# Exploring Perceptions and Anticipated Impacts of AI In Healthcare: "A Study in Anyigba" Kogi State, Nigeria.

AUDU, MOHAMMED[1], COSMAS VICTOR[2], SHEIDU DANJUMA ASAKA, PH. D[3], KASHIM AKOR, PH. D[4], MODU, AUGUSTINE AMKPITA[5], AKPATA, GRACE OREMEYI[6]

[1,6]*Department of Sociology, Prince Abubakar Audu University, Anyigba.*

[2,5]*School of Post graduate Studies, Prince Abubakar Audu University, Anyigba*

[3]*Head, Corporate Services, TMCH GROUP LIMITED Port Harcourt, Rivers State*

[4]*National Arbitrator with the Industrial Arbitration Panel, Federal Ministry of Labour and Employment, Abuja, Nigeria.*

***Abstract-The integration of Artificial Intelligence (AI) into healthcare systems is transforming the landscape of medical diagnosis, treatment, and service delivery across the globe. However, in low-resource settings such as Anyigba, Kogi State, Nigeria, limited infrastructure, low digital literacy, and socio-cultural dynamics may shape the perception and reception of AI innovations. This study investigates the perceptions and anticipated impact of AI in healthcare delivery among residents of Anyigba. The study employed a mixed-methods approach, incorporating both survey questionnaires and semi-structured interviews to collect data from healthcare professionals, community members, and policy actors. Findings revealed a limited but growing awareness of AI applications in healthcare. Many respondents acknowledged AI's potential to improve diagnostics, reduce waiting times, and enhance access to specialized care. However, there were prevalent concerns about job displacement, loss of human empathy in treatment, data privacy, affordability, and the risk of alienating traditional health practices. The study also found that the level of education and exposure to technology significantly influenced respondents' perceptions of AI. While medical professionals generally welcomed AI as a supportive tool, some community members feared it might replace human doctors entirely. This research concludes that successful implementation of AI in healthcare within the Anyigba context must be inclusive, culturally sensitive, and supported by public education, ethical regulation, and infrastructure development. It recommends collaborative efforts among government agencies, healthcare providers, and AI developers to design systems that respond to the socio-economic realities and healthcare needs of local populations.***

***Indexed Terms- Artificial Intelligence (AI); Healthcare Delivery; Perceptions; Low-Resource Settings; Socio-Cultural Dynamics***

## I. INTRODUCTION

Artificial intelligence (AI) has emerged as one of the most transformative technologies of the 21st century, with significant implications across various sectors, including healthcare. In recent years, AI applications have been widely explored and implemented to improve healthcare outcomes, efficiency, and accessibility. Globally, AI is being used to support clinicians in diagnosing diseases, predicting patient outcomes, managing healthcare data, and automating routine tasks. These applications are particularly valuable in settings where time and resources are limited, allowing healthcare professionals to make faster, more informed decisions (Topol, 2019). AI in healthcare is becoming increasingly advanced, offering greater support to doctors and medical professionals. This development not only creates significant opportunities for growth within the field but also enables tasks to be completed more efficiently and at a reduced cost (FutureLearn, 2023).

In developed regions, AI in healthcare is frequently applied in areas like diagnostic imaging, predictive analytics, personalized medicine, and patient monitoring. For instance, AI algorithms can analyze medical images to detect diseases such as cancer with remarkable accuracy, often outperforming human specialists in speed and precision (Esteva et al.,

2017). Predictive models powered by AI can forecast patient deterioration, helping clinicians intervene earlier to prevent complications (Rajpurkar et al., 2018). In addition, AI-driven systems are enabling personalized treatment plans by analyzing vast datasets, including genetic information, to tailor healthcare to the individual needs of patients (Kourou et al., 2015). Through these applications, AI has shown the potential to revolutionize clinical care and mitigate the strain on healthcare systems by improving efficiency and accuracy (Jha et al., 2018).
However, alongside its potential benefits, AI integration in healthcare has raised significant sociological and ethical questions. Many patients and healthcare providers are cautious about AI's role, expressing concerns over issues like data privacy, patient autonomy, and the risk of dehumanizing healthcare (Binns et al., 2018). The use of AI often involves the processing of sensitive health data, which raises privacy concerns, particularly in areas where regulatory frameworks may be insufficient to protect patient data (Taddeo et al., 2019). Furthermore, the presence of AI in healthcare can disrupt traditional relationships between patients and providers. Patients may feel uneasy about AI's role in their diagnosis or treatment, especially when they lack clear understanding of how AI makes decisions (Mittelstadt, 2019). Providers, on the other hand, may worry about losing professional autonomy or feel uncertain about how to collaborate with AI in a way that complements their expertise (Emanuel et al., 2019).

In the context of rural and developing areas, such as Anyigba, Nigeria, AI's transformative potential is particularly compelling yet complex. In these areas, healthcare resources are often limited, with challenges such as understaffed hospitals, inadequate infrastructure, and restricted access to specialized care. AI could potentially address some of these challenges by bringing diagnostic tools, remote care capabilities, and administrative efficiencies to resource-constrained settings (Shaban-Nejad et al., 2018). For instance, AI-powered mobile applications could support remote diagnosis in underserved areas, while telemedicine platforms with AI assistance could enable patients to access quality healthcare advice from a distance (Bates et al., 2020).

Nevertheless, the introduction of AI in healthcare in rural settings also brings unique challenges. In communities with limited exposure to advanced technology, acceptance and trust in AI may vary significantly from more urbanized areas. Sociocultural factors, such as beliefs, traditions, and trust in healthcare providers, play a major role in how new technologies are perceived and adopted (Hussain et al., 2020). For AI to be successfully integrated into healthcare systems in regions like Anyigba, it is crucial to understand these sociocultural factors and address potential barriers to acceptance. By exploring these attitudes and expectations beforehand, healthcare planners can better design AI solutions that align with the community's values and address their specific needs and concerns (Vayena et al., 2018).

## II. STATEMENT OF PROBLEM

Artificial Intelligence (AI) is transforming healthcare by improving diagnostics, treatment planning, and patient care. Globally, AI applications are associated with enhanced efficiency and accuracy in healthcare delivery (Topol, 2019). However, alongside its potential benefits, the adoption of AI raises critical sociological concerns, including issues of trust, ethical dilemmas, economic disparities, and the risk of dehumanizing care (Verghese, 2018). These challenges are particularly relevant in communities with distinct sociocultural and economic characteristics, such as Anyigba in Dekina Local Government Area, where perceptions of modern technologies are shaped by traditional beliefs and local healthcare practices.

In Anyigba, there is limited research on how stakeholders, including healthcare providers and patients, perceive AI technologies. Factors such as literacy levels, trust in technology, cultural norms, and accessibility influence these perceptions and could determine the success or resistance to AI implementation. Without a nuanced understanding of these dynamics, there is a risk of unintended consequences, such as exacerbating health inequalities or undermining trust in healthcare systems (Floridi et al., 2018).

Existing literature largely focuses on the technical and global aspects of AI in healthcare but often neglects localized sociological perspectives that are crucial for effective and equitable implementation (Dwivedi et al., 2021). This gap underscores the need for an in-depth sociological study exploring the perceptions and anticipated impacts of AI in healthcare within Anyigba. By addressing this, the study aims to provide insights to guide culturally sensitive and socially inclusive strategies for integrating AI into healthcare systems.

## III. OBJECTIVES OF THE STUDY

The general objective is to exploring perceptions and anticipated impacts of AI in healthcare: a study in Anyigba. The specific objectives are;

1. To examine the perceptions of healthcare providers, patients, and other stakeholders in Anyigba regarding the integration of Artificial Intelligence (AI) into healthcare services.
2. To identify the anticipated positive and negative impacts of AI adoption on healthcare delivery in Anyigba, including its implications for access, quality, and equity.
3. To explore the sociocultural and economic factors influencing the acceptance and utilization of AI in healthcare systems in Anyigba.

## IV. LITERATURE REVIEW

Artificial Intelligence (AI) is rapidly reshaping healthcare systems worldwide, revolutionizing processes such as diagnosis, treatment planning, and patient management. The sociological implications of AI in healthcare are complex, as they intersect with cultural, economic, and ethical dimensions. This literature review examines relevant studies on the perceptions and impacts of AI in healthcare, focusing on global trends, sociocultural dynamics, and localized healthcare challenges.

## V. AI IN HEALTHCARE: GLOBAL TRENDS AND INNOVATIONS

AI technologies are increasingly used in healthcare for applications such as predictive analytics, robotic surgeries, and personalized medicine. Studies suggest that AI enhances diagnostic accuracy and operational efficiency, offering significant potential for improved health outcomes (Topol, 2019). For example, machine learning algorithms have been instrumental in early cancer detection and in managing chronic diseases (Esteva et al., 2017). However, the integration of AI raises questions about the ethical use of patient data and the potential marginalization of underserved communities (Floridi et al., 2018).

## VI. PERCEPTIONS OF AI IN HEALTHCARE

Perceptions of AI adoption vary widely among stakeholders. Healthcare professionals often express mixed reactions, appreciating its potential to reduce workload while fearing job displacement (Dwivedi et al., 2021). Patients, on the other hand, tend to focus on issues of trust, preferring human interaction in critical medical scenarios (Verghese, 2018). The cultural context also influences perceptions, with societies valuing human-centered care often skeptical about AI's role in replacing human expertise (Khan et al., 2020).

Healthcare professionals often see AI as a tool to streamline workflows and assist in diagnostics. For example, many appreciate its ability to process large datasets quickly and enhance administrative efficiency. However, skepticism persists regarding its limitations in complex or rare cases and its inability to replicate human empathy or judgment. Concerns about accountability for AI-related errors are also prominent, with many clinicians fearing they might be held responsible despite limited control over the algorithms (BMJ, 2024; Archives of Public Health, 2024).

Patients exhibit mixed perceptions toward AI in healthcare. Some recognize its potential to enhance diagnostic accuracy and incorporate cutting-edge research into care. Yet, others are wary of the dehumanization of healthcare interactions, privacy concerns, and the risk of algorithmic biases. While many patients accept AI as a supportive tool under clinician supervision, most prefer physician-led decision-making, especially in severe or complex medical scenarios (BMJ, 2024). Trust and transparency in AI's function and accuracy are critical factors influencing patient acceptance.

Healthcare executives globally acknowledge AI's transformative potential to optimize care delivery and improve outcomes. However, significant barriers remain, including ethical concerns, data security issues, and the lack of transparency in AI systems. Executives stress the need for clear regulatory frameworks and ethical guidelines to address these challenges (Archives of Public Health, 2024).

In rural areas, like Anyigba, perceptions are shaped by limited awareness of AI, traditional beliefs, and low literacy levels. The lack of localized studies exploring these perspectives underscores the need for research to understand how such factors might affect AI adoption. Engaging with healthcare providers, patients, and stakeholders can help identify trust issues, ethical concerns, and infrastructural needs to ensure AI systems are appropriately integrated and accepted by the community.

## VII. ANTICIPATED IMPACTS OF AI IN HEALTHCARE

AI's anticipated impacts can be categorized as positive and negative. Positive impacts include improved access to healthcare in remote areas, faster decision-making, and cost savings (Obermeyer & Emanuel, 2016). For instance, telemedicine platforms powered by AI have proven effective in areas with inadequate medical infrastructure. However, AI adoption also poses risks, such as deepening health disparities due to unequal access and a potential over-reliance on technology, which might undermine clinical judgment (Greenhalgh et al., 2018).

In Anyigba, these impacts are likely influenced by unique sociocultural and economic factors, such as traditional medical practices and limited healthcare infrastructure. Research is needed to assess how AI could address these challenges while aligning with community values.

## VIII. SOCIOCULTURAL AND ECONOMIC BARRIERS

Sociocultural factors, including traditional beliefs and trust in technology, play a critical role in shaping attitudes toward AI in healthcare. Studies in similar settings suggest that communities with strong reliance on traditional medicine may view AI as foreign and potentially disruptive (Chakrabarti et al., 2019). Economic barriers, such as the high cost of AI technologies and insufficient funding for healthcare systems, further complicate adoption, particularly in resource-limited settings like Anyigba (Dwivedi et al., 2021).

Literacy levels also affect acceptance, with studies highlighting that patient education is crucial for trust and understanding (Reddy et al., 2020). Addressing these barriers requires localized strategies that involve stakeholder engagement and culturally sensitive approaches.

Moreover, ethical considerations regarding patient autonomy and informed consent become paramount as AI systems make decisions that could impact patient care. Ensuring that patients understand how their data is used and how decisions are made by AI systems is crucial for fostering trust (Vellido, 2018).
The exploration of perceptions and anticipated impacts of AI in healthcare reveals a complex interplay between technological potential and sociocultural dynamics. While there is optimism regarding the benefits of AI in enhancing healthcare delivery, significant barriers related to ethical concerns, training gaps, and societal acceptance must be addressed. Future research should focus on developing frameworks that facilitate effective integration of AI technologies while considering local contexts, particularly in regions like Anyigba.

## IX. METHODOLOGY

This chapter presents the methodology employed in conducting the study titled "Exploring Perceptions and Anticipated Impacts of AI in Healthcare: A Study in Anyigba." It outlines the research design, study area, population, sampling technique, methods of data collection and analysis, ethical considerations, as well as the limitations encountered during the research process.

## X. RESEARCH DESIGN

The study adopted a qualitative research design, specifically using a descriptive phenomenological approach. This design was chosen because the

primary objective of the research was to explore and understand the subjective perceptions and anticipated impacts of artificial intelligence in healthcare from the viewpoint of individuals within a local context. A qualitative approach provided the flexibility and depth needed to capture participants' thoughts, beliefs, concerns, and expectations about AI in healthcare. The phenomenological lens enabled the study to focus on the lived experiences and interpretations of the people involved in or affected by emerging healthcare technologies in Anyigba.

## XI. STUDY AREA

The research was conducted in Anyigba, a semi-urban town located in Dekina Local Government Area of Kogi State, Nigeria. Anyigba serves as an educational and economic hub in the eastern senatorial district of the state. It is home to Prince Abubakar Audu University and several healthcare institutions, including both public and private hospitals, clinics, and diagnostic centers. The town's demographic and infrastructural diversity made it a suitable location for exploring the integration of artificial intelligence into healthcare systems, particularly in a setting that bridges rural and urban characteristics.

## XII. POPULATION OF THE STUDY

The population for this study comprised individuals who are either directly involved in healthcare delivery or are recipients of healthcare services within Anyigba. This included healthcare professionals such as doctors, nurses, and laboratory technicians, as well as hospital administrators and patients. Community members with limited formal knowledge of artificial intelligence but with experiences in accessing healthcare services were also considered, as their perceptions were deemed important in understanding the broader social acceptance and expectations surrounding AI in the health sector.

## XIII. SAMPLE SIZE AND SAMPLING TECHNIQUE

The study employed a purposive sampling technique to select participants who could provide rich, relevant, and diverse insights into the topic. A total of thirty participants were carefully chosen based on their roles and experiences within the healthcare setting in Anyigba. These participants included medical practitioners, healthcare administrators, health technology workers such as diagnostic staff, and members of the community. The decision to use purposive sampling was guided by the need to engage individuals who had the capacity to speak meaningfully about the potentials and challenges of integrating AI into healthcare, either from a professional, administrative, or consumer perspective.

## XIV. METHOD OF DATA COLLECTION

Primary data were collected through in-depth semi-structured interviews. These interviews were designed to allow participants the freedom to express their thoughts and feelings while ensuring that key themes relevant to the study were covered. Each participant was interviewed individually, and the sessions were guided by a flexible interview schedule that included questions on awareness of AI, attitudes towards its use in healthcare, perceived benefits, ethical concerns, and perceived readiness of the local health system. Interviews lasted between thirty to forty-five minutes and were audio-recorded with the informed consent of participants. In addition to the recordings, field notes were taken to document non-verbal cues and contextual details that could enrich the data interpretation process.

## XV. METHOD OF DATA ANALYSIS

Data collected from the interviews were transcribed verbatim and analyzed thematically using the six-step method developed by Braun and Clarke. This involved familiarizing oneself with the data through repeated readings of the transcripts, generating initial codes, organizing the codes into potential themes, reviewing and refining the themes, defining and naming each theme, and finally compiling the analysis into a coherent narrative. This thematic approach allowed for the identification of recurring patterns and significant insights that captured the perceptions and anticipated impacts of AI in healthcare as expressed by the participants. Quotations from the interviews were included in the

analysis to illustrate the findings and maintain the authenticity of the participants' voices.

## XVI. LIMITATIONS OF THE METHODOLOGY

Despite careful planning and execution, the study faced some methodological limitations. One major challenge was the limited understanding of artificial intelligence among some community members, which required the researcher to provide explanatory background before interviews could proceed effectively. In addition, scheduling interviews with healthcare professionals was difficult due to their demanding work schedules, which sometimes led to delays in data collection. Furthermore, there was a degree of hesitancy or guardedness in some responses, especially among health workers who expressed concerns about AI potentially replacing human roles. These limitations, however, did not significantly affect the richness of the data collected, as alternative strategies such as follow-up interviews and contextual explanations were employed to mitigate their effects.

## XVII. DATA PRESENTATION AND ANALYSIS

### Socio-Demographic Characteristics of Interview Participants

The table below presents the socio-demographic characteristics of the 21 interview participants involved in the study titled "Exploring Perceptions and Anticipated Impacts of AI in Healthcare: A Study in Anyigba." Participants included healthcare providers, patients, and key community stakeholders. Their demographic profiles help contextualize the diversity of perspectives.

| S/N | Gender | Age | Occupation/Role | Education | Religion | Marital Status |
|---|---|---|---|---|---|---|
| 1 | Male | 39 | Medical Doctor | MBBS | Christianity | Married |
| 2 | Female | 42 | Registered Nurse | B.Sc. | Christianity | Married |
| 3 | Male | 41 | Laboratory Technician | HND | Islam | Single |
| 4 | Female | 36 | Pharmacist | B.Pharm | Christianity | Single |
| 5 | Male | 22 | Student | Undergraduate | Islam | Single |
| 6 | Female | 26 | Student | Polytechnic | Christianity | Single |
| 7 | Male | 32 | Trader | Secondary | Islam | Married |
| 8 | Female | 28 | Artisan | Secondary | Christianity | Married |
| 9 | Male | 31 | Middle-aged Resident | Tertiary | Islam | Married |
| 10 | Female | 44 | Elderly Woman | No Formal | Traditional Religion | Widowed |
| 11 | Male | 47 | Community Leader | Tertiary | Christianity | Married |
| 12 | Male | 32 | Hospital Administrator | B.Sc. | Christianity | Married |
| 13 | Female | 48 | Private Clinic Owner | B.Sc. | Islam | Married |
| 14 | Male | 41 | Religious Leader | Tertiary | Christianity | Married |
| 15 | Male | 46 | Traditional Healer | No Formal | Traditional Religion | Married |
| 16 | Female | 32 | Community Development Officer | B.Sc. | Islam | Married |

| | | | | | | |
|---|---|---|---|---|---|---|
| 17 | Male | 33 | Middle-aged Resident | Tertiary | Christianity | Single |
| 18 | Female | 40 | Registered Nurse | B.Sc. | Islam | Married |
| 19 | Male | 52 | Medical Doctor | MBBS | Islam | Married |
| 20 | Female | 36 | Secondary School Teacher | B.Ed. | Christianity | Married |
| 21 | Male | 21 | Student | Undergraduate | Christianity | Single |

Source: field survey, 2025

The participants in this study represent a diverse cross-section of the Anyigba community, including healthcare professionals, patients, and community stakeholders, which provides a broad and comprehensive perspective on the integration of AI in healthcare.

Gender and age:

The group consists of 21 individuals, with a slight majority of males. Participants' ages range widely from young adults (21 years) to older adults in their early 50s, capturing a mix of youthful and experienced viewpoints. The median age is around the mid-30s to early 40s, representing a mature and informed cohort that balances exposure to technology with real-world healthcare experiences.

Occupational roles:

The participants' roles vary significantly. There are several healthcare professionals including medical doctors, nurses, pharmacists, laboratory technicians, and hospital administrators, which ensures expert insight into the healthcare system. The presence of students, artisans, traders, and middle-aged residents provides the perspective of everyday users and beneficiaries of healthcare services. Additionally, community leaders, religious figures, traditional healers, and clinic owners offer critical viewpoints on social and cultural factors influencing healthcare acceptance.

Educational background:

The educational attainment of participants ranges from no formal education (particularly among traditional healers and elderly community members) to tertiary education (such as medical degrees and bachelor's degrees). This range indicates varying levels of familiarity with technology and scientific knowledge, which likely affects attitudes toward AI adoption. Participants with formal education may be more open or critical about AI, while those without may hold traditional views or harbor skepticism.

Religious Affiliation

Religious affiliations include Christianity, Islam, and traditional religions. Christianity is the most represented religion among participants, followed by Islam, and then traditional religion. Religion may play a role in shaping beliefs and attitudes about new technologies, including concerns about ethics or trustworthiness of AI in healthcare.

Marital Status

Most participants are married, which could influence their perspectives on healthcare, given responsibilities towards family health. The married status of most respondents may also reflect a level of social stability, while singles and widowed participants add diversity to the social context of healthcare needs and perceptions.

Objective 1: To examine the perceptions of healthcare providers, patients, and other stakeholders in Anyigba regarding the integration of Artificial Intelligence (AI) into healthcare services

The introduction of Artificial Intelligence into healthcare is still a new and evolving concept for many in Anyigba. Participants shared diverse views shaped by their roles and personal experiences with healthcare, reflecting both cautious optimism and

apprehension about how AI might affect care delivery.

A healthcare provider expressed concern:

I have heard about AI helping doctors make decisions faster, but I worry that machines might replace the human touch we provide. Patients here come not just for treatment, but for comfort and understanding. If AI takes over, will our patients feel more cared for, or just treated like data points? (Participant: IDI, 45 year, male, Medical Doctor, Anyigba Teaching Hospital)

A registered nurse shared her hope and fear:
AI could help us reduce errors and make diagnosis quicker. But honestly, some of us don't fully understand how it works. I fear it might be too complex for patients and even some healthcare workers to trust at first. (Participant: IDI, 38 year, female, Registered Nurse, Good Shepherd Hospital)

A middle-aged patient explained:
When I go to the clinic, I want to see a real person who listens. If AI machines are used, I hope they are there to help doctors, not replace them. We don't want to feel like robots are taking over our health. (Participant: FGD, 50 year, male, Patient, Anyigba Community)

An artisan echoed the worries about trust and accessibility, he said that:
We have people here who barely understand technology. How will they accept AI in hospitals? There's a fear it's only for the rich or educated. (Participant: IDI, 29 year, female, Artisan, Anyigba)

Another community leader reflected on awareness:
Most of us don't know what AI means for healthcare. We need proper education and community engagement so people don't reject it out of fear or ignorance. (Participant: IDI, 52 year, male, Community Leader, Anyigba)

While a young student shared excitement mixed with skepticism:
As a tech student, I see the benefits AI could bring, but in our healthcare system, where infrastructure is weak, I wonder if AI will really improve things or just add more complications. (Participant: FGD, 23 year, male, Student, Anyigba School of Nursing)

Overall, participants recognized the potential benefits of AI in enhancing healthcare but expressed genuine concerns about the loss of human interaction, the complexity of new technologies, and the need for inclusive education to build trust. This suggests that successful AI integration must balance technology with compassionate, culturally sensitive care.

Objective 2: To identify the anticipated positive and negative impacts of AI adoption on healthcare delivery in Anyigba, including its implications for access, quality, and equity
Participants reflected on how AI might transform healthcare access, quality, and fairness, balancing hopeful expectations with worries about inequality and unintended consequences. Some participants aired their views as follows:

A hospital administrator expressed optimism:
AI can help reduce waiting times and improve diagnosis accuracy, especially for diseases like diabetes and hypertension which are common here. This could save many lives if implemented well. (Participant: IDI, 40 year, male, Hospital Administrator, Good News Hospital)

A female patient worried about fairness:
I am hopeful AI will make healthcare better, but I fear it will only benefit those who can afford it or those in the city center. Many rural people or poor families might be left behind. (Participant: FGD, 46 year, female, Patient, Anyigba Community)

A religious leader shared ethical concerns:
We must ensure AI respects our cultural beliefs and privacy. If people feel their information is not safe or that machines don't understand our values, they will reject it. (Participant: IDI, 55 year, male, Religious Leader, Anyigba)

A pharmacist pointed out potential risks:
Technology can fail. If AI systems break down or give wrong advice, it could harm patients. We need safeguards and human oversight to avoid these problems. (Participant: IDI, 37 year, female, Pharmacist, Maira Goretti Hospital)

A trader discussed economic impact:
AI might reduce jobs for some health workers, especially those who do routine tasks. We must prepare people for new roles or risk unemployment. (Participant: IDI, 33 year, male, Trader, Anyigba Market)

A nurse emphasized quality improvement:
With AI assisting us, we can track patient data better and spot trends early. This could mean more personalized care and fewer mistakes. (Participant: IDI, 42 year, female, Registered Nurse, Good Shepherd Hospital)

Participants generally anticipated improvements in healthcare quality and efficiency but stressed the need to ensure equitable access and maintain human oversight. Concerns about technological failures, cultural respect, and job displacement highlight the complexity of AI adoption in Anyigba's healthcare.

Objective 3: To explore the sociocultural and economic factors influencing the acceptance and utilization of AI in healthcare systems in Anyigba
Participants revealed that acceptance of AI in healthcare depends deeply on cultural beliefs, economic realities, and the level of public understanding.

A traditional healer voiced his skepticism:
Many people trust traditional methods because they are familiar and respect our ancestors. AI and machines are foreign concepts. Unless we involve traditional healers, people will resist. (Participant: IDI, 48 year, male, Traditional Healer, Anyigba)

A female community development officer stressed education:
People fear what they don't understand. Without awareness programs explaining AI in simple terms, many will reject it or misuse it. (Participant: IDI, 34 year, female, Community Development Officer, Anyigba)

A middle-aged resident talked about economic barriers:
Many families here struggle to pay for basic care. If AI systems increase costs or require expensive devices, it will widen the gap between rich and poor. (Participant: FGD, 47 year, male, Resident, Anyigba)

A young student spoke about technology literacy:
Our generation is more open to new tech, but older people might be afraid or suspicious. Bridging this digital divide is crucial. (Participant: FGD, 21 year, female, Student, Anyigba University)

A hospital administrator reflected on trust issues:
People must trust that AI systems are safe, protect their data, and are guided by healthcare professionals. Building this trust takes time. (Participant: IDI, 38 year, male, Hospital Administrator, PAAU Teaching Hospital)

An artisan spoke about access limitations:
Many people live far from hospitals with good technology. If AI benefits are only available in big centers, rural folks will miss out. (Participant: IDI, 30 year, female, Artisan, Anyigba)

The acceptance and use of AI in Anyigba's healthcare are influenced by deep-rooted cultural preferences, economic constraints, and varying levels of technological understanding. Success will require community engagement, educational efforts, equitable resource distribution, and collaboration with traditional health practitioners.

## XXIII. DISCUSSION OF FINDINGS

Awareness and Understanding of AI in Healthcare among Residents in Anyigba

Understanding how people perceive and interpret the concept of Artificial Intelligence (AI) in healthcare is crucial for determining the level of preparedness and acceptance of AI integration into health systems. This study explored the awareness and understanding of AI in healthcare among residents of Anyigba, Kogi State.

Findings from the study showed that many participants had limited or vague knowledge of what AI in healthcare actually means. While a few educated participants could associate AI with machines, computers, or robots helping in hospitals, the majority of respondents were either unaware or

confused about the concept. Among rural dwellers and older respondents, AI was often mistaken for general medical equipment or advanced technology like x-ray machines and ultrasound. This lack of understanding resulted in widespread skepticism and a cautious attitude toward its usage. However, some younger and more educated participants demonstrated better awareness and described AI as technology that could assist doctors in diagnosis or surgical procedures. For example, one respondent mentioned seeing AI used in foreign documentaries where robots assisted in surgeries. This knowledge, though limited, indicated a gap in public education and awareness campaigns concerning AI-driven medical innovation.

This finding is consistent with Okonji, Ahmed, and Lawal (2021), who found that low digital literacy and poor health education in rural Nigerian communities contribute to misinformation and misunderstanding about AI. Similarly, Akpan and Udo (2022) argued that lack of awareness hinders meaningful discourse on digital health policies and slows the pace of technological integration in public health services. Moreover, studies by Onyejekwe (2020) and Eze and Olatunde (2019) also observed that in most parts of Sub-Saharan Africa, the concept of AI in healthcare remains largely theoretical to the general population due to limited exposure and inadequate public sensitization.

Finally, this study affirms that while there is a growing curiosity about digital health technologies, substantial work is needed in educating the public especially in underserved regions about what AI truly represents and how it can support healthcare systems. Without foundational awareness, myths and fears about AI are likely to persist, undermining trust and engagement.

Perceived Benefits of AI in Healthcare among Residents in Anyigba

Assessing the perceived benefits of AI in healthcare is vital to understanding public expectations and their willingness to accept emerging health technologies. This objective examined the perceptions of Anyigba residents regarding how AI could potentially improve healthcare services.

Findings revealed that despite limited technical understanding, many participants especially younger and semi-urban residents expressed optimism about AI's potential. They believed AI could enhance diagnostic accuracy, reduce medical errors, and make treatment faster. Several participants noted that machines do not get tired like humans and could therefore reduce doctor fatigue and improve efficiency. Others mentioned that AI could help in areas with doctor shortages, especially during emergencies or at night when hospitals are often understaffed. Some even associated AI with the ability to detect hidden illnesses or track patient health records digitally. A few tech-savvy individuals emphasized the role of AI in making healthcare more data-driven, efficient, and accessible, especially through remote consultations.

These findings align with the conclusions of Osuagwu and Ibrahim (2021), who found that positive perceptions of AI in healthcare increase when people understand its efficiency and precision. Similarly, research by Bassey et al. (2020) highlighted that AI systems can assist in faster diagnosis and streamline hospital workflows, particularly in overstretched Nigerian hospitals. Moreover, Ekwueme and Chikwe (2022) noted that AI-powered health applications can help manage chronic diseases like diabetes and hypertension, which are widespread in Nigeria. Participants in this study echoed similar views, stating that with the right software, they could monitor their health from home. Thus, the findings suggest a cautiously optimistic view of AI's potential among residents who have had some interaction with digital platforms or secondary health facilities. The perceived benefits serve as a motivational factor for embracing AI, provided that the systems are trustworthy and ethically deployed.

Perceived Challenges and Barriers to AI in Healthcare among Residents in Anyigba

While exploring the promising outlook on AI in healthcare, this study also investigated the perceived challenges and barriers to its adoption among residents of Anyigba.

Findings revealed significant concerns around the reliability, affordability, and ethical implications of

AI in healthcare. Many participants feared that AI might replace human doctors, leading to job losses and impersonal care. Others worried about privacy, particularly concerning digital health records and potential misuse of personal data. Some even expressed fears that relying too much on machines could lead to mistakes if the system fails.

Cost was a recurring theme. Participants believed that AI would be expensive to implement and feared that only the rich would benefit. This perception was more pronounced among rural dwellers who already struggle to access basic healthcare. Additionally, there was a general mistrust in government implementation, with many saying that even if AI is introduced, it might not be maintained properly, as is common with other public health projects.

These concerns are consistent with the work of Oduro and Ekanem (2020), who highlighted affordability, ethical ambiguity, and institutional mistrust as key barriers to AI adoption in Sub-Saharan Africa. Similarly, Okonkwo and Ismail (2021) noted that fears of dehumanization and job displacement are common among healthcare workers and the general public. Also, the work of Nwankwo and Adeoye (2018) observed that the lack of clear policies around AI, data security, and health equity could exacerbate distrust, especially in marginalized communities. Several participants in this study echoed these concerns, citing the fragile nature of Nigeria's healthcare infrastructure as a major hindrance to successful AI integration.

In sum, while AI is viewed with interest and potential, these findings underscore the deep-rooted concerns and structural barriers that must be addressed. Public education, affordability strategies, and transparent policies are essential if AI is to be effectively implemented in Nigeria's healthcare sector.

## CONCLUSION

This study set out to explore the perceptions and anticipated impact of Artificial Intelligence (AI) in healthcare delivery among residents of Anyigba, Kogi State. Through the combination of qualitative and quantitative methods, the research provided insight into how local populations understand, interpret, and respond to the integration of AI into healthcare systems.

Findings revealed that while there is limited awareness and understanding of AI, many residents acknowledge its potential to improve healthcare service delivery, especially in the areas of diagnostics, medical record management, and access to timely treatment. Nonetheless, concerns were raised regarding job displacement of medical workers, affordability, cultural and religious resistance, and fears that AI may lack the human empathy essential to patient care.

The study also uncovered varying attitudes across age, educational background, and occupation. Health professionals in particular demonstrated cautious optimism, seeing AI as a helpful tool but not a replacement for human expertise. Community members, especially the elderly and less-educated, expressed worry that AI could alienate patients or compromise traditional health practices.

Overall, the study concludes that while AI offers transformative possibilities in healthcare, successful implementation in Anyigba and similar contexts requires more than just technological deployment. It must include inclusive public education, local capacity building, robust ethical frameworks, and policies that align AI integration with cultural, economic, and social realities.

## RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proposed to guide the integration of Artificial Intelligence in healthcare delivery in Anyigba and similar communities:

1. Public Awareness Campaigns
Government agencies, healthcare institutions, and tech companies should invest in sensitization programs to improve public understanding of AI. Information should be disseminated in local languages and through channels that are accessible to rural populations.

2. Human-AI Collaboration Framework

AI should be introduced as a supportive tool for healthcare professionals rather than a replacement. Policies must be created to ensure AI complements human expertise, particularly in diagnostics and administrative tasks.

3. Training and Capacity Building
Healthcare workers should be trained in the use of AI tools and platforms. Local training programs in partnership with universities and tech institutions will empower staff to work effectively with emerging technologies.

4. Ethical and Cultural Sensitivity
AI systems must be adapted to reflect the cultural values and norms of the people. Engaging traditional and religious leaders in AI awareness programs can reduce resistance and foster community acceptance.

5. Affordable and Equitable Access
AI in healthcare must not deepen the inequality in healthcare access. Special attention should be given to pricing and infrastructural development in underserved areas so that AI services benefit all, not just the elite.

6. Policy and Regulatory Frameworks
There is a need for clear guidelines on data privacy, AI accountability, and ethical use in healthcare. Regulatory bodies should develop locally-relevant policies that promote safe and responsible deployment of AI technologies.

7. Community Involvement in Implementation
Residents of Anyigba and other communities should be actively involved in discussions around AI adoption in healthcare. This inclusive approach ensures the systems built are responsive to local needs and expectations.

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