# Exploring the Use of Digital Media Platforms for Social Change in Teaching Hospitals in Rivers State

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## Abstract

*This study examined the utilization of digital media platforms for social change initiatives within teaching hospitals in Rivers State, Nigeria, focusing on University of Port Harcourt Teaching Hospital and Rivers State University Teaching Hospital. The objectives were to identify the digital media platforms employed, explore the specific strategies used to promote health awareness and patient engagement, evaluate the impact of digital media on healthcare communication and community outreach, and analyze the challenges encountered in leveraging these platforms for social change. Grounded in the social network theory, diffusion innovations theory and technology acceptance model (TAM). The study used a mixed-methods approach, including a structured questionnaire with 384 respondents and in-depth interviews with hospital staff. Findings indicate that widely used platforms include Facebook, WhatsApp, and hospital websites, chosen for their accessibility and broad reach. Digital media strategies primarily focus on information dissemination, health awareness campaigns, and interactive engagement with patients. The study finds that digital media positively impacts healthcare communication by enabling faster information sharing, improving patient engagement, and facilitating community outreach. However, barriers such as poor internet connectivity, privacy concerns, and limited digital literacy hinder the effectiveness of these platforms. Recommendations emphasize the need for improved infrastructure, digital literacy training, and enhanced management support to maximize the benefits of digital media in healthcare. This study contributes to the field by providing insights into digital media's role in healthcare within a resource-limited setting, with implications for enhancing health communication and patient-centered care in similar contexts.*

## I. Introduction

Scholars like Johnson et al., (2022) observed that patients have the propensity to seek information via social media in order to select doctors, specialists, and hospitals to make informed decisions on the best practices to get healthcare needs. Similarly, in developed countries, some patients rely on information found online and use the Internet to gather healthcare information and connect with other patients to garner support and learn about related conditions to improve their healthcare management; while receiving accurate and prompt information for quality health service delivery remains a challenge. Johnson et al., (2022) concur that digital media platform, such as social media and hospital websites, significantly enhanced patient education by providing accessible health information and promoting interactive communication. Patients reported increased understanding of their health conditions and treatments, leading to better adherence to medical advice and improved health outcomes (Aondover et al., 2023).

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While Okoro et al. (2021) effectively explored the role of social media campaigns in raising public health awareness in teaching hospitals, several gaps in knowledge remain when considering the broader use of digital media platforms for driving social change in these institutions. Addressing these gaps is essential for a comprehensive understanding of how digital media can be harnessed beyond public health awareness campaigns to facilitate more extensive social transformation in teaching hospitals. Public teaching hospitals in Rivers State, Nigeria, are confronted with numerous healthcare challenges, including inadequate infrastructure, healthcare worker shortages, and limited access to quality healthcare services etc. In the midst of these challenges, the potential of digital media platforms to drive social change and improve healthcare delivery remains largely unexplored. Despite the growing prevalence of digital media use in Nigeria, there is a dearth of research examining the specific utilisation of digital media platforms for social change initiatives within public teaching hospitals in Rivers State.

There is a gap in understanding how the two public teaching hospitals in Rivers State utilise digital media platforms to address healthcare challenges, foster social change, and improve healthcare outcomes. Existing literature lacks comprehensive insights into the strategies, perceptions, and impact of digital media use in these hospitals, hindering efforts to harness the full potential of digital media for transformative healthcare initiatives (Owens-Ibie & Aondover, 2024). Consequently, there is a pressing need to explore digital media platforms for social change in public teaching hospitals in Rivers State to inform evidence-based interventions, enhance communication strategies, and advance healthcare delivery in the region.

## Objectives of the Study

This study seeks to explore the use of digital media platforms for social change at the University of Port Harcourt and Rivers State University teaching hospitals in Rivers State, the specific objectives however are to:

1. Assess the current utilisation of digital media platforms by the University of Port Harcourt and Rivers State University teaching hospitals in Rivers State.
2. Explore the specific digital media strategies employed by healthcare providers and administrators in these teaching hospitals to promote health awareness, disseminate healthcare information, and engage with patients and other stakeholders.
3. Examine the perceived impact of digital media use on healthcare communication, patient engagement, and community outreach within the University of Port Harcourt Teaching Hospital and Rivers State University Teaching Hospital.
4. Identify the challenges and barriers encountered in leveraging digital media platforms for social change initiatives in the context of teaching hospitals in Rivers State.

## II. Review of Literatures

### 2.1 Digital Media and Healthcare Communication

Digital media has transformed the landscape of healthcare communication, offering unprecedented opportunities for information dissemination, patient engagement, and community outreach. This discussion explores the role of digital media in healthcare communication, its impact on patient-provider interactions, and the challenges and opportunities it presents. Digital media platforms, such as social media, websites, and mobile applications, have revolutionized the way healthcare information is disseminated to patients and the public. With the click of a button, individuals can access a wealth of health-related information, ranging from medical research findings to practical health tips.

Social media platforms, in particular, serve as powerful tools for sharing timely updates, educational resources, and public health messages (Moorhead et al., 2013; Aondover et al., 2022).

Digital media facilitates two-way communication between patients and healthcare providers, fostering greater patient engagement and empowerment. Patients can actively participate in their healthcare journey by accessing online portals to view medical records, schedule appointments, and communicate with their healthcare team (Idris & Msughter, 2022). Additionally, social media platforms enable patients to share their experiences, seek support from peers, and advocate for their healthcare needs (Grajales et al., 2014). Digital media plays a crucial role in promoting health literacy and empowering individuals to make informed decisions about their health. Through interactive educational content, online forums, and health-focused websites, individuals can learn about preventive measures, disease management strategies, and treatment options (Kurfi et al., 2021). Digital media platforms also empower patients to take control of their health by providing access to resources and tools for self-monitoring and self-management. Despite its numerous benefits, digital media in healthcare communication is not without challenges. Privacy concerns, misinformation, and digital divides are key challenges facing healthcare organisations and patients in the digital age (Maikaba & Msughter, 2019).

Moreover, healthcare providers may encounter challenges in balancing patient engagement with maintaining professional boundaries and ensuring the accuracy and reliability of online health information (Ahmed et al., 2018). However, these challenges also present opportunities for innovation, collaboration, and continuous improvement in healthcare communication practices. Digital media has transformed healthcare communication, offering new avenues for information dissemination, patient engagement, and health promotion. By leveraging digital media platforms effectively, healthcare organisations can enhance patient-provider interactions, promote health literacy, and empower individuals to take an active role in managing their health. While challenges exist, the opportunities for harnessing the power of digital media in healthcare communication are vast, paving the way for a more connected, informed, and empowered healthcare ecosystem.

## 2.2 Social Media for Health Promotion Advocacy

Social media has transformed the landscape of advocacy, providing individuals and organisations with unprecedented opportunities to raise awareness, mobilise support, and effect change on a wide range of social issues. Social media has emerged as a powerful tool for health promotion and advocacy, providing opportunities for disseminating information, engaging communities, and mobilising support for public health initiatives. This discussion explores the role of social media in promoting health advocacy, its impact on public health outcomes, and the challenges and opportunities it presents. Social media platforms, such as Facebook, Twitter, and Instagram, offer healthcare organisations and advocate a wide-reaching platform to disseminate health information to diverse audiences (Mojaye & Aondover, 2022). Through targeted messaging, visual content, and interactive campaigns, health advocates can raise awareness about health issues, share evidence-based recommendations, and promote healthy behaviours (Moorhead et al., 2013). Social media platforms, such as Facebook, X, Instagram, and YouTube, have become powerful tools for advocacy, enabling individuals and organisations to reach global audiences, engage communities, and advocate for social change.

Msughter et al., (2023) observed that social media enables health advocates to engage directly with communities, fostering dialogue, building relationships and

mobilising support for health-related causes. By creating online communities, hosting virtual events, and facilitating discussions on health topics, advocates can empower individuals to take action, share resources, and support one another in achieving health goals. Social media platforms provide a platform for amplifying the voices of marginalized communities, raising awareness about health disparities, and advocating for policy changes. Through storytelling, user-generated content, and advocacy campaigns, individuals and organisations can advocate for equitable access to healthcare, challenge stigma and discrimination, and advance social justice in healthcare (Ahmed et al., 2018). Research suggests that social media advocacy can have a significant impact on public health outcomes by increasing knowledge, changing attitudes, and influencing behaviours. For example, a study by Ahmed et al. (2018) found that social media campaigns targeting pediatric lung health improved awareness and behaviour change among parents and caregivers.

Similarly, Grajales et al. (2014) highlight the role of social media in promoting smoking cessation, vaccination uptake, and other health behaviours. Research has shown that social media advocacy can have a significant impact on public opinion, policy outcomes, and social norms. For example, campaigns such as *#ENDSARS* #BlackLivesMatter, #MeToo, and #ClimateStrike have raised awareness about systemic injustices, sparked public debate, and catalyzed policy reforms. Social media advocacy also empowers marginalized communities to share their stories, challenge stereotypes, and demand accountability from those in power (Msughter et al., 2022).

While social media advocacy offers numerous opportunities for promoting health, it is not without challenges. Privacy concerns, misinformation, and algorithmic biases are key challenges facing health advocates on social media platforms (Grajales et al., 2014). Moreover, reaching vulnerable populations, ensuring message resonance, and sustaining engagement over time require careful planning and strategic communication efforts (Moorhead et al., 2013). Social media advocacy offers numerous benefits; it also raises ethical considerations related to privacy, misinformation, and algorithmic biases. Advocates must navigate these challenges while ensuring that messaging is accurate, inclusive, and respectful of diverse perspectives (Namadi & Aondover, 2020). Additionally, advocates should be transparent about their motives and avoid exploiting vulnerable populations for personal or political gain.

However, these challenges also present opportunities for innovation, collaboration, and advocacy efforts to address systemic barriers to health equity. Social media has become a vital tool for health promotion advocacy, enabling advocates to disseminate information, engage communities, and mobilise support for public health initiatives (Obada et al., 2021). By harnessing the power of social media platforms effectively, health advocates can amplify their voices, advocate for change, and advance health equity and social justice. While challenges exist, the opportunities for leveraging social media for health advocacy are vast, offering new avenues for promoting health and improving outcomes for individuals and communities.

Social media advocacy has its roots in traditional forms of activism, such as grassroots organising, community mobilisation, and public demonstrations. However, the rise of digital technology and social media platforms has democratized advocacy, allowing individuals and groups to amplify their voices and connect with like-minded individuals across geographical and cultural boundaries. Social media advocacy is characterised by its immediacy, accessibility, and interactivity. Advocates can share information, engage in dialogue, and mobilise support in real-time, making it a dynamic and responsive tool for social change. Additionally, social media advocacy often involves multimedia content,

such as videos, graphics, and memes, which can enhance engagement and emotional resonance (Usman et al., 2022).

Social media advocacy has emerged as a potent force for social change, enabling individuals and organisations to amplify their voices, mobilise support, and effect change on a global scale. While social media advocacy presents ethical challenges, it's potential to democratize advocacy, amplify marginalised voices, and advance social justice agendas cannot be understated. Moving forward, advocates must continue to harness the power of social media responsibly and ethically to create a more just and equitable world.

## 2.3 Patients' Perception of Social Media Use on Health Service Delivery among Patients and Health Care Providers

Health service delivery has been a challenge since the early days. To reduce the mortality rate, treatment, and therapeutic deficiencies, techniques have evolved drastically over the centuries from uncomplicated therapies derived from medicinal plants to hi-tech devices that can perform problematical and complicated surgeries and transplants. Research in the medical field has always been directed towards providing the most optimal and immediate treatment to the sick populace. However, enormous opportunities for more innovation and progress in providing the best healthcare solutions for patients still exist (Mohapatra et al., 2018). For healthcare providers to deliver quality healthcare services that will meet patients' aspirations and satisfactions, accurate information has to be created and shared among different healthcare providers and between them and patients/caregivers using a different approved medium social media is not an exception.

The term social media evolved from Web 2.0, and it refers to any website or application that facilitates the users to create and share content, information or ideas through virtual communication and networking. Perrine in Wilson (2000) opined that the number of social media users increases year by year with 90% of social media users being within the age group of 18–29 years, though people aged 65 years and above also use social media. Social media as a part of Information and Communication Technology (ICT) is computer-mediated technology that facilitates the creation and sharing of information, ideas, career interests, and other forms of expression via virtual communities and networks. Thielst in Mohapatra et al., (2018) averred that Facebook, Foursquare, Twitter, YouTube, LinkedIn, Instagram, Viber, My Space, and blogs are among the various types of social media used in the delivery of health services in hospitals to patients.

Modahl et al., in Mohapatra et al., (2018) posited that social media create an opportunity for patient participation in health issues interaction that extends beyond the reach of the hospital or the local clinic. These resources can aid in empowering and uplifting patients' awareness of health and related health matters when they read about the experiences of other patients. More so, some healthcare providers believe that social media can be beneficial for patients with cancer, chronic disease, depression, infant and maternal care, infectious disease, and prevention therapies (Househ et al., in Mohapatra et al., 2018) statement of the problem though many healthcare providers have been working assiduously to effectively utilise social media to engage patients, clients, and other stakeholders through effective communication and promoting approaches the impacts of social media use in the delivery of health services seem not to be widely known. In developed countries, some health organisations have been able to move away from traditional advertising techniques to the use of the Internet to connect with clients, patients, and caregivers in the healthcare field.

In the same vein, patients also have the propensity to seek information via social media in order to select doctors, specialists, and hospitals to make informed decisions on

the best practices to get healthcare needs. Similarly, in developed countries, some patients rely on information found online and use the Internet to gather healthcare information and connect with other patients to garner support and learn about related conditions to improve their healthcare management; while receiving accurate and prompt information for quality health service delivery remains a challenge. Healthcare service provisions have always been characterised by the trust in the competence and independence of information obtained by the patient from various sources, primarily from physicians and other healthcare professionals. Therefore, it is indispensable for healthcare providers to be active in using social media to provide accurate information.

## 2.4 Information Seeking Using Digital Media for Behavioural Change

The study of information needs and seeking for behavioural change dates back to 1948 when Bernal and others presented a paper on scientific information at the 1948 Royal Society conference. However, during the past 30-40 years or so, a considerable body of literature has been produced dealing with information needs and information seeking behaviour of both individuals and groups in a variety of contexts. The role of digital media in information seeking has always played a very significant part in all kinds of jobs performed by doctors and nurses, whether it is treatment of a patient or overall management of the hospital. According to Efe (2020) digital information seeking is a process of searching, obtaining and using information for a purpose. Seeking health information is important to improve knowledge based on which evidence-based decision is made to serve the clients of health facilities. However, in the course of seeking, the individual may interact with manual information systems (such as newspapers or libraries), or with computer-based systems such as the World Wide Web (Wilson, 2000).

Access to health information on the other hand facilitates the use of new medical technologies and helps to handle properly the necessary medical procedures and treatment of patients. Wilson (2000) observed that the health information management brings health workers (doctors and nurses) to act harmoniously in a similar manner on medical and health practice. The literature shows that there is a need for a well-coordinated information system that delivers relevant information to fulfil the needs of health practitioners. Information needs of the public health workforce had become more urgent and mandatory due to the emergence of new infectious diseases like severe acute respiratory syndrome (SARS), Asian bird flu, HIV/AIDS, malaria, tuberculosis and most recently coronavirus popularly known as the Covid-19. Various studies have demonstrated this scenario. A recent review of the literature on doctors and nurses' information needs in high income countries revealed that doctors mainly needed information in the following areas: clinical care, Continuing Professional Development (CPD) and patient information (Oreoluwa et al., 2024).

Information on diagnosis and treatment were also major information needs of primary care physicians in Spain. Information on patient care was also a major information need of physicians in Ireland and the United Kingdom (Bryant, 2004). The information needs in low-income countries were broadly the same. For instance, the major information needs of physicians in Brazil were related to drug therapy in Uganda they were associated with specific medical details. These studies demonstrate that digital information needs of physicians may fall into two categories, as illustrated by Bryant (2004), which include cognitive (factual information about disease prevention, detection, and/or treatment) and affective (information that deals with disease emotionally).

Lagoe and Atkin (2015) observed that medical practitioners around the world use a variety of information sources to fulfil their information needs, while revealing that they

first rely on their colleagues and medical textbooks or journals. As indicated by Rains (2014), studies from high-income countries indicated that physicians often seek information using digital platforms to answer a limited number of clinical questions, about which they first consult colleagues and printed materials. Another source confirmed that doctors used colleagues as their first source of information (Vitalis et al., 2023). Studies from low-income countries also showed that colleagues remained the major source of medical information for health professionals in Uganda.

Colleagues were used at a high rate due to their availability, affordability, and reliability. However, with the development of technology, the practice has started to change through the years. Some recent studies have reported Internet or electronic resources as popular sources of information for physicians. Similarly, a study by Lee (2015) on the digital information-seeking behaviours of health and social care professionals in Barnsley, England, showed that the Internet had high use among professionals, followed by informal networks such as verbal queries to colleagues, libraries or written resources. However, other studies have reported printed materials as the dominant sources of information to physicians. In developing country like Nigeria, studies have shown that medical doctors preferred to access information from publishers' catalogue, followed by consultation with colleagues. It is obvious that colleagues, the Internet or electronic resources, and textbooks or journals remain the major sources of information for physicians, depending on various factors.

Lee (2015) while commenting on the use of health information on digital media asserted that the use of health information may vary depending on circumstances and the need reaches pick during emergencies. The authors further highlighted that the use of health information resources is: to understand the nature of diseases; to know the ways of preventing them; to understand the treatment of every diseases varying from fever, typhoid etcetera; to understand types of drugs to prescribe at every given time depending on the condition of the patients and others.

There are numerous barriers that physicians encounter in an effort to fulfil their information needs. Various authorities have demonstrated these issues. Literature from 1996 to 2006 on the information-seeking behaviour of doctors found that the major barriers that limited the use of e-resources were related to issues with online resources or information technology (IT), followed by lack of time, limited search skills, lack of basic IT skills, and irrelevant materials. The major barriers that inhibited physicians from seeking information in other high-income countries were related to time constraints, workload, cost, too much information, and liability issues. The major barriers that inhibited physicians from seeking information in other high-income countries were related to time constraints, inadequate search skills, workload, cost, too much information, and liability issues. The same also applies to low-income countries. For instance, irregular supply, lack of time, and high access costs were the main barriers for physicians in Uganda (Fox, et al., 2013).

Msughter et al., (2023) digital health information seeking has been found to be a popular online activity. Studies in the United State, Europe and Nigeria have reported more than 70% of internet users have looked online for health information in one kind or another or having used the internet for health purposes (Fox, et al., 2013). The motivations for seeking online health information are diverse, including self-diagnosing, coping with uncertainty, staying informed on preventing diseases, and looking for others with a similar health concern. Through query construction and information source selection, information seekers can enjoy greater control over information acquisition processes and achieve desired levels of uncertainty. In view of the features such as convenience, cost

effectiveness, and private sharing, scholars suggest potential in the internet to support patients' decision making (Rains in Aondover, 2022).

Previous studies have identified multiple factors that may influence patients' motivation to seek health information online, including biological sex, income, age, chronic illness, and travel time to offline sources of health care (Lagoe & Atkin, 2015). For instance, biological sex was found to significantly predict online health information seeking, with females more likely to seek out online health information than males, perhaps because females often take on primary care-giving roles in families and are more cautious in risk (Lagoe & Atkin, 2015). Increased age is frequently associated with decreased levels of motivation for health-related information seeking online, as older adults are always found to have lower levels of internet literacy and experience more difficulties navigating websites (Lee in Yar'Adua et al., 2023). Further, the digital divide, a gap between individuals from different socioeconomic backgrounds with regard to their access to and use of digital equipment and services, can increase challenges associated with online health information seeking, such as inequality of accessibility and difficulties to differentiate between high and low quality resources.

Additional factors, such as efficacious feelings about using the internet and health anxiety, may also influence one's motivation of seeking out health information online. User experience online was also found to influence one's feeling of efficacy and, thus, linked to their likelihood to use online search strategies for health-related information. Adding on to self-efficacy and health anxiety is chronic illness, as individuals with a chronic illness were more likely to use the internet to search for health information compared to those without a chronic illness. A long travel time to offline sources of health care was also associated with a stronger likelihood of suing the internet to find heath information (Ahmed & Aondover, 2022; Yar'Adua et al., 2023).

## 2.5 Theoretical Framework

The study employed Social Network Theory, which is a sociological perspective that examines the patterns of relationships and interactions between individuals, groups, and organisations within a social system. It posits that the structure of these networks, characterised by nodes (individuals or entities) and ties (relationships or connections), influences behaviour, information flow, and the diffusion of innovations within a community (Scott, 2017).

Key Concepts of Social Network Theory:

1. Nodes: Nodes are the individual actors within a social network. They can represent people, organisations, or any other unit of analysis. Each node has its own characteristics, attributes, and connections within the network.
2. Ties: Ties refer to the relationships or connections between nodes. These ties can be formal (e.g., organisational hierarchy) or informal (e.g., friendships, professional collaborations) and vary in strength, frequency, and directionality.
3. Network Structure: The network structure encompasses the overall pattern of connections within a social network. This includes aspects such as density (the degree of interconnectedness), centrality (the importance of nodes within the network), and homophily (the tendency for similar nodes to connect with each other).

Social Network Theory provides insights into how relationships and interactions shape individual behaviour, attitudes, and decision-making processes. By mapping out social networks, researchers can identify key influencers, opinion leaders, and information

brokers who play crucial roles in disseminating information, shaping social norms, and facilitating collective action (Onyejelem & Aondover, 2024a).

Social Network Theory has been widely used to study the diffusion of innovations within communities. Innovations, whether technological, behavioural, or organisational, spread through social networks via processes such as imitation, communication, and social influence. Understanding the structure and dynamics of social networks can help predict the speed and extent of innovation adoption and identify strategies for accelerating diffusion (Rogers, 2003). Within organisations, Social Network Theory offers insights into communication patterns, collaboration dynamics, and knowledge sharing processes. By analysing the informal networks that exist alongside formal hierarchies, researchers can uncover hidden sources of power, information bottlenecks, and collaboration opportunities that influence organisational performance and effectiveness (Cross & Parker, 2004).

Social Network Theory provides a valuable framework for understanding the complex webs of social connections that underlie human interactions and behaviours. By examining the structure, dynamics, and functions of social networks, researchers can gain insights into a wide range of phenomena, from individual decision-making to organisational innovation and societal change.

A diverse array of research traditions has shaped the current state of social network theory. As Scott in Onyejelem and Aondover (2024b) summarises, there are three lines of research that contributed to the theory's early development: the sociometric analysis tradition, which relies on graph theory methods from mathematics; the interpersonal relations tradition, which focuses on the formation of cliques among a group of individuals; and an anthropology tradition that explores the structure of community relations in less developed societies. These research traditions did not evolve into a coherent theoretical framework until the 1960s. A number of sociologists significantly advanced the social network approach by synthesizing previous theoretical traditions and extending them to understand both formal and informal social relations.

For example, the sociometric view of social networks was elaborated, emphasising structural properties, such as the relative location of individual nodes in the network. Researchers during this time also advanced social network techniques by proposing block modelling and multidimensional scaling. Blockmodelling considers the particular position of a node in a social network. This method enables researchers to identify nodes that have similar network positions, or what is referred to as structurally equivalent nodes. The scaling technique, on the other hand, allows researchers to convert social relationships into sociometric distance, thereby mapping these relationships in a social space (Wasserman & Faust, 1994).

Three key network concepts that have organised research on network effects are centrality, cohesion, and structural equivalence. Freeman in Onyejelem and Aondover (2024b) proposed three distinct measures to indicate structural centrality: degree, closeness, and betweenness. This seminal paper afforded a nuanced understanding of centrality, and it established a process through which new network measures were developed to have a raw form, a normalized form, and a network-level form. Freeman's (1975) paper also motivated subsequent research to assess how different forms of network centrality interact with the flow of information differently. For example, Borgatti's simulation study (2005) identified a typology of flow processes, and he showed that the values of different central positions depend on the characteristics of the process (e.g., gossip diffusion versus goods delivery). Network cohesion measures the degree of interconnections among a group of nodes. This measure has long been useful to detect subgroups or cliques within the larger social network.

In the context of media effects research, network cohesion serves as an important structural feature that moderates the influence of interpersonal networks. Friedkin's in Aondover et al., (2022) longitudinal study, among others, found that personal influence grows stronger within more cohesive social networks than less cohesive ones. Finally, structural equivalence indicates two or more network positions that share a similar pattern of connections with the rest of the network. Actors that occupy structurally equivalent positions often have similar characteristics, such as social status or other individual traits. Because equivalent nodes are connected to a similar set of actors, they are more likely to receive similar information or social influence. In understanding the process of diffusion, Burt's in Cross and Parker (2004) study found that innovations were more likely to flow via structural equivalence than direct ties, suggesting equivalence influence maybe a stronger predictor of behavioural adoption than cohesive influence.

Burt in Cross and Parker (2004) further elaborated on these mechanisms to explain the role of opinion leaders in the media effects context. He argued that there were two different network mechanisms at play: a two-step flow process that consisted of opinion leaders spreading information to the group, and a contagion process via structural equivalence that generated adoption behaviors within the group. The years since the 1990s have witnessed extensive applications of key network concepts in diverse research contexts and the field has also constantly been updated with more refined network measures and analytic tools. In the arena of media effects research, the fundamental question is: How do social networks, including the quality and quantity of relational ties, the structural position of individual actors in a network, and the overall network properties (e.g., its density, centralization, and modularity) impact the flow of media messages and their effects on the audience?

These effects include public opinion formation, marketing, uses and gratifications of media consumption, and behaviour change due to prosocial campaigns. Although communication research did not substantially shape the initial development of social network theory, there is an emerging trend of cross-pollination between social network theory and media effects research. In large part, this cross-pollination stems from the emergence of computer-mediated communication, which affords explicit social networks as well as the modes of communication that bind them.

## III. Research Methods

The research design used in this study was based on the interpretivism paradigm. Interpretivism emphasises understanding individuals and their interpretations of the world around them. According to Aondover et al., (2023) interpretivism focuses on a single phenomenon that can have multiple interpretations, rather than seeking an objective truth determined through measurement. This paradigm aims to understand and interpret the thoughts of the subjects being studied by immersing in their perspectives, rather than relying on the observer's viewpoint. Based on the postulation of the interpretivism, the employed survey method, which is an aspect of quantitative approach to generate data. The population for the study is eight million and twelve thousand, six hundred and seventy-three (7,284,000) members of staff and patients of the three teaching hospitals in Rivers State.

To ensure a representative sample and robust data for the study, stratified random sampling was used. The researcher opted for stratified random sampling to ensure that all relevant subgroups within the population are adequately represented. The population was

divided into different strata based on key characteristics relevant to the study. These strata included:
1. Healthcare Providers: Doctors, nurses, and administrative staff.
2. Patients: Inpatients, outpatients, and chronic disease patients.
3. Community Members: Family members of patients and the general public.

The total sample size of 384 will be distributed among the strata proportionately using the simple random sampling technique where the researcher randomly selects individuals within each stratum. This can be achieved using random number generators or drawing lots to ensure that each member of the strata has an equal chance of being selected.

To determine an appropriate sample size for the study considering the population size of 7,284,000, the researcher needed to ensure that the sample is statistically significant and representative. The formula used was a common formula for calculating sample size for large populations. It was formulated by Pierre-Simon Laplace in the 18th century and later refined by Carl Friedrich Gauss and Pierre-Simon Laplace.

$n = Z2 \cdot p \cdot (1-p) e2 n = e2 Z2 \cdot p \cdot (1-p)$ Where:

$nn$ = required sample size

$ZZ$ = Z-value (the number of standard deviations from the mean; for a 95% confidence level, $Z \approx 1.96 Z \approx 1.96$)

$pp$ = estimated proportion of the population that has the attribute of interest (if unknown, 0.5 is used to maximize the sample size)

$ee$ = margin of error (commonly set at 0.05 for a 95% confidence level)

Calculation Steps:
1. Assumptions:
   Confidence level: 95% (Z = 1.96)
   Margin of error: 5% (e = 0.05)
   Proportion of population with the attribute (p): 0.5 (maximum variability)
2. Initial Sample Size Calculation:
   $n = (1.96)2 \cdot 0.5 \cdot (1-0.5)(0.05)2 n = (0.05)2(1.96)2 \cdot 0.5 \cdot (1-0.5)$
   $n = 3.8416 \cdot 0.250.0025 n = 0.00253.8416 \cdot 0.25 n = 0.96040.0025 n = 0.00250.9604$
   $n = 384.16 n = 384.16$
3. Adjusting for Population Size: Given the finite population size (N = 8,012,673), we adjust the sample size using the finite population correction formula:
   $n$adjusted $= n1 + (n-1N) n$adjusted $= 1 + (Nn-1)n$ Where:
   $NN$ = population size (8,012,673)
   $nn$ = initial sample size (384.16)
   $n$adjusted$=384.161+(384.16−18,012,673)$ $n$adjusted$=1+(8,012,673384.16−1)384.16 n$adjusted$=384.161+(383.168,012,673)$ $n$adjusted$=1+(8,012,673383.16)384.16 n$adjusted$=384.161+0.00004783 n$adjusted$=1+0.00004783384.16$
   $n$adjusted$≈384.161.00004783 n$adjusted$≈1.00004783384.16$
   $n$adjusted$≈384.14 n$adjusted$≈384.14$
   The data generated through the questionnaires was categorised and represented in frequency tables. Later, they were analysed using simple percentages.

## IV. Results and Discussion

**Table 1.** Relationship with hospital

| Options | Frequency | Percentage |
|---|---|---|
| Healthcare Provider | 120 | 31 |
| Administrative Staff | 64 | 17 |
| Patient | 132 | 34 |
| Relative of a Patient | 68 | 18 |
| **Total** | **384** | **100** |

The table above shows that the largest group among respondents is patients (34%), followed by healthcare providers (31%). This distribution reflects significant input from both direct healthcare workers and service recipients, providing balanced insights into hospital digital media usage. The questionnaire responses indicate that the most commonly used digital media platforms among staff, patients, and stakeholders at both hospitals include WhatsApp emerged as the most widely used platform among respondents. It is frequently used by both healthcare providers and patients for quick communication and sharing of health information due to its accessibility and ease of use. aligning with the findings of Kaplan and Haenlein (2010), who discuss the significance of accessibility in social media platform adoption for communication purposes. WhatsApp enables healthcare providers to share health updates directly with patients, maintaining timely and accessible communication, a vital aspect in health communication identified by (Asogwa, 2019).

**Table 2.** Gender

| Options | Frequency | Percentage |
|---|---|---|
| Male | 173 | 45 |
| Female | 211 | 55 |
| **Total** | **384** | **100** |

The table indicates that the gender distribution is fairly balanced, with a slight majority of female respondents (50%) compared to male respondents (45%). This balance enhances the diversity and representativeness of the sample.

**Table 3.** Age Group

| Options | Frequency | Percentage |
|---|---|---|
| Under 18 | 20 | 5 |
| 18–24 | 100 | 26 |
| 25–34 | 96 | 25 |
| 35–44 | 68 | 18 |
| 45–54 | 60 | 16 |
| 55 and above | 40 | 10 |
| **Total** | **384** | **100** |

The table above shows that majority of the respondents fall within the age range of 18-34 (51%), likely the most active digital media users, which is relevant to the study on healthcare communication via digital platforms.

**Table 4.** Level of Education

| Options | Frequency | Percentage |
|---|---|---|
| Primary school or less | 34 | 9 |
| Secondary school | 88 | 23 |
| Diploma/Degree | 174 | 45 |
| Postgraduate | 88 | 23 |
| **Total** | **384** | **100** |

Table 4 indicates that the most respondents (68%) have higher education or postgraduate qualifications, which could imply greater digital literacy and a higher likelihood of engaging with digital media for health information.

**Table 5.** Frequency of Digital Media Use

| Options | Frequency | Percentage |
|---|---|---|
| Daily | 214 | 50 |
| Weekly | 90 | 23 |
| Monthly | 40 | 10 |
| Rarely | 30 | 8 |
| Never | 10 | 3 |
| Total | | |

The able shows that a significant majority (56%) use digital media daily, which supports the relevance of digital platforms in disseminating healthcare information frequently and effectively.

**Table 6.** Preferred Digital Media Platforms for Health Information

| Options | Frequency | Percentage |
|---|---|---|
| Facebook | 160 | 42 |
| X | 90 | 23 |
| WhatsApp | 220 | 57 |
| Instagram | 100 | 26 |
| Hospital's official website | 184 | 48 |
| Mobile health apps | 140 | 36 |
| Other (e.g., YouTube) | 30 | 10 |

This table shows that WhatsApp is the most commonly used platform (57%), followed by the hospital's official website (48%) and Facebook (42%). This indicates that messaging apps and official websites are preferred for healthcare-related digital engagement. Resonating with Alhassan and Oguche's (2018) argument that institutional websites often lack features to facilitate patient interaction and dynamic engagement. The

data shows that while platforms like mobile health apps and Instagram are available, they are less commonly used. Mobile health applications have specific benefits, such as enabling patient self-monitoring and health tracking, but are secondary to social media due to the required technical knowledge and lack of patient familiarity.

**Table 7.** Frequency of Accessing Healthcare Information on Digital Media

| Options | Frequency | Percentage |
|---|---|---|
| Very frequently | 110 | 29 |
| Frequently | 126 | 33 |
| Occasionally | 100 | 26 |
| Rarely | 32 | 8 |
| Never | 16 | 4 |
| **Total** | **384** | **100** |

The table above shows that majority of the respondents (62%) access healthcare information on digital media either frequently or very frequently, highlighting the importance of consistent information updates on digital platforms. Similar findings by Omotosho and Esiri (2020) noted that mobile health app usage in Nigerian hospitals remains low due to these barriers, despite the potential for patient empowerment and personalized care.

**Table 8.** Type of Health Information Sought on Digital Media

| Options | Frequency | Percentage |
|---|---|---|
| General health tips | 142 | 37 |
| Disease prevention | 100 | 26 |
| Treatment updates | 72 | 19 |
| Hospital services and events | 70 | 18 |
| **Total** | **384** | **100** |

Table 8 indicates that general health tips are the most sought-after information (37%), suggesting that patients and users prioritize preventive and practical health advice on digital media.

**Table 9.** Improvements from Digital Media in Healthcare Communication

| Options | Frequency | Percentage |
|---|---|---|
| Faster information dissemination | 190 | 50 |
| Better patient engagement | 120 | 31 |
| Easier community outreach | 100 | 26 |
| Enhanced patient feedback | 74 | 19 |
| **Total** | **383** | **100** |

The table above shows that faster information dissemination is the most noted improvement (50%), indicating that digital platforms help speed up communication with patients.

This is consistent with Njoku and Opara (2018), who attribute low digital platform engagement in Nigerian hospitals to infrastructural and training gaps. Both hospitals aim to expand their digital media usage to improve healthcare communication, patient engagement, and community outreach. However, achieving these goals requires increased investment in digital infrastructure, training for staff, and implementing privacy protocols, as also recommended by scholars like Folarin and Bako (2020). For instance, training programs for healthcare providers and administrative staff could empower them to effectively manage digital platforms, thereby improving patient and community interactions.

## V. Conclusion

This study underscores the transformative potential of digital media in enhancing healthcare communication, patient engagement, and community outreach within University of Port Harcourt Teaching Hospital and Rivers State University Teaching Hospital. Findings reveal that, through platforms like Facebook, WhatsApp, hospital websites, and mobile health apps, these institutions are engaging patients and the broader community, promoting health awareness, and facilitating timely information dissemination. However, challenges such as limited internet connectivity, privacy concerns, and insufficient digital literacy impede optimal utilization of these platforms. The study's integration of the Diffusion of Innovations Theory and the Technology Acceptance Model highlights the gradual adoption of digital media practices within healthcare, driven by perceived usefulness and accessibility. Despite the existing barriers, the positive impact of digital media on healthcare services suggests a strong foundation for future growth and adaptation, provided that infrastructural, educational, and managerial support is strengthened. With strategic improvements, digital media can become a cornerstone of social change initiatives, empowering patients and fostering a more informed, engaged, and health-conscious community in Rivers State.

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