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Welcome to this landmark issue of the *Journal of Health Informatics in Africa*. With fifteen carefully selected papers, this is our largest issue to date—a testament to the growing momentum and maturity of health informatics research across the continent. The breadth and depth of scholarship represented here reflect the diverse challenges and innovative solutions emerging from African healthcare systems as they navigate the complexities of digital transformation.

The papers in this issue span a remarkable spectrum of topics, from artificial intelligence and machine learning applications to user-centred design, implementation science, and digital health governance. Collectively, they demonstrate that African researchers are not merely adopting global health informatics frameworks but are actively shaping them to address the continent's unique realities, resource constraints, and opportunities.

SYNOPSES OF PAPERS IN THIS ISSUE

Maake et al. (636) present "A Digital Counter-Gambling Intervention for Online Gambling Students Using Interactive Mobile Application Messaging." This study developed and preliminarily evaluated the ICGIM system, an intervention targeting online gambling disorder among university students in Kenya. Grounded in User-Centered Design and behavioural psychology, the intervention incorporated daily motivational messages, sponsor calls, chat support, and financial tracking features. Preliminary findings suggested reduced self-reported gambling frequency and positive perceptions of the intervention's supportive features, highlighting the potential of tailored digital interventions to address gambling-related behavioural health challenges among young Africans.

Turra, Gilbert, and Kondo (627) contribute "Improving Tuberculosis Detection with Deep Learning in X-Ray Imaging," developing a VGG19-based convolutional neural network for TB detection in Tanzania. Achieving 96% accuracy, the model suggests the feasibility of AI-driven diagnostic tools in resource-constrained settings. The study's emphasis on low-cost hardware compatibility and offline operability makes it particularly relevant for deployment in peripheral health facilities across sub-Saharan Africa.

Dyers, van Greunen, and Hahomed (585) propose *"A User Experience Model for Health Data Visualization for Managerial Decision Support."* Using a Design Science Research approach, the study addresses the need to better align routine health information system (RHIS) data visualisation with the diverse decision-making contexts, cognitive needs, and user characteristics of health managers. The resulting UX Model for RHIS DataViz incorporates purposeful data storytelling, cognitive load, data quality, interaction, user attributes, and contextual factors. The model provides a practical and theoretically informed framework to guide the design and assessment of RHIS data visualisation tools intended to support managerial decision-making in public health systems.

Munyao et al. (584) present a systematic review of "The Use of Machine Learning and Internet of Things Technologies in Maternal Healthcare." Their analysis of 50 studies reveals significant gaps in integrated

IoT-ML frameworks, particularly the limited consideration of tinyML for on-device, real-time analytics and the reliance on smartphones as intermediaries for data transmission. The review identifies the need for intelligent monitoring systems capable of capturing both maternal and fetal vital signs and supporting the early prediction of pregnancy complications, while providing recommendations and a roadmap for future research in this area.

Djamba et al. (669) propose *"A Context-Aware Information Systems Architecture for Sustainable E-Health Implementation in the Democratic Republic of Congo."* Addressing the infrastructural, organisational, and institutional challenges affecting e-health implementation in fragile and resource-constrained healthcare environments, the study integrates technology adoption determinants with information-systems architectural principles. The proposed layered and modular architecture emphasises interoperability, offline capability, scalability, security, and resilience, providing a structured roadmap for sustainable digital health implementation in the DRC and similar resource-constrained settings.

Nicholas and Kantaris (652) examine *"Influence of Demographic Characteristics on Health Workers' Acceptance of Biometric-Controlled Health Informatics Systems."* Their quantitative study of health workers in Ugandan public hospitals, grounded in the Technology Acceptance Model, finds that gender and education level significantly predict acceptance, whereas age and professional experience do not. The findings highlight the importance of considering demographic differences when implementing biometric-controlled health informatics systems and suggest that implementation strategies may need to incorporate differentiated communication, training, and user-support approaches.

Ssegujja, Msanjila, and Shao (526) explore *"Patient Perspectives on mHealth for Maternal and Pre-maternal Health Services in Resource-Constrained Settings."* Using a user-centred design approach involving 60 mothers in Uganda, the study identifies key requirements for improving maternal e-service delivery, including multimedia content, multilingual capabilities, offline access, telemedicine consultations, and emergency support. The proposed framework seeks to address limitations in existing predominantly SMS-based interventions by supporting more comprehensive maternal e-services across pregnancy, childbirth, and the postnatal period.

Okalebo and Wausi (621) present a systematic review of *"Absorptive Capacity Theory and its Application to mHealth Technologies for Adverse Drug Reaction Reporting in Uganda."* Their analysis of 25 studies shows that absorptive capacity operates across individual, team, and organisational levels, providing a multi-level theoretical lens for understanding mHealth utilisation in pharmacovigilance. The review identifies organisational, leadership, cultural, and team-level determinants that shape knowledge absorption and digital health adoption, thereby contributing to the theoretical understanding of mHealth utilisation and providing a conceptual basis for strengthening pharmacovigilance in public healthcare environments.

Rahman and Sharmin (615) contribute *"Rapid Retinopathy Detection using Ablation-Guided Deep Learning."* Systematically comparing twelve combinations of deep learning feature extractors (VGG16, ResNet152V2, and Xception) with classical machine-learning classifiers, the study identifies the Xception–Random Forest hybrid as the best-performing model, achieving 91.1% testing accuracy. The ablation experiment demonstrates the potential of hybrid DL–ML pipelines to improve classification performance while reducing computational demands, supporting their potential use in cost-effective and scalable diabetic retinopathy screening in resource-constrained healthcare settings.

Irongo, Adebesin, and Foster (563) conduct a systematic literature review on *"Compliance with Interoperability Standards in Implementing Digital Health in Low- and Middle-Income Countries."* Guided by the Technology-Organisation-Environment (TOE) framework, they identify barriers to compliance with interoperability standards across three domains: technological (inadequate IT infrastructure, limited standardisation and fragmentation, contextual adaptation challenges, and performance, maintenance and usability issues), organisational (inadequate leadership and governance, limited capacity, and resistance to change), and environmental (inadequate legal and regulatory frameworks, insufficient compliance monitoring, data security and privacy challenges, and financial constraints). The findings provide a

foundation for targeted, multi-level interventions to strengthen interoperability compliance and support sustainable digital health implementation in LMICs.

Ofoe et al. (592) examine "Enhancing Diabetes Mellitus Diagnosis and Management in Ghana through Supervised Learning." Using clinical data from 3,407 patient records, the study compares Gaussian Naive Bayes, Random Forest, and XGBoost algorithms for diabetes prediction. XGBoost achieved the highest accuracy (99.5%) on the held-out test set, identifying it as a promising candidate for integration into a machine learning-based clinical decision support system in Ghana, particularly in settings where specialist services are limited. However, the model requires external and prospective validation before clinical deployment.

Mishio, Adong, and Adjei (617) investigate factors influencing user acceptance of electronic health record systems in low-resource settings in Ghana. Using a cross-sectional study of 373 healthcare workers at Tamale Teaching Hospital, the study found a high level of acceptance (97%) of the Lightwave Health Information Management System (LHIMS), alongside a significant improvement in positive attitudes following its implementation. Multivariable logistic regression identified 20 or more years of computer use (OR = 6.307) and being a medical doctor (OR = 7.443) as factors significantly associated with user acceptance. Despite the high acceptance, users reported persistent implementation challenges, including complex system interfaces, power interruptions, inadequate equipment, and poor internet connectivity.

Chumba, Waema, and Ochieng (647) explore *"Relational Mechanism in Community-Based Health Information System Governance."* Using a mixed-methods approach across two Kenyan counties, the study identifies eleven practices associated with the CBHIS governance relational mechanism, including stakeholder engagement, data review meetings, dialogue days, and community health chalkboards. The research finds a positive and statistically significant relationship between the relational governance mechanism and community health outcomes, with the mechanism explaining 39.6% of the variance in community health outcomes ($R^2 = 0.396$). The findings offer practical insights into strengthening CBHIS governance and community health system performance.

Sibanda and Ndlovu (700) present a "Deployment-Oriented Evaluation of an Explainable Tabular Transformer for Tuberculosis Outcome Prediction." Using synthetic healthcare data, the study develops a framework integrating transformer architecture, SHAP-based explainability, calibration assessment, and subgroup consistency screening. The model achieved 82.1% accuracy and an AUC-ROC of 0.872, demonstrating methodological feasibility for resource-constrained settings while emphasizing that external validation and prospective clinical evaluation are required before clinical deployment.

Djamba et al. (706) propose a *Strategic Implementation Framework for Sustainable E-Health Deployment in Fragile Healthcare Systems: Evidence from the Democratic Republic of Congo*. Building on empirical evidence from an e-health adoption model and context-aware design principles, the study develops a five-phase implementation framework encompassing planning and stakeholder engagement, system design and development, pilot implementation and capacity building, phased scale-up and national integration, and continuous monitoring, evaluation, and sustainability. The framework seeks to bridge the gap between e-health adoption research and practical, sustainable deployment, providing structured guidance for policymakers, healthcare institutions, and system designers in resource-constrained and fragile healthcare settings.

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The publication of this substantial issue would not have been possible without the dedication and scholarly rigour of our authors. We extend our sincere gratitude to each researcher who has entrusted their work to the *Journal of Health Informatics in Africa*. Your contributions—whether from the laboratory, the clinic, the community, or the policy space—advance our collective understanding and push the boundaries of what is possible in African health informatics. We are particularly encouraged by the diversity of countries represented in this issue, reflecting the pan-African nature of our journal's mission.

We also wish to acknowledge and thank our reviewers, whose expert evaluations ensure the quality and integrity of the work we publish. Peer review is the cornerstone of academic excellence, and our reviewers volunteer their time and expertise generously. Without their critical engagement, methodological scrutiny, and constructive feedback, the papers in this issue—and indeed the journal itself—would not achieve the standards we collectively uphold. Reviewers are the unsung heroes of scholarly publishing, and we are deeply grateful for their contributions.

INVITATION TO REVIEW

As the *Journal of Health Informatics in Africa* continues to grow, the demand for high-quality, timely reviews increases correspondingly. We are always seeking to expand our pool of reviewers, particularly researchers with expertise in health informatics, health information systems, digital health, implementation science, medical informatics, computer science, public health, and related disciplines. If you are willing to contribute to the scholarly community by serving as a reviewer, we invite you to contact the editorial team. We particularly welcome reviewers who can offer expertise in the methodological, technical, or contextual dimensions of health informatics research in Africa. Please contact us from your institutional e-mail account, and include your areas of expertise and ORCID identifier if available. We especially encourage early-career researchers to consider this opportunity to engage with the peer-review process.

FOREWORD

As we reflect on the contributions in this issue, we are struck by the thematic coherence that emerges despite the diversity of topics. Several papers address the application of artificial intelligence and machine learning to pressing health challenges—diabetes, tuberculosis, diabetic retinopathy—demonstrating the growing sophistication of African data science research. Others explore the critical human dimensions of digital health, including user acceptance, patient perspectives, and organisational readiness, reminding us that technology alone does not transform health systems. Governance and interoperability emerge as central concerns, with multiple papers identifying the need for robust frameworks, standards, and accountability mechanisms to ensure that digital health investments deliver sustainable value.

Perhaps most encouraging is the increasing attention to implementation science—the systematic translation of evidence into practice. Several papers in this issue move beyond demonstrating technical feasibility to address the "how" of sustainable deployment: how to align systems with workflows, how to build capacity, how to engage stakeholders, how to monitor and evaluate. This reflects a maturation of the field, as health informatics researchers recognise that innovation is only meaningful when it leads to improved health outcomes.

We hope readers will find inspiration, insight, and practical guidance in these pages. As always, we welcome your feedback, submissions, and engagement with the journal. Together, we are building the evidence base for health informatics in Africa and contributing to the digital transformation of healthcare across the continent.

Prof. Nicky Mostert
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