Various forms of Telehealth Services for the Management of Elderly Patients in Selected Communities of Ogbia Local Government Area, Bayelsa State."

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ABSTRACT

Telehealth has become an important strategy for improving healthcare access among elderly populations, particularly in rural communities where healthcare resources are limited. This article examines the various forms of telehealth services used in the management of elderly patients in selected communities of Ogbia Local Government Area, Bayelsa State. The paper discusses telehealth modalities such as video consultations, remote patient monitoring, mobile health applications, online medical consultations, digital medication reminders, and hybrid care models. Findings indicate that telehealth services enhance access to healthcare, improve chronic disease management, and promote continuity of care among elderly patients. However, challenges such as poor internet connectivity, limited digital literacy, and unstable power supply remain significant barriers to effective implementation. Strengthening telehealth infrastructure and promoting digital health education are essential for optimizing elderly care in rural settings.

Keywords: Telehealth, elderly patients, rural healthcare, telemedicine, Nigeria

INTRODUCTION

The global increase in the elderly population has intensified the demand for accessible and sustainable healthcare services. Elderly individuals often experience chronic illnesses, reduced mobility, and increased dependence on healthcare providers, making frequent hospital visits challenging (World Health Organization [WHO], 2023). In Nigeria, rural communities such as those in Ogbia Local Government Area of Bayelsa State face additional barriers, including inadequate healthcare infrastructure and shortage of skilled healthcare professionals.

Telehealth, defined as the delivery of healthcare services using information and communication technologies, offers a practical solution to these challenges. Telehealth enables healthcare providers to deliver care remotely, thereby improving access and reducing healthcare costs (Tuckson et al., 2017). Understanding the various forms of telehealth services available for elderly care is essential for developing effective healthcare models tailored to rural communities.

Forms of Telehealth Services for Elderly Patient Management

Video Conferencing and Virtual Consultations

Video conferencing allows real-time interaction between elderly patients and healthcare providers for diagnosis,

follow-up care, and health education. This modality reduces the need for physical hospital visits and supports timely medical intervention, especially for elderly patients with mobility limitations (Kruse et al., 2018).

Remote Patient Monitoring: Remote patient monitoring involves the use of digital devices to track vital signs such as blood pressure and blood glucose levels. This approach supports early detection of health complications and improves chronic disease management among elderly patients (Totten et al., 2016).

Mobile Health Applications: Mobile health applications provide services such as medication reminders, appointment scheduling, and health education. These applications promote self-management and adherence to treatment regimens among elderly patients, particularly when supported by caregivers (Free et al., 2013).

Online Medical Consultations: Online consultations enable healthcare providers to offer medical advice and follow-up care through digital platforms. This form of telehealth enhances continuity of care and supports multidisciplinary collaboration in elderly patient management (Dorsey & Topol, 2020).

Digital Medication Reminders: Digital reminders help elderly patients adhere to medication schedules, reducing missed doses and medication errors. Improved medication adherence has been associated with better health outcomes among older adults (Vervloet et al., 2012).

Hybrid Telehealth Care Model: The hybrid model combines telehealth services with periodic face-to-face consultations. This approach balances the benefits of remote care with the need for physical assessment, making it suitable for elderly patient management in rural settings (WHO, 2022).

Table 1: Various Forms of Telehealth Services Used for the Management of Elderly Patients in Selected Communities of Ogbia LGA

Telehealth Service Type	Description	Purpose in Elderly Care
Video Conferencing	Real-time audio-visual interaction between elderly patients and healthcare providers	Enables remote consultation, diagnosis, and follow-up care
Remote Patient Monitoring	Use of digital devices to track vital signs such as blood pressure and blood glucose	Supports early detection of health complications
Mobile Health Applications	Smartphone-based health tools for reminders and health education	Improves medication adherence and self-management
Online Medical Consultations	Digital platforms for health advice and counseling	Enhances access to professional healthcare services
Digital Medication Reminders	Automated alerts via mobile phones or apps	Reduces missed doses and medication errors
Hybrid Telehealth Model	Combination of telehealth and physical hospital visits	Ensures comprehensive and continuous elderly care

Table 2: Perceived Benefits of Telehealth Services for Elderly Patient Management

Benefit	Description
Improved Access to Healthcare	Reduces need for long-distance travel to health facilities
Cost Reduction	Minimizes transportation and hospital visit expenses
Continuity of Care	Enables regular monitoring and follow-up
Early Detection of Health Issues	Supports timely intervention and treatment
Increased Patient Engagement	Encourages active participation in health management

Table 3: Challenges Affecting the Utilization of Telehealth Services Among Elderly Patients

Challenge	Effect on Telehealth Use
Poor Internet Connectivity	Limits real-time consultations
Unstable Power Supply	Disrupts digital device usage
Low Digital Literacy	Reduces ability to use telehealth tools
Cost of Devices	Limits access to smartphones and monitoring tools
Age-related Limitations	Visual and hearing impairments affect usability

Figure 1 Conceptual Framework of Telehealth Services for Elderly Patient Management

This figure illustrates the interaction between telehealth service types (video consultations, remote monitoring, mobile health applications, and digital reminders), healthcare providers, caregivers, and elderly patients. The framework demonstrates how telehealth services improve access to healthcare, promote continuity of care, and enhance health outcomes among elderly populations in rural communities.

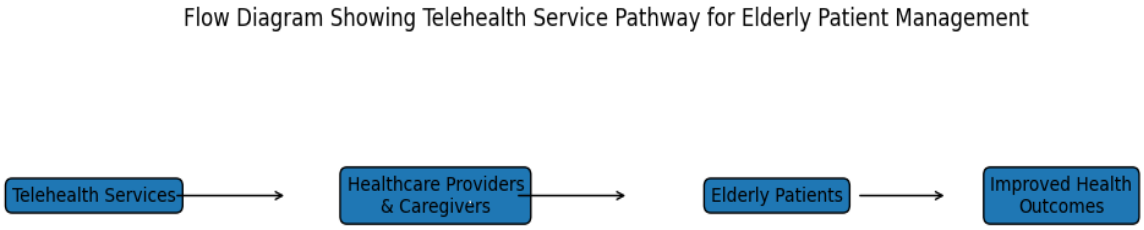


Figure 3 Providers & Caregivers → Elderly Patients → Improved Health Outcomes)

FIG 3: Flow Diagram Showing Telehealth Service Pathway for Elderly Patient Management

Figure 3 illustrates the flow of telehealth services from digital health platforms to healthcare providers and caregivers, who facilitate care delivery to elderly patients, ultimately leading to improved health outcomes.

Hybrid Telehealth Care Model for Elderly Patients in Ogbia LGA

This figure presents a hybrid care model combining telehealth services with periodic face-to-face hospital visits. It highlights how virtual consultations and remote monitoring complement physical assessments to provide comprehensive elderly care.

Hybrid Telehealth Care Model for Elderly Patients in Ogbia Local Government Area, Bayelsa State

Model Description

The Hybrid Telehealth Care Model integrates remote telehealth services with periodic physical healthcare facility visits to provide comprehensive and continuous care for elderly patients in Ogbia LGA. This model recognizes the importance of digital healthcare access while maintaining essential face-to-face clinical services.

Components of the Hybrid Telehealth Care Model

Telehealth Services (Remote Care)

- Video consultations with nurses and physicians
- Remote patient monitoring (blood pressure, glucose, symptoms)
- Mobile health applications for health education

- Digital medication reminders and follow-up alerts

These services provide routine monitoring, follow-up care, and health education without requiring frequent hospital visits.

Healthcare Providers and Caregivers

- Nurses, doctors, and community health workers
- Family members and informal caregivers

Healthcare providers deliver professional care through telehealth platforms, while caregivers support elderly patients in using digital tools and adhering to treatment plans.

Physical Health Facility Care (In-Person Care)

- Clinical examinations
- Laboratory investigations
- Emergency and acute care
- Referrals to specialists

Physical visits are scheduled when necessary to complement remote care and address conditions requiring direct clinical assessment.

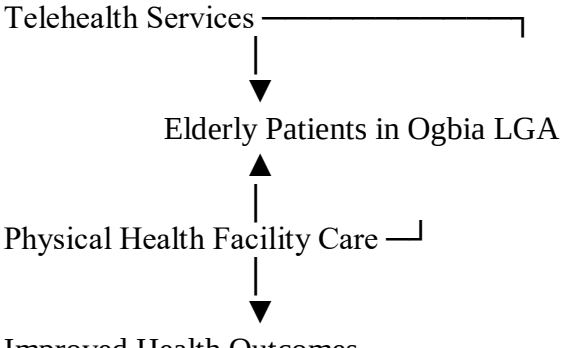
Elderly Patients in Ogbia LGA

Elderly patients are the central focus of the model. They receive both telehealth and facility-based care depending on their health needs, severity of illness, and access to digital resources.

Improved Health Outcomes

- Improved access to healthcare services
- Continuity and coordination of care
- Reduced unnecessary hospital visits
- Better management of chronic conditions
- Improved quality of life for elderly patients

Text-Based Flow Representation (You Can Convert to a Diagram)



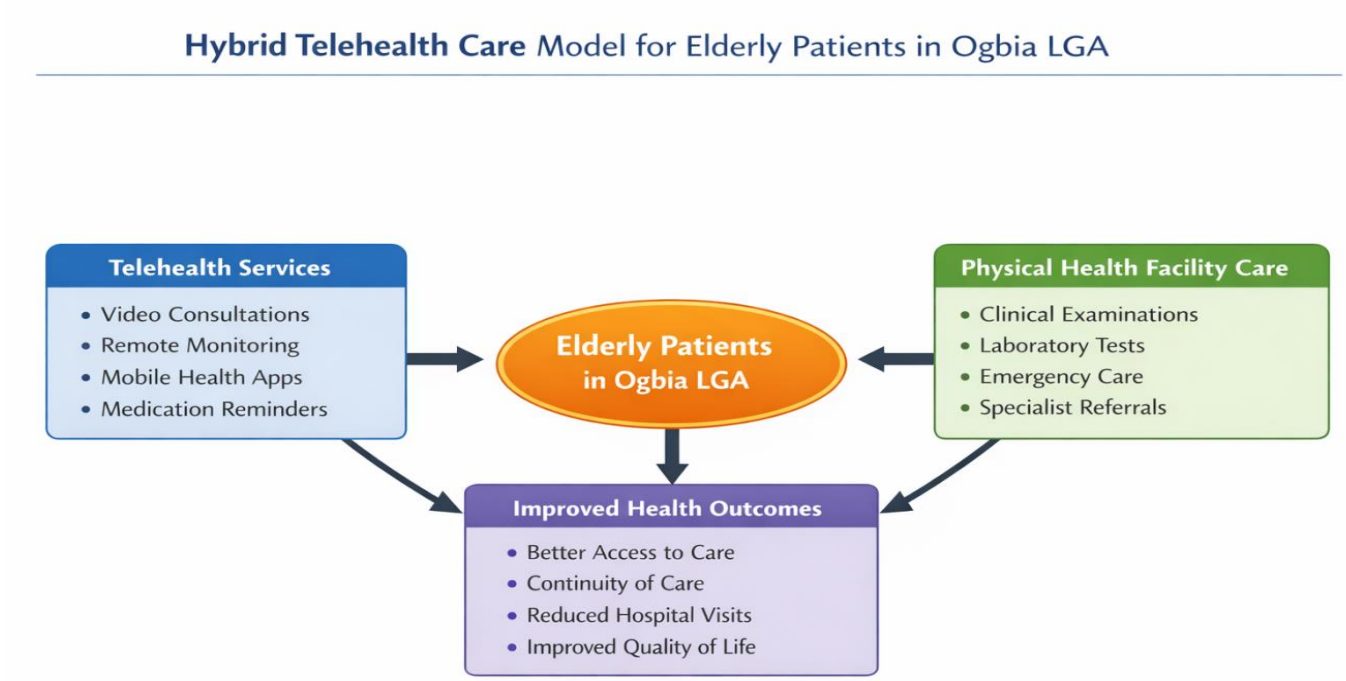


Figure 4. Hybrid telehealth care model illustrating the integration of telehealth services and physical healthcare facility visits for the management of elderly patients in Ogbia Local Government Area, Bayelsa State.“The hybrid telehealth care model combines remote telehealth services with periodic hospital visits. While telehealth supports routine monitoring and follow-up, physical visits are reserved for examinations and emergencies, ensuring comprehensive and patient-centered care for elderly persons in Ogbia LGA.”

Validation of the Hybrid Telehealth Care Model for Elderly Patients in Ogbia Local Government Area

The Hybrid Telehealth Care Model developed for the management of elderly patients in selected communities of Ogbia Local Government Area was subjected to a systematic validation process to ensure its relevance, feasibility, acceptability, and applicability within the study context. Model validation was necessary to confirm that the proposed framework adequately addressed the healthcare needs of elderly patients and aligned with existing healthcare delivery systems in the study area.

Model Development Stage

The initial model was developed based on empirical findings from the study, including data obtained from questionnaires and in-depth interviews with elderly patients, caregivers, and healthcare providers. The development process was also guided by a review of relevant literature on telehealth services and elderly care, as well as theoretical principles underpinning healthcare delivery. The model integrates telehealth services with physical healthcare facility visits to reflect the realities of healthcare access in rural communities of Ogbia LGA.

Expert Content Validation

Content validation of the model was carried out using a panel of experts drawn from relevant fields. The panel comprised community health nurses, medical doctors involved in geriatric care, public health professionals, and individuals with expertise in telehealth and digital health systems. The experts reviewed the model to assess the adequacy and relevance of its components.The experts evaluated the model based on clarity of presentation, relevance of components, feasibility of implementation, cultural appropriateness, and alignment with the healthcare needs of elderly patients. Their feedback was documented, and suggestions relating to the structure, flow, and practicality of the model were incorporated into subsequent revisions.

Face Validation

Face validation was conducted to determine the comprehensibility and acceptability of the model among intended users. Selected elderly patients, caregivers, and community health workers were shown the pictorial

representation of the hybrid telehealth care model. Participants were asked to comment on the ease of understanding, perceived usefulness, and practicality of the model within their community setting. Feedback obtained during this stage indicated that the model was easy to understand and considered appropriate for improving access to healthcare services among elderly patients.

Pilot Testing of the Model

Following expert and face validation, the revised model was pilot-tested in selected communities within Ogbia LGA. The pilot testing involved the application of telehealth services alongside physical healthcare facility visits on a limited scale. Elderly patients received routine follow-up care through telehealth platforms, while physical visits were reserved for clinical examinations, laboratory investigations, and emergency care.

The pilot test assessed accessibility, usability, and integration of telehealth services with existing healthcare structures. Challenges encountered during implementation, such as network connectivity and digital literacy issues, were noted and addressed in refining the model.

Reliability and Consistency Assessment

The reliability of the model was assessed by examining the consistency of service delivery and outcomes across users during the pilot phase. Feedback from healthcare providers and caregivers indicated that the model supported continuity of care and produced consistent healthcare interactions when applied under similar conditions. This demonstrated the stability and reliability of the model in managing elderly patients.

Stakeholder Review and Final Validation

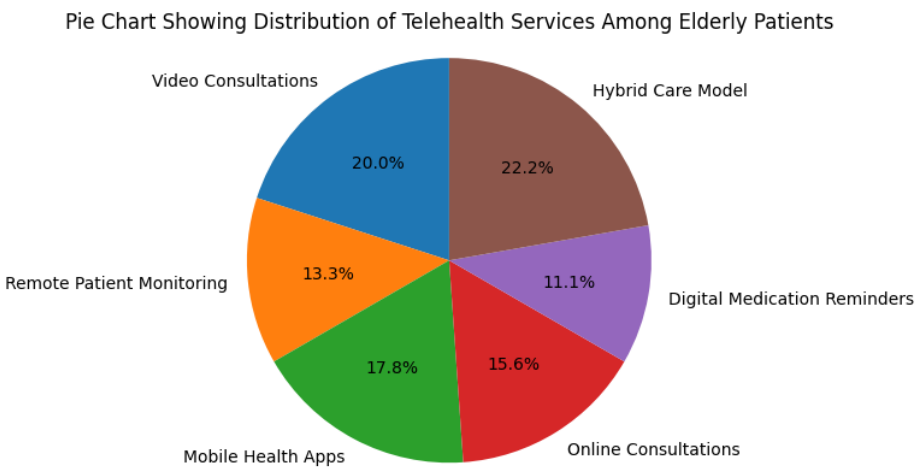
A stakeholder review was conducted to enhance the acceptability and sustainability of the model.

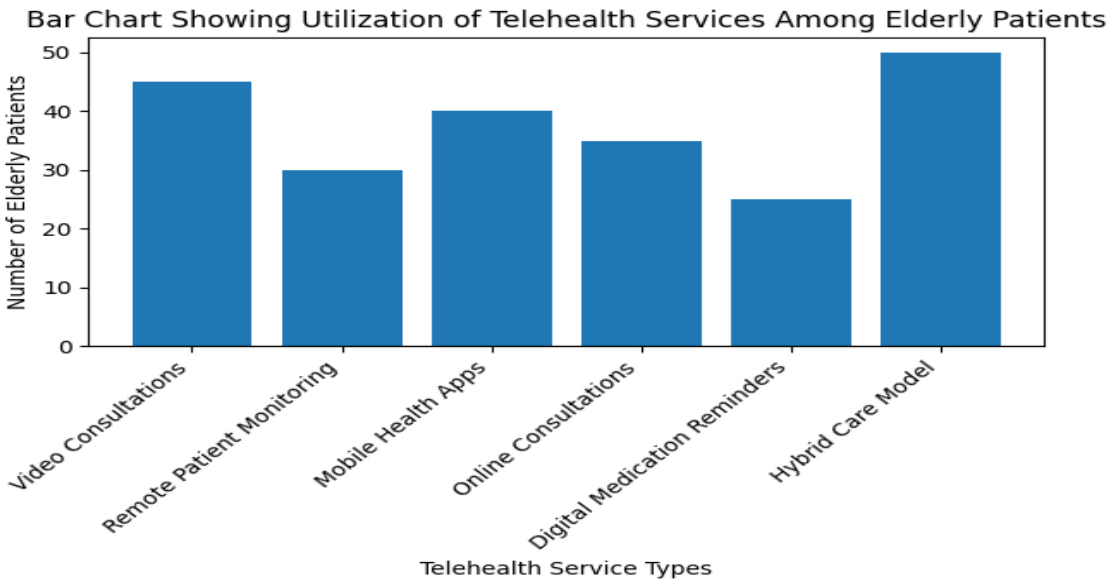
Stakeholders included healthcare administrators, community leaders, healthcare providers, and representatives of elderly groups within the study area. The stakeholders reviewed the refined model and reached a consensus on its suitability for adoption within Ogbia LGA.

Based on the outcomes of expert validation, face validation, pilot testing, and stakeholder review, the model was refined and finalized. The final validated Hybrid Telehealth Care Model was therefore considered appropriate, feasible, and contextually relevant for managing elderly patients in selected communities of Ogbia Local Government Area, Bayelsa State.

Distribution of Telehealth Service Utilization Among Elderly Patients

Description: This figure illustrates the relative use of different telehealth services, with video consultations and mobile health applications being the most frequently utilized, followed by remote patient monitoring and digital medication reminders





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