Science Journal of Business and Management
2026, Vol. 14, No. 4, pp. 190–198
https://doi.org/10.11648/j.sjbm.20261404.14

SciencePG
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Research Article

Strategic Improvement of Patient Performance: A Cross-cultural Approach for Managing Telehealth Projects in Nigeria, Africa

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Abstract

Telehealth implementation in Nigeria is constrained by infrastructural deficits, poor digital literacy, inadequate funding and sociocultural resistance to digital health technologies. This study examines the strategic improvement of patient performance through a cross-cultural project management approach for managing telehealth projects in Nigeria. The study adopts a systematic review methodology guided by the PRISMA framework and synthesizes evidence from peer-reviewed studies published between 2015 and 2024. Database search generated 420 records. 360 records were subjected to title and abstract screening. 210 records were excluded because they did not satisfy the inclusion criteria. 150 articles were obtained in full text and assessed for eligibility. 140 articles were excluded due to methodological limitations and lack of relevance to the study focus. 10 studies fulfilled all inclusion criteria and were retained for the final review. RE-AIM framework was employed to evaluate telehealth integration across diverse healthcare settings. Findings indicate that telehealth significantly improves healthcare accessibility, reduces travel time and supports better patient engagement. The paper concludes that integrating telehealth projects through a strategic project management lens substantially improve patient performance. It recommends stronger public-private investment in digital infrastructure, enhanced training programs, and culturally inclusive implementation models to scale telehealth sustainably within health systems.

Keywords

Telehealth, Patient Performance, Cross-Cultural Project Management, Rural Healthcare, Healthcare Access, Telemedicine, Project Management Strategies

1. Introduction

Telehealth has increasingly emerged as a transformative innovation in healthcare delivery across Africa, particularly in regions where access to medical services remains limited. Leveraging digital technologies, telehealth helps overcome geographical and infrastructural barriers, enabling remote consultations, diagnostics, and continuous patient monitoring

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Received: 12 October 2026; **Accepted:** 22 October 2026; **Published:** 16 November 2026

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[28]. However, despite its significant potential to improve patient performance and health outcomes, telehealth adoption in many African countries, including Nigeria, continues to face major constraints such as inadequate infrastructure, low digital literacy, and weak regulatory frameworks [3, 10]. These realities highlight the need for project management strategies that are not only technically sound but also culturally and systemically responsive to Africa's diverse healthcare environments.

Project management strategies such as stakeholder engagement, resources mobilization and risk mitigation ensures improvement of patient performance through telehealth [12]. Evidence suggests that well-structured project management enhances the successful delivery and long-term sustainability of telehealth initiatives by aligning project objectives with healthcare needs and stakeholder expectations [18, 36]. Through clearly defined goals, roles, and responsibilities, project management frameworks improve coordination and ensure efficient allocation of scarce healthcare resources [31]. In cross-cultural African settings, these structures accommodate variations in health beliefs, language, trust in digital care, and patterns of technology use [26].

Moreover, maximizing telehealth's impact on patient performance requires deliberate attention to the social determinants of health, particularly socioeconomic disparities and persistent rural–urban inequalities that shape access to digital health services. Many rural African communities continue to experience long travel distances to health facilities, shortages of healthcare professionals, and limited access to specialist care [26]. Within this context, culturally sensitive project management practices such as inclusive stakeholder communication, adaptive resource optimization, proactive risk management, and continuous monitoring and evaluation is essential for successful telehealth implementation [2-22]. When effectively applied, project management strategies enhance healthcare efficiency, improve patient engagement and outcomes, and support the sustainable scaling of telehealth initiatives across diverse African healthcare systems [14-37].

Telehealth in the developed nations has already shown promise in overcoming some of these issues by providing faster medical appointments, reducing travel and expenditure, and managing chronic disease [5]. Additionally, telehealth reduces the need for physical follow-up, which is an essential part of chronic disease management [35]. Such benefits are further enhanced through strong stakeholder engagement to ensure that telehealth systems are developed and deployed in a way that addresses the multiple needs of both patients and health professionals.

The health access issue in Nigeria is largely acute in the countryside, where lack of infrastructure and resources severely impede the provision of healthcare. A recent report from the Office for National Statistics notes that rural networks are weak, limiting access to healthcare. In Nigeria, this is aggravated by the lack of physicians, hospitals, and clinics where patients receive timely treatment [38]. Rural hospitals also lack capacity, further reducing access to clinicians and basic services [20, 23-30].

Telehealth provides a transformative option by removing geographical, staffing, and resource limitations [4]. It offers a means of eliminating inefficiencies in healthcare delivery in underserved areas by enabling remote consultations, diagnosis, and patient care management. This paper examines how telehealth interventions are implemented and strategically managed across Africa and in Nigeria to enhance patient care. Through spotting best practices and tackling implementation challenges, the paper seeks to offer pragmatic solutions to clinicians, policymakers and project managers who are trying to implement telehealth to provide cost-effective, high-quality healthcare in Nigeria.

Despite the enormous benefits of telehealth in developed nations, there are gaps in literature and practice in Africa to which little attention has been paid, especially rural areas in Nigeria. Although there is evidence from other countries claiming that telehealth has improved patients' care [19]. Also, there is substantial resistance from both patients and healthcare practitioners regarding the use of telehealth technologies, partly due to the lack of digital literacy and skepticism in the quality of care. To overcome this resistance, further research is required to identify and address the factors that contribute to this resistance so that the integration can go more smoothly.

Aim and Objectives

This study aim to develop an effective project management model suitable for integrating telehealth into the healthcare delivery system. The objectives of the study include to:

1) Identify the inherent challenges of telehealth integration into healthcare systems in rural areas of Nigeria.
2) Determine the established project management strategies and their application in telehealth integration in rural areas of Nigeria.

2. Literature Review

This research uses the RE-AIM model to conceptualise project management strategy that introduces telehealth into health facilities in rural Nigeria. The RE-AIM Framework quantifies quantitatively telehealth service effectiveness and service provision to telehealth service use and healthcare service sustainability [27]. The framework facilitates a wide-ranging evaluation of telehealth programs that help to understand the barriers and identify areas for project redesign.

Telehealth

Telehealth is the use of electronic information and communications systems to enhance and facilitate the health of individuals and their communities; to deliver health care and information services; and to educate patients and the public through telemedicine, telehealth and e-health [2]. Beyond medical treatment at the clinic, patients are also treated clinically at home or in the community. These new approaches

both provide patients with greater options for health care access and enable the providers to deliver a higher level of care to their patients [6].

Challenges of Telehealth Integration Systems in Rural Areas in Nigeria.

Technology-related barriers, resistance to change, fear of innovation, and doubts about care quality continue to hinder the effective deployment of telehealth across many rural African settings. In much of sub-Saharan Africa, including Nigeria, fast and reliable internet connectivity remains uneven and often unavailable in remote communities [9-33]. Because stable connectivity is fundamental for safe and reliable telehealth delivery, the persistent lack of broadband infrastructure significantly constrains the ability of patients and clinicians to conduct real-time video consultations, exchange electronic medical records, and maintain continuity of care. These infrastructural gaps are further compounded by inconsistent power supply and high data costs, which are common across many African rural environments.

Another major challenge within the African context is the reluctance of both patients and healthcare providers to adopt new digital health technologies [21]. Limited digital literacy remains widespread in many rural communities, reducing confidence in the use of telehealth platforms. Older adults, in particular, often experience difficulty navigating mobile health applications and virtual consultation tools, thereby widening the digital divide in access to care. In addition, concerns about the quality and safety of virtual care persist among stakeholders. Some patients and clinicians worry that teleconsultations may lead to incomplete assessments, misdiagnosis, or standardized treatment approaches that fail to reflect local clinical realities [11]. Within many African cultures where interpersonal trust and face-to-face interaction are highly valued in healthcare relationships, the perceived weakening of the patient–provider bond through screen-mediated care further contributes to skepticism about telehealth [1].

Project Management Strategies for Telehealth Integration in Rural Africa

Integrating telehealth into rural healthcare systems across Africa is inherently complex, particularly because the core objective of telemedicine is to expand equitable access to quality healthcare in underserved areas [27]. Achieving this objective requires context-sensitive project management approaches that reflect the infrastructural, cultural, and institutional realities of African health systems. One foundational strategy is the conduct of early needs assessments and comprehensive stakeholder analysis to identify community health priorities, technological readiness, and sociocultural considerations. At this stage, project leaders must actively engage local health workers, community leaders, patients, and policymakers to co-design telehealth solutions that are culturally acceptable and operationally feasible. Evidence indicates that without sustained community engagement, it becomes difficult to identify context-specific barriers and tailor telehealth services effectively to local populations.

Effective resource and financial management also remains critical. Many rural health facilities across Africa operate under severe financial and human resource constraints, making prudent budgeting and diversified funding strategies essential. Skilled project managers therefore explore multiple financing pathways, including government funding, donor support, public–private partnerships, and collaborations with telecommunications and health technology firms. Equally important is capacity building. Continuous training of healthcare providers and end-users on telehealth platforms, coupled with ongoing technical support, has been shown to significantly improve adoption and sustained utilization [13, 19].

Modernizing technological infrastructure is another strategic priority. This includes expanding broadband access, improving electricity reliability, and deploying appropriate telehealth hardware and software suited to low-resource environments [16]. Project managers must often work closely with telecom providers and government agencies to extend connectivity to underserved rural regions while ensuring that health facilities are equipped with user-friendly and interoperable digital systems [6]. Since technological infrastructure directly influences the quality, efficiency, and patient outcomes of telehealth services, sustained investment in digital health ecosystems is indispensable.

Finally, structured change management and continuous improvement mechanisms are essential for long-term success. Telehealth adoption in African rural contexts requires deliberate change strategies that incorporate clear communication, culturally sensitive training, user support systems, and demonstrated value for both providers and patients [24-32]. As noted by Holmes et al. [17], successful telehealth integration depends not only on technology deployment but also on managing behavioral change, building trust, and embedding telehealth into routine clinical workflows. When these project management strategies are applied through a cross-cultural lens, they significantly enhance patient performance, strengthen provider acceptance, and improve the sustainability of telehealth initiatives across Africa.

Strategic Improvement of Patient Performance through Telehealth Projects in Africa

Olufunlayo et al. [29] examined the key barriers and enabling factors influencing telehealth adoption in Nigeria's healthcare system. The study employed a mixed-methods design combining a structured survey of healthcare professionals with key informant interviews involving policymakers and ICT experts. Quantitative data were analyzed using descriptive and inferential statistics, while qualitative responses were thematically analyzed. The study found that inadequate digital infrastructure, weak regulatory frameworks, and low digital literacy among both patients and providers significantly hinder telehealth implementation in Nigeria. It also revealed that healthcare workers were more willing to adopt telehealth where institutional support and training were available. The authors recommended increased government investment in broadband infrastructure, the development of clear national

telehealth policies, and continuous digital capacity-building programs for healthcare workers and patients.

Kadel et al. [21] explored healthcare providers' readiness and willingness to adopt telehealth technologies. Using a quantitative survey approach, data were collected from clinicians across multiple healthcare facilities. Structural equation modeling (SEM) was used to test factors influencing adoption intentions. The results showed that perceived usefulness, ease of use, and organizational support significantly influenced telehealth adoption. Resistance to change and lack of adequate training were major predictors of low adoption. The authors recommended structured change management programs, continuous professional training, and leadership support to improve telehealth uptake among healthcare providers.

Johnson et al. [19] evaluated the impact of user training and technical support on telehealth utilization rates. A quasi-experimental design was adopted, comparing healthcare facilities that received continuous telehealth training and support with those that did not. Usage metrics and patient engagement data were analyzed over time. Facilities that implemented ongoing training and help-desk support recorded significantly higher telehealth adoption, improved patient attendance in virtual consultations, and better provider satisfaction. The study recommended institutionalizing continuous training programs, embedding technical support units within telehealth projects, and allocating dedicated budgets for user support.

Berenbrok et al. [6] assessed the role of technological infrastructure in determining telehealth service quality and efficiency. The authors conducted a multi-site observational study of telehealth programs, evaluating connectivity quality, device availability, and service outcomes. Data were analyzed using comparative performance metrics. The study found a strong positive relationship between broadband reliability and telehealth effectiveness. Facilities with stable connectivity experienced fewer consultation disruptions, higher patient satisfaction, and improved clinical workflow efficiency. The authors recommended strategic partnerships with telecommunications providers, investment in rural broadband expansion, and deployment of context-appropriate telehealth technologies.

Alakeel et al. [10] examined the impact of telehealth adoption on patient outcomes and its sustainability after the COVID-19 pandemic. The researchers adopted a systematic review approach, analysing English-language studies published within ten years across databases such as PubMed, MEDLINE, Web of Science, Embase, and Google Scholar. The findings revealed that telehealth improved healthcare accessibility, patient satisfaction, and follow-up services while reducing hospital admissions, hospital stays, and mortality rates. The study also highlighted its potential to reduce healthcare costs and improve service delivery. However, inadequate health information exchange infrastructure, limited patient engagement, and insufficient financial reimbursement were identified as major barriers, particularly in rural healthcare facilities. The study is relevant to the present research because it demonstrates the importance of telehealth in improving healthcare delivery. However, it did not specifically examine how project management strategies influence telehealth integration in rural Nigeria. The present study therefore addresses this gap by investigating the roles of project planning, stakeholder engagement, and risk and resource management in promoting effective telehealth integration in rural Nigerian communities.

3. Methods

This study adopts a systematic literature review methodology to examine how cross-cultural project management strategies improve patient performance through telehealth initiatives in Africa. The review process is guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. The study relies exclusively on secondary data drawn from peer-reviewed journal articles. A structured search strategy was implemented across major academic databases, including Scopus, Web of Science, PubMed, ScienceDirect, and Google Scholar. The search covered publications between 2015 and 2024 in order to capture the most recent developments in telehealth and digital health project management. Key search terms included combinations of: *telehealth*, *telemedicine*, *digital health*, *project management*, *patient outcomes*, *rural healthcare*, *Africa*, *Nigeria*, and *cross-cultural healthcare*. Boolean operators (AND, OR) were used to refine the search strings. Database search generated 420 records. After removing duplicates and irrelevant publications, 360 records remained and were subjected to title and abstract screening. During this stage, 210 records were excluded because they did not satisfy the inclusion criteria. The remaining 150 articles were obtained in full text and assessed for eligibility. Following a comprehensive review, 140 articles were excluded due to methodological limitations, lack of relevance to the study focus, or insufficient information required for analysis. Ultimately, 10 studies fulfilled all inclusion criteria and were retained for the final review and evidence synthesis.



Source: Researcher, 2026.

Figure 1. *Prisma Flow Chart.*

Studies were included if they focused on telehealth, telemedicine, or digital health implementation; (ii) examined patient outcomes, healthcare access, or performance indicators; (iii) addressed project management, implementation strategies, or health system integration; (iv) were conducted in Africa or in comparable low- and middle-income rural contexts; (v) were peer-reviewed journal articles; and (vi) were published in English between 2015 and 2024. Conversely, studies were excluded if they: (i) were conference abstracts, editorials, commentaries, or dissertations; (ii) focused purely on technical system design without healthcare or management outcomes; (iii) were conducted exclusively in high-income urban settings with no relevance to resource-constrained environments; (iv) lacked full-text availability; or (v) were duplicates across databases. The PRISMA screening process was conducted in four stages: identification, screening, eligibility, and inclusion. During the identification stage, all records retrieved from the databases were exported into reference management software and duplicates were removed. In the screening stage, titles and abstracts were reviewed against the inclusion criteria. The eligibility stage involved full-text assessment of the remaining articles to confirm relevance and methodological quality. The final inclusion stage produced the set of studies used for synthesis.

Quality appraisal of the selected studies was conducted CASP for qualitative studies and JBI tools for quantitative studies. Particular attention was paid to methodological clarity, sample adequacy, analytical rigor, and relevance to African or rural healthcare contexts. To enhance the academic credibility of the review, journal selection was further refined using the SCImago Journal Rank (SJR) database. Only articles published in journals indexed in Scopus and ranked within SCImago, preferably Q1–Q3 in Health Informatics, Public Health, Health Policy, or Healthcare Management categories, were prioritized. Data extraction was performed using a structured review matrix to ensure consistency. For each included study, the following information was extracted: author(s), year of publication, country/region, study aim, research design, sample characteristics, key findings, and recommendations relevant to telehealth project management and patient performance. Data synthesis followed a thematic approach aligned with the RE-AIM framework. Evidence was organized under themes relating to reach, effectiveness, adoption, implementation, and maintenance of telehealth initiatives. Cross-cultural factors such as trust, digital literacy, infrastructure readiness, and stakeholder engagement were also specifically analyzed to reflect the African context.

4. Data Analysis

Thematic Data Analysis of Included Studies (N=10)

Following the PRISMA-guided selection, ten studies were critically analyzed using thematic synthesis. The analysis focused on patterns across study findings, methodological convergence, and implications for practice. Five dominant themes emerged.

Quantitative Thematic Summary (n = 10 Studies)

Table 1. *Thematic Data Analysis.*

S/N	Theme	Description of Theme	Studies	(%)	Interpretation
1	Improvement in Healthcare Access	Telehealth expanded reach, reduced travel time, improved appointment access	9	90%	Very strong evidence
2	Cost Efficiency and Economic Benefits	Reduced patient costs and improved system efficiency	7	70%	Strong evidence

S/N	Theme	Description of Theme	Studies	(%)	Interpretation
3	Technological and Infrastructure Barriers	Internet, power, ICT limitations affecting implementation	10	100%	Critical universal barrier
4	User Acceptance and Satisfaction	Positive perceptions and willingness to use telehealth	8	80%	Strong but conditional acceptance
5	Training and Digital Literacy Needs	Need for capacity building among staff and patients	6	60%	Moderate evidence

Source: Researcher, 2026.

Theme 1: Improvement in Healthcare Access

Across the majority of the reviewed studies, telehealth interventions significantly improved access to healthcare services, particularly in underserved and rural communities. Several authors reported that teleconsultations reduced geographical barriers and waiting times for specialist care [22, 27]. Patients in remote locations were able to receive timely medical advice without the burden of travel [6, 9]. The findings consistently showed increased appointment attendance and broader service reach following telehealth implementation. However, some studies noted that access gains were uneven due to infrastructure disparities between urban and rural regions [17]. Telehealth is effective in expanding healthcare reach, but infrastructure inequality moderates its impact.

Theme 2: Cost Efficiency and Economic Benefits

Most of the included studies reported positive cost-related outcomes [20, 27]. Telehealth reduced transportation costs for patients and lowered operational costs for healthcare facilities. Some studies highlighted system-level savings through reduced hospital readmissions and optimized staff utilization [14]. Nevertheless, a few authors cautioned that the initial setup costs, including digital infrastructure and training, could be substantial, especially in low-resource setting [12]. Telehealth demonstrates strong long-term cost benefits despite notable upfront investment requirements.

Theme 3: Technological and Infrastructure Barriers

A dominant cross-cutting theme was the presence of significant technological challenges. Many studies identified poor internet connectivity, unstable electricity supply, limited digital literacy among healthcare workers and patients, and inadequate ICT infrastructure [6-20]. These barriers were particularly pronounced in rural African contexts and were repeatedly cited as major constraints to scalability and sustainability [18, 27]. Infrastructure limitations remain the single most critical barrier to effective telehealth implementation.

Theme 4: User Acceptance and Satisfaction

Most studies reported generally positive attitudes toward telehealth among both patients and healthcare providers. Users appreciated convenience, reduced travel time, and faster consultations. Healthcare professionals also valued improved workflow efficiency [20]. However, some resistance was noted due to preference for face-to-face consultations, concerns about data privacy, and limited confidence in digital tools among older users; training and awareness programs were repeatedly recommended to improve adoption [1, 22]. Acceptance is high but depends strongly on digital literacy, trust, and user support systems.

Theme 5: Training and Digital Literacy Needs

Training and digital literacy needs are critical factors in the successful planning, implementation, and sustainability of telehealth projects. As healthcare systems increasingly adopt digital technologies to improve healthcare delivery, project managers, healthcare professionals, technical teams, and patients must possess the necessary digital competencies to effectively utilize telehealth platforms [38]. Many healthcare workers possess varying levels of technological proficiency, which can affect their ability to use electronic health records, teleconsultation platforms, remote monitoring devices, and digital communication systems. Inadequate digital skills can result in resistance to technology adoption, operational inefficiencies, and reduced quality of patient care. Consequently, project managers must incorporate comprehensive digital literacy training into telehealth implementation strategies to improve user acceptance and system utilization [34].

Within project management frameworks, structured training programs serve as risk mitigation strategies by reducing implementation failures and increasing stakeholder confidence in telehealth systems. Research suggests that continuous professional development and hands-on training significantly improve healthcare workers' readiness for telehealth adoption and long-term project success [25]. Telehealth systems involve the transmission and storage of sensitive patient information across digital networks, making data security a critical concern. Healthcare professionals require training on cybersecurity best practices, secure data handling, patient confidentiality, password management, and compliance with healthcare regulations. Project managers must integrate cybersecurity awareness programs into telehealth implementation plans to minimize security risks and ensure regulatory compliance. Effective cybersecurity training strengthens stakeholder trust and enhances the sustainability of telehealth initiatives [8].

5. Conclusion and Evidence-Based Recommendations

Telehealth has increasingly demonstrated strong potential as a transformative healthcare delivery model capable of improving patient performance and expanding access to quality healthcare services across Africa, particularly in rural and underserved communities. This study examined the strategic improvement of patient performance through a cross-cultural project management approach for managing telehealth projects in Africa, with a strong focus on Nigeria as a representative context of resource-constrained healthcare environments. Findings from the systematic literature review revealed that telehealth contributes significantly to improved healthcare accessibility, reduced travel burden, cost efficiency, enhanced continuity of care, and increased patient satisfaction. These benefits are particularly important in regions where shortages of healthcare professionals, poor healthcare infrastructure, and geographical barriers continue to limit timely access to medical services.

However, the study also established that telehealth implementation in Africa remains constrained by critical barriers such as inadequate internet connectivity, unstable electricity supply, weak policy and regulatory frameworks, low digital literacy, resistance to technological change, and concerns about data privacy and trust in virtual healthcare systems. These challenges are more pronounced in rural areas where healthcare inequalities are already deeply embedded. The thematic findings further showed that while user acceptance of telehealth is generally positive, successful adoption is highly dependent on infrastructure readiness, stakeholder trust, continuous training, and culturally responsive service delivery models.

Importantly, the study highlights that effective project management is central to the successful integration, sustainability, and scalability of telehealth initiatives. Cross-cultural project management strategies including stakeholder engagement, inclusive communication, adaptive planning, financial resource optimization, infrastructure development, capacity building, risk mitigation, and continuous monitoring and evaluation are essential for addressing the unique socioeconomic and cultural complexities of African healthcare systems. By applying these strategies, telehealth projects are more effectively aligned with local healthcare needs and patient expectations. In conclusion, the strategic integration of telehealth through culturally sensitive and well-structured project management approaches substantially improve patient performance, strengthen healthcare accessibility, and contribute to sustainable healthcare transformation across Africa. However, long-term success requires coordinated investment, institutional support, and policy-driven innovations that bridge digital and healthcare inequalities. Based on the conclusion, the study recommend:

1) Governments and private sector stakeholders should invest in expanding broadband internet access, improving mobile network coverage, and stabilizing electricity supply in rural and underserved African communities. Reliable infrastructure is fundamental for successful telehealth deployment and long-term sustainability.
2) African governments, especially in Nigeria, should establish clear national telehealth policies that address licensing, data privacy, cybersecurity, patient confidentiality, interoperability, and quality assurance. Strong policy frameworks will improve trust and standardize telehealth operations.
3) Project managers should actively involve local communities, healthcare workers, patients, traditional leaders, and policymakers during telehealth planning and implementation. Culturally inclusive engagement improves acceptance, trust, and relevance of telehealth services.
4) Continuous training programs should be developed for healthcare providers, patients, and community health workers to enhance technical competence, confidence, and adoption of telehealth platforms. Digital literacy initiatives should particularly target older adults and rural populations.
5) Governments should collaborate with telecommunication companies, health technology providers, donor agencies, and NGOs to mobilize financial and technical resources needed for telehealth expansion and innovation.
6) Telehealth strategies should prioritize rural and marginalized communities where access to healthcare remains most limited. This will help reduce healthcare disparities and improve

Acknowledgments

The authors thank the anonymous reviewers for their valuable comments, which profoundly improved the manuscript. They also express gratitude to their respective institution, Dennis Osadebay University, for all forms of support. This study was funded by the Tertiary Education Trust Fund (TETFund), Nigeria, through the 2022 & 2024 Institution-Based Research (IBR) Intervention for Project SN 21-DOU-IBR, as communicated in TETFund Reference No.: TETF/DR&D/CE/UNI/ASABA/IBR/2022&2024/VOL.I.

Author Contributions

Aaron Oghenevwayere Agbeche: Conceptualization, Resources

Francis Ndudi: Data curation

Edafe Oghenegangan Emurotu: Methodology

Conflicts of Interest

The authors declare no conflicts of interest.

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