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**Effect of Telemedicine Adoption on Patient Satisfaction among  
Rural Communities in Kenya**

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## Effect of Telemedicine Adoption on Patient Satisfaction among Rural Communities in Kenya



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### Abstract

**Purpose:** To aim of the study was to analyze the effect of telemedicine adoption on patient satisfaction among rural communities in Kenya.

**Methodology:** This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

**Findings:** Findings show that telemedicine adoption significantly improves patient satisfaction among rural communities in Kenya by increasing access to healthcare services and reducing travel time and costs. It enhances communication between patients and healthcare providers, leading to faster consultations and better continuity of care. However, challenges such as poor internet connectivity and limited digital literacy still limit full satisfaction in some rural areas.

**Unique Contribution to Theory, Practice and Policy:** Technology acceptance theory, diffusion of innovation theory & SERVQUAL theory may be used to anchor future studies on the effect of telemedicine adoption on patient satisfaction among rural communities in Kenya. Training programs should be implemented for healthcare workers to improve digital literacy, communication skills, and competence in using telemedicine tools. Policy frameworks should prioritize rural and underserved communities to reduce health inequities and improve access to quality healthcare services.

**Keywords:** *Telemedicine Adoption, Patient Satisfaction, Rural Communities*

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## INTRODUCTION

Patient satisfaction refers to the degree to which patients perceive that their healthcare needs, expectations, and preferences are met by healthcare providers and health systems. It is widely used as an indicator of healthcare quality because it reflects communication effectiveness, responsiveness, accessibility, and overall patient-centered care. In developed economies, patient satisfaction has improved steadily due to investments in digital healthcare systems, advanced medical technologies, and improved healthcare staffing. In the United States, studies indicate that over 72% of patients reported satisfaction with healthcare communication and physician responsiveness, while the United Kingdom recorded increasing patient confidence in National Health Service (NHS) outpatient services between 2018 and 2022. Similarly, Japan has maintained relatively high patient satisfaction levels due to universal healthcare coverage, although waiting time remains a challenge for many patients (Xesfingi & Vozikis, 2016; Elleuch, 2008).

Research from developed economies further demonstrates that patient-centered communication strongly influences healthcare outcomes and trust in medical systems. In the USA, patient satisfaction scores increased significantly in hospitals implementing patient-centered care models, with surveys showing approximately 80% positive ratings among chronic disease patients between 2019 and 2023. In Japan, comparative studies revealed that American patients generally reported higher satisfaction levels than Japanese patients, especially regarding physician interaction time and waiting periods. In the United Kingdom, NHS patient surveys showed that nearly 68% of patients were satisfied with primary healthcare services despite post-pandemic healthcare pressures. These trends indicate that developed nations continue to prioritize patient experience as a key healthcare performance indicator (Kurata, 1994; Xesfingi & Vozikis, 2016).

In developing economies, patient satisfaction is increasingly recognized as a major determinant of healthcare utilization and treatment adherence. Countries such as India and Nigeria have experienced improvements in patient satisfaction due to healthcare reforms, expansion of insurance coverage, and investments in hospital infrastructure. Studies conducted in developing countries indicate that patient satisfaction levels range between 55% and 70%, depending on service accessibility, provider attitude, and affordability of care. Research in Nigeria found that long waiting times and inadequate staffing reduced patient confidence in public healthcare facilities, while private hospitals generally reported higher satisfaction scores. In India, healthcare digitization and telemedicine initiatives implemented after the COVID-19 pandemic contributed to gradual improvements in patient experiences and reduced dissatisfaction related to healthcare access (Xesfingi & Vozikis, 2016).

Despite these improvements, developing economies continue to face major barriers that affect patient satisfaction trends. Limited healthcare funding, shortages of qualified healthcare personnel, and overcrowded facilities remain persistent challenges in many developing countries. Evidence from comparative healthcare studies shows that patients in developing economies are more likely to express dissatisfaction with waiting times, medicine availability, and communication quality compared to patients in developed nations. However, countries introducing community-based healthcare interventions and mobile health services have reported modest increases in satisfaction levels over the last five years. Healthcare researchers argue that improving provider-patient

communication and expanding healthcare financing are essential for sustaining patient satisfaction improvements in developing economies (Xesfingi & Vozikis, 2016).

In Sub-Saharan Africa, patient satisfaction has become an important measure of healthcare quality due to ongoing reforms aimed at strengthening primary healthcare systems. Studies show that approximately 66% of patients across Sub-Saharan African countries expressed favorable opinions regarding healthcare services, although satisfaction levels vary widely across countries and healthcare settings. Countries such as Kenya, Ghana, and South Africa have made progress in improving patient experiences through patient-centered communication and healthcare accessibility initiatives. For instance, a Kenyan study published in 2024 found that patient-centered communication significantly improved satisfaction scores among patients with chronic illnesses receiving long-term treatment. However, many healthcare systems in the region continue to struggle with inadequate staffing, poor infrastructure, and shortages of medical supplies, negatively affecting patient experiences (Ogaji, 2015; Sirera, 2024).

Recent evidence suggests that patient experience research in Sub-Saharan Africa remains underdeveloped compared to developed regions, despite growing recognition of its importance in healthcare quality assessment. Most studies in the region focus primarily on patient satisfaction rather than broader patient experience indicators such as dignity, responsiveness, and involvement in care decisions. Ethiopia and South Africa are among the few countries with relatively extensive patient experience studies, while many African countries still lack national patient satisfaction monitoring systems. Trends also indicate that patients in urban hospitals generally report higher satisfaction levels than those in rural healthcare facilities because of better staffing and equipment availability. As healthcare reforms continue across Sub-Saharan Africa, strengthening patient-centered care and improving healthcare responsiveness are expected to enhance patient satisfaction outcomes in the coming years (Kumah, 2023; Ogaji, 2015).

Telemedicine adoption refers to the extent to which healthcare institutions, healthcare professionals, and patients integrate digital communication technologies into healthcare delivery processes. It involves the use of video consultations, mobile health applications, remote patient monitoring systems, and electronic health platforms to provide medical services without requiring physical interaction between patients and providers. Four major dimensions of telemedicine adoption commonly identified in healthcare research include technological accessibility, healthcare provider readiness, digital literacy among patients, and quality of communication systems. Technological accessibility improves patient satisfaction by enabling faster access to healthcare services, especially for patients living in remote or underserved areas where physical healthcare facilities are limited. Similarly, healthcare provider readiness enhances patient satisfaction because trained healthcare workers can deliver timely, accurate, and patient-centered virtual care that improves trust and confidence in healthcare systems (Kruse, 2017; Gajarawala & Pelkowski, 2021).

Digital literacy among patients is another important determinant of telemedicine adoption because patients who can effectively use digital devices and telehealth applications are more likely to experience positive healthcare interactions. Studies indicate that patients with higher digital literacy levels report greater convenience, reduced healthcare costs, and improved communication with healthcare providers, all of which contribute positively to patient satisfaction. Additionally,

the quality of communication systems, including internet reliability, audio-visual clarity, and data security, significantly influences patient perceptions of telemedicine effectiveness and overall healthcare experiences. Research conducted in both developed and developing countries demonstrates that poor internet connectivity and technical disruptions reduce patient satisfaction, while efficient and secure telemedicine systems increase healthcare accessibility and treatment adherence. Therefore, successful telemedicine adoption depends on strengthening technological infrastructure, improving digital health skills, and enhancing provider competence to ensure sustained improvements in patient satisfaction outcomes (Monaghesh & Hajizadeh, 2020; Haleem, 2021).

### **Problem Statement**

The adoption of telemedicine has emerged as a significant strategy for improving healthcare delivery, particularly in rural communities where access to healthcare facilities and qualified medical personnel remains limited. In Kenya, rural populations continue to experience challenges such as long travel distances to health facilities, shortage of healthcare professionals, delayed treatment, and inadequate healthcare infrastructure. Although the Kenyan government and healthcare institutions have increasingly embraced telemedicine and digital health technologies, the level of adoption in many rural areas remains relatively low due to poor internet connectivity, limited digital literacy, high implementation costs, and lack of adequate technological infrastructure. Recent studies indicate that telemedicine has the potential to improve healthcare accessibility, reduce waiting time, and enhance communication between healthcare providers and patients, thereby positively influencing patient satisfaction. However, despite these potential benefits, there is still limited empirical evidence on the extent to which telemedicine adoption affects patient satisfaction among rural communities in Kenya, creating a significant research gap that necessitates further investigation (Monaghesh & Hajizadeh, 2020; Haleem, 2021).

Additionally, patient satisfaction remains a major indicator of healthcare quality and effectiveness in modern healthcare systems. Studies conducted in Kenya have shown that effective digital communication and patient-centered healthcare approaches significantly improve patient experiences and satisfaction levels in healthcare settings. Nevertheless, most rural healthcare facilities in Kenya still rely heavily on traditional face-to-face healthcare delivery methods, which limit timely access to specialized healthcare services and contribute to overcrowding in referral hospitals. While telemedicine services such as virtual consultations, mobile health applications, remote diagnosis, and electronic follow-up systems are gradually being introduced, evidence regarding their effectiveness in enhancing patient satisfaction among rural populations remains inadequate and inconsistent. Therefore, this study seeks to examine the effect of telemedicine adoption on patient satisfaction among rural communities in Kenya in order to provide evidence-based recommendations that can support healthcare policy formulation and improve healthcare service delivery in underserved regions (Sirera, 2024; Gajarawala & Pelkowski, 2021).

### **Theoretical Review**

#### **Technology Acceptance Theory**

Technology acceptance theory (TAM) was developed by Fred Davis in 1989 to explain how users accept and use new technologies. The theory emphasizes two major factors: perceived usefulness

and perceived ease of use, which influence users' willingness to adopt technology. In telemedicine research, TAM is relevant because rural patients are more likely to use telemedicine services if they perceive them as easy to use and beneficial in improving healthcare access. The theory helps explain how telemedicine adoption can enhance patient satisfaction through improved convenience, reduced travel costs, and timely healthcare services (Kamal, 2020).

### **Diffusion of Innovation Theory**

Diffusion of innovation theory (DOI) was originated by Everett Rogers in 1962 to explain how innovations spread within societies over time. The theory focuses on factors such as relative advantage, compatibility, complexity, trialability, and observability in influencing technology adoption. This theory is relevant to the study because telemedicine adoption in rural Kenya depends on how communities perceive its benefits compared to traditional healthcare systems. DOI explains that when telemedicine is viewed as effective, affordable, and compatible with community healthcare needs, patient satisfaction is likely to improve due to increased healthcare accessibility and responsiveness (Aashima et al., 2021).

### **SERVQUAL Theory**

SERVQUAL theory was developed by A. Parasuraman, Valarie Zeithaml, and Leonard Berry in 1988 to measure service quality and customer satisfaction. The theory identifies dimensions such as reliability, responsiveness, assurance, empathy, and tangibility as determinants of customer satisfaction. In relation to telemedicine, SERVQUAL helps assess how the quality of virtual healthcare services influences patient satisfaction among rural communities. The theory is applicable because reliable telemedicine systems, effective communication, and responsive healthcare providers can significantly improve patient experiences and satisfaction with healthcare services (Mason, 2022).

### **Empirical Review**

Gatetua (2022) determined the factors influencing telemedicine adoption among healthcare practitioners at Kenyatta National Hospital in Kenya. The purpose of the study was to assess how technological factors, organizational readiness, and healthcare workers' perceptions influenced telemedicine implementation. The researcher employed a mixed-methods research design involving questionnaires and interviews among clinicians and hospital administrators. The findings indicated that perceived usefulness and ease of use significantly influenced telemedicine adoption among healthcare providers. The study further established that telemedicine improved efficiency in healthcare delivery and enhanced patient access to medical consultation services. Healthcare workers reported that telemedicine reduced unnecessary hospital visits and improved communication between patients and doctors. However, the study identified poor internet connectivity and inadequate digital skills as major barriers affecting telemedicine utilization. The findings also showed that patients in remote areas experienced improved healthcare accessibility through virtual consultation services. The study observed that telemedicine contributed to increased patient satisfaction due to reduced travel costs and shorter waiting times. Gatetua (2022) concluded that telemedicine could significantly improve healthcare outcomes if properly implemented. The researcher recommended increased investment in digital infrastructure in healthcare institutions across Kenya. The study also suggested regular training programs for

healthcare workers to improve digital competency in telemedicine usage. Additionally, the study emphasized the need for supportive government policies to facilitate telemedicine integration in public hospitals. The research contributed to understanding the importance of digital healthcare systems in improving patient experiences in Kenya. The study is relevant to the current research because it highlights the relationship between telemedicine adoption and patient satisfaction in healthcare delivery systems.

Ndeda, Wamalwa, and Chepsiror (2025) investigated whether telemedicine technologies improved healthcare accessibility and patient experiences among mothers and children in rural communities. The researchers used a descriptive survey research design targeting patients and healthcare providers utilizing telemedicine services in the hospital. Data was collected through questionnaires and structured interviews involving healthcare workers and patients receiving maternal healthcare services. The findings revealed that telemedicine significantly reduced patient waiting time and increased access to specialized healthcare professionals. Patients reported higher satisfaction levels because telemedicine improved communication and reduced transportation challenges associated with physical hospital visits. The study further established that telediagnosis improved healthcare follow-up services for expectant mothers and children living in remote areas. However, the research identified unstable internet connectivity and limited digital literacy among patients as major barriers to effective telemedicine implementation. The researchers found that patients who frequently used telemedicine services expressed greater confidence in healthcare delivery systems. The study concluded that telemedicine adoption positively influenced patient satisfaction and healthcare service efficiency in rural healthcare settings. The researchers recommended expansion of telemedicine infrastructure in county hospitals across Kenya. The study also suggested increased government support in funding digital healthcare technologies in rural healthcare facilities. Furthermore, the researchers emphasized the importance of training healthcare workers and patients on telemedicine usage. The study recommended collaboration between healthcare institutions and telecommunication companies to improve internet accessibility in rural communities. The findings are relevant to the current study because they demonstrate how telemedicine adoption contributes to patient satisfaction among rural populations in Kenya.

Mutiso (2025) assessed the impact of digital communication technologies on patient satisfaction in public hospitals in Kenya. The purpose of the study was to synthesize existing empirical evidence on how telemedicine and related digital health tools influence healthcare service delivery. The study reviewed ten peer-reviewed articles published between 2017 and 2024 focusing on telemedicine platforms, SMS reminders, and mobile health applications. The findings revealed that digital communication significantly improved patient engagement and reduced missed hospital appointments. The review also showed that telemedicine enhanced access to healthcare services, particularly for patients in rural and underserved regions. Patients reported higher satisfaction due to improved communication with healthcare providers and faster response times. However, the study noted that inconsistent infrastructure and digital illiteracy limited the full benefits of telemedicine adoption. The review highlighted that healthcare workers who embraced digital tools improved patient follow-up and continuity of care. It further indicated that telemedicine reduced congestion in hospitals by enabling remote consultations. The study concluded that digital health technologies play a key role in improving patient satisfaction in Kenya's healthcare system. The researcher recommended strengthening national digital health

policies to support telemedicine expansion. It also suggested increased investment in ICT infrastructure across rural counties. The study emphasized the need for continuous training of healthcare workers on digital platforms. Additionally, it recommended integrating telemedicine into primary healthcare systems to enhance service delivery. The study is relevant to the current research as it demonstrates the link between telemedicine adoption and patient satisfaction in Kenya.

Kaigwa (2022) examined the acceptability of telepsychiatry implementation in Kenya with the aim of assessing patient and healthcare provider perceptions of virtual mental healthcare services. The purpose of the study was to evaluate whether telepsychiatry improves access to mental health services and patient satisfaction. The researchers used a cross-sectional survey design involving mental health practitioners and patients receiving psychiatric care. Data was collected through structured questionnaires assessing usability, accessibility, and satisfaction levels. The findings revealed that telepsychiatry significantly improved access to mental healthcare services in remote regions. Patients reported reduced travel costs and improved convenience when accessing psychiatric consultations. The study also found that healthcare providers experienced improved efficiency in managing patient cases through virtual platforms. However, challenges such as poor internet connectivity and lack of private spaces for consultations affected service delivery. The study showed that patients in rural areas were more satisfied with telepsychiatry compared to traditional in-person services. The researchers concluded that telepsychiatry enhances patient satisfaction and healthcare accessibility in underserved areas. They recommended expansion of digital mental health services across county hospitals in Kenya. The study also suggested increased investment in ICT infrastructure to support stable virtual consultations. Additionally, it recommended public awareness campaigns to improve acceptance of telemedicine in mental health services. The study emphasized the importance of integrating telepsychiatry into national healthcare systems. It is relevant to the current research as it demonstrates how telemedicine improves patient satisfaction in specialized healthcare services.

Onsongo (2023) investigated the utility and barriers of telemedicine adoption in healthcare delivery in Kenya. The purpose of the study was to evaluate the effectiveness of telemedicine in improving healthcare access and patient outcomes among medical practitioners. The study employed a semi-quantitative cross-sectional survey design among doctors practicing in Kenya. Data was collected using structured questionnaires focusing on telemedicine usage, satisfaction, and challenges. The findings indicated that telemedicine improved healthcare accessibility, especially for patients in remote and rural areas. Doctors reported improved patient follow-up and reduced hospital congestion due to virtual consultations. The study also found that telemedicine increased patient satisfaction through timely medical advice and reduced travel costs. However, barriers such as poor internet connectivity, lack of technical support, and limited digital training hindered effective implementation. The study revealed that younger healthcare professionals were more likely to adopt telemedicine compared to older practitioners. It concluded that telemedicine has a positive impact on patient satisfaction and healthcare efficiency in Kenya. The researchers recommended strengthening ICT infrastructure and providing continuous training for healthcare workers. They also suggested developing clear telemedicine policies to guide implementation in public hospitals. The study emphasized the importance of integrating telemedicine into routine healthcare services. It further recommended collaboration between government and private sector

stakeholders to enhance digital health systems. The study is relevant to the current research as it highlights the relationship between telemedicine adoption and patient satisfaction in Kenyan healthcare settings.

## **METHODOLOGY**

This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low-cost advantage as compared to field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

## **FINDINGS**

The results were analyzed into various research gap categories that is conceptual, contextual and methodological gaps

**Conceptual Gap:** The reviewed studies (Gatetua, 2022; Mutiso, 2025; Onsongo, 2023) largely conceptualize telemedicine adoption in terms of technological readiness, ease of use, and infrastructure availability, with limited integration of multidimensional patient satisfaction frameworks. Most studies focus on general outcomes such as efficiency, access, and reduced waiting time, without deeply conceptualizing patient satisfaction as a construct that includes emotional, psychological, and experiential dimensions of care. In addition, there is limited application of integrated models linking telemedicine adoption factors (such as digital literacy, system quality, and provider communication) directly to patient satisfaction outcomes in a unified conceptual framework. This creates a gap in understanding how different dimensions of telemedicine adoption interact collectively to influence patient satisfaction in rural healthcare settings. Therefore, a comprehensive conceptual model that connects technological, human, and system factors to patient satisfaction remains underdeveloped in the Kenyan context.

**Contextual Gap:** Although studies such as Ndeda (2025) and Kaigwa (2022) demonstrate that telemedicine improves access and satisfaction in specific healthcare areas like maternal health and mental health services, most evidence is limited to specialized or hospital-based settings. These studies do not fully capture broader rural community experiences across general healthcare services such as chronic disease management, primary care, and preventive health. Furthermore, the existing research tends to emphasize hospital-based users and healthcare providers, leaving out the perspectives of community-level rural populations who may have different levels of access, exposure, and satisfaction with telemedicine services. As a result, there is insufficient evidence on how telemedicine adoption affects patient satisfaction across diverse healthcare needs within rural communities in Kenya. This leaves a contextual gap in understanding telemedicine's effectiveness across different service areas in routine rural healthcare delivery.

**Geographical Gap:** Most of the reviewed studies are concentrated in specific regions such as Nairobi (Gatetua, 2022) and selected county referral hospitals like Bungoma (Ndeda, 2025), while national-level rural representation remains limited. There is a lack of comparative studies across multiple rural counties in Kenya that could provide a broader understanding of regional disparities in telemedicine adoption and patient satisfaction. Additionally, rural and hard-to-reach areas with poor infrastructure are underrepresented, despite being the primary target of telemedicine

interventions. Studies such as Onsongo et al. (2023) and Mutiso (2025) highlight national trends but still rely heavily on urban-based or healthcare professional perspectives rather than rural patient populations. This creates a geographical gap in evidence, limiting generalizability of findings to all rural communities in Kenya. Therefore, further research is needed to examine telemedicine adoption and patient satisfaction specifically within diverse rural settings across Kenya.

## **CONCLUSION AND RECOMMENDATIONS**

### **Conclusions**

Telemedicine adoption has emerged as a transformative approach to improving healthcare delivery, particularly in rural communities in Kenya where access to healthcare services remains limited. Evidence from existing studies shows that telemedicine enhances healthcare accessibility, reduces waiting time, lowers travel costs, and improves communication between patients and healthcare providers. These improvements collectively contribute to higher levels of patient satisfaction, especially among rural populations who often face geographical and infrastructural barriers to healthcare. However, the effectiveness of telemedicine is still constrained by challenges such as poor internet connectivity, limited digital literacy, inadequate infrastructure, and insufficient policy support. These barriers reduce the full realization of telemedicine's potential benefits in improving patient-centered care.

Overall, the findings suggest that telemedicine adoption has a positive and significant effect on patient satisfaction among rural communities in Kenya when properly implemented. Strengthening ICT infrastructure, enhancing digital skills among healthcare workers and patients, and developing supportive healthcare policies are critical for maximizing its impact. Additionally, integrating telemedicine into primary healthcare systems can help bridge existing healthcare gaps and promote equitable access to quality healthcare services. Therefore, with targeted investments and strategic implementation, telemedicine can play a vital role in improving healthcare outcomes and patient satisfaction in Kenya's rural health sector.

### **Recommendations**

#### **Theory**

Future research should develop and test integrated conceptual models that combine Technology Acceptance Theory, Diffusion of Innovation Theory, and service quality frameworks such as SERVQUAL to better explain the relationship between telemedicine adoption and patient satisfaction in rural settings. Current studies largely apply these theories independently, limiting a holistic understanding of how technological, behavioral, and service-quality factors interact. Researchers should also incorporate patient experience dimensions such as trust, perceived safety, and emotional comfort in telemedicine use to strengthen existing theoretical models. Additionally, longitudinal studies are recommended to examine how sustained telemedicine use influences patient satisfaction over time. This will improve theoretical generalization and deepen understanding of digital health adoption in low-resource rural contexts.

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### **Practice**

Healthcare institutions in rural Kenya should invest in improving digital infrastructure, including reliable internet connectivity, telemedicine platforms, and secure data systems to support effective service delivery. Training programs should be implemented for healthcare workers to improve digital literacy, communication skills, and competence in using telemedicine tools. At the patient level, community awareness campaigns should be conducted to increase acceptance and confidence in telemedicine services, especially among elderly and low-literacy populations. Hospitals should also integrate telemedicine into routine outpatient and chronic disease management services to reduce congestion and improve continuity of care. These practical steps will enhance service efficiency and improve patient satisfaction outcomes in rural healthcare settings.

### **Policy**

The Kenyan government should strengthen national e-health and telemedicine policies to provide clear guidelines on implementation, data security, funding, and interoperability across healthcare systems. Policy frameworks should prioritize rural and underserved communities to reduce health inequities and improve access to quality healthcare services. Increased budget allocation for digital health infrastructure should be considered at both national and county levels to support sustainable telemedicine expansion. Additionally, partnerships between the government, private sector, and telecommunication companies should be encouraged to enhance internet accessibility in rural areas. These policy interventions will ensure sustainable telemedicine adoption and improve patient satisfaction across rural communities in Kenya.

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