African Journal of Emergency Medicine 16 (2026) 100978

Contents lists available at ScienceDirect

African Journal of Emergency Medicine

journal homepage: www.elsevier.com/locate/afjem

ORIGINAL ARTICLE

Perception and challenges of artificial intelligence (AI) in Emergency Medicine: A multi-country study in Sub-Saharan Africa

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A R T I C L E I N F O

Keywords:
Emergency medicine
Sub Saharan Africa
Artificial Intelligence
Education
Lower- and Middle-Income Countries (LMICs)

A B S T R A C T

Introduction: Emergency Departments (EDs) in Africa face significant challenges including resource scarcity, overcrowding, and limited infrastructure. Artificial intelligence (AI) presents a promising opportunity to enhance emergency care delivery in these settings. Despite growing global interest, little is known about the perceptions, experiences, and readiness of African emergency medicine professionals regarding AI integration. This study evaluated the knowledge, perceived advantages, concerns and support requirements related to AI among emergency medicine professionals across sub-Saharan Africa.

Methods: A cross-sectional mixed-method study was conducted among emergency medicine consultants and residents across 14 African countries. Data was collected via a self-administered online questionnaire adapted from a previously validated instrument and distributed through professional networks. Quantitative items captured demographic information, AI knowledge, usage, and perceptions, while open-ended qualitative questions explored experiences, expectations, and barriers. Descriptive statistics summarized quantitative data, and inductive thematic analysis was applied to qualitative responses. Cross tab and fisher exact analysis was done to assess association.

Results: A total of 211 responses were analyzed (median age 32 years; 72.5 % male; 65.9 % consultants). Most respondents had a basic understanding of AI (88.2 %) and were aware of AI applications in emergency medicine (73.2 %), yet only 14.2 % had received formal training. While 73.0 % had used AI tools, with predominantly nonclinical use (research 31.8 % and medical writing 20.1 %) only 29.9 % reported routine clinical use. Only12.0 % indicated that their institution had a formal AI implementation strategy. Respondents expressed concerns regarding AI errors (99.1 %), ethical risks (93.8 %), job displacement (88.6 %), and high cost (85.3 %). The majority (64.5 %) identified training as the most critical support needed, followed by policy guidance (21.3 %). Overall, 78.0 % expected AI to be used in African EDs in the future, although many emphasized the importance of gradual, contextually appropriate integration with sustained human oversight.

Conclusion: African emergency medicine professionals are aware of AI and recognize its potential benefits, but formal training, institutional strategies, and infrastructure remain limited. Optimizing AI adoption requires structured education, policy development, context-specific implementation strategies, and ethical safeguards.

DOI of original article: https://doi.org/10.1016/j.afjem.2026.100992.
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https://doi.org/10.1016/j.afjem.2026.100978
Received 31 January 2026; Received in revised form 14 April 2026; Accepted 18 April 2026
Available online 12 June 2026

These findings provide actionable insights for the safe and effective integration of AI in resource-limited emergency care settings across Africa.

African relevance

- Addresses unique challenges in African EDs, including high patient volume, limited resources, and variable technology infrastructure.
- Provides insights into African emergency medicine professionals' awareness, perceptions, and use of AI.
- Identifies gaps in training, institutional support, and AI adoption readiness specific to African healthcare settings.
- Offers evidence to guide context-appropriate AI implementation, policy, and education strategies across Africa.
- Fills a critical knowledge gap, as data on AI use in emergency care in African countries are currently scarce.

Introduction

Emergency Departments (EDs) worldwide face increasing pressures, including overcrowding, resource constraints, high patient throughput, and rising demand for rapid, accurate decision-making. These pressures are even more pronounced in resource-constrained settings, where workforce gaps, diagnostic capacity, and infrastructure limitations can delay timely care. In this context, artificial intelligence (AI) presents a promising opportunity to improve emergency care delivery, particularly through enhanced triage, decision support, prediction, and resource allocation [1].

Recent research has demonstrated that AI, especially machine learning (ML) and algorithmic models, can significantly improve outcomes in EDs. In a systematic review of 17 studies, ML-based triage models outperformed traditional emergency severity scores, showing superior discrimination in patient prioritization and early management of ED patients [2]. Another integrative review, including 26 studies, found that AI/ML-driven triage often achieved high prognostic accuracy in detecting high-acuity cases, such as ICU admission or hospital transfer, and outperformed conventional tools in many settings [3]. These findings highlight AI's potential to substantially enhance triage accuracy, reduce wait times, and optimize resource allocation in fast-paced ED environments [4,5]. Beyond triage, AI has been used to support other critical aspects of emergency care. A recent narrative review described applications including diagnostic imaging (e.g., X-ray, CT, ultrasound interpretation), risk stratification for disease-specific emergencies, workflow optimization, outcome prediction, and patient monitoring [6,7]. Another study demonstrated that ML algorithms can accurately predict which ED patients will require hospitalization, offering a potential tool to help manage ED flow and bed allocation [8]. These technological advances suggest AI could transform emergency medicine from a reactive to a more predictive, efficient, and data-driven practice.

In sub-Saharan Africa, AI is transforming diagnostics, treatment, and healthcare operations. By analyzing large datasets, including medical images and patient records, AI improves disease prediction and early detection of conditions such as tuberculosis, malaria, and cancer, particularly in resource-limited settings [9]. AI also facilitates personalized medicine by tailoring treatment plans based on genomic, biometric, and clinical data, enhancing therapeutic efficacy and minimizing adverse effects [9]. However, evidence from radiographers in Africa reveals a complex perspective of AI, with optimism about improved diagnostic accuracy, efficiency, patient safety, and reduced waiting times balanced against concerns regarding data security, system reliability, equipment maintenance, and large-scale health data management [10]. Key challenges in Africa include low-quality health data, algorithmic bias from non-representative datasets, high costs of computing infrastructure, weak digital and energy systems, and the absence of robust legal and policy frameworks for AI governance [11,12].

Despite AI's potential, adoption in EDs is limited. A systematic review found that most AI tools are used infrequently, largely due to provider unfamiliarity [13]. Additional barriers include data quality and completeness, algorithmic opacity (the "black box" problem), lack of external validation, and limited adaptability to diverse patient populations [14]. Integrating AI into real-world EDs also requires robust infrastructure, including electronic health records, a stable internet connection, computing resources, staff training, ethical and regulatory frameworks, and strategies for seamless workflow integration [7].

While global evidence supports the promise of AI in emergency medicine, most studies to date have originated in high-income countries, often in well-resourced health systems with established digital infrastructure. There remains a scarcity of peer-reviewed data on the perceptions, readiness, and lived experiences of emergency medicine professionals in low- and middle-income countries (LMICs), particularly in Sub Saharan Africa.

Without such data, there is a risk of deploying AI tools that are technically effective but contextually inappropriate, unsustainable, or misaligned with local workflows, resources, and ethical considerations. To address this critical gap, this study aims to evaluate the perceptions, challenges, and expectations regarding the use of AI among emergency medicine professionals across Sub-Saharan Africa.

Methodology

Study design and study period

This study employed a cross-sectional design to assess awareness, experiences, and perceived barriers to the implementation of AI in Emergency Medicine (EM) across Sub-Saharan African countries. In addition to structured quantitative items, the survey included open-ended qualitative questions to capture participants' perspectives in their own words. The study period was from June 20, 2025, to October 2025

Study setting

The study was conducted across EDs in selected Sub-Saharan African countries. We included all emergency consultants (specialists) and EM residents currently practicing in Sub-Saharan African EDs who completed the online questionnaire in full. Responses with incomplete surveys were excluded from analysis.

Sampling technique and sample size

A purposive sampling approach was used. The online survey link was circulated across emergency medicine professional networks and social media in multiple countries. All eligible respondents who completed the survey during the study period were included.

Data collection procedures

Data were collected using a structured questionnaire adapted from a previously validated tool [15]. The instrument included demographic characteristics, AI awareness and prior use, perceived benefits, concerns, expectations for future AI use, and barriers to AI implementation. It also contains open-ended questions addressing challenges experienced while using AI and recommendations for improving AI implementation in Sub-Saharan Africa.

Data analysis

Data was exported from Excel into SPSS version 25 for analysis after cleaning and final quality control. Descriptive statistics, including frequencies, percentages, medians, and IQRs, were used to summarize participant characteristics and survey responses. A pragmatic sample size approach was employed; as this was an exploratory, cross-sectional survey with no pre-specified primary outcome for inferential testing, no formal power calculation was performed. The sample achieved of 211 is consistent with similar multi-country survey studies in LMICs. Open-ended qualitative responses were analyzed using inductive thematic analysis. Two researchers independently coded the responses, identified emerging themes, and resolved discrepancies through discussion until consensus was reached. Conceptual saturation was assessed iteratively; no major new themes emerged after approximately 170 responses. Qualitative findings were integrated with quantitative results to provide contextual depth. The Chi-square test of independence was used to assess group associations. Fisher's exact test was used when the Chi-square test's presumptions were not fulfilled, that is, when the predicted cell counts were fewer than 5. Statistical significance was defined as a p-value of <0.05.

Ethical considerations

Ethical approval was obtained from the Kibungo LTTH Institutional Research Ethics Committee under letter number N° 052/KL2TH-IREC/07/2025 before data collection. Written informed consent was obtained electronically from all participants before completing the questionnaire. Confidentiality and anonymity were ensured by removing all identifying information and securely storing the data with access limited to the research team.

Results

A total of 211 responses were collected from 14 countries. The median age was 32, with an IQR of 30 to 35. One hundred fifty-three (72.5 %) were male. One hundred thirty-nine (65.9 %) were EM Consultants (Table 1).

Table 1
Sociodemographic of Sub-Saharan African emergency professionals completing the survey.

Variables	Categories	Frequency	Percentage
Age	25–30	63	29.9 %
	31–35	103	48.8 %
	36–40	34	16.1 %
	40+	11	5.2 %
Sex	Male	153	72.5 %
	Female	58	27.5
Country	Ethiopia	143	67.8 %
	Rwanda	28	13.3 %
	Somalia	14	6.6 %
	Nigeria	8	3.8 %
	Botswana	3	1.4 %
	South Africa	3	1.4 %
	Tanzania	3	1.4 %
	South Sudan	2	0.9 %
	Namibia	2	0.9 %
	Malawi	1	0.5 %
	Mozambique	1	0.5 %
	Burundi	1	0.5 %
	DRC	1	0.5 %
	Uganda	1	0.5 %
Profession	EM Residents	72	34.1 %
	EM Consultants	139	65.9 %
Residents Level	PGY1	25	34.7 %
	PGY2	15	20.8 %
	PGY3	24	33.3 %
	PGY4	8	11.4 %
EM Consultants' years of service	≤1 year	52	38.5 %
	2–3 years	32	23.7 %
	4–6 years	39	28.9 %
	7+ years	12	8.9 %

Knowledge and application of AI

One hundred eighty-six (88.2 %) of the respondents had a basic understanding of AI. One hundred fifty-three (73.2 %) were aware of AI applications in EM. One hundred fifty-eight (75.8 %) reported having educated themselves about AI. Thirty (14.2 %) respondents received formal training or education on AI (Table 2).

Table 2
Knowledge and application of AI among Sub-Saharan African emergency professionals.

Variable	Consultant n (%)	Resident n (%)	Total n(%)	P value
I am aware of AI applications in emergency medicine.	103(74.6)	50(70.4)	153 (73.2)	0.517
2. I have a basic understanding of AI	123(88.5)	63(87.5)	186 (88.2)	0.825
3. I have a working knowledge of AI (e.g., ChatGPT)	120(86.3)	62(87.3)	182 (86.7)	1.000
4. I received training and education about AI (e.g., attending courses).	18(12.9)	12(16.7)	30 (14.2)	0.534
5. I educated myself and learned about AI	104(75.4)	54(76.1)	158 (75.6)	1.000
6. I have used AI tools in my practice	99(71.2 %	55(76.4)	154 (73.0)	0.514
7. In my workplace, there is someone responsible for AI.	10(7.2 %)	2(2.8)	12 (5.7)	0.228
8. AI is incorporated into our daily practice	41(29.5)	22(30.6)	63 (29.9)	0.875
9. My workplace has a strategy/ plan for implementing AI	21(15.4)	4(5.6)	25 (12.0)	0.045*
10. How frequently do you use AI in your practice	Daily	40(28.8)	31 (43.1)	71 (33.6)
	Never	17(12.2)	7(9.7)	24 (11.4)
	Occasionally	50(36.0)	21 (29.2)	71 (33.6)
	Rarely	25(18.0)	6(8.3)	31 (14.7)
	Weekly	7(5.0)	7(9.7)	14 (6.6)

Purpose of AI usage

Overall, research was the most common application, reported by 31.8 % of participants, followed by medical writing (20.1 %) and diagnostics (17.5 %). Clinical applications such as triage (8.4 %), predictive analytics (4.5 %), and integration into EM equipment or machine learning (8.4 %) were less frequently reported (Table 3).

Perceptions and challenges

Two hundred nine (99.1 %) respondents' biggest concern about AI was AI errors, which was followed by 198 (93.8 %) who raised ethical issues (Fig. 1). One hundred fifty-nine (75.4 %) responded that AI benefits faster decision-making, while 68 (32.2 %) answered that it improved patient outcomes (Fig. 2).

Perception of the participants considering using AI

Most respondents agreed that AI could be integrated into EM equipment (56 %), optimize triage (64.1 %), and facilitate access to information (66.4 %) (Table 4).

Table 3
Purpose of AI usage among Sub-Saharan African emergency professionals.

The purpose of AI usage	Consultant n (%)	Resident n (%)	Total	P value
Triage	10(9.8)	3(5.8)	13 (8.4)	0.549
Diagnostics	18(17.6)	9(17.3)	27 (17.5)	1.000
Predictive analytics	4(3.9)	3(5.8)	7(4.5)	0.692
Application of emergency medicine equipment and machine learning	8(7.8)	5(9.6)	13 (8.4)	0.767
Assess the case's urgency	6(5.9)	7(13.5)	13 (8.4)	0.138
Research	31(30.4)	18(34.6)	49 (31.8)	0.731
Writing	24(23.5)	7(13.5)	31 (20.1)	0.157

Support needed for AI integration in emergency medicine

For the support needed for AI integration in EM in Sub-Saharan Africa, 136 (64.5 %) responded to training, 45 (21.3 %) policy change, 6 (2.9 %) funding, and 11 (5.2 %) responded to all of them (Table 5).

Overall experience and future expectations

Overall experience with AI varied among participants 71(33.6 %) as "good," (Fig. 3),

Most respondents (78.0 %) expected AI to be used in emergency medicine in the future. A minority (2.9 %) responded "no," while 19.1 % were uncertain and responded "maybe."

Practical use and challenges while using AI

Participants described their practical use of AI as:

- *"I have used it for case summaries, preparing presentations, teaching, and for a second opinion for my plan of management."*
- *"AI may help in triage, then fasten management in a critical patient," and*
- *"AI is the best that helps me learn easily and is timesaving, AI makes my life as a resident at the emergency easier to live."*

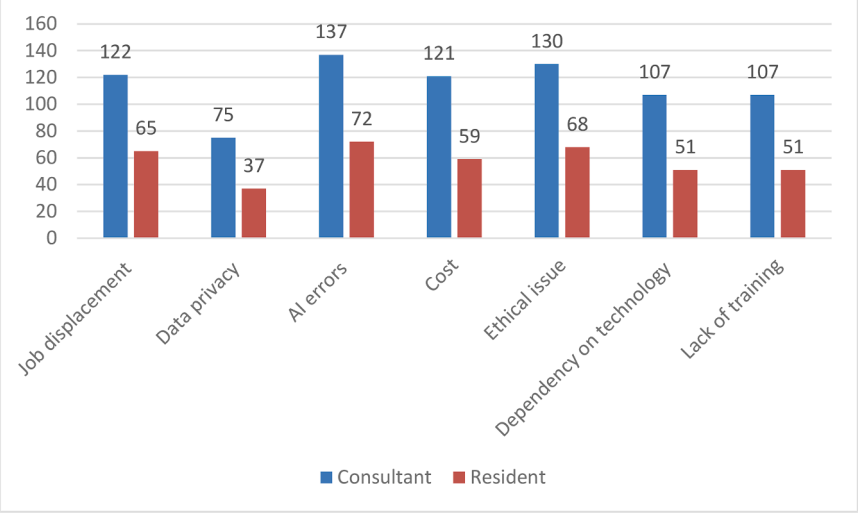

Fig. 1. Biggest concerns about AI **among** Sub-Saharan African Emergency Professionals.

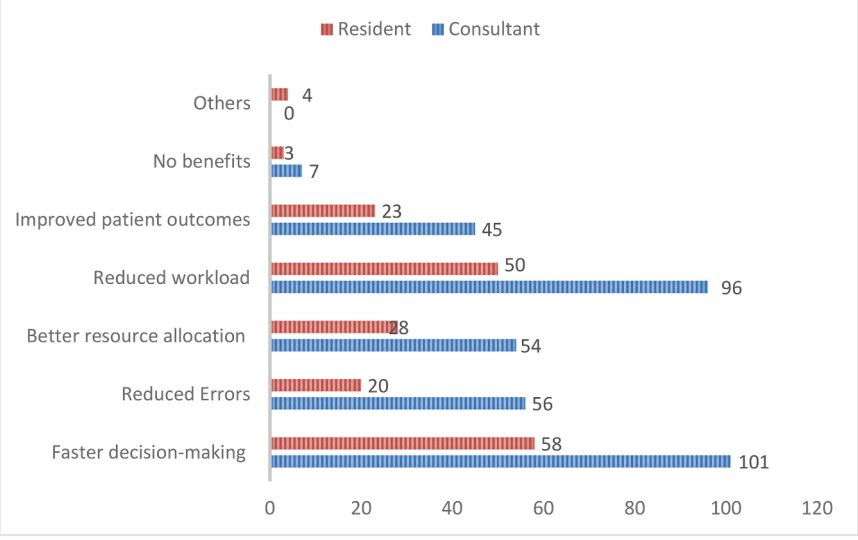

Fig. 2. Benefits expected from AI among Sub-Saharan African Emergency Professionals.

Table 4
Perception of the participants considering the use of AI among Sub-Saharan African Emergency Professionals.

Variables	Category	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Uses of AI	AI can be integrated into many emergency medicine equipment	33(15.6)	13(6.2)	47 (22.3)	74 (35.1)	44(20.9)
	AI can be used in emergency procedures assessment (e.g., prepare back up plan)	27(12.8)	27 (12.8)	49 (23.2)	78 (37.0)	30(14.2)
	AI can be used to optimize triage (e.g., Assess cases urgency)	40(19.0)	16(7.6)	33 (15.6)	74 (35.1)	48(22.7)
	AI can be used to predict emergency cases outcome	33(15.6)	22 (10.4)	49 (23.2)	76 (36.0)	31(14.7)
	AI can be used for acute pain management	25(11.8)	32 (15.2)	71 (33.6)	67 (31.8)	16(7.6)
Benefits/ drawbacks of AI	AI facilitates healthcare professionals' access to information	39(18.5)	8(3.8)	24 (11.4)	62 (29.4)	78(37.0)
	AI enables healthcare professionals to make decisions	35(16.6)	24 (11.4)	47 (22.3)	62 (29.4)	43(20.4)
	AI reduces the workload and shortage of healthcare professionals	33(15.6)	26 (12.3)	51 (24.2)	59 (28.0)	42(19.9)
	AI allows medical practitioners to focus on critical/more demanding cases	31(14.7)	28 (13.3)	67 (31.8)	57 (27.0)	28(13.3)
	AI reduces errors in medical practice	29(13.7)	47 (22.3)	63 (29.9)	54 (25.6)	18(8.5)
	AI devalues the medical profession*	36(17.1)	65 (30.8)	77 (36.5)	23 (10.9)	10(4.7)
Opinions	AI can play an important role in emergency medicine practice	32(15.2)	23 (10.9)	41 (19.4)	79 (37.4)	36(17.1)
	AI should be taught in the postgraduate program	36(17.1)	17(8.1)	46 (21.8)	66 (31.3)	46(21.8)
	AI may reduce the workload on the emergency physicians*	34(16.1)	25 (11.8)	40 (19.0)	79 (37.4)	33(15.6)
	Integrating AI in emergency medicine practices should be gradual and controlled	32(15.2)	14(6.6)	37 (17.5)	68 (32.2)	60(28.4)
	In the future, AI will be more reliable and accurate	35(16.6)	22 (10.4)	67 (31.8)	54 (25.6)	33(15.6)

Table 5
Support needed for AI integration in emergency medicine among Sub-Saharan African emergency professionals.

Variable	Consultants	Residents	Total	P Value
Training	88(63.3)	48(66.7)	136(64.5)	0.652
Funding	14(10.1)	5(6.9)	19(9.0)	0.613
Policy changes	27(19.4)	18(25.0)	45(21.3)	0.378
All	10(7.2)	1(1.4)	11(5.2)	0.102

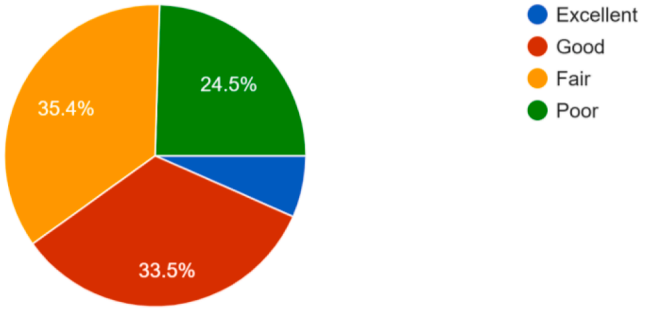

Fig. 3. Overall experience of using AI among Sub-Saharan African Emergency Professionals.

Limitations were highlighted:

- *"The use of AI for unpredictable critical patients can be quite misleading and dangerous to patient care." "AI can't know the full clinical picture."*
- *"Sources of evidence may not be known"*
- *"AI sometimes gives wrong references or incomplete citations."*
- *'' Accessibility and internet connection issues" and "the inability to use AI for more advanced tasks: "the money it costs to open images or data."*

Recommendations for better use of AI

Respondents suggested training and education, policy, regulation, and ethical safeguards, as well as access to resources and infrastructure. Some of the points mentioned were

- *"Training and gradual integration in the sector are needed for all health workers."*
- *"Clear accountability frameworks and strong data privacy protections,"*
- *"Strict rules and regulations about when and where to use AI,"*
- *"Availability of devices like AI empowered ECG machines,"*
- *"AI should be fed with adequate information."*
- *"In-depth testing in real-world scenarios, clinician training and oversight,"*
- *Positive mindset and vigilance were noted as "Well, people need to have a positive attitude towards AI."*

Discussion

Our study included 211 emergency medicine professionals from 14 African countries with a median age of 32 years. The majority were male (72.5 %) and consultants (65.9 %), reflecting a relatively experienced cohort. Among residents, most were in PGY1 and PGY3, while most consultants had 1–6 years of service, indicating a mix of early and mid-career professionals.

Most respondents reported familiarity with AI. However, only 14.2 % had received formal training. Although the majority had used AI tools, only 29.9 % reported routine clinical use, and just 12.0 % indicated that their institution had a formal strategy for AI implementation. These findings highlight a substantial gap between general awareness and structured preparation for effective AI use. The literature emphasizes that formal training and organizational strategies are essential to support successful AI integration into clinical practice [16]. Similar patterns have been documented in other settings. An international survey of

emergency and trauma surgeons found that 85 % believed AI could improve acute care, yet only 9.5 % reported actual use, and over 60 % indicated limited familiarity with AI concepts [17]. In a cross-sectional survey among physicians in Sudan, awareness of AI was high (~80.7 %), yet formal training was uncommon with only 14.9 % receiving formal AI education medical training, reflecting a similar gap between interest and competence [18]. Studies among medical students and early-career healthcare professionals indicate that while 70–75 % viewed AI as useful, self-perceived competence remained low in the absence of formal education [19]. Another systematic review on AI's influence in emergency departments also highlighted that many clinicians remain relatively unfamiliar with AI tools and their potential applications [13]. Collectively, these findings (including ours) illustrate a motivated workforce constrained by gaps in training, infrastructure, and institutional readiness [16].

It is important to distinguish the types of AI reported in this study. The predominant use for research (31.8 %) and medical writing (20.1 %), reflects primarily generative AI tools (e.g., large language models such as ChatGPT), rather than clinical decision-support AI or predictive machine learning models embedded in clinical workflows. This distinction is crucial: conclusions about AI adoption in African EDs should not overstate clinical uptake based on non-clinical use patterns. Routine clinical AI applications (triage optimization, diagnostic support, outcome prediction) remained uncommon, likely reflecting early-stage adoption, limited access to clinical-grade AI infrastructure, and the absence of validated, Africa-specific tools. This contrasts with high-income settings where AI triage models have demonstrated strong predictive performance [2,20]. A cross-sectional survey of 506 healthcare professionals in a higher-resourced setting showed that 48.8 % used AI for diagnosis and 40.5 % for direct patient care [21] - proportions substantially higher than observed here, reflecting structural disparities in digital infrastructure, electronic health record adoption, and institutional AI readiness.

Respondents were optimistic about potential advantages for faster decision-making to reduce workload. These perceptions align with the literature, where AI-driven triage systems have demonstrated strong performance (AUC>0.8), improved prioritization, reduced mis-triage, and enhanced documentation accuracy [22,23].

However, clinicians also expressed concerns and fear of AI-related errors, ethical risks, job displacement, high cost, dependence on technology, and lack of training. These findings align with the international literature, which emphasizes issues of data quality, bias, clinical trust, training gaps, and infrastructure limitations in real-world AI deployment [4,24].

Our survey revealed mixed perceptions among African emergency medicine professionals regarding the potential applications of AI in clinical practice. A majority agreed that AI could be integrated into emergency medicine resource allocation, triage, and play an important role in emergency medicine practice (60.4 %). They expressed skepticism about AI's ability to substantially reduce workload or reduce medical errors. Notably, perceptions regarding AI in medical writing were also cautious: most participants disagreed that generative-AI tools (e.g. ChatGPT) are useful or sufficiently accurate for medical writing tasks, and many did not trust AI-detectors as universally effective for plagiarism identification. Participants generally recognized that AI should not replace human judgment, but could serve as a supportive tool, particularly for information retrieval, triage support, and potentially easing administrative burdens. Similar cautious optimism has been reported in other studies. A mixed-methods survey among 498 physicians found that those using AI professionally or intending to do so similarly expressed high enthusiasm (mean rank: professional use=253.88; no use=196.17; P=.001) and lower skepticism (mean rank: plan to use=275.93; no use=218.86; P=.001) [25]. Another recent survey in general medical settings showed a significant proportion of doctors believed AI could assist in diagnostics and administrative tasks, but many remained uncertain about its reliability and ethical implications [26,27]. Moreover, in emergency medicine-specific research, some clinicians acknowledged the potential benefits of AI for triage and decision support but simultaneously raised concerns about over-reliance, loss of clinical autonomy, and systemic readiness for adoption [28,29].

Even though participants had mixed overall experiences, most expect that AI will be used in the future. Respondents highlighted concrete measures for effective adoption: training; incorporated into the teaching curriculum; policy changes, and guidelines while keeping human skills and knowledge training as a priority, systemic support with research and local relevance similar to other studies [3,30].

Therefore, sub-Saharan African countries must create comprehensive and clear regulations to direct the incorporation of artificial intelligence (AI) into academic programs and clinical settings. To guarantee patient safety and high-quality treatment, these frameworks should include requirements for implementation, validation, accountability, and ongoing monitoring. Maintaining human supervision in decision-making, preventing bias, promoting fairness, and protecting patient privacy all depend on strong ethical governance. To protect data and stop misuse, explicit laws governing data ownership, consent, and sharing are also required. Policies in academic contexts should also encourage ethical AI usage and improve AI literacy among trainees and healthcare professionals.

Limitations

This study has several important limitations that should be considered when interpreting its findings. First, the use of purposive, network-based sampling likely introduced selection bias, over-representing clinicians who are already engaged with or interested in AI and those with greater digital connectivity. This may have inflated measures of general awareness and favorable sentiments toward AI. Second, the geographic distribution of respondents was markedly unbalanced: approximately 68 % of participants were from Ethiopia, severely limiting the generalizability of findings to the broader Sub-Saharan African continent. Countries with active EM training programs, such as Ghana, South Africa, Uganda, Tanzania, and Botswana, were substantially underrepresented relative to their EM workforce sizes. The findings should therefore not be interpreted as representative of all Sub-Saharan African emergency medicine settings. Third, the English-only survey administration systematically excluded practitioners from Francophone and Lusophone African countries, introducing linguistic bias and further narrowing the scope of representation. Fourth, differential digital access across countries may have disproportionately excluded practitioners from settings with limited internet connectivity, compounding geographic and language biases. Fifth, the cross-sectional design precludes evaluation of historical trends or causal inferences. Finally, the qualitative component, while informative, was limited in scope and should be interpreted cautiously given the relatively small number of open-ended responses analyzed.

Conclusion

Emergency medicine professionals across selected Sub-Saharan Africa countries demonstrate high awareness and interest in AI applications, particularly for research, writing, and decision-making support. However, formal training, structured institutional strategies, and clinical adoption remain limited. Participants expressed cautious optimism, emphasizing the potential for AI to enhance decision-making, reduce workload, and improve resource allocation, while also voicing concerns about errors, ethical risks, over-reliance, and infrastructure limitations. Effective integration of AI into emergency care in Sub-Saharan African settings will require targeted training programs, clear policies, robust infrastructure, and context-specific strategies that complement rather than replace clinical judgment. These findings provide crucial insights for policymakers, educators, and technology developers seeking to

implement AI safely and effectively in resource-limited emergency care settings. Further multicounty inclusive study is needed to generalize the finding for sub-Saharan African countries.

Dissemination of results

Study findings will be disseminated through regional and international conferences, and professional networks. Summaries will be shared with participating hospitals and relevant health authorities to inform practice, policy, and safe implementation of AI in African emergency care settings.

CRediT author statement

All authors contributed equally to the conceptualization, data collection, analysis, interpretation, and writing of the manuscript. All authors approved the version to be published and agreed to be accountable for all aspects of the work.

Funding

There was no funding for this study.

Declaration of interest statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.AZT is an Associate Editor/ for this journal and was not involved in the editorial review or the decision making processes around this article.

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