 2010)

Telemedicine in Nigeria

Nigeria is no stranger to telemedicine as it has well been practiced since the inception in 2007 when the National Space Research and Developm

ent Agency and the Federal Ministry of Health launched their first initiative in six Federal Medical Centers and two teaching hospitals across the nation (Ankeeta, 2021). Following this, a telecommunications service provider invented the Mobile Doctor concept in 2010, allowing clients to chat with a qualified doctor or member of the medical staff for N100 (about 68 cents) each minute but to the significant costs associated with this service, it has not yet been widely used. (Ukaoha & Egbokhare, 2012)

Despite the obvious benefits and promise of this initiative, the vast majorities of Nigerians either do not use it or are unaware of its existence. (Ideozu, 2022)

WHO defines telemedicine as “the delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for the diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities.” Unfortunately, Nigeria fails to meet WHO standards in practically every index related to health care.

The three most typical varieties of telemedicine are:

1. Remote patient monitoring: which enable a caregiver to keep an eye on patients from a distance using data gathered via portable medical equipment (e.g. blood pressure)
2. Store and Forward feature: Here, providers can exchange patient information with practitioners no matter where they are.
3. Real-time communication: between patients and doctors is made possible via interactive medicine.

Interactive medicine is that practice of medicine in which patients speak with doctors in real-time over calls or texts. It is the most popular type of telemedicine in Nigeria.

3.0 CHALLENGES OF TELEMEDICINE IN THE RURAL AREAS OF NIGERIA

The Rural Health Information Hub (RHI Hub) contextualized the word 'access' to mean the availability and obtainability of healthcare services in a timely manner (RHI Hub, 2023). Going by this definition, there is a strong case to be made for the expansion of telemedicine in Nigeria seeing that despite the availability of adequate healthcare services up to rural residents, they still encounter certain challenges in this regard.

Based on empirical review by earlier studies (Nworuh, 1998; Sustainable Health Review, 2019), the following challenges have been harvested:

- i. Poor or lack of funding to acquire facilities and ability to directly communicate with the rural people as at when needed poses some difficulty
- ii. Language barriers: Most rural persons communicate in their mother tongue which may not be the official language of communication and as such it breaches the communication between the health care givers and their patients
- iii. Some of the patients in the rural areas are skeptical about the efficacy of the services offered them and do not have faith in the services given, due to cultural and even socio-religious reasons
- iv. Socio-cultural factors such as gender and marital status pose some great difficulties in administering health care in rural areas. Male health care givers attending to women and vice versa is not readily acceptable.

- v. Inadequate workers to serve in rural areas

4.0 Prospects for Healthcare Delivery in the Rural Areas

There are gadgets that can enable a patient can use at home to manage his/her health without necessarily coming to the hospital or depending on the availability of health care givers. Some of these can be worn on the body of the patient. Some other technologies that are to be used by the health care practitioners and even researchers to enable them deliver better treatment to their patients. There are educated and enlightened rural people who are proficient in IT and can help to run the medical facilities for themselves and others in need even when there is no physical doctor or nurse in case of emergencies.

The availability of solar-powered gadgets and mobile phones serve as opportunities to take advantage for fast and easy communication. Yet there are some technologies that are designed to give the health care services more efficiency through an easier movement of information and data that enhances service delivery.

At present, electronic prescriptions has attained at least a 60 per cent success rate of reducing errors of prescription. (Digital health: transforming healthcare service delivery - GOV.UK (www.gov.uk)). Technologies that enable a patient, health personnel and even researchers translate a document to the language of his/her choice to ensure the information is understood by the users.

5.0 Conclusion and Recommendations

5.1 Conclusion

Public and corporate government has enormous responsibility of transforming the health service delivery system in the rural areas to serve the large rural population of Nigeria.

The current methods that the rural areas are familiar with are failing due to a number of reasons. First of all, lack of power supply and alternative means of powering the facilities for effective, efficient and sustainable health care service delivery. Poor funding and low attention given to these rural areas by international bodies such as WHO, United Nations, World Bank and International Monetary Fund (IMF) is an alarming need.

Rural areas have the greatest untapped resources that urban areas depend and need. Some of these resources are agriculture, mineral resources, and vast land for development, among others. Therefore, it is expedient to “make our rural regions fit for the future. We must ensure that our rural regions offer people stable livelihoods and serve as the focal point for sustainable development” (Smitz, 2016).

The public and corporate management should therefore stop taking loans for urban development at the expense of rural development. Funds and efforts should be directed towards digitizing the health services of the rural areas and other services because of their potential for sustainable development that is left in the hands of policy makers to decide.

5.2 Recommendations

We are able to identify a number of challenges in providing adequate and digitized health care services in rural areas in Nigeria. We shall also provide some way of escape out of them by way of recommendation.

1. Multi-national organizations, government (federal, state and even local); non-governmental organizations and private individuals should jointly provide adequate funding of rural health care to acquire the desired and needed environment for up to date quality health care services of rural areas.
2. There should be a deliberate training of

personnel to run the rural health care facilities both remotely and physically as the situation warrants (Nworuh, 2018). These personnel should be fully employed, adequately remunerated and equipped with the needed technology to impact the people. The trained medical personnel should in turn retrain rural people on how to use, and maintain the technologies and to use them for sustainable health service delivery.

3. Power supply which is paramount in digitization is a dire need to power and maintain the technologies. Solar energy is a good alternative and needs to be tapped. Fortunately, here in the tropics, it is in high supply.
4. A deliberate and easily achievable mean to enable rural people access digitized health care without missing any vital information is by translating the manual of the instructions to their local languages. It enhances learning, communication, builds confidence and reduces administrative bottlenecks associated with second language users. Learning and instruction in one's mother tongue serves as a good empowerment force for the people because, knowledge is power and an informed person is liberated to discover things and apply them to his/her advantage (Savage, 2022).
5. Considerations and attention should be given to the cultural background of the rural people in order to gain their acceptability of the services to be rendered. There should be both male and female medical practitioners to attend to them based on their perceived gender needs to avoid resistance. Furthermore, orientation and awareness should be carried out regularly by the responsible government bodies saddled with such duties. In some other instances, the village head or traditional administration should be involved always for acceptability.

6. In order to tackle skeptics, the audio visuals of previous or ongoing successful digitized health care service programmes held in other rural areas should be shown them. This could help to gain confidence of rural people in the efficacy and reliability of the health services provided. Some cultural people find difficulty in accepting the use of technology and not physical touch by a known health practitioner as not effective and unreliable.
7. Train the local people to help train others on the use of technology and the benefits inherent in them most especially as they tackle emergency cases where medical personnel is unreachable.
8. Telemedicine is discovered to be very effective and efficient in many places including Nigeria. However, we need to have it in rural areas and not in the urban areas only
9. There should be regular training and retraining to get more hands that can understand and administer the digitized methods of health care delivery. There is a need for learning these new technologies, unlearning old habits and stereotype on the old medical practice as the only way for health care delivery and relearning of the benefits of digitized health care services for rural areas. Give constant orientation and booster orientation until majority understand and make adequate use of digitized system of health care service.
10. Finally,
 “public officials need to show that they are able to create a smart and sustainable future for their citizens”. (Targomo 2019) including people living in rural areas and also in providing them all the necessary services and social amenities that they need for sustainable development and to meet up with living in this digital era.

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