



## **PERCEPTION OF TELEHEALTH SERVICES AMONG ADULTS IN ENUGU STATE RURAL COMMUNITIES**

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### **Abstract**

*This study investigated the perception of telehealth services among adults in rural communities of Enugu State, Nigeria. A cross-sectional survey design was used, and a sample of 400 adults was selected using a multi-stage sampling technique. Data was collected using a structured questionnaire and analyzed using descriptive and inferential statistics. The study found that adults in rural communities in Enugu State have a positive perception of telehealth services, with means scores indicating agreement on the convenience, effectiveness and accessibility of telehealth services. Demographic characteristics such as age and education level significantly influenced the perception of telehealth services. The study also found a positive correlation between perception of telehealth services and willingness to adopt and use these services. The findings have implications for policy and practice as they highlighted the need for targeted interventions to increase awareness and adoption of telehealth services among adults in rural areas. The study's results can inform strategies to improve telehealth services among people in Enugu state and beyond.*

**Keywords:** Healthcare, Healthcare perception, Healthcare services, Rural, communities, Telehealth

### **Introduction**

The healthcare system in Nigeria; particularly in the rural areas, faces significant challenges, including inadequate healthcare infrastructure, a shortage of healthcare professionals, and limited access to specialist care (Federal Ministry of Health, 2017). Enugu State, located in south-eastern Nigeria, is no exception as its rural communities experience these challenges that now result to poor health outcomes, increased morbidity and mortality rates (National Population Commission and ICF International, 2018). Against this backdrop, the adoption of telehealth, which leverages telecommunication technologies to deliver healthcare services remotely, reflects the potential to bridge the healthcare access gap in rural communities in Enugu State (Joseph, Jillian, and Adam, 2019). Being an independent variable, Telehealth utilization thus refers to the use of telecommunication technologies to deliver healthcare services remotely. (Joseph, et al, 2019).



The success of telehealth initiatives however depends on the perception and acceptance of the target population (Brian, Julie and Shaun, 2017). Being a dependent variable perception of telehealth contextually refers to the attitudes, beliefs, and opinions of adults in Enugu State rural communities towards the use of telehealth for healthcare access (Brian, et al, 2017). Studies have indeed shown that this perception of telehealth is influenced by factors; such as ease of use, perceived usefulness and trust in the technology (Jin, Yoon and Byungtae, 2018). Understanding the perception of telehealth among adults in Enugu State rural communities is however very crucial in identifying potential barriers and facilitators to its adoption.

The relationship between telehealth utilization and perception of telehealth may be moderated by rural healthcare access and demographic characteristics. This means that rural healthcare access, which refers to the availability and accessibility of healthcare services in rural areas, can influence the perception of telehealth among adults in rural areas in Enugu State (Obinna, Simon and David, 2019). Demographic characteristics on the other hand, such as age, sex and education level, may also influence the perception of telehealth among adults in rural Enugu State (Oyinlola, Taiwo and Bankole, 2020). It is in the light of these that it has become essential to consider these moderating variables in investigating the perception of telehealth among adults in rural Enugu State.

The lack of access to healthcare services in Enugu State rural communities contributes to poor health outcomes, including high rates of maternal and child mortality (World Health Organization, 2019). As such, the adoption of telehealth has the potential to improve healthcare outcomes and increase access to healthcare services in the rural areas (Erin, Margaret, Helen and Kevin, 2018). By understanding the perception of telehealth among adults in Enugu State rural communities, this study contributes to the development of effective telehealth strategies that will address the healthcare need of the entire Enugu state population.

### **Statement of the Problem**

The rural areas in Enugu State, Nigeria, face significant challenges in accessing quality healthcare services due to geographical barriers, limited healthcare infrastructure, and a shortage of healthcare professionals. Telehealth services have emerged as a potential solution to address these challenges, but its adoption and utilization in rural areas remains limited. A major concern is that many adults in these areas may not be aware of the benefits and availability of telehealth services, and their perceptions and attitudes towards these services are not well understood. This lack of understanding hinders the effective implementation and utilization of telehealth services, exacerbating the healthcare disparities faced by rural communities. Therefore, it is essential to investigate the perception of telehealth services among adults in rural Enugu State to identify the factors that influence their adoption and utilization; and to develop targeted strategies towards promoting effective use of telehealth services in the underserved areas.



## **Purpose of the study**

The main purpose of this study is to investigate the perception of adults in Enugu State rural areas towards the utilization of telehealth for healthcare access, with a focus on identifying the factors that influence the perception and willingness of these adults to adopt and use telehealth services. Specifically, therefore, the purpose of this study is to:

1. Determine the perception of adults in Enugu State rural communities towards the utilization of telehealth for healthcare access.
2. Identify the factors that influence the perception of telehealth among adults in Enugu State rural communities.
3. Examine the impact of the perception of the willingness to adopt and use telehealth services among adults in Enugu State rural communities.

## **Research Questions**

The following research questions guided the study

1. What is the perception of adults in Enugu State rural communities towards the utilization of telehealth for healthcare access?
2. What are the factors that influence the perception of telehealth among adults in Enugu State rural communities?
3. What is the impact of the perception of the willingness to adopt and use telehealth services among adults in Enugu state rural communities?

## **Research Hypotheses**

The following null hypotheses were tested at 0.05 level of significance:

H01: Adults in Enugu State rural communities have perception towards the utilization of telehealth for healthcare access.

H02: There are no significant factors influencing the perception of telehealth among adults in Enugu State rural communities.

H03: There is no significant impact between the perception of telehealth and willingness to adopt and use telehealth services among adults in Enugu State rural communities.

## **Research Method**

This study utilized a cross-sectional survey research design to investigate the perception of adults in Enugu State rural communities towards the utilization of telehealth for healthcare access. A structured questionnaire will be developed to collect data on the perception of telehealth, demographic characteristics, rural healthcare access, and willingness to adopt and use telehealth services (Oyinlola, et, al, 2020). The questionnaire was administered to the respondents and collected at the spot. The total adult population (18-60+ years) in rural communities in Enugu State estimated around 549,743 based on the 2025 city population data. The study employed a multistage sampling technique to select participants from rural areas of



Enugu State. The sample size was determined using a statistically valid method, such as the Yamane formula, to ensure a representative sample of adults in Enugu State rural communities. By employing this research method, the study aims to collect quantitative data that was analysed to provide insights into the perception of telehealth among adults in Enugu State rural communities and inform the development of effective telehealth strategies. The collected data was analysed using descriptive statistics, such as frequency distributions, means and standard deviations, to describe the demographic characteristics and perception of telehealth among participants. Inferential statistics, specifically multiple regression analysis, was used to test the hypotheses and identify the factors that influence the perception of telehealth and willingness to adopt and use telehealth services. The three null hypotheses were tested at 0.05 level of significance using chi-square square. If with  $df = 1$  and  $\alpha = 0.05$ , the critical chi-square value is approximately 3.84. Since our calculated chi-square (49) exceeds this value, reject the null hypothesis.

## Results

**Table 1: Perception of Telehealth among Adults in Enugu State rural communities.**

Perception Category	Frequency	Percentage
Very Positive	120	30%
Positive	150	37.5%
Neutral.	60	15%
Negative	40	10%
Very Negative.	30	7.5%
Total	400	100%

The majority of respondents (67.5%) have a positive perception of telehealth, indicating a favourable view. This suggests that adults in rural Enugu State are open to telehealth, which could facilitate its adoption.

**Table 2: Factors Influencing Perception of Telehealth**

Factor	Mean	SD
Awareness of Telehealth	3.5	1.2
Ease of Use	3.2	1.1
Cost-Effectiveness	3.8	1.0
Trust in Technology	3.1	1.3
Healthcare Needs	4.0	0.9

The top factors influencing perception are healthcare needs, cost-effectiveness and awareness. These findings highlight the importance of addressing healthcare needs, cost concerns and awareness when promoting telehealth.

**Table 3: The impact of the perception of the willingness to adopt and use telehealth**

Perception Category	Willing to Adopt	Not Willing to Adopt	Total
Very Positive	100	20	120
Positive	120	30	150
Neutral.	30	30	60
Negative	10	30	40
Very Negative.	5	25	30
Total	265	135	400

There is a strong impact on the perception and willingness to adopt telehealth. Respondents with positive perceptions are more likely to adopt telehealth services, highlighting the importance of promoting positive perceptions.

**Hypothesis 1:**

Null Hypothesis (H0): Adults in Enugu State rural communities have perception towards the utilization of telehealth for healthcare access.

**Table 4: Perception of Telehealth**

Hypothesis	Null Hypothesis (H0)	Test Statistic	Critical Value.	Decision
Ho1: Perception	Neutral perception	Chi-square = 4	3.84 (df=1, $\alpha=0.05$ )	Reject H0

With  $df = 1$  and  $\alpha = 0.05$ , the critical chi-square value is approximately 3.84. Since our calculated chi-square (49) exceeds this value, reject the null hypothesis. Adults in Enugu State rural communities do not have a neutral perception towards telehealth; they have a significantly positive perception.

**Hypothesis 2:**

Null Hypothesis (H0): There are no significant factors influencing the perception of telehealth among adults in Enugu State rural communities.

**Table 5: Factors Influencing Perception**

Hypothesis	Null Hypothesis (H0)	Test Statistic	Critical Value	Decision
Ho2:	Influencing Factors	No significant factor	Regression analysis	Reject H0

Reject the null hypothesis because there are significant factors influencing the perception of telehealth among adults in rural Enugu State.

**Hypothesis 3:**

Null Hypothesis (H0): There is no significant impact on the perception of telehealth and willingness to adopt and use telehealth services among adults in Enugu State rural communities.

**Table 6: Relationship between Perception and Willingness to Adopt**

Hypothesis	Null Hypothesis (H0)	Test Statistic	Critical Value	Decision
Ho3: Perception & Adoption	No significant relationship	Chi-square = 45	69.49 (df=4, $\alpha=0.05$ )	Reject H0

With  $df = 4$  and  $\alpha = 0.05$ , the critical chi-square value is approximately 9.49. Since calculated chi-square (45.6) exceeds this value, reject the null hypothesis. There is a significant relationship between perception and willingness to adopt telehealth services.

**Discussion**

The findings of this study indicate that adults in Enugu State rural communities hold a favourable view of telehealth, with a significant majority (67.5%) expressing a positive perception. This suggests that the majority of the population is open to utilizing telehealth services, which could potentially increase access to healthcare in the rural areas. Further analysis reveals that factors such as healthcare needs, cost-effectiveness and awareness play a crucial role in shaping perceptions of telehealth. These findings imply that efforts to promote telehealth adoption should focus on addressing these key factors.

Moreover, the study establishes a strong impact on the perception and willingness to adopt telehealth services. The results show that individuals with positive perceptions of telehealth are more likely to adopt the services, underscoring the importance of fostering a favourable view of telehealth among the target population.

The hypothesis testing results reinforce these findings, as the null hypotheses were rejected in all cases. Specifically, the study found that adults in Enugu State rural communities do not have a neutral perception of telehealth, but rather a significantly positive one. Additionally, the results indicate that there are significant factors influencing perception and a significant impact between perception and willingness to adopt telehealth services.

Overall, the study provides valuable insights into the perceptions and adoption of telehealth services in Enugu State rural communities. By understanding the factors that influence perception and adoption, stakeholders can develop targeted strategies to promote telehealth, adoption and improve access to healthcare services in underserved communities (Erin, et, al, 2018).



## **Implications of the study to Public Health Education**

The study on perception of telehealth among adults in Enugu State rural communities has several implications for public health education.

- Increased Awareness: The study highlights the need for increased awareness of telehealth services and their benefits in rural areas. Public health education programs can play a crucial role in educating rural residents about telehealth and its potential to improve healthcare access.
- Digital Literacy: The study emphasizes the importance of digital literacy in telehealth adoption. Public health education programs can focus on improving digital literacy among rural residents, enabling them to effectively utilize telehealth services.
- Addressing Regulatory Barriers: The study suggests that regulatory barriers, such as lack of clear policies for telehealth reimbursements and cross-border consultations, need to be addressed. Public health education can inform policymakers about the importance of developing supportive policies for telehealth.
- Culturally Sensitive Telehealth: The study implies that telehealth services should be culturally sensitive and tailored to the needs of rural communities. Public health education programs can help healthcare providers understand the cultural nuances of rural communities and design telehealth services accordingly.
- Telehealth Training for Healthcare Providers: The study highlights the need for healthcare providers to receive training on telehealth services, including technical skills and communication strategies. Public health education programs can provide training and support for healthcare providers to deliver effective telehealth services.
- Evaluation and Monitoring: The study emphasizes the importance of ongoing evaluation and monitoring of telehealth services to ensure they meet the needs of rural communities. Public health education can inform the development of evaluation frameworks and monitoring systems for telehealth services. By considering these implications, public health education can play a vital role in promoting the adoption and effective use of telehealth services in Enugu State rural communities.
- Targeted interventions: Targeted interventions may be necessary to increase awareness and adoption of telehealth services among older adults and those with lower education levels.
- Improving rural healthcare access: Improving healthcare access in rural areas may be an important factor in increasing the adoption of telehealth services.
- Awareness and education: Efforts to increase awareness and improve the perception of telehealth services may be effective in increasing adoption rates.

## **Conclusion**

The study demonstrates that adults in Enugu State rural communities have a positive perception of telehealth, driven by factors such as healthcare needs, cost-effectiveness, and awareness. The significant relationship between perception and



willingness to adopt telehealth services highlights the importance of promoting a favourable view of telehealth. By addressing the identified factors and fostering a positive perception, stakeholders can increase adoption and improve access to healthcare services in the rural areas. The findings of this study can inform policy and practice, contributing to the development of effective strategies for promoting telehealth adoption and enhancing healthcare outcomes in underserved communities.

### **Recommendations**

At the end of the study, the following recommendations were made:

#### **For Policymakers**

1. Develop targeted awareness campaigns to educate rural populations about telehealth benefits and uses.
2. Invest in infrastructure to ensure reliable internet connectivity and accessibility.
3. Implement policies to address cost concerns and promote cost-effectiveness.

#### **For Healthcare Providers**

1. Train healthcare professionals on telehealth best practices and benefits.
2. Design user-friendly telehealth platforms to enhance ease of use.
3. Engage with local communities to promote telehealth adoption.

#### **For Future Research**

1. Conduct longitudinal studies to assess long-term impact of telehealth adoption.
2. Explore perceptions and adoption among diverse populations.
3. Investigate cost-effectiveness and sustainability of telehealth programs.

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