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Clinician Perceptions of Artificial Intelligence in Healthcare and Frameworks for Ensuring Safe Integration into Clinical Practice of the West African College of Physicians: A Multi-Country Mixed-Methods Study

Benjamin S. Chudi Uzochukwu
University of Nigeria
Yakubu Joel Cherima
Center for Artificial Intelligence Accountability in Health
Ugo Uwadiako Enebeli
doctorenebeli@yahoo.com

Federal University of Technology Owerri
Chinyere Cecelia Okeke
University of Nigeria
Adaora Chinelo Uzochukwu
University of Nigeria
Amobi Omoha
David Umahi Federal University of Health Sciences
Blessing Hassan
Center for Artificial Intelligence Accountability in Health
Emmanuel Majiyebo Eronu
University of Abuja
Shehu Mohammed Yusuf
Ahmadu Bello University
Kennedy Anenechukwu Uzochukwu
Center for Artificial Intelligence Accountability in Health

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Abstract

The integration of artificial intelligence (AI) into clinical practice holds significant promise for improving diagnostic accuracy, reducing medical errors, and enhancing healthcare efficiency, particularly in resource-constrained settings. However, successful adoption depends heavily on clinicians' perceptions, trust, and concerns regarding autonomy, reliability, and safety. Empirical evidence on West African physicians' views remains limited, despite unique regional challenges like infrastructure deficits and workforce shortages. This study aimed to assess clinicians' perceptions of AI in healthcare, identify factors influencing willingness to adopt AI tools, and explore recommended frameworks for safe, accountable integration into clinical practice across West Africa. A cross-sectional survey of 136 physicians affiliated with the West African College of Physicians and 72 key informant interviews were conducted. While 85.3% agreed that AI could improve diagnostic accuracy and 83.1% believed it could reduce errors, 77.9% perceived AI as a threat to clinical autonomy, and 67.6% rated AI information as unreliable. Despite low prior AI experience (only 33.1% had used AI tools) and limited familiarity, 94.1% expressed willingness to use AI if proven effective. Trust in AI was the strongest predictor of adoption willingness ($\beta = 0.48$, $p < 0.001$), with prior use also significant ($\beta = 0.21$, $p = 0.03$). Younger clinicians (0–10 years' experience) showed higher willingness than those with 20 + years (mean scores 4.5 vs. 4.1, $p < 0.05$). Qualitative findings highlighted AI's potential as a cognitive partner for decision support, error reduction, and administrative relief but raised major concerns about over-reliance, skill erosion, workflow disruption, and accountability. Clinicians emphasised three core requirements for trust: transparency and explainability, local validation in similar populations, and clear governance with defined accountability mechanisms. West African clinicians recognise AI's potential benefits but exhibit low current trust and significant autonomy concerns, driven by limited experience, perceived unreliability, and contextual barriers. Willingness to adopt was highly conditional on proven effectiveness. Safe integration of AI requires frameworks prioritising transparency, local validation, clinician-centred design, robust governance (preferably independent oversight), infrastructure investment, and AI literacy in medical training. These findings guide contextually appropriate AI policies and implementation strategies to enhance patient safety and care quality in West Africa.

Clinical trial number: Not applicable.

BACKGROUND

The use of artificial intelligence (AI) in clinical practice is a landmark in healthcare delivery. It improves the accuracy of diagnoses, the planning of treatments, the making of clinical decisions, and the overall performance of the health system.[1,2] AI is being used increasingly in many areas of healthcare around the world, including medical imaging, pathology, predictive analytics, and clinical decision support. Recent studies indicate that these applications can significantly enhance efficiency and patient outcomes.[3,4]

However, as noted by some authors, the successful integration and utilisation of AI in healthcare will largely depend on doctors' perspectives, trust in AI, and its acceptance.[5,6] This is because health technologies are mostly used and controlled by doctors. Therefore, their willingness to use AI tools, trust in AI-generated recommendations, and understanding of the limitations of AI will all have a direct effect on whether these technologies are used, how they are integrated into clinical workflows, and whether they will ultimately lead to better patient care.[7,8] Resistance from clinicians in developed countries is as a result of concerns about trust, accountability and autonomy issues, and these are largely responsible for a good number of barriers to AI integration.[9,10]

Adoption of AI in West African healthcare systems has its own difficulties that could influence how doctors see AI compared to systems with more resources. Health systems in the region encounter significant resource challenges, including insufficient healthcare personnel, inadequate diagnostic equipment, unreliable electrical supply, and unstable internet connections.[11,12] These contextual aspects create both imperatives for AI adoption, as a potential means for task-shifting and quality enhancement, and considerable implementation constraints that may influence physicians' perceptions and interactions with AI technology.[13,14]

While there is a growing body of international literature on AI adoption, empirical research regarding physician perspectives of AI in West African contexts is still limited.[15,16] It is important to understand these views. For example, health system characteristics affect how people adopt technology in different ways, which means that results from high-income nations may not be directly relevant to the West African context.[17,18] It is also important to know what West African doctors know and want and what information they require to create effective implementation strategies, training programmes, and governance frameworks.[19,20] They also need to be able to examine new AI tools and discover possible faults, especially those that will compromise patient safety. The level of knowledge and perspectives of AI systems determines these skills.[21,22]

The concept of "AI assurance" - that is, the systematic processes and structures required to ensure that AI systems are safe, dependable, accountable, ethically sound, and compliant with therapeutic standards - has garnered significant global attention.[23,24] The criteria for effective AI assurance in resource-constrained environments remain insufficiently defined, and there is limited direction on how West African health systems should evaluate, regulate, and monitor AI tools both before and after implementation.[25,26] Clinicians are crucial partners in the development of these frameworks, as their own experiences and concerns must inform the establishment of governance systems that are both robust and practically effective.[27,28]

This study filled in these gaps in the evidence by looking at what doctors in West Africa think about AI in healthcare settings, what factors affect its use, and what doctors recommend to make sure it is safely integrated. This aims to create strategies for using AI that are appropriate for the situation and will improve, not hurt, patient safety and quality of care.

Research Questions:

1. What do West African doctors think about using AI in healthcare?
2. What factors make clinicians more likely to accept and use AI tools in West African healthcare settings?
3. What do clinicians think are the frameworks that need to be in place to make sure that AI is used safely, reliably, and with accountability in clinical practice?
4. How do clinician perceptions of AI differ across facility types (tertiary, secondary, and primary), medical specialties, and levels of experience?

MATERIALS AND METHODS

Study design and study area

This cross-sectional mixed-methods study included a structured, self-administered questionnaire to assess the attitudes of West African professionals regarding artificial intelligence in healthcare and a qualitative exploration through key informant interviews (KII). The study was conducted in the West African subregion. Data was gathered from February 22 to February 28, 2026.

Study Population and Sampling

The target group comprised physicians affiliated with the West African College of Physicians (WACP), the principal institution for postgraduate medical education in the sub-region. The membership of this college covers both the Anglophone, Francophone, and Lusophone countries of the subregion. Most of the WACP fellows and members work in Nigeria; however, they can work in any West African country. This is because the college was started there and has a lot of students. A convenience sampling method was used with the college's current communication channels to find willing participants. Any physician listed in the WACP contact database during the study period was eligible for inclusion. The study sought to capture a comprehensive spectrum of physician perspectives from the sub-region, imposing no restrictions on specialty, years of experience, or practice environment.

Sample size determination

A mixed-methods approach was employed. For the quantitative phase, a cross-sectional survey was administered to physicians of the West African College of Physicians. The sample size was calculated on the WinPepi sample size calculator, version 11.65,[29] to estimate the primary outcome (e.g., 'positive perception of AI utility') with a 95% confidence level, a 5% acceptable difference, and a 10% non-response rate. Using an assumed proportion of 92% (0.92) positive perception of AI utility from a previous study,[30] the initial sample size was 126. This was rounded up to 136 for more precision.

Data Collection

For the survey, the questionnaire had four parts: demographic and professional information (age, gender, country of practice, practice setting (primary/secondary/tertiary facility), specialty, years of clinical experience, and previous exposure to AI (familiarity and experience)); perceptions of AI in clinical practice (perceived benefits, concerns about autonomy, trust in AI-generated information, and perceived reliability). The 5-point Likert scale was used for scoring, with 1 being “strongly disagree” and 5 being “strongly agree”. The 5-point Likert scale was also used to rate how willing people were to use AI (how ready they were to use AI tools in different clinical situations) and how they wanted AI to be monitored and regulated (the bodies they wanted to do this, with options like independent bodies, government agencies, professional colleges, and vendors).

The questionnaire was pre-tested with 12 WACP-affiliated physicians (not included in the final sample) from diverse specialties and experience levels to assess clarity, completion time, and comprehension. Minor wording adjustments were made based on feedback. Internal consistency of multi-item Likert scales (perceptions of benefits, concerns, and willingness) was evaluated post-data collection using Cronbach's alpha, with values ranging from 0.78 to 0.89, indicating acceptable to good reliability. Content validity was ensured through iterative expert review by the research team (including senior clinicians and AI specialists) during questionnaire development, drawing on established domains from prior AI healthcare perception studies. To prevent multiple entries from the same participant, the ODK link was designed for single-use submission, with built-in validation rules and skip logic to minimize data-entry errors.

The Open Data Kit (ODK) platform was used for data collection. This is an open-source program that enables data collection, both online and offline, in regions where resources are scarce. The ODK was chosen because it works well in West Africa, where internet availability is quite diverse from country to country, and it has been used successfully in health research in the past. The ODK-based questionnaire with a link was sent through the WACP communication methods, like email and WhatsApp. The questionnaire took 15 to 20 minutes to complete. No personally identifiable information was collected, ensuring the anonymity of participants. To gain informed consent electronically, the first page of questions had to be filled out and agreed upon before moving on.

For the qualitative study, a key informant interview (KII) approach was employed that enabled the exploration of complex phenomena, including perceptions, concerns, and recommendations regarding AI governance, clinical integration, and medical education, that cannot be adequately captured through quantitative methods alone. There was a total of 72 key informants’ interviews. The respondents were key stakeholders in the West Africa health space whose professional roles and expertise positioned them to produce authoritative perspectives.

Each interview lasted less than 60 minutes using a semi-structured interview guide. All interview responses were captured through the online data collection platform, which recorded verbatim text entries for each open-ended question. This approach eliminated transcription errors associated with

audio recording and transcription while ensuring complete capture of participant responses. For quality assurance purposes, all entries were reviewed for completeness and clarity within 24 hours of submission.

Data Analysis

The survey data from ODK was downloaded as Excel and exported into SPSS version 29 (IBM Corp., Armonk, NY, USA).[31] The descriptive statistics (frequencies, percentages, means, and standard deviations) were computed for each variable. Cronbach's alpha was used to determine if multi-item scales were consistent with each other. Values greater than 0.70 were considered acceptable.

Initially, the relationships between demographic and experiential characteristics were determined, as well as the desire to employ AI using t-tests. The ANOVA was used for inferential analysis. Factors exhibiting significant correlations ($p < 0.10$) were included in a multivariate linear regression model to forecast the propensity to employ AI. The regression model included previous AI experience (binary), familiarity with AI (Likert scale), trust in AI information (Likert scale), perceived danger to autonomy (Likert scale), years of experience (categorical), and facility type (categorical). The cutoff for statistical significance was set at $p < 0.05$ (two-tailed). Missing data was minimal across survey items (< 1% per variable, primarily in optional demographic fields) and was handled using listwise deletion for all inferential analyses (assumed missing completely at random given the low rate and random pattern observed). The sample's demographic distribution (e.g., predominant Nigerian representation) aligns broadly with WACP membership patterns.

The thematic analysis of the qualitative data was conducted using the framework approach described by Braun and Clarke.[32] This method was selected for its flexibility and suitability for identifying, analysing, and reporting patterns within qualitative data, particularly when working with policy-relevant research questions. Analysis proceeded through several stages, namely, data familiarisation, initial coding, framework development and application of framework. The final coding framework was systematically applied to all 72 transcripts using qualitative data analysis software NVivo version 14.[33]

RESULTS

Quantitative Results

Respondents' Characteristics

The survey link was distributed through the West African College of Physicians (WACP) email and WhatsApp channels to all eligible physicians between 22 and 28 February 2026. A total of 137 physicians accessed the link, resulting in 136 complete responses included in the analysis after the exclusion of one participant who declined consent. Table 1 presents the demographic characteristics of the sample. The majority of respondents were from Nigeria (84.6%), with smaller representations from

Ghana (5.9%), Liberia (3.6%), Togo (2.9%), Niger (1.5%), and Côte d'Ivoire (1.5%). Gender distribution was balanced (51.5% female, 48.5% male). The largest age group was 35–44 years (30.1%), followed by 45–54 years (26.5%). One-third of respondents (33.0%) had over 20 years of clinical experience.

Table 1
Demographic characteristics of survey respondents

Demographic Variables	Category	Frequency	Percent
Country	Nigeria	115	84.6
	Ghana	8	5.9
	Liberia	5	3.6
	Togo	4	2.9
	Niger	2	1.5
	Cote d’Ivoire	2	1.5
Gender	Female	70	51.5
	Male	65	47.8
	Prefer not to say	1	0.7
Age group	25–34	26	19.1
	35–44	41	30.1
	45–54	36	26.5
	55–64	21	15.4
	65+	11	8.1
	Prefer not to say	1	0.7
Clinical Experience (Years)	0–5	15	11.0
	6–10	27	19.9
	11–15	27	19.9
	16–20	22	16.2
	20+	45	33.0

Clinician familiarity and prior AI experience

Table 2 presents findings on West African clinicians' self-reported familiarity with AI and prior experience using AI clinical tools. While a combined 73.5% reported being “somewhat/moderately familiar” with AI, only 19.1% considered themselves “highly familiar” or “experts”. Critically, half of respondents (52.2%) had never used an AI clinical tool, and another 14.7% were unsure whether they had.

Table 2
Clinician familiarity and experience with AI

Variable	Category	Frequency	Percent (%)
Familiarity with AI	Not familiar	10	7.4
	Somewhat familiar	34	25.0
	Moderately familiar	66	48.5
	Highly familiar	18	13.2
	Expert	8	5.9
Prior Use of AI Tool	Yes	45	33.1
	No	71	52.2
	Not Sure	20	14.7

Core perceptions of AI in clinical practice

Table 3 shows that 77.9 percent indicated that they agree or strongly agree that AI threatens their clinical autonomy. A smaller portion, 10.3 percent, remained neutral on this issue, while 11.8 percent expressed disagreement. As high as 94.1% agreed that they would use AI if proven effective. Only 4.4 percent were neutral on this question, and a mere 1.5 percent disagreed. Regarding the potential of AI to reduce medical errors, 83.1 percent of those surveyed agreed or strongly agreed that AI could serve this function. 11.0 percent took a neutral stance, and 5.9 percent disagreed. Finally, when considering whether AI could improve diagnostic accuracy, 85.3 percent of respondents expressed agreement. 8.8 percent were neutral, and again, 5.9 percent disagreed with the statement.

Table 3
Core perceptions of AI in clinical practice

Perception Statement	Agree/Strongly Agree (%)	Neutral (%)	Disagree/Strongly Disagree (%)
AI threatens my clinical autonomy	77.9	10.3	11.8
I would use AI if proven effective	94.1	4.4	1.5
AI can help reduce clinical errors	83.1	11.0	5.9
AI can improve diagnostic accuracy	85.3	8.8	5.9

Perceived reliability of AI information

Table 4 presents data on the perceived reliability of AI information, showing both the frequency and percentage of responses across four categories. For the category “Very reliable”, 8 respondents reported this perception, representing 5.9 per cent of the total. For "Somewhat reliable”, 28 respondents are recorded, accounting for 20.6 percent. The table also groups responses indicating a negative perception under “Unreliable”, which totals 92 respondents, or 67.6 percent. This category is further divided into two subcategories: "Somewhat unreliable”, with 46 respondents and 33.8 percent, and "Very unreliable”, also with 46 respondents and 33.8 percent. Finally, 8 respondents are recorded in the "Neutral / Not sure" category, representing 5.9 per cent.

Table 4
Perceived reliability of AI information

Reliability Rating	Frequency	Percentage (%)
Very Reliable	8	5.9
Somewhat Reliable	28	20.6
Somewhat Unreliable	46	33.8
Very Unreliable	46	33.8
Not Sure	8	5.9

Willingness to use AI by clinical experience level

Table 5 compares willingness scores between clinicians with different levels of experience. The table demonstrates significant variation in adoption willingness by clinical experience. Younger/less experienced clinicians (0–10 years) show significantly higher openness to AI adoption (mean = 4.5) compared to their most senior colleagues with 20 + years’ experience (mean = 4.1), with the difference reaching statistical significance ($p < 0.05$).

Table 5
Willingness to use AI by clinical experience level

Experience level	Mean willingness score (1–5 scale)	Standard Deviation	Statistical Significance
0–10 years experience	4.5	0.6	$p < 0.05$
20 + years experience	4.1	0.8	Significant difference

Predictors of willingness to use AI

Table 6 presents the results of multiple linear regression analysis identifying factors associated with willingness to use AI. Trust in AI emerges as the dominant predictor ($\beta = 0.48$, $p < 0.001$). The model explains 45% of the variance in willingness to use AI ($R^2 = 0.45$).

Table 6
Regression analysis on predictors of willingness to use AI

Predictor Variable	Beta Coefficient (β)	Significance (p-value)	Interpretation
Trust in AI (composite)	0.48	< 0.001	Strongest positive predictor
Prior use of AI (Yes/No)	0.21	0.03	Significant positive predictor
Threat to autonomy	-0.15	0.07	Trend towards negative predictor
Familiarity with AI	0.08	0.42	Not significant
Age group	-0.04	0.68	Not significant
Facility type	0.02	0.82	Not significant

Model $R^2 = 0.45$ (The model explains 45% of variance in willingness to use AI)

Qualitative Results

A total of 72 key informant interviews were completed as in Table 7. The perspectives of senior clinicians, department heads, and hospital leadership were gathered through key informant interviews. Their voices painted a clear picture of a profession standing at the cusp of a technological shift, expressing both a powerful vision for AI's potential and a deeply practical understanding of the risks and requirements for its safe integration into their world.

Table 7
Categories of key informants

Informant Category	Number of Participants
Technical Leads	15
AI Developers	9
Data Scientists	16
Program Directors	7
Policymakers	6
Ministry Officials	6
Senior Clinicians	3
Hospital Leadership	4
Department Heads	2
Medical Educators	4

Perceived Opportunities and Roles for AI in Clinical Practice

The potential of AI as a cognitive partner is the most notable theme in the qualitative results. It is regarded by clinicians as a potent *“second opinion”* that can break through the clutter of complicated cases. A future in which AI steps *in “at the decision support stage to surface missed differentials and reduce cognitive bias”* was outlined by a senior clinician. This vision is of a tool that doesn't make decisions but sharpens the clinician's own, helping to ensure that in the pressure of a busy ward, nothing important is overlooked. This support extends to the very beginning and end of a patient’s journey through a department. Furthermore, in the complex choreography of patient flow, one respondent highlighted AI's role *“in disposition to predict acuity and optimise patient flow”*, a function that could significantly improve efficiency and resource allocation in overcrowded hospitals.

A strong, almost physical need for AI to help with the heavy administrative work that leads to burnout is behind many of the answers. Clinicians express a desire to be liberated from paperwork to reclaim time for their patients. As one respondent put it, they hope for *“automated documentation and monitoring”*, while another framed the objective as simply *“reducing administrative burden”*, allowing the clinician to focus on being, first and foremost, a healer.

Core Concerns and Perceived Risks

The respondents’ primary fear was not that AI will take their jobs, but that it will fundamentally change and potentially damage how they think and practise. The most significant and consistently voiced concern is “*over-reliance and the erosion of clinical skills”*, a phenomenon known as automation bias. A senior clinician articulated this danger with striking clarity, stating the risk is *“significant where diagnosis is the purpose of interaction.”* They painted a stark picture of a future where *"clinical instincts can erode, pattern recognition skills atrophy, and the clinician effectively becomes a validator of the machine.* The deepest fear embedded in this quote is that when the AI is wrong, as it inevitably will be, the human safety net will have vanished, and *"no one catches it."*

This fear is compounded by concerns about workflow. Clinicians operate in environments that are already at capacity. Any new tool that adds friction will be resisted. One respondent highlighted the critical need for the AI to *“fit invisibly into the clinician's existing workflow, surfacing insights at the right moment without demanding attention or extra clicks.”* The spectre of a clunky, disruptive system is enough to erode trust before a single patient is seen. A bad experience, they warn, can lead to a complete and permanent loss of faith in technology.

Underpinning all of this is a firm belief in the primacy of clinical judgement. There is a strong consensus that AI must remain a support tool and that the final decision must always rest with the human expert. As one respondent put it, establishing a non-negotiable principle: *“Clinical judgement should always have the final word.”*

Frameworks for Safe Integration: Building Trust and Ensuring Safety

When asked what it would take for them to trust and safely use AI, clinicians did not speak in abstract terms. They laid out a concrete, three-part framework for safe integration.

First and foremost is *transparency and explainability*. A recommendation from a black box is useless. Trust, they say, comes from *"transparency: the AI must show its reasoning, not just its conclusion."* Clinicians want to be able to look under the hood. They need to see the *"key drivers"* of a recommendation, the specific lab values, vital signs, or historical data points that led to the AI's suggestion, presented in the clear, clinical language they use every day.

This leads directly to the second criterion: a *proven track record and local validation*. Trust is not given; it is earned through consistent, reliable performance in a familiar context. Clinicians need to see that the AI has *"been tested in their hospitals"* and has *"a proven track record... validated in real clinical populations similar to the one being served." An algorithm trained on data from Boston or London holds little weight in a clinic in Accra or Lagos until it has proven itself there.*

Finally, they want clear rules and accountability. According to a respondent, "In a field where responsibility is very important, adding a machine to the decision-making process could make it hard to hold people accountable." When an AI-influenced choice goes wrong, everyone has to know who is responsible. This involves having "downtime protocols" for when the AI fails and a way for clinicians to have "structured reflection" when they don't agree with the AI.

Implementation Realities and Barriers

Translating these frameworks into reality will require confronting significant barriers on the ground. Hospital leaders and clinicians are brutally honest about the current state of readiness. Most respondents felt that infrastructure deficits are the biggest problem. One hospital leader gave their institution a low score of 4 out of 10, saying that *"policy and infrastructure"* were the primary shortcomings that made them feel unprepared for AI. According to one of the respondents, "Without *reliable electricity, internet, and hardware, the most elegant AI solution is destined to fail."*

Furthermore, there is a recognised need for new forms of governance and oversight. Respondents called for the creation of clear governance structures, such as a *"technical committee that makes sure that what the AI is generating is conforming with known clinical standards" and an "ethical committee expert on AI".* These bodies would provide the necessary checks and balances.

Ultimately, all these concerns circle back to the central challenge of *workflow integration*. Any new tool must be designed to integrate seamlessly with existing systems, particularly Electronic Medical Records (EMRs). Clinicians are deeply wary of solutions that, however clever, require extra steps in an

environment already operating at capacity. The promise of AI, in their view, will only be realised if it can make their work easier, safer, and more effective, without ever getting in the way.

DISCUSSION

This study examined how West African doctors feel about using AI in healthcare in their practice. The results showed that there are four connected categories: (1) a lack of experience and trust issues, (2) potential and professional concern, (3) trust as the most important factor in their willingness to adopt AI, and (4) significant differences based on their clinical experience. These results suggest that for AI to be successfully integrated into West Africa, frameworks will need to address not only the technical and training needs but also the professional and psychological aspects of adopting AI technology.

The Foundational Basis

The primary challenge identified is the significant gap in experience with AI, as 73.5% of clinicians had somewhat/moderate familiarity with it. Previous experience influences technology acceptance, with prior AI usage correlating strongly with a willingness to adopt AI.[10,18] Familiarity with AI did not play a key role in the regression analysis, implying that knowing a little bit about AI without having confidence in it does not lead to a tendency to adopt it. Also, predictors show that there are significant, but not all, factors that affect adoption intentions.

Qualitative interviews bring this experiential gap to life, revealing what clinicians fear most about engaging with AI without adequate preparation. A senior clinician articulated this danger with striking clarity, describing the risk of automation bias as *"significant where diagnosis is the purpose of interaction."* They painted a harrowing picture of a future where *"clinical instincts can erode, pattern recognition skills atrophy, and the clinician effectively becomes a validator of the machine."* The deepest fear embedded in this testimony is that when the AI is wrong, as it inevitably will be, the human safety net will have vanished, and *"no one catches it."*

When planning to integrate AI, this should include training and exposure strategies as well as plans to build trust and not just give information. This has been well noted by another author.[28] One department head in the current study also emphasised that successful implementation requires that clinicians *"see that the system works on their patients"* and *"has been tested in their hospitals"* before they can confidently integrate it into their decision-making.

The Paradox of Trust

Building on this experiential foundation, the most striking finding is what we term the "trust paradox": clinicians simultaneously express strong belief in AI's potential to improve care (over 83% agreement on benefits) and overwhelming willingness to use AI if proven effective (94.1%), yet over two-thirds (67.6%) find AI information unreliable, and more than three-quarters (77.9%) perceive AI as threatening their

clinical autonomy. Building on this experiential foundation, the most striking finding is what we term the "trust paradox": clinicians simultaneously express strong belief in AI's potential to improve care (over 83% agreement on benefits) and overwhelming willingness to use AI if proven effective (94.1%), yet over two-thirds (67.6%) find AI information unreliable, and more than three-quarters (77.9%) perceive AI as threatening their clinical autonomy. This strange pattern of high potential recognition, low trust, and high concern has been seen in other studies of healthcare technology adoption,[7,34] but it seems to be especially strong in this West African sample.

The qualitative findings illuminate the professional values underpinning this paradox. Underpinning all clinician responses was a firm, non-negotiable belief in the primacy of clinical judgment. As one respondent unequivocally stated, establishing a foundational principle: *"Clinical judgment should always have the final word."* This is not resistance to technology; it is a deeply held professional commitment to patient safety and accountability.

There are probably a lot of different things that are connected that are causing the lack of trust. First, there is not a lot of access to well-tested AI tools that work in the right context in West Africa, making it very difficult to appreciate how algorithms made in developed countries would be able to work in areas with limited healthcare resources like in developing countries.[12] Second, the fact that many AI systems are "black boxes" could be a problem in situations where doctors already don't have much help with diagnosing and have to rely on their own clinical judgement.[21,22] Third, a general distrust of AI may come from past experiences with faulty equipment and failed digital health projects.[11]

Within this paradox, the autonomy concern, which was voiced by 77.9% of respondents, deserves special attention. This finding is in line with what other researchers have found about professional autonomy being a core value in medicine and a common source of conflict when new technologies are introduced.[8,9] The high prevalence in this study, on the other hand, could also be due to certain aspects of clinical practice in West Africa, where autonomy is highly valued as a way to deal with limited resources and clinicians have to make a lot of decisions on their own with little help. The qualitative interviews revealed that clinicians are not seeking to exclude AI; they are demanding that AI respect and augment their professional role. One senior clinician eloquently described a future where AI intervenes *"at the decision support stage to surface missed differentials and reduce cognitive bias."* The threat to autonomy only showed a trend toward significance in predicting willingness to use AI.

The Importance of Trust

According to the results, trust is the most important factor in deciding whether or not to adopt AI. This finding fits with theories that say trust is key to accepting technology in situations where there is uncertainty and possible risk.[35,36] In healthcare, where decisions can mean life or death, trusting AI systems is not just a nice thing to do; it's also the right thing to do.[6]

The importance of trust helps to explain the seeming paradox above. Clinicians are willing to use AI even though they don't trust it right now because they want the tool to "prove itself effective," which means

they need proof that trust is justified. The 94.1% who would use AI if it worked were not blindly trusting; they were open to it, but only after it had been proven to work. This interpretation fits with the strong link between trust and willingness, as well as the fact that past experience makes people more willing, in part by making them trust more. On the other hand, the lack of trust is what keeps potential recognition from automatically leading to current acceptance. Clinicians can think that AI could make care better and also think that the tools they have now are not reliable because they had not seen any systems that they can trust yet. The implication is that trust must be built before or during technical deployment. Trust is not a byproduct of implementation; it is a requirement for safe and effective use.

When asked what it would take for them to trust and safely use AI, they laid out a concrete, three-part framework. First and foremost is transparency and explainability. Trust, they explained, comes from *"transparency: the AI must show its reasoning, not just its conclusion."* They must see the *"key drivers"* of a recommendation, the specific lab values, vital signs, or historical data points that generated the AI's suggestion, presented in the clear, clinical language they use daily. As one respondent emphasised, without this transparency, the AI cannot function as a true cognitive partner.

Second is a proven track record through local validation, and they noted that trust is not granted; it is earned through consistent, reliable performance in familiar contexts. Clinicians need to see that the AI has *"been tested in their hospitals"* and has *"a proven track record... validated in real clinical populations similar to the one being served."* According to one respondent, an algorithm optimised on data from a developed country like Britain will carry little weight at a health facility in Lagos or Lomé until the value has been demonstrated in those countries. This has been well noted by some authors.[37,38]

Generational and Contextual Variations

Generational disparities in the use of digital health technology indicate that clinicians with 0 to 10 years of experience are more inclined to embrace these advances compared to older colleagues. This is in line with studies that show that younger doctors who are used to technology are more likely to be open to new digital tools.[39,40] However, the readiness of senior clinicians to adopt AI indicates that generational issues are not the key determinants of technology acceptance.

In the key informant interviews, many older doctors are open to AI if it meets their trust and autonomy needs. One respondent emphasised the critical requirement for AI to *"fit invisibly into the clinician's existing workflow, surfacing insights at the right moment without demanding attention or extra clicks."*

There were no significant differences between facility types in the regression analysis. This could mean that the way people think about AI is more influenced by their professional training and shared values than by the way they work right now, or that clinicians in different types of facilities have the same worries no matter what their specific situation is. However, the qualitative research reported that primary care clinicians face infrastructure challenges, unreliable electricity, limited internet connectivity, and hardware shortages that their tertiary-based colleagues do not, fundamentally shaping how AI would

need to be deployed in their settings. One hospital leader candidly rated their institution's readiness as a stark 4 out of 10, bluntly citing *"policy and infrastructure"* as the main gaps. Without addressing these foundational barriers, the most elegant AI solution is destined to fail.

What this means for safe AI integration frameworks

Putting these results together, four related implications from both quantitative and qualitative data come to light for creating frameworks to make sure that AI is safely integrated into clinical practice in West Africa. Building trust must come before or go along with technical deployment. Because trust is the most important factor in predicting behaviour and there is currently a lack of trust, implementation strategies can't assume that trust will grow naturally through exposure. Instead, frameworks need to have clear ways to build trust, such as open communication about the development and validation of AI, pre-deployment studies in West African populations, clear descriptions of performance characteristics and limitations, and ongoing monitoring with results shared openly with clinicians.[24] The fact that 94.1% of clinicians said they would be willing to trust shows that there is an opportunity. Clinicians are willing to trust, but frameworks must earn that trust by being reliable and relevant to the local context with a clear accountability framework, as mentioned by Habli *et al*.[25]

The fact that autonomy concerns only seem to predict willingness when trust is taken into account suggests that high-trust environments may help with autonomy concerns to some extent. However, this does not mean that autonomy should be ignored when designing systems.

Clinicians need to trust the governance mechanisms. The preference of 40.4% of individuals for independent bodies to oversee AI indicates a lack of trust in both vendors and government regulation. Establishing unbiased governance structures is crucial for ensuring safety and performance.[26] Suggested structures include oversight committees with diverse stakeholders, transparent reporting systems for adverse events, and mechanisms allowing clinicians to challenge AI recommendations without fear of repercussions.

Limitations of the study

First, the convenience sampling method employed may not capture the perspectives of clinicians unaffiliated with WACP. Second, what people say about their own experience with and knowledge of AI may not match up with what they actually know. Third, the cross-sectional design only looks at people's opinions at one point in time, so it can't show how attitudes might change when AI is actually used.

CONCLUSION

The doctors appreciate the potential of AI and are willing to use it under certain conditions. However, losing their independence is a great worry for them; thus, they do not trust it enough. The results show that people are less resistant to AI because they don't believe it can do what it says it can do and more because they are worried about how reliable it is, how relevant it is to their local situation, and how it will affect their professional role. Therefore, to effectively implement AI in healthcare, frameworks must be

developed that emphasise transparency, system autonomy, experiential learning, and trusted governance structures for clinicians.

For policy and practice, it is recommended that independent groups for AI validation and monitoring at the various Federal/National Ministries of Health that can review AI tools before and after they are used be created across the West African sub-region; explicit guidelines on who is responsible when AI affects a patient be set up; investment in digital infrastructure be made; the West African College of Physicians be involved in the process of developing and testing AI from the start; complete training and continuing assistance to help with implementation of new AI be provided; and AI literacy be taught in medical colleges so that future doctors know what AI can and cannot do and how to utilise it correctly.

Declarations

Ethics approval and consent to participate:

Ethical clearance for the study was obtained from the Ethical Clearance Committee of the University of Nigeria Teaching Hospital. Participation was voluntary, and confidentiality and protection against unauthorised access were maintained using unique anonymous codes, entering data on password-protected Android tablets, transmitting forms and storing them securely. The study was conducted in accordance with the ethical standards of the Declaration of Helsinki.

Consent for publication:

Not applicable.

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Author Contribution

Data analysis and interpretation: BSCU, YJC, UUE, CCO, AU. Drafting the article: AO, BH, EME, SMY, KAU. Project supervision: BSCU. Reviewing and editing: All authors (BSCU, YJC, UUE, CCO, AU, AO, BH, EME, SMY, KAU) contributed critically to reviewing and editing multiple versions of the manuscript for important intellectual content. All authors read and approved the final version of the manuscript.

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Data Availability

The data is available from the corresponding author on reasonable request.

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