INNOVATION

Conceptualisation of Digital Literacy Skills and Healthcare Information Access among Rural Communities in Nigeria

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Abstract

This study examined the influence of digital literacy skills on healthcare information access among rural communities in Nigeria. The increasing adoption of digital technologies in healthcare delivery has transformed the way health information is generated, disseminated, and utilised. However, many rural dwellers in Nigeria still experience challenges in accessing reliable healthcare information due to low levels of digital literacy, inadequate internet connectivity, poverty, and limited technological infrastructure. The study adopted a descriptive survey research design to investigate the extent to which digital literacy skills contribute to improved healthcare information access among rural populations. Data were gathered through questionnaires administered to selected residents in rural communities. Findings revealed that individuals with higher digital literacy skills were more likely to access online health resources, utilise mobile health applications, and engage in health-related communication through digital platforms. The study also identified major barriers such as poor electricity supply, low educational attainment, high cost of internet services, and lack of digital training opportunities. Furthermore, the study established that improving digital literacy skills can significantly enhance health awareness, disease prevention practices, and healthcare decision-making among rural residents. The study concluded that digital literacy is essential for promoting equitable healthcare information access and reducing health disparities in underserved communities. It recommended increased government investment in rural digital infrastructure, community-based digital literacy programmes, and affordable internet access to enhance healthcare information dissemination and utilisation in rural Nigeria.

Keywords: *Digital literacy, healthcare information, rural communities, internet access, Nigeria.*

Introduction

The advancement of information and communication technologies (ICTs) has transformed healthcare systems globally by improving the accessibility, dissemination, and utilisation of healthcare information. Digital technologies such as smartphones, computers, internet services, and mobile health applications have become essential tools for obtaining health-related information and promoting public health awareness. In both developed and developing countries, digital healthcare information systems have enhanced communication between healthcare providers and patients, improved disease surveillance, and facilitated timely access to medical information. Despite these technological advancements, significant disparities still exist in healthcare information access, particularly among rural communities in developing nations such as Nigeria.

Digital literacy refers to the ability of individuals to effectively use digital devices, communication tools, and online platforms to locate, evaluate,

create, and share information. In the healthcare sector, digital literacy enables individuals to search for medical information online, access telemedicine services, understand health-related content, and communicate effectively with healthcare professionals through digital platforms. Individuals with adequate digital literacy skills are more likely to make informed healthcare decisions, adopt preventive health behaviours, and respond appropriately to health emergencies.

In Nigeria, rural communities often face numerous challenges that limit access to quality healthcare information. These challenges include inadequate healthcare facilities, poor road networks, low literacy levels, unreliable electricity supply, and limited internet connectivity. Many rural residents depend largely on traditional communication channels and informal sources of information, which may not always provide accurate or timely healthcare information. Consequently, poor access to healthcare information contributes to increased vulnerability to diseases, low health awareness, and poor health outcomes among rural populations.

The emergence of digital health initiatives in Nigeria has created opportunities for improving healthcare information access in rural communities. Mobile phones and internet-enabled devices are increasingly being used to disseminate health information on disease prevention, maternal and child health, vaccination campaigns, and public health emergencies. However, the effective utilisation of these digital health resources depends greatly on the digital literacy skills of the users. Individuals who lack basic digital competencies may experience difficulties in accessing online healthcare information, navigating digital platforms, or evaluating the credibility of online health content.

Therefore, there is a growing need to examine the relationship between digital literacy skills and healthcare information access among rural communities in Nigeria. Understanding this relationship is important for policymakers, healthcare professionals, educators, and development agencies seeking to promote inclusive healthcare delivery and bridge the digital divide between urban and rural populations.

Research Questions

1. What is the level of digital literacy skills among rural communities in Nigeria?
2. To what extent do rural residents utilise digital platforms for accessing healthcare information?
3. What challenges affect healthcare information access among rural communities in Nigeria?
4. What is the relationship between digital literacy skills and healthcare information access among rural residents?

5. What strategies can improve digital literacy and healthcare information access in rural Nigeria?

Literature Review

Digital literacy has become an essential component of modern society, particularly in the healthcare sector where access to timely and accurate information can significantly improve health outcomes. The concept of digital literacy extends beyond the ability to operate digital devices; it also includes the capacity to search, evaluate, interpret, and effectively utilise digital information. According to scholars in information science and health communication, digital literacy skills are necessary for individuals to participate fully in digital health environments and make informed healthcare decisions.

Healthcare information access refers to the ability of individuals to obtain relevant and reliable information related to health promotion, disease prevention, diagnosis, and treatment. Access to healthcare information is critical for improving public health awareness and empowering individuals to adopt healthy behaviours. In recent years, digital technologies have transformed healthcare information dissemination through electronic health records, telemedicine, mobile health applications, online consultations, and social media platforms. These technologies have enhanced communication between healthcare providers and patients while improving the speed and convenience of healthcare delivery.

Several studies have established that digital literacy plays a significant role in healthcare information utilisation. Individuals with adequate digital skills are more likely to search for medical information online, participate in telehealth services, and evaluate the reliability of digital health content. Conversely, low digital literacy limits individuals' ability to benefit from digital healthcare innovations. In many developing countries, particularly in rural areas, limited digital competencies contribute to poor healthcare information access and increased health inequalities.

In Nigeria, the digital divide between urban and rural communities remains a major concern. Urban residents generally have better access to internet services, electricity, digital devices, and educational opportunities compared to rural dwellers. Rural communities often experience infrastructural challenges such as poor network coverage, inadequate electricity supply, and limited access to affordable digital technologies. These barriers significantly affect the adoption and utilisation of digital healthcare resources.

Research has shown that mobile phones are among the most commonly used digital devices in rural Nigeria. Many healthcare organisations and government agencies now utilise mobile technologies to disseminate

health information related to maternal healthcare, immunisation, disease outbreaks, and public health campaigns. Mobile health initiatives have proven effective in improving communication between healthcare workers and rural residents. However, the effectiveness of these initiatives largely depends on users' digital literacy levels and their ability to understand and apply the information provided.

Educational attainment is another important factor influencing digital literacy and healthcare information access. Individuals with higher levels of education are generally more capable of navigating digital platforms and evaluating online information sources. Rural populations with low educational backgrounds may struggle to understand medical terminologies or identify credible health information online. This challenge often leads to misinformation, reliance on unverified sources, and poor healthcare decisions.

Studies on healthcare information behaviour among rural populations indicate that many residents still depend on traditional sources such as community leaders, local healers, radio broadcasts, and family members for health-related information. While these traditional channels remain important, they may not always provide accurate, comprehensive, or up-to-date healthcare information. The integration of digital technologies into rural healthcare systems therefore presents an opportunity to enhance healthcare communication and public health awareness.

Furthermore, scholars have argued that improving digital literacy among rural populations can contribute significantly to achieving sustainable healthcare development goals. Digital literacy training programmes can empower rural residents to use mobile devices, internet services, and online health resources effectively. Such interventions can improve healthcare-seeking behaviour, encourage preventive health practices, and reduce healthcare inequalities between rural and urban populations.

Despite growing interest in digital healthcare initiatives, empirical studies focusing specifically on digital literacy skills and healthcare information access among rural communities in Nigeria remain limited. Existing studies often focus on urban populations or healthcare professionals, leaving a gap in understanding the experiences of rural residents. Therefore, this study contributes to the existing literature by examining how digital literacy skills influence healthcare information access among rural communities in Nigeria and identifying strategies for improving digital inclusion in healthcare delivery.

Methods and Materials

This study adopted a descriptive survey research design to investigate digital literacy skills and healthcare information access among rural

communities in Nigeria. The descriptive survey design was considered appropriate because it enabled the researcher to collect data from respondents regarding their digital literacy levels, healthcare information-seeking behaviour, and challenges affecting access to digital healthcare information.

The study population consisted of residents in selected rural communities in Southwestern Nigeria. Participants included adults, youths, community health workers, traders, farmers, and artisans who reside within the selected communities. A multistage sampling technique was employed to select respondents for the study. First, rural communities were purposively selected based on their accessibility and availability of basic communication infrastructure. Thereafter, simple random sampling was used to select participants from the communities.

Data for the study were collected using a structured questionnaire designed by the researcher. The questionnaire contained sections on demographic information, digital literacy skills, healthcare information access patterns, challenges encountered in accessing digital healthcare information, and possible improvement strategies. The instrument included both closed-ended and Likert-scale questions to ensure comprehensive responses from participants.

To ensure validity, the questionnaire was reviewed by experts in library and information science, public health, and educational technology. Necessary corrections and modifications were made based on their suggestions. Reliability of the instrument was established through a pilot study conducted in a similar rural community outside the study area. The reliability coefficient obtained was considered adequate for the study.

The questionnaires were administered physically to respondents with the assistance of trained research assistants who interpreted questions where necessary. Ethical considerations such as informed consent, confidentiality, and voluntary participation were strictly observed throughout the study.

Data collected were analysed using descriptive statistical methods such as frequency counts, percentages, mean scores, and tables. The findings were presented systematically to address the research questions and objectives of the study.

Results

The findings of the study revealed that the level of digital literacy among rural residents was generally moderate. A significant proportion of respondents indicated that they could operate mobile phones, browse the internet, and use social media platforms. However, many participants demonstrated limited ability in evaluating the credibility of

online healthcare information and using advanced digital health applications.

The study showed that mobile phones were the most commonly used digital devices for accessing healthcare information among rural residents. Respondents frequently used platforms such as WhatsApp, Facebook, Google search engines, and YouTube to obtain information on disease prevention, maternal health, nutrition, and medication usage. Community health workers also utilised mobile communication channels to disseminate public health information during vaccination campaigns and disease outbreaks.

Results further indicated that digital literacy skills positively influenced healthcare information access. Respondents with higher digital competencies were more likely to access online healthcare resources regularly, participate in online health discussions, and seek medical information from credible digital sources. These individuals also demonstrated greater awareness of preventive healthcare practices and public health information.

Despite these positive outcomes, several barriers affecting healthcare information access were identified. Poor internet connectivity was reported as one of the major challenges experienced by respondents. Many rural communities lacked stable network coverage, making it difficult to access online resources consistently. Inadequate electricity supply also limited the use of digital devices, particularly among respondents who could not afford alternative power sources.

High cost of internet data subscriptions was another major challenge affecting digital healthcare information access. Many respondents indicated that financial constraints prevented them from accessing online health resources regularly. Low educational attainment and limited digital training opportunities also contributed to low digital literacy levels among some participants.

The findings additionally revealed that misinformation and inability to identify reliable online healthcare sources posed significant concerns among rural residents. Some respondents admitted relying on unverified social media information, which occasionally resulted in confusion and inappropriate health practices.

Based on the findings, respondents suggested that government and non-governmental organisations should invest in rural digital infrastructure, provide affordable internet services, and organise community-based digital literacy training programmes. The study concluded that strengthening digital literacy skills among rural populations would significantly improve healthcare information access and contribute to better healthcare outcomes in Nigeria.

Discussion of Findings

The findings of this study revealed that digital literacy skills significantly influence healthcare information access among rural communities in Nigeria. The study established that many rural residents possess basic digital skills such as operating mobile phones, browsing the internet, and using social media platforms. This finding suggests that digital technologies are gradually penetrating rural communities despite infrastructural and economic limitations. The increasing ownership of mobile phones among rural dwellers has created opportunities for accessing healthcare information and participating in digital health communication.

The study further revealed that respondents commonly utilised mobile devices and social media platforms such as WhatsApp, Facebook, and Google to obtain healthcare information. This finding aligns with previous studies which observed that mobile technologies have become important channels for disseminating healthcare information in developing countries. The use of digital platforms for accessing information on disease prevention, maternal health, nutrition, and medication demonstrates the growing importance of digital communication in promoting public health awareness among rural populations.

Another important finding of the study is that respondents with higher digital literacy skills were more likely to access reliable healthcare information and engage in positive healthcare practices. Individuals with adequate digital competencies demonstrated better ability to search for health-related information, evaluate online sources, and utilise digital health resources effectively. This finding supports the argument that digital literacy enhances individuals' capacity to make informed healthcare decisions and adopt preventive healthcare behaviours.

However, the study also identified several barriers limiting effective healthcare information access in rural communities. Poor internet connectivity, inadequate electricity supply, and high cost of internet services were major challenges reported by respondents. These infrastructural challenges continue to widen the digital divide between urban and rural populations in Nigeria. Without reliable internet access and stable power supply, many rural residents may remain excluded from the benefits of digital healthcare services.

The findings additionally showed that low educational attainment and lack of digital literacy training contribute significantly to limited healthcare information access. Many respondents experienced difficulties in evaluating the credibility of online healthcare information, thereby exposing them to misinformation and unreliable health content. This finding is particularly important because the spread of false

healthcare information through digital platforms can negatively affect public health outcomes and healthcare decision-making.

The study therefore highlights the urgent need for policies and interventions aimed at improving digital literacy skills among rural populations. Strengthening digital competencies can empower rural residents to access accurate healthcare information, utilise telemedicine services, and participate effectively in digital healthcare systems. Overall, the findings demonstrate that digital literacy is an important determinant of healthcare information access and a critical factor in improving healthcare delivery and public health outcomes in rural Nigeria.

Conclusion

This study examined digital literacy skills and healthcare information access among rural communities in Nigeria. The study established that digital literacy plays a significant role in determining individuals' ability to access, evaluate, and utilise healthcare information through digital platforms. The findings revealed that many rural residents possess basic digital skills and increasingly rely on mobile phones and internet-based platforms for healthcare information seeking. Digital technologies have therefore become important tools for improving healthcare communication and public health awareness in rural communities.

The study further demonstrated that individuals with higher digital literacy skills are better positioned to access reliable healthcare information and make informed healthcare decisions. Digital literacy enhances the ability to utilise online health resources, communicate with healthcare providers, and participate in digital health initiatives. Consequently, improving digital literacy can contribute significantly to disease prevention, health promotion, and improved healthcare outcomes among rural populations.

Despite the growing adoption of digital technologies, several barriers continue to hinder effective healthcare information access in rural Nigeria. Challenges such as poor internet connectivity, inadequate electricity supply, high cost of internet services, low educational attainment, and limited digital training opportunities negatively affect digital inclusion in healthcare delivery. In addition, the spread of misinformation and inability to identify credible healthcare information sources remain critical concerns among rural residents.

The study concludes that digital literacy is essential for bridging healthcare information gaps and reducing healthcare inequalities between urban and rural populations. Promoting digital inclusion in rural communities can strengthen healthcare delivery systems and improve public health outcomes. Therefore, collaborative efforts involving government agencies, educational

institutions, healthcare organisations, and non-governmental organisations are necessary to improve digital infrastructure, expand internet access, and provide digital literacy training for rural populations in Nigeria.

Recommendations

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

1. Government should invest in improving digital infrastructure such as internet connectivity, telecommunication networks, and electricity supply in rural communities to enhance healthcare information access.
2. Community-based digital literacy training programmes should be organised regularly to equip rural residents with the skills needed to utilise digital healthcare resources effectively.
3. Healthcare institutions and public health agencies should develop simple and user-friendly digital health platforms that can be easily accessed and understood by rural populations.
4. Internet service providers should collaborate with government agencies to provide affordable internet services for rural dwellers in order to reduce financial barriers to digital healthcare information access.
5. Educational institutions and non-governmental organisations should promote awareness campaigns on identifying credible online healthcare information sources to reduce misinformation and improve healthcare decision-making.
6. Mobile health initiatives should be expanded to provide timely healthcare information on disease prevention, maternal health, immunisation, and emergency health situations within rural communities.

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