

## **SOCIO-CULTURAL BINOCULARS VIEW OF TELEMEDICINE IN SUB-SAHARAN AFRICA: POTENCY, PROSPECT, DEFECT AND DANGER**

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### **ABSTRACT**

*Sub-Saharan Africa has experienced unprecedented technological advancement, just like several other regions of the world. This improvement in technology lends credence to the proliferation of android mobile phones, laptops computers and the Internet facilities that enhance interaction on the social media which in turn generates momentous alterations in the ways the residents of the region construct their daily lives. From epidemiological perspective as well as the viewpoint of change and development, via these information technologies, rendering health-related care and services to the residents in the remote places of the region and gaining access to vital information that prompts prevention and control of diseases are now feasible unlike before the advancement. Therefore, telemedicine symbolizes a health innovation in the region. In the light of this, this paper systematically reviewed the extent to which telemedicine has gained acceptance among the residents of the region; and the socio-cultural factors and practices that promote and decelerate the general acceptance of telemedicine in the region. To accomplish the objective, the review was done meta-analytically and meta-synthetically to explore recent relevant studies. The paper discovered that reduction in the cost of gaining access to health information, harnessing online health and medical services, are among the benefits derived from telemedicine while fake online information, impoverished network service delivery, financial incapacity, theft, technical faults, underutilization of the technology devices and cyber-crime are among the factors that militate against wide acceptance of telemedicine in the region.*

**Keywords:** Socio-Cultural Binoculars, Telemedicine, Sub-Saharan Africa.

**JEL Classification Codes:** I30.

## INTRODUCTION

Prior to twentieth century, it was unimaginable to conceive that residents of sub-Saharan Africa could have access to health-related care and services without physically consulting health practitioners. In contemporary period, the improvement in technology has ushered in a number of activities and terminologies to conceptualize these activities; among the terminologies is telemedicine or tele-health. Telemedicine is a concept that portrays rendering health-related care and services, in particular to those in the remote areas, via information technology (Adenuga, Iahad, & Miskon, 2020; Kim & Zuckerman, 2019; Khalid, 2016; Monteiro, Costa, & Oliveira, 2016). Greater access to the Internet via laptops and mobile phones, as a component of globalization has promoted telemedicine and the incorporation of tele-health into extant health system in sub-Saharan African region the recent time (Babalola, Anayo, & Itoya, 2021; Manyati & Mutsau, 2020; Ajani & Fakunle, 2018; Hao et al., 2015).

Studies in advanced regions of the world have presented a number of benefits inherent in providing and accessing online healthcare and medical service delivery (Alonso et al., 2021; Monaghesh & Hajizadeh, 2020; Lauckner & Whitten, 2016; Scott & Mars, 2013; Mistry, 2012). These studies further attest to the popular acceptance of telemedicine as a result of these inherent benefits in the advanced countries. In the same vein, wide acceptance coupled with full utilization of telemedicine in sub-Saharan Africa is conceivable and expected with a view to complementing the existing conventional medical care system in the region (Adenuga, Iahad, & Miskon, 2020; Otsen & Agyei-baffour, 2016; Yusif, 2014; Wootton et al., 2009). However, the reality has proved otherwise. The discrepancy between the expected outcome and the reality prompts this empirical review to investigate the extent to which telemedicine has been accepted and utilized as well as the factors militating against its wide acceptance and the reasons behind its low patronage.

## THEORETICAL FRAMEWORK

This review adopted diffusion theory of innovation of the British school headed by G.E. Smith, W.J. Perry and W. H. Rivers to substantiate the spread of technological advances and other concepts from one region (more advanced countries) to another (developing countries) (Ritzer, 2011). For instance, the diffusion theory of innovation justifies the availability of radio, television, and in particular, android mobile phones and laptop computers which are the main devices that the residents of sub-Saharan African region utilize to get connected on the Internet and access the social media (Ajani & Fakunle, 2018). The theory further justifies the spread of the idea of using the social media for health care and medical service delivery from more advanced countries to sub-Saharan region of Africa, and this has become a health innovation in the region. In spite of the diffusion and presence of telemedicine in the region, the extent of receptivity of telemedicine and the socio-cultural factors and practices that promote or decelerate the general acceptance of telemedicine in the region are open to academic discourse; hence this systematic review.

## DISCUSSION OF RELEVANT LITERATURE

### **Potency and Prospect of Telemedicine in Sub-Saharan Africa**

At the turn of the twenty-first, sub-Saharan Africa as a region has experienced rapid population growth (Umeh, 2018) coupled with an increase in infectious and chronic diseases (Adenuga et al., 2017; Mars, 2012). This translates to an increase in the number of residents that seek health-related care and services. The population of the available qualified medical and health

professionals is not in tandem with the proportion that is required to provide the enough hands to render healthcare service delivery that the patients need and thereby creating a gap between the ideal rate of health service delivery and the reality.

Studies have, however, established the potentiality of telemedicine in bridging this gap as well as complementing the concerted efforts of both government and private organisations to ensure good health conditions of people in the region (Nuwagira & Muzoora, 2020; Okoroafor et al., 2017). Moreover, bridging this gap is in line with the goal 3 of the Sustainable Development Goals, which is ensuring good health and wellbeing of people.

In the sub-Saharan African region, just like in advanced countries, the Internet has played significant roles in disease control and management, enlightening the populace on patient self-care, facilitating health support, and encouraging the behaviour that boost public and personal health (Idoga et al., 2019; Ramalanjaona, 2011; Chanda & Shaw, 2010). These roles, for instance, manifested during the COVID-19 pandemic where the governments of the countries in the region set up agencies that utilized SMS on mobile phones, social media platforms to sensitize people about the prevention and cure of the disease. For instance, according to Adenuga et al. (2020), Nigerian governments at different levels are able to sensitize and pass useful information to the populace about personal and public health. These scholars further added that private medical practitioners in the country have seized the opportunity of using the Internet to inform the other Internet users about their products and services, and to advertise them.

Also, modern medical experts including trado-medical practitioners in the region have created various online forums and platforms for people and the practitioners to share their various health-related experiences (Elson et al., 2020; Grood, 2016). These health platform social media are also useful for valuable advice and vital information on ethics of a particular disease, prescription of suitable and effective drugs, new products and suitable medical centres for the treatment of a particular disease (Bokolo, 2020). Indigenous studies have further established that these platforms have generated reaching a large number of people, gaining greater access to useful information on health-related issues, reduction in the cost of treatment and an increase in quality of health for the patients in sub-Saharan region (Paintsil, 2020; Ibekwe & Fasunla, 2020; Odhiambo & Mars, 2019; Bashshur, 2013).

Moreover, Pappot, Taarnhoj and Pappot (2020) and Wootton (2008) added that the opportunity embedded in telemedicine translates to extension of medical services to remote people in the region with limited access to medical services, in particular in the area where the centres that are saddled with providing vital information and sensitizing the general public on health related issues are not available. Scott and Mars (2015) as well as Lewis, Synowiec, Lagomarsino and Schweitzer (2012) noted that the benefits inherent in online healthcare delivery for patients and the general populace in various forms have lent credence to an increase in the popularity of telemedicine as a part of medical practice in a number of developing countries including the sub-Saharan African region.

In Nigeria for instance, the Facebook, Twitter and WhatsApp are the most popular social media platforms that the populace utilize. These platforms have also served as the means to create awareness about disease ravaging society. These platforms have helped in reducing several costs of patient treatment such as cost of transportation to health centres, medical consultancy fee, and hospital bed-space fee, among others. Via telehealth, the region has experienced interconnection of global health network to take action and receive help on health crises. For instance, this situation is experienced during the pandemic of Corona Virus of 2020 where people in the region are sensitized about the symptoms of the disease, the precautions to

take against contracting the disease and ways to manage the symptoms of the disease via social media applications such as the Facebook, WhatsApp, Twitters, among others.

Moreover, these social media applications have help the masses in the region to receive other vital and dependable information from the health experts, government disease control agencies and the World Health Organisation to further keep the outbreak of the disease in the region on under surveillance (Hau et al., 2020; Manyati and Mutsau, 2020; Monaghesh & Hajizadeh, 2020; Obasola, Mabawonku, & Lagunju, 2015). Also, government has utilized this social media to keep the masses abreast of the policies adopted to manage and control the disease and others such as polio, tuberculosis and women breast cancer in the region (Sarfo et al., 2017; Montgomery et al., 2016). However, Leite, Hodgkinson, and Gruber (2020) noted that implementation of e-health transcends being in technical terrain as a means of achieving the purpose of adopting telemedicine. Therefore, in electronic-health (e-health) and telemedicine, there is a need for people to accept that the sole function of technology is to serve as a means to enhance the relationship between human beings and their health environment as well as their conventional healthcare system.

### **Challenge, Defect and Danger of Telemedicine in Sub-Saharan Africa**

As technology devices, in particular mobile phone, could be used to enhance health quality and promote general wellbeing of people, studies in advanced countries have found the potentiality of these devices to deteriorate people's wellbeing. For instance, reports have linked physical health risks such as brain tumours and insomnia to frequent use of mobile phone (Fowler & Noyes, 2017). The cognitive implications of using the laptop and mobile phone manifest when the user is on a different assignment or secondary task such as driving while still on using these devices.

Likewise, Idoga et al. (2019) added that inability to stop thinking about the arrival and contents of the messages on mobile phones reportedly adds to the cognitive implications in particular among the youth. On social health, mobile phone use has enabled people, in particular the young and women in the region, to contact other people for help and protection and this has resulted in gaining a greater sense of freedom for them (Ajani & Fakunle, 2018). However, the patriarchal structure and the doctrine of some religious practices of the region are not in conformity with giving freedom to women, in particular the married ones and the young ladies who have just reached the puberty age. Therefore, being denied of gaining access to the use of the Internet inhibits popular acceptance of telemedicine in the region.

Also, phone addiction, disruption of social interaction, social relationship and sound sleep, which voice calls and texts generate, is cited as being among the negative outcomes of mobile phone use in the region (Fowler & Noyes, 2017). Moreover, studies have established that a number of mobile phone users are not comfortable with a plethora of emails, calls, voice messages and in particular texts on the WhatsApp, Facebook and Twitter and the compulsion they feel to reply to these calls and messages (Bokolo, 2020; Ajani, & Fakunle, 2018). In the same vein, just as in several advanced countries, sub-Saharan African region has experienced cyber-bullying for children as one of the negative results of mobile phone use (Murthy, 2012). However, studies are yet to establish loss of lives in the region as a result of cyber-bullying.

The adoption of e-health and telemedicine is inclined to be hampered by the security concern of an individual in the region (Okoroafor et al., 2017; Khalid, 2016). For instance, in Nigeria where there is currently an increase in insecurity level, the fear of the attack from highway robbers, kidnappers and muggers is a potential reason to discourage people from purchasing technological devices to access the Internet. Also, the fear of the social media

account hackers and unwarranted intrusion into the privacy of Internet users adds to the barrier. Therefore, in the situation where people consider their being on the social media such as the WhatsApp, YouTube, Instagram, Facebook, Telegram, Twitter, among others, as a threat to their safety, the wide acceptance of adopting e-health and telemedicine is also threatened.

In spite of the available opportunity to greater access to vital information via the Internet on health-related issues, studies have recorded poor patients commitment and engagement in the region and among the reasons cited are unbridled posting of fake information, fraudulent acts, poor network service and lack of trust in online information (Idoga et al., 2019; Odhiambo & Mars, 2019; Mistry, 2012). An influx of fake and false information on the Internet has defied transnational regulatory standards, and this has become one of the major challenges that telemedicine faces in the region. For instance, during Corona pandemic, some information on the Internet contains prescription of substances such as salt, ginger, sugar and warm water to cure the disease. However, the World Health Organisation debunks the claim that these substances are capable of curing the disease and further warns the general public against imbibing the information.

Also, the region largely contains countries with low economy development (Chanda & Shaw, 2010; Lewis et al., 2012); hence, high poverty level and low literacy level among the masses have generated limitations on harnessing the benefits inherent in telemedicine (Wynn, Kwabia, & Osei-Bonsu, 2016; Mars, 2012). In addition, the challenges that people of the region encounter in accessing telemedicine include poverty that has prevented the majority of the people from possessing android mobile phones, computers (laptops or desktops), browsing modems and data to access the Internet.

Another factor identified is poor receptivity of the governments of the majority of the developing countries to venture into technology resources to facilitate e-health and telemedicine in particular (Babalola et al., 2021). Therefore, Ajani and Fakunle (2018) suggested government intervention in subsidizing the cost of accessing the Internet as a means of enhancing people to access the health-related benefits and opportunities that are available on the Internet. Besides, low literacy level and language barrier to understand the information on health provided on the Internet as well as poor power (electricity) supply to power the technological gadgets; poor network service delivery of the telecommunication service providers and limited Internet coverage in particular in the rural areas of the region are among the challenges (Idoga et al., 2019; Odhiambo & Mars, 2019; Ajani & Fakunle, 2018; Khalid, 2016; Lewis et al., 2012; Chanda & Shaw, 2010).

In spite of a number of opportunities in telemedicine that mobile phone use intervention tends to generate, use of mobile phones among students, in general, in the region has not gained popular acceptance. Authorities of the institutions of learning often cited mobile phone abuse and inappropriate phone etiquette among students. Introduction of mobile phone use in secondary schools affect students full concentration on the lecture taking place in the class (Islam, 2020; Keengwe, Schnellert & Jonas, 2012). This indirectly decelerates mobile phone use by the students to access online services. Ajani and Fakunle (2018) found that android mobile phone is the cheapest means through which people in the region access the Internet; therefore, disallowing

the students from using mobile phones translates to their inability to access online healthcare and medical services.

Sarfo et al. (2017) as well as Lauckner and Whitten (2016) noted that the effectiveness of the benefits derived from telemedicine become manifest only by applying the health intervention activities that are learnt online in offline daily activities. This translates to maintaining a direct and continuous connection between online health education and offline activities to demonstrate the activities learnt online for telemedicine to become effective. Therefore, the disconnection between these online and offline activities inhibits the effectiveness of telemedicine in peoples' health life.

### CONCLUSION

This iterant review showed that telemedicine as a concept is not entirely new to the people of sub-Saharan African region. However, via a number of extant studies, this paper highlighted several factors that constitute a major setback for gaining momentous popularity and wide acceptance of telemedicine among the residents of the region. In spite of the challenges faced by telemedicine in the region, the inherent benefits in it have called for the need to initiate and integrate various policies that favours people's involvement in e-health activities and socio-cultural friendly telemedicine programmes into the extant conventional health care system in the region.

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