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Covid-19 and the Growth of Telemedicine in Nigeria: Prospect, Legal Issues and Challenges

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Abstract

Though telemedicine is not a recent development, the advancement of technology and the advent of COVID-19 especially its social distancing and lockdown policies triggered its wide acceptance as a means of accessing healthcare services in Nigeria. This paper, therefore, examines the operation of telemedicine in Nigeria by navigating through its legal framework and challenges. The study underscores the loopholes in the existing laws on telemedicine in Nigeria. The study adopts both quantitative and qualitative research methodologies. The quantitative methodology involves the use of an online questionnaire survey sent to 131 respondents (randomly selected) who reside in Nigeria. Analytical and descriptive methods were utilised in analysing the data obtained. The qualitative methodology involves the reliance on primary and secondary sources material. The study finds that lack of a specific legal framework, poor power supply, illiteracy, lack/poor internet services, cyber fraud, and so on are the factors that have stifled the growth of telemedicine in Nigeria. The study concludes that though telemedicine has come to stay in Nigeria, the country may not enjoy all the blessings that telemedicine offers other great nations with more developed economies if these challenges are not addressed swiftly. The study therefore recommends amongst others the enactment of a law that specifically regulates telemedicine in Nigeria, especially in the area of teleconsent, data protection, and privacy This will enhance the exponential growth of telemedicine in Nigeria.

1. Introduction

Since the emergence of Covid-19, technological innovations and advancement have impacted largely on the different aspects of human endeavours including the delivery of healthcare services thereby changing the rigid system of doing things to more fluid and flexible[1] approaches. Improvement in technology has triggered massive growth within the health sector by allowing people access to medical services without necessarily coming into physical contact with their physician.[2] Globally, the health sector has in the last decade

[1] Paul Aatagamen Aidonojiev and Anne Oyenmwosa Odojor, "Impact and Relevance of Modern Technological Legal Education Facilities amidst the Covid-19 Pandemic: A Case Study of Law Students of Edo University Iyamho," *KIU Journal of Humanities* 5, no. 4 (2020): 7–19; Paul Atagamen Aidonojie, Anne Oyenmwosa Odojor, and Patience Omohoste Agbale, "The Legal Impact of Plea Bargain in Settlement of High Profile Financial Criminal Cases in Nigeria," *Sriwijaya Law Review* 5, no. 2 (July 28, 2021): 161–74, https://doi.org/10.28946/slrev.Vol5.Iss2.852.pp161-174.

[2] Paul Atagamen Aidonojie, Oluwaseye Oluwayomi Ikubanni, and Nosakhare Okuonghae, "The Prospects, Challenges, and Legal Issues of Digital Banking in Nigeria," *Cogito Multidisciplinary Research Journal* 14, no. 3 (2022): 186–209, https://www.cogitojournal.ro/index.php/cogito/issue/view/2; Oluwaseye Oluwayomi Ikubanni et al., "The Challenges and Impact of Technological Advancement to

experienced exponential growth through the deployment of the use of improved technology such as telecommunication virtual conferencing devices, sophisticated phones, drones, Artificial intelligence, and so on for the delivery of healthcare services[3]. The adoption of Information and Communication Technology (ICT) devices in the delivery of healthcare services without both the patient and healthcare giver having physical access to one another is described as telemedicine which is a subset of telehealth.[4]

The emergence of Information and communication technology especially in developing countries such as Nigeria offers a faster and cheaper approach to rendering medical services to patients helping to break the barriers of distance and location at low and affordable rates.[5] The concept of telemedicine is not new. However, the emergence of Covid 19 played a vital role in the growth of telemedicine around the world including Nigeria. The outbreak of Covid19 pandemic necessitated the global policy of social distancing which drastically reduced the physical contact between doctors and patients.[6] To facilitate access to essential health services during this period, patients adopted the use of ICT to remotely access medical services to reduce doctor visits.[7] In Nigeria, while telemedicine appears to have been widely embraced by both healthcare givers and patients alike as a cost-effective means of uncompromised access to healthcare services it is faced with several legal issues and challenges that have impacted negatively on its growth.

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the Legal Profession in Nigeria Given the Covid-19 Pandemic," *KIU Journal of Humanities* 6, no. 4 (2021): 5–19; Abid Haleem et al., "Telemedicine for Healthcare: Capabilities, Features, Barriers, and Applications," *Sensors International* 2 (2021): 100117, https://doi.org/10.1016/j.sintl.2021.100117.

[3] Paul Atagamen Aidonojie et al., "The Challenges and Relevance of Technology in Administration of Justice and Human Security in Nigeria: Amidst Covid19 Pandemic," *Cogito Multidisciplinary Research Journal* 13, no. 3 (2021): 149–206, https://www.cogitojournal.ro/index.php/cogito/issue/view/7.

[4] Risto Roine, Arto Ohinmaa, and David Hailey, "Assessing Telemedicine: A Systematic Review of the Literature," *Canadian Medical Association Journal* 165, no. 6 (2021): 765–71, https://pubmed.ncbi.nlm.nih.gov/11584564/; Reed V. Tuckson, Margo Edmunds, and Michael L. Hodgkins, "Telehealth," *New England Journal of Medicine* 377, no. 16 (October 19, 2017): 1585–92, https://doi.org/10.1056/NEJMsr1503323; Edmund Keogh, Benjamin A. Rosser, and Christopher Eccleston, "E-Health and Chronic Pain Management: Current Status and Developments," *Pain* 151, no. 1 (October 2010): 18–21, https://doi.org/10.1016/j.pain.2010.07.014.

[5] Olumide Sunday Adewale, "An Internet-Based Telemedicine System in Nigeria," International Journal of Information Management 24, no. 3 (June 2004): 221–34, https://doi.org/10.1016/j.ijinfomgt.2003.12.014; Oluwaseye Oluwayomi Ikubanni and Paul Atagamen Aidonojie, "The Legality of Virtual Marriage in Nigeria Given the Covid-19 Pandemic Social Distancing: An X-Ray of the Matrimonial Causes Act," Madonna University, Nigeria Faculty of Law Journal 6, no. 1 (2021): 123–29, https://www.researchgate.net/publication/355038400_THE_LEGALITY_OF_VIRTUAL_MARRIAGE_IN_NIGERIA_GIVEN_THE_COVID19_PANDEMIC_SOCIAL_DISTANCING_AN_X-RAY_OF_THE_MATRIMONIAL_CAUSES_ACT.

[6] Stefano Omboni et al., "Evidence and Recommendations on the Use of Telemedicine for the Management of Arterial Hypertension," *Hypertension* 76, no. 5 (November 2020): 1368–83, https://doi.org/10.1161/HYPERTENSIONAHA.120.15873.

[7] Manar Ahmed Kamal et al., "Telemedicine, E-Health, and Multi-Agent Systems for Chronic Pain Management," *Clinics and Practice* 13, no. 2 (March 21, 2023): 470–82, https://doi.org/10.3390/clinpract13020042.

Nigeria is the most populous country in Africa with a population of over 223 million and the sixth most populous country in the world.[8] However, a substantial percentage of Nigerians live in rural areas with clinics, health centres, and hospitals being an elusive luxury.[9] Many rural residents continue to live in a state of nature, untouched by the modernizing forces and influences that are reshaping forward-thinking modern societies.[10] The emergence of telemedicine helps to address some of the factors that occasion the inaccessibility of healthcare services in both urban and rural areas such as insufficiency of physicians, danger of traveling from one location to another on Nigerian roads, inadequate funding of the healthcare sector, and scarcity of hospitals. The idea and operation of telemedicine is not novel in Nigeria though COVID-19 heralded the concept[11]. However, there are existing barriers to its operation while obstacles such as the cost of technologies, patient privacy, technical literacy, and so on are dominant.[12]

This paper seeks to examine the possibility of the operation of telemedicine and its attendant challenges in Nigeria. Telemedicine cannot operate successfully in Nigeria in the absence of a legislative mechanism that supports its operation. Thus, the analysis of the legal framework of telemedicine in Nigeria forms part of the focus of this research. This is aimed at identifying the efficacy of the operation of telemedicine in Nigeria. To achieve this, the paper relies heavily on data collected through a non-doctrinal method to determine the use and challenges of its operation in Nigeria.

2. Methods

This research adopted the use of a hybrid method of research that involved both doctrinal and non-doctrinal methods of legal research. The doctrinal method involved the content analysis of relevant primary and secondary sources of law addressing the concept of telemedicine in Nigeria and generally. The non-doctrinal method involved the collection of data through electronic questionnaire to interrogate the use and adoption of telemedicine in Nigeria.

3. Results and Discussion

3.1. The Concept Telemedicine

Etymologically, telemedicine was derived from a combination of both Greek and Latin words. "Tele" is a Greek word that means "at a distance" and "medicine" is derived from the

[8] John Owen Nwachukwu, "Countries with Highest Population Revealed," dailypost.ng, May 14, 2023, https://dailypost.ng/2023/05/14/countries-with-highest-human-population-revealed-see-list/.
[9] IJ Okoroafor et al., "Telemedicine and Biomedical Care in Africa: Prospects and Challenges," *Nigerian Journal of Clinical Practice* 20, no. 1 (2017): 1, https://doi.org/10.4103/1119-3077.180065.
[10] Cornelius Agbodike, "Population Growth and the Dilemma of Rural Life and Economy in Nigeria," *Unizik Journal of Arts and Humanities* 11, no. 1 (2010): 1–21, https://www.ajol.info/index.php/ujah/article/view/66304.
[11] Cynthia Abbott-Gaffney and Karen Jacobs, "Telehealth in School-Based Practice: Perceived Viability to Bridge Global OT Practitioner Shortages Prior to COVID-19 Global Health Emergency," *Work* 67, no. 1 (October 20, 2020): 29–35, https://doi.org/10.3233/WOR-203240.
[12] Anthony C Smith et al., "Telehealth for Global Emergencies: Implications for Coronavirus Disease 2019 (COVID-19)," *Journal of Telemedicine and Telecare* 26, no. 5 (June 20, 2020): 309–13, https://doi.org/10.1177/1357633X20916567; Clemens Scott Kruse et al., "Telemedicine and Health Policy: A Systematic Review," *Health Policy and Technology* 10, no. 1 (March 2021): 209–29, https://doi.org/10.1016/j.hlpt.2020.10.006.

Latin word "mederi" which means "healing".[13] According to the European Commission in 2008, telemedicine is defined as '"the provision of health care services, through the use of Information and Communication Technology (ICT), in situations where the health professional and the patient (or two health professionals) are not in the same location. It involves the secure transmission of medical data and information, through text, sound, images or other forms needed for the prevention, diagnosis, treatment of disease and follow-up of patients".[14]

The World Health Organisation defines telemedicine as the delivery of health care services at a distance using electronic means for "the diagnosis of treatment, and prevention of disease and injuries, research and evaluation, education of health care providers" to improve health.[15] Hyder and Razzak define telemedicine as the delivery of medical care and provision of general health services from a distance via technology.[16] Telemedicine involves the rendering of remote clinical services that cover diagnosis, medical advice, reminders, intervention, and remote admissions of patients by clinicians.[17] A health-related service provided through electronic information and communication technologies is known as telemedicine.[18]

Telemedicine has proven over the years as a more advantageous tool that can assist patients in receiving preventative care and improve their long-term health.[19] This is especially true for people who cannot afford or cannot get access to high-quality care. The advocacy for telemedicine has increased due to its potential for the improvement of healthcare service delivery through effectiveness, organization, and availability.[20] Distance is no longer a barrier thanks to telemedicine, which can give access to medical services that are frequently unavailable in remote rural areas.[21] Medical personnel can now sit on different sides of the world, share clinical photographs, and consult with colleagues on matters about the management of their patients thanks to internet communication and visual technology.[22]

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[13] IJ Okoroafor et al., "Telemedicine and Biomedical Care in Africa: Prospects and Challenges," *Nigerian Journal of Clinical Practice* 20, no. 1 (2017): 1, https://doi.org/10.4103/1119-3077.180065.

[14] Terje Peetso, "Telemedicine: The Time to Hesitate Is Over," *Eurohealth* 20, no. 3 (2014): 15–17, https://iris.who.int/bitstream/handle/10665/332822/Eurohealth-20-3-15-17-eng.pdf.

[15] Marina Serper and Michael L Volk, "Current and Future Application of Telemedicine to Optimise the Delivery of Care in Chronic Liver Disease," *Clin Gastroenterol Hepetal* 16, no. 2 (2018): 157–61; Susan Kirsh et al., "Access to Outpatient Specialty Care," *American Journal of Medical Quality* 30, no. 1 (January 14, 2015): 88–90, https://doi.org/10.1177/1062860614542844.

[16] Maryam A Hyder and Junaid Razzak, "Telemedicine in the United States: An Introduction for Students and Residents," *Journal of Medical Internet Research* 22, no. 11 (November 24, 2020): 20839, https://doi.org/10.2196/20839.

[17] Shashi Gogia, *Fundamentals of Telemedicine and Telehealth* (London: Academic Press, 2020).

[18] Abid Haleem et al., "Telemedicine for Healthcare: Capabilities, Features, Barriers, and Applications," *Sensors International* 2 (2021): 100117, https://doi.org/10.1016/j.sintl.2021.100117.

[19] Haleem et al.

[20] Haleem et al.

[21] Mengistu Kifle, Victor W.A. Mbarika, and Pratim Datta, "Telemedicine in Sub-Saharan Africa: The Case of Teleophthalmology and Eye Care in Ethiopia," *Journal of the American Society for Information Science and Technology* 57, no. 10 (August 9, 2006): 1383–93, https://doi.org/10.1002/asi.20448.

[22] Wendy Froehlich et al., "Case Report: An Example of International Telemedicine Success," *Journal of Telemedicine and Telecare* 15, no. 4 (June 26, 2009): 208–10, https://doi.org/10.1258/jtt.2008.081001.

Within minutes, the average person can access updates on medical developments and novel techniques for diagnosis, treatment, and care.[23]

It is used interchangeably with telehealth, E-health, digital health, and Mhealth. It describes the entire set of deliverables intended to empower people, as well as their doctors or other healthcare professionals. It can be used for a variety of things, such as remote control, telehealth nursing, online patient consultations, and remote psychiatric and physical rehabilitation.[24] Better healthcare options are made possible, emergency services perform and are of higher quality, diagnosis times are shortened, and clinical procedures are optimised, saving money on hospital trip fees for both physicians and patients.[25] There is no definite and universally acceptable definition of telemedicine. However, any useful definition must indicate that it involves (1) the provision of healthcare services (2) the use of Information and Communication Technology (3) the healthcare giver or physician and patient.

Telemedicine has been in use for rendering medical services for many years even before the advent of the internet. However, the emergence of new and sophisticated technologies over several decades has gradually but consistently enhanced the growth of telemedicine.[26] Thus, it is safe to say that telemedicine is pivotal to the advancement of medical technologies.[27] Covid-19 pandemic-related restrictions had a deep impact on surgical and oncological care which birthed several telemedicine approaches to bridge the distance between healthcare givers or physicians and their patients and to enhance fast and effective access to healthcare for patients who live at a distance from their referral center.[28] The emergence of COVID-19 and the massive need for healthcare vis a vis the shortage of medical personnel and lack of access to healthcare due to the lockdown encouraged the wide acceptance and usage of telemedicine globally including in Nigeria[29].

Today, telemedicine is improving gradually in Nigeria though yet to realise and attain its full potential due to a lack of synergy among stakeholders as well as prevalent challenges

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[23] Isao Nakajima, "Telehealth in the Pacific: Current Status and Analysis Report (1999 2000)," *Journal of Medical Systems* 24, no. 6 (2000): 321–31, https://doi.org/10.1023/A:1005544626095.

[24] Ronald S. Weinstein et al., "Telemedicine, Telehealth, and Mobile Health Applications That Work: Opportunities and Barriers," *The American Journal of Medicine* 127, no. 3 (March 2014): 183–87, https://doi.org/10.1016/j.amjmed.2013.09.032.

[25] E. Parimbelli et al., "Trusting Telemedicine: A Discussion on Risks, Safety, Legal Implications and Liability of Involved Stakeholders," *International Journal of Medical Informatics* 112 (April 2018): 90–98, https://doi.org/10.1016/j.ijmedinf.2018.01.012; Aderemi Olubunmi Oyebanji et al., "A Comparative Study of the Legal Framework of Trafficking in Persons for Organ Removal in Nigeria and the United Kingdom," *Unizik Law Journal* 19, no. 2 (2023), https://ezenwaohaetorc.org/journals/index.php/ULJ/article/view/2286.

[26] Tariq Rahaman, "An Introduction to Telehealth and COVID-19 Innovations – A Primer for Librarians," *Medical Reference Services Quarterly* 40, no. 1 (January 2, 2021): 122–29, https://doi.org/10.1080/02763869.2021.1873647.

[27] Carlo Drago, Andrea Gatto, and Matteo Ruggeri, "Telemedicine as Technoinnovation to Tackle COVID-19: A Bibliometric Analysis," *Technovation* 120 (February 2023): 102417, https://doi.org/10.1016/j.technovation.2021.102417.

[28] Marzia Tripepi et al., "Telemedicine and Pancreatic Cancer: A Systematic Review," *Telemedicine and E-Health* 29, no. 3 (March 1, 2023): 352–60, https://doi.org/10.1089/tmj.2022.0140.

[29] Davide Calandra and Matteo Favareto, "Artificial Intelligence to Fight Covid-19 Outbreak Impact: An Overview," *European Journal of Social Impact and Circular Economy* 1, no. 3 (2020): 84–104.

of information and communication technology in Nigeria[30]. One of the commitments of the government of Nigeria to fully embrace telemedicine was the adoption of the National Health ICT Strategic Framework which serves as a road map to the full reception of telemedicine in the healthcare system of the nation[31].

3.2. Legal Framework of Telemedicine in Nigeria

Several laws in Nigeria are pivotal to the operation of telemedicine. Some of these laws may not directly provide for telemedicine, however, the operation of telemedicine in Nigeria is only possible because of these laws. This paper will attempt to analyze the most significant of these laws thus:

3.2.1. The 1999 Constitution of the Federal Republic of Nigeria

The Nigerian Constitution, as the foundational norm, stands as the cornerstone of the country's legal framework. By the provision of Section 1(1), the 1999 Constitution of Nigeria serves as the primary document from which all subsequent laws, including those governing telemedicine, derive their authority and legitimacy. Section 4 of the 1999 Constitution confers the power to enact laws for good governance of the country on the National Assembly. Therefore, legislative action by the National Assembly becomes pivotal in formulating comprehensive legal frameworks that regulate the practice of telemedicine, ensuring ethical standards, patient safety, healthcare professional accountability, and technological standards.

Firstly, the Constitution, particularly in Chapter IV, establishes fundamental rights, including the right to life and the right to health. Section 33 guarantees the right to life and protects individuals from being intentionally deprived of life except in the execution of a court sentence for a criminal offense. This fundamental right encompasses access to healthcare services, thereby underscoring the importance of ensuring adequate and accessible healthcare for all Nigerians. Furthermore, Section 34 safeguards individuals from torture, and inhuman or degrading treatment, highlighting the significance of providing healthcare that adheres to ethical standards and ensures the well-being and dignity of patients, even in remote clinical settings facilitated. Also, Section 37 guarantees the privacy of citizens, their correspondence, and communications. In the context of telemedicine, this provision underscores the importance of maintaining the confidentiality and privacy of patient information transmitted electronically, necessitating robust data protection measures and secure communication platforms in telemedicine practices.

Finally, Section 39 upholds freedom of expression and the right to receive and impart information without interference[32]. This provision plays a role in enabling the dissemination of medical knowledge and information through telemedicine platforms, facilitating the exchange of healthcare-related information between healthcare providers and patients for

[30] Kayode I Adenuga, "Telemedicine System: Service Adoption and Implementation Issues in Nigeria," *Indian Journal of Science and Technology* 13, no. 12 (March 25, 2020): 1321–27, https://doi.org/10.17485/IJST/v13i12.180.

[31] Agbo Ojonugwa, Gwon Gwon, and Mary Jolashinmi, "Telemedicine Practice in Nigeria: Lessons from Indonesia," *Redeemer's University Nigeria Journal of Jurisprudence & International Law* 3, no. 1 (2023): 92–105, https://runlawjournals.com/index.php/runjjil/article/view/49.

[32] Oluwaseye Oluwayomi Ikubanni and Mojeed Olujinmi O. Alabi, "The Yoruba People's Quest for Self-Determination within the Nigerian Constitution," *Fountain University Law Journal* 1, no. 1 (2024): 37–53, http://www.fountainjournals.com/index.php/FULAJ/article/view/519/283.

improved healthcare delivery[33]. The Constitutional framework of rights and freedoms provides the scaffold for legislative and regulatory developments in Nigeria, guiding the formulation of laws and policies governing telemedicine. While the Constitution offers a broad foundation, specific regulations concerning telemedicine practices, including standards establishment, licensing requirements, data privacy regulations, and remote consultation guidelines, must be instituted to align with constitutional provisions while addressing the distinct intricacies of telemedicine.

3.2.2 National Health Act 2014

The National Health Act of Nigeria, enacted in 2014, comprehensively addresses various facets of the country's healthcare system. However, a critical analysis reveals a significant gap in its provisions regarding telemedicine, as it predominantly concentrates on the regulation and management of physical health establishments and services, neglecting the emergent landscape of remote healthcare delivery. The Act's focus primarily revolves around the establishment, categorisation, and operation of physical health establishments and technologies. Definitions provided within the Act in part 6, are centered on conventional healthcare terms, emphasizing physical locations, health personnel, and services provided within tangible healthcare facilities. The absence of explicit recognition or incorporation of telemedicine within these definitions signifies a lack of acknowledgment or regulatory framework for remote healthcare practices.

In terms of regulatory authority, Section 7 of the Act bestows power upon the Minister and the National Council on Health to create regulations necessary for its implementation. This inclusion signifies a possibility in governance, leaving an opportunity to fill a legal vacuum concerning the regulation, standards, and guidelines for telemedicine services within the country, which subsequent reviews in this paper will discuss the progress made so far. Moreover, considering the Act's enactment in 2014, it does not reflect the current advancements and realities in healthcare delivery, particularly the rapid evolution and integration of telemedicine into modern healthcare practices. The absence of provisions catering to telemedicine within a rapidly evolving healthcare landscape might hinder the country's ability to harness the full potential of remote healthcare services, especially in reaching underserved populations and enhancing healthcare accessibility.

Regardless of the regulatory power bestowed, to address this gap, an amendment or supplementary legislation specifically targeting telemedicine is imperative within the National Health Act. This amendment should encompass definitions, standards, guidelines, and regulatory frameworks tailored explicitly for telemedicine practices, ensuring adherence to quality standards, patient confidentiality, practitioners' responsibilities, and service delivery mechanisms in remote healthcare settings.

3.2.3 Code of Medical Ethics 2008

The Medical Code of Ethics in Nigeria, established in 2008, forms a comprehensive framework outlining the conduct, responsibilities, and ethical standards expected from medical and dental practitioners. However, while it touches upon various critical aspects of

[33] Ahmed Arafa, Haytham A. Sheerah, and Shada Alsalamah, "Emerging Digital Technologies in Healthcare with a Spotlight on Cybersecurity: A Narrative Review," *Information* 14, no. 12 (November 29, 2023): 640, https://doi.org/10.3390/info14120640.

professional behaviour, it lacks explicit and detailed provisions addressing telemedicine, an increasingly significant facet of contemporary healthcare. Accordingly, Parts A, B, C, D, E, F, and G of the code predominantly emphasizes foundational principles such as professional conduct, allegiance to professional bodies, reporting misconduct, respecting colleagues, and regulating medical practices. Despite its depth, the absence of specific guidelines tailored to telemedicine raises concerns regarding its applicability and adaptability to this evolving mode of healthcare delivery. Outlined within the code are fundamental ethical principles, such as informed consent, confidentiality, and professional conduct, which undoubtedly intersect with telemedicine practice. However, these principles are not sufficiently elaborated upon in the context of remote healthcare delivery. While Section 22 indirectly touches on confidentiality, competence, and electronic data handling, it lacks explicit guidance on telemedicine-specific challenges related to data security, patient consent in remote settings, and the nuances of maintaining ethical standards in virtual care.

The impact of these limitations becomes evident in the realm of telemedicine in Nigeria. The absence of explicit telemedicine-focused guidelines might lead to ambiguity and challenges in navigating ethical dilemmas unique to remote healthcare interactions. Issues concerning informed consent in virtual consultations, ensuring patient understanding in diverse linguistic contexts, safeguarding data privacy in telemedicine platforms, and maintaining professional standards in remote care might pose significant challenges due to the absence of explicit guidance within the existing code[34]. Moreover, the code's focus on traditional medical practice standards might inadvertently hinder the seamless integration and advancement of telemedicine within the healthcare landscape. The lack of specific provisions for telemedicine could potentially impede its widespread adoption and effective implementation by practitioners, possibly leading to a slower pace of embracing technological advancements in healthcare delivery.

3.2.4 National Information Technology Development Agency Act 2007

The National Information Technology Development Agency Act of 2007 in Nigeria serves as a pivotal legislation governing the development, regulation, and implementation of information technology initiatives within the country. Therefore, concerning the legal framework of telemedicine in Nigeria, a critical examination of this Act reveals strengths in its applicability and support for telemedicine services. For the strengths, the Act's Section 6 (a) confers authority upon the Agency to construct a framework specifically designed for the planning, research, development, and oversight of Information Technology (IT) practices. This broad empowerment allows for the potential establishment of tailored guidelines and stringent standards pertinent to the application of telemedicine practices within Nigeria.

Also, Sections 6 (f) & (h) of the Act present provisions that incentivise the utilisation of IT across diverse domains, including the establishment of specialised Information Technology parks. These clauses hold promise for fostering the creation of dedicated centres or hubs focusing on the research, advancement, and facilitation of telemedicine services within Nigeria. Finally, the enactment of Section 12, which introduces the National Information

[34] Renata Solimini et al., "Ethical and Legal Challenges of Telemedicine in the Era of the COVID-19 Pandemic," *Medicina* 57, no. 12 (November 30, 2021): 1314, https://doi.org/10.3390/medicina57121314.

Technology Development Fund, offers a promising avenue for supporting telemedicine endeavours. This fund's creation could potentially provide financial resources crucial for conducting research, developing requisite IT infrastructure, and implementing sophisticated systems essential for the effective deployment of telemedicine services. The National Information Technology Development Agency Act of 2007 lays the groundwork for IT governance in Nigeria. Its strengths reveal its potential support for telemedicine.

3.2.5 Nigerian Communications Act 2003

The Nigerian Communications Act 2003 serves as the overarching framework governing the telecommunications sector in Nigeria. Its provisions encompass a wide array of facets, including regulations, licensing protocols, and enforcement mechanisms. Within this Act, certain sections hold relevance to the realm of telemedicine. One pivotal aspect is the Act's grant of authority to the Nigerian Communications Commission (NCC) for monitoring and ensuring compliance. This oversight spans regulatory adherence, licensing conditions, and specific directives. It's crucial in upholding quality service standards and adherence to technical regulations, which are fundamental for maintaining robust and dependable telecommunications infrastructure, an essential component for the delivery of telemedicine services[35].

Another facet worth noting is Section 9, which underscores the necessity for guidelines regulating the promotion and advertising of services by licensees. This provision aims to safeguard consumers' interests and maintain ethical standards. Compliance with these guidelines is paramount for telemedicine providers, ensuring transparent and accurate representation of their services to the public. Section 13 of the Act emphasises the significance of meeting minimum service quality standards outlined by the Commission. In the context of telemedicine, this translates to the necessity of sustaining reliable and efficient communication channels[36]. Seamless connectivity is imperative for ensuring patients receive uninterrupted and adequate healthcare remotely.[37]

Administrative fines and sanctions, as outlined in Section 15, are crucial instruments for enforcing compliance. The Commission retains the authority to impose fines, considering the severity and duration of contraventions, as well as their impact on consumers. Failure to comply with regulations pertinent to telemedicine could result in these fines, potentially affecting the operations of service providers. Moreover, Section 17 establishes grounds for license revocation, including instances of service non-provision, outstanding dues, or false

[35] Adewale Olufunlola Yoade, Abiola Stephen Oladipupo, and Foluso Olayinka Ayeni, "A Study on Facility Management Practice in Nigeria: A Case Study of Nigerian Communication Commission, Abuja Nigeria," *Urban and Regional Planning* 7, no. 2 (2022): 47, https://doi.org/10.11648/j.urp.20220702.13.

[36] Caroline Omoanatse Alenoghena et al., "Telemedicine: A Survey of Telecommunication Technologies, Developments, and Challenges," *Journal of Sensor and Actuator Networks* 12, no. 2 (March 2, 2023): 20, https://doi.org/10.3390/jsan12020020.

[37] Naeeem Nawaz et al., "Impact of Telecommunication Network on Future of Telemedicine in Healthcare: A Systematic Literature Review," *International Journal of Advanced and Applied Science* 9, no. 7 (July 2022): 122–38, https://doi.org/10.21833/ijaas.2022.07.013.

statements during the licensing process. Compliance with licensing requisites is indispensable for telemedicine platforms to sustain their operations legally within the Nigerian context[38].

While the Act's definitions—terms like "Basic Information," "Contravention," and "Unlawful"—are not explicitly tailored for telemedicine, they nonetheless establish a framework for regulatory compliance within the telecommunications sector. These definitions indirectly impact telemedicine by setting the parameters for general compliance requirements. Overall, the Act's enforcement provisions, standards of service quality, and licensing regulations significantly influence the landscape of telemedicine in Nigeria. Compliance with these regulations serves as a cornerstone for ensuring the reliability, legality, and high-quality delivery of telemedicine services across the country.

3.2.6 Medical and Dental Practitioners Act (MDPA) 1988

The Medical and Dental Practitioners Act (MDPA) of 1988, a cornerstone legislation overseeing healthcare practice in Nigeria, lacks explicit provisions addressing telemedicine. Crafted in an era preceding the widespread use of remote healthcare, the Act overlooks regulating this evolving facet of medical practice. Despite its thorough governance on disciplinary actions, offenses, and regulations, the Act's silence on telemedicine introduces gaps in navigating remote healthcare landscapes. Sections outlining penalties for unlicensed practice or title misuse, notably section 17, fail to encompass telemedicine, inadvertently neglecting oversight in remote consultations or diagnoses. Similarly, section 21's definitions might ambiguously cover telemedicine within its broad interpretation of "practice," contributing to regulatory uncertainty. The Act's Ministerial power to create regulations (section 19) presents an avenue for integrating telemedicine-specific guidelines.

Telemedicine's emergence introduces ethical challenges unaddressed by the Act, like establishing patient-doctor relationships and ensuring quality care remotely[39]. Amendments should focus on section 17, revising penalties for unregistered practitioners engaging in telemedicine, and section 19, enabling tailored regulations for remote practice. The Act must define telemedicine, outline standards, assure data security, and specify licensing requirements for remote practitioners. Critically, the Act's absence of telemedicine provisions signals a pressing need for amendments to align with evolving healthcare landscapes. By incorporating specific guidelines for telemedicine, Nigeria's healthcare framework can adapt to technological advancements, ensuring safe, ethical, and regulated remote healthcare delivery.

3.2.7 Nigerian Data Protection Regulation 2019

The Nigerian Data Protection Regulation 2019 by the National Information Technology Development Agency, serves as a comprehensive guideline for safeguarding personal data and delineating the rights of individuals regarding their data. Its impact on telemedicine in Nigeria is significant and multifaceted. According to section 1.2, the regulation applies to all transactions involving the processing of Personal Data, regardless of the means used, affecting

[38] Omolayo M. Ikumapayi et al., "Telehealth and Telemedicine – An Overview," in *Proceedings of the International Conference on Industrial Engineering and Operations Management* (Michigan, USA: IEOM Society International, 2022), 1–12, https://doi.org/10.46254/AF03.20220258.

[39] Roberto Garetto et al., "Ethical and Legal Challenges of Telemedicine Implementation in Rural Areas" (Springer International Publishing, 2022), 31–60, https://doi.org/10.1007/978-3-031-05049-7_3.

natural persons in Nigeria. The regulation places a strong emphasis on safeguarding personal data. This involves acquiring explicit consent for data processing and clearly defining the purposes for data collection.

Furthermore, section 2.1 emphasises the need for lawful and legitimate data collection, processing, and storage, requiring secure data handling against potential risks such as cyberattacks or unauthorised access. These measures are particularly vital in telemedicine, where sensitive health information is transmitted remotely.[40] By ensuring robust data security measures such as encryption and restricted access to patient data, the regulation maintains patient confidentiality, essential for fostering trust in telemedicine services[41]. Still towing the line of information sensitivity, the regulation's focus in section 2.6 on obtaining explicit consent and clearly communicating privacy policies becomes crucial. Patients need to comprehend how their data will be utilised and shared during telemedicine consultations to make informed decisions about their privacy.[42]

Telemedicine services might engage third-party platforms or service providers[43]. The regulation in section 2.7, mandates explicit contracts between data controllers and these third parties to ensure compliance with data protection standards. This stipulation is crucial for maintaining data integrity and security within telemedicine partnerships. Granting individuals rights over their data, including access, rectification, erasure, and restriction of processing, is a cornerstone of the regulation in section 3.1. In the context of telemedicine, this empowers patients with control over their medical records, allowing them to rectify inaccuracies and request data deletion, thereby enhancing patient autonomy.

The implementation mechanisms outlined in section 4.1 of the regulation, such as audits and the appointment of Data Protection Officers, hold telemedicine providers accountable. They must conduct privacy audits and designate officers to ensure compliance and accountability in handling patient data. While the regulation fosters a secure environment for telemedicine by prioritising data protection and transparency, its stringent requirements may necessitate adjustments in telemedicine operations to meet compliance standards[44]. Nevertheless, aligning telemedicine practices with the regulation's provisions is crucial for Nigeria to establish a trusted and secure landscape for remote healthcare delivery, where patient privacy and data protection are paramount.

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[40] Grzegorz Pawlowski et al., "Legal Aspects of Information Security in Telemedicine in Ukraine," *Path of Science* 8, no. 11 (November 30, 2022): 1011–17, https://doi.org/10.22178/pos.87-2.

[41] Arafa, Sheerah, and Alsalamah, "Emerging Digital Technologies in Healthcare with a Spotlight on Cybersecurity: A Narrative Review."

[42] Sandra A. Hartasanchez et al., "Remote Shared Decision Making through Telemedicine: A Systematic Review of the Literature," *Patient Education and Counseling* 105, no. 2 (February 2022): 356–65, https://doi.org/10.1016/j.pec.2021.06.012.

[43] Jiancheng Ye, Lu He, and Molly Beestrum, "Implications for Implementation and Adoption of Telehealth in Developing Countries: A Systematic Review of China's Practices and Experiences," *Digital Medicine* 6, no. 1 (September 18, 2023): 174, https://doi.org/10.1038/s41746-023-00908-6.

[44] Julian Wells, "A Digital Checkup on HIPAA: Modernizing Healthcare Privacy Standards for Telehealth Services," *Federal Communications Law Journal* 75, no. 2 (2023): 227–50, http://www.fclj.org/wp-content/uploads/2023/02/75.2.3-Digital-Checkup-on-Privacy.pdf.

3.3. Noticeable Loopholes in the Existing Legal Framework on Telemedicine in Nigeria

This paper has established that though telemedicine is fast developing and widely embraced in Nigeria, there is no specific legislation on the concept. The lack of specific legislation to regulate telemedicine poses a potential danger to its operation in Nigeria. However, there are already existing legislations that indirectly regulate telemedicine in Nigeria. In the discourse of the legal framework of telemedicine in Nigeria, this paper identified some of the observable loopholes or lacuna in the existing legal framework. These loopholes are therefore enumerated as follows:

1. The extant laws do not offer the definition and scope of telemedicine in Nigeria
2. There is no single provision of these laws that specifies the choice of law to be adopted in the resolution of disputes arising from such cross-border healthcare services delivery through telemedicine.
3. There laws do not address a situation whereby telemedicine is adopted in healthcare delivery for a minor or an infant. There must be a clear-cut legislation on the procedural requirement for the adoption of telemedicine to deliver healthcare services especially as it relates to securing the consent of a minor.
4. The existing laws do not cater to privacy and confidentiality of patient data during telemedicine healthcare service delivery

There are no provisions concerning standard establishment, licensing requirements, data privacy regulations, and remote consultation guidelines for telemedicine.

3.4. Empirical Assessment of the Operation of Telemedicine in Nigeria

3.4.1 Sampling Technique and Sample Size

The study designed an online survey questionnaire which was distributed via various internet means of communication such as WhatsApp. This technique was designed to enable the study to harvest responses from randomly selected respondents. The study used a sample of 131 respondents randomly selected through a simple random technique to arrive at free-determined options and opinions of the respondent's responses. Aidonojie et al while amplifying the necessity for a simple random technique posits that the technique is a hassle-free sampling that is suitable for a homogenous population which also impedes the personal bias of the researcher to influence the outcome.[45] The sample size of the study is a blend of both young and old to enable the study to harvest responses that reflect the age distributions in Nigeria since telemedicine is benefitted by young and old.

3.4.2 Data Presentation

This research designed an online survey questionnaire to sample the opinions of randomly selected respondents to determine the level of awareness of the operation of telemedicine in Nigeria, the method mostly adopted, and the challenges of telemedicine in Nigeria. There are 131 randomly selected respondents. However, this number appears insignificant compared to the total population of Nigeria but it is a significant value assessment figure for the focus of the research. The challenges of telemedicine are not easily identifiable unless an empirical study is undertaken to underscore the reality of these

[45] Paul Atagamen Aidonojie and Anne Oyenmwosa Odojor, "Impact and Relevance of Modern Technological Legal Education Facilities amidst the Covid-19 Pandemic: A Case Study of Law Students of Edo University Iyamho," *KIU Journal of Humanities* 5, no. 4 (2021): 7–19.

challenges. Also, this method becomes very important to empirically ascertain whether Nigerians are aware of telemedicine and have been utilizing it to access healthcare services.

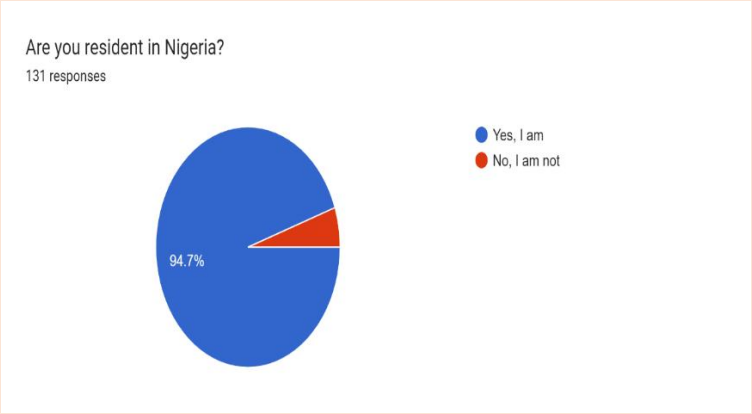

Figure 1: Respondents' response to the question of whether the respondent is resident in Nigeria or not. The research is focused on respondents who are residents in Nigeria.

	Responses	**Percentage**
Valid Yes	124	94.7%
Valid No	7	5.3%
Total	131	100%

Table 1: Valid responses of the respondents to the question of whether or not they are resident in Nigeria

Figure 1 and Table 1 reflect how the respondents responded to the question concerning whether they are residents of Nigeria or not. Apparently, of a total of 131 respondents, 124 respondents which represents 94.7% of the total number of respondents are residents of Nigeria, and only 7 respondents which indicates 5.3% are not.

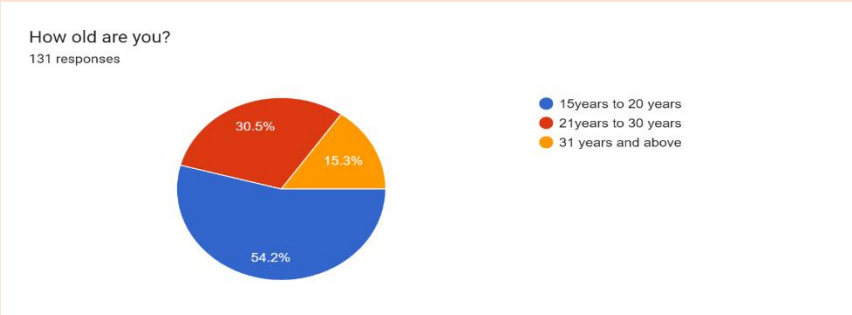

Figure 2 reflects the age distribution of the respondents to the questionnaire. The study is designed to reflect the age distribution between young and old of an appreciable level of understanding of the nature of the research.

	Responses	**Percentage**
15 years to 20 years	71	54.2%
21 years to 30 years	40	30.5%
31 years and above	20	15.3%
Total	131	100%

Table 2 indicate the cluster response to the age distribution of the respondents. The age distribution as shown in the table suggest that the respondents to the questionnaire are teenagers/adolescents, youths, and adults. This will accord credibility to the outcome of this

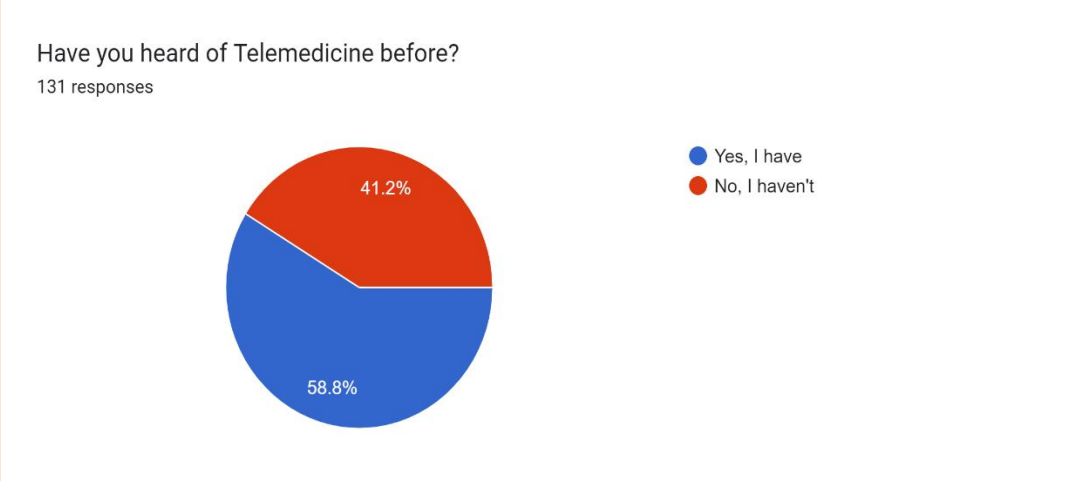

Figure 3: Respondents' response to the level of awareness of the operation of telemedicine in Nigeria

	Responses	**Percentage**
Valid Yes	77	58.8%
Valid No	54	41.2%
Total	131	100%

Table 3: Valid responses of the respondents to the question of whether or not they are aware of the operation of telemedicine in Nigeria

Figure 3 and Table 3 are reflections of the public reaction to the knowledge of telemedicine in Nigeria. 77 (58.8%) respondents are aware that there is the practice of telemedicine in Nigeria while 54 (41.2%) are not aware

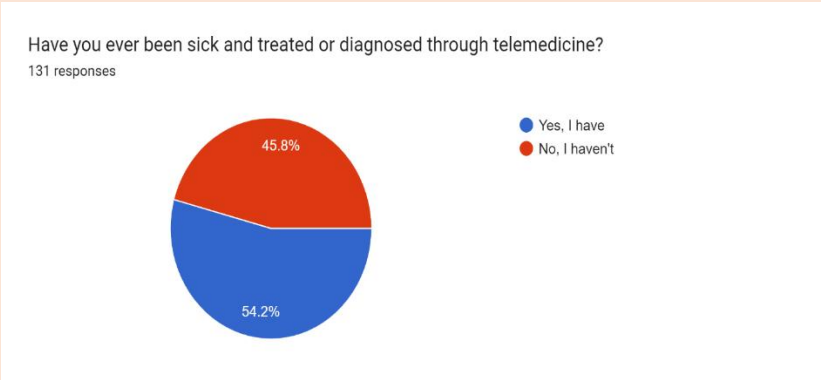

Figure 4 is the reaction of the respondents to the question concerning whether or not they have ever been treated or diagnosed through telemedicine before.

	Responses	**Percentage**
Valid Yes	71	54.2%
Valid No	60	45.8%
Total	131	100%

Table 4 shows valid responses to whether the respondents have been diagnosed or treated through telemedicine before or not.

Figure 4 and Table 4 are reflections of the operation of telemedicine in Nigeria. Of a total of 131 randomly selected respondents, 71 (54.2%) reacted positively to being diagnosed or treated with telemedicine while 60 (45.8%) reacted negatively.

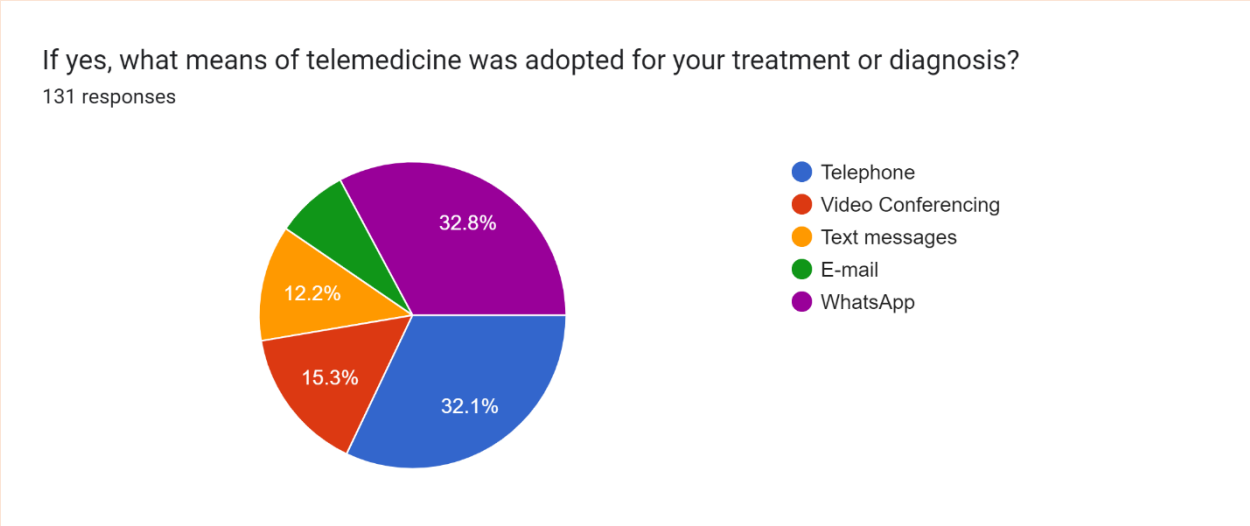

Figure 5: It is sacrosanct to determine the most used means for telemedicine in Nigeria. This figure contains responses of the respondents to the question regarding the means of telemedicine adopted for the treatment or diagnoses referred to in Figure 3 and Table 3 discussed earlier.

	Responses	**Percentage**
Telephone	42	32.1%
Video conferencing	20	15.3%
Text messages	16	12.2%
E-mail	0%	0%
WhatsApp	43	32.8%
Total	131	100%

Table 5: The breakdown of the respondent's responses to the question of the means of telemedicine adopted for their treatment or diagnosis.

Figure 5 and Table 5 reveal that telephone call was used to treat or diagnose 32.1 % of the respondents, and video conferencing was used for 15. 3% of the respondents, text messages were adopted for 12.2% of the respondents, WhatsApp was adopted by 32.8% of the respondents while none of the respondents used e-mail

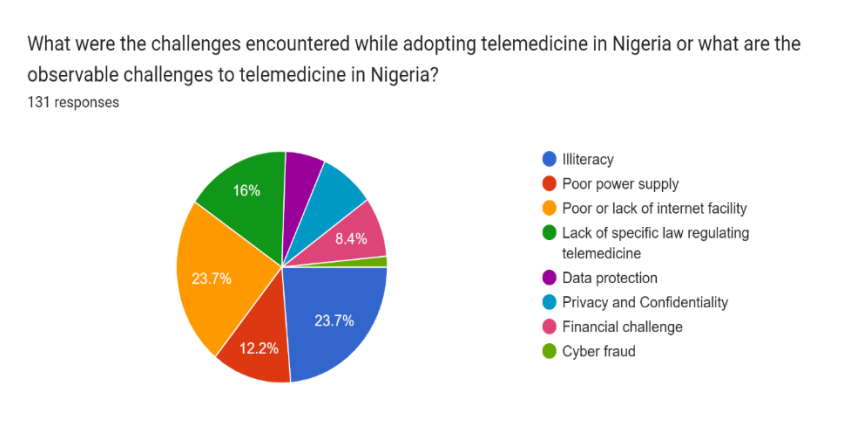

Figure 6: This chart represents the responses of the respondents to the challenges of Telemedicine in Nigeria.

	Responses	Percentage
Illiteracy	31	23.7%
Poor power supply	16	12.2%
Poor or lack of internet services	31	23.7%
Lack of specific law regulating Telemedicine	21	16%
Data protection	0	0%
Privacy and confidentiality	0	0%
Financial challenge	11	8.4%
Cyber fraud	21	16%
Total	131	100%

Table 6: This is a breakdown of the responses of the respondents on the challenges of telemedicine in Nigeria.

Figure 6 and Table 6 reveal that illiteracy, cyber fraud, poor or lack of internet facilities, poor power supply, financial challenges, and lack of specific laws regulating telemedicine are the challenges to the growth of telemedicine in Nigeria.

3.4.3 Data Analysis

Figure 1 and Table 1 reflect how the respondents responded to the question concerning whether they are residents of Nigeria or not. Apparently, of a total of 131 respondents, 124 respondents which represents 94.7% of the total number of respondents are residents of Nigeria, and only 7 respondents which indicates 5.3% are not. Therefore, the data collected are reliable considering that a significant majority of the respondents are residents in Nigeria. The research seeks to determine the operation of telemedicine in Nigeria. This is the scope of the research. Unless the respondents are residents in Nigeria, the data collected will be inaccurate to ascertain the operation of telemedicine in Nigeria. The credibility of the findings of this research is strengthened by the even representation of all ages of the targeted population as indicated in Table 2 and Figure 2.

Figure 3 and Table 3 are reflections of the public reaction to the knowledge of telemedicine in Nigeria. 77 (58.8%) respondents are aware that there is the practice of

telemedicine in Nigeria while 54 (41.2%) are not aware. This data buttresses Egbewande et al position that telemedicine is still nascent in Nigeria (Egbewande, 2023). Unfortunately, some of the respondents may indeed have been using telemedicine but were unaware that the operation is called telemedicine. For example, a patient who contacted his physician via phone call or WhatsApp for consultation and diagnosis with a drug prescription given by the physician has benefitted from telemedicine yet is unaware that such practice and procedure is referred to as telemedicine. When the subsequent data collected from respondents are analyzed, it will reveal this situation. Telemedicine though exponential is embraced in Nigeria. Figure 4 and Table 4 are reflections of the operation of telemedicine in Nigeria. Of a total of 131 randomly selected respondents, 71 (54.2%) reacted positively to being diagnosed or treated with telemedicine while 60 (45.8%) reacted negatively. Figure 3 and Table 3 further corroborate the findings in Table 2 and Figure 2.

Telemedicine is exponential in Nigeria. It is still growing and has yet to attain wide public acceptance due to non-awareness. Figure 5 and Table 5 reveal that telephone, video conferencing, text messages, and WhatsApp appear to be methods adopted for telemedicine in Nigeria, WhatsApp is the most adopted means of telemedicine in Nigeria. Of the total 131 respondents, 43 respondents which represent 32.8% of the total respondents acknowledge WhatsApp as their means of telemedicine while 42 (32.1%) respondents acknowledge phone calls through a mobile telephone as their means of telemedicine. Both video conferencing and text messages ranked low with 20 (15.3%) respondents confirming the use of Video conferencing and 16 (12.2%) respondents confirming the use of text messages. Surprisingly, however, none of the respondents ever used e-mail to access medical services. The reason for this public rejection of e-mail is unknown. The mobile phone appears to be a technological tool that today has advanced the course of telemedicine globally including in Nigeria. Even though the chart does not adequately represent the whole of Nigeria, it can however be adopted as a mirror of the country. According to the data collected, e-mail is hardly used as a mode of operation telemedicine in Nigeria.

The exponential growth of telemedicine in Nigeria is traceable to some of the challenges to its operation in Nigeria. Figure 6 and Table 6 identified some of the challenges of telemedicine in Nigeria. Figure 5 and Table 5 reveal that illiteracy and poor or lack of internet are the chief challenges of telemedicine in Nigeria as 31 respondents which represents 23.7% of the respondents confirm each of these challenges. This position buttresses one of the findings of Akinwale et al that poor internet facilities endanger the growth of telemedicine in Africa. Also, the Chief Executive Officer of Telemedicine Africa confirmed that high impressive internet speed would determine the success of telemedicine in Africa.

Furthermore, the lack of specific legislation regulating telemedicine in Nigeria is a serious challenge to the growth and adoption of telemedicine in Nigeria. The result of the survey carried out as shown in Figure 5 and Table 5 revealed that 21 (16%) of the respondents confirmed this challenge as a bottleneck to developing a working telemedicine system in Nigeria. The operation of telemedicine has some legal and ethical considerations. For instance, the confidentiality and privacy of patient's data ought to be protected. The issue regarding the consent of patients to be treated through telemedicine must be regulated. Therefore, the lack of law to regulate telemedicine is a threat to the growth of telemedicine. The survey carried

out revealed that data protection privacy and confidentiality are not challenges to telemedicine in Nigeria. However, previous scholarly research has proved otherwise over time. Furthermore, according to 21 respondents represents 16% of the total respondents, cyber fraud challenges the growth of telemedicine in Nigeria. Not only that, poor power supply and finance are also potential challenges to the growth of telemedicine in Nigeria as indicated by 16 respondents (12.2%) and 11 respondents (8.4%) respectively.

4. Conclusions

Telemedicine remains evidence of the impact of technology on healthcare service delivery in Nigeria and indeed globally. Though telemedicine is not a recent development in Nigeria, this study established that the advancement of technology and the advent of COVID-19 occasioned the growth of its usage to access healthcare services in Nigeria. Telemedicine has come to stay in Nigeria but the country may not enjoy all the blessings that telemedicine offers other great nations with more developed economies. This is because empirical facts garnered from the survey show that the challenges that discourage its acceptance and adoption are too enormous to be neglected. The lack of a specific regulatory legal framework for the regulation of telemedicine in Nigeria remains the chief of these challenges. Law is an instrument of social change and must adapt to the realities of society.

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