Artificial Intelligence in Diagnostic Innovations for Resource-Constrained Healthcare Settings in Malawi: A Scoping Review

Chituwo Chikowi[1,2]**, Mhango Simba**[3]**, Zulu Maliphiri**[1]**, Samalwa Phiri**[2]

[1] Lilongwe University of Agriculture and Natural Resources (LUANAR)

[2] Mzuzu University

[3] Department of Data Science, University of Malawi

Correspondence: cchikowi@gmail.com

Author notes

Chituwo Chikowi is affiliated with Lilongwe University of Agriculture and Natural Resources (LUANAR) and focuses on Computer Science research in Africa.
Mhango Simba is affiliated with Department of Data Science, University of Malawi and focuses on Computer Science research in Africa.
Zulu Maliphiri is affiliated with Lilongwe University of Agriculture and Natural Resources (LUANAR) and focuses on Computer Science research in Africa.
Samalwa Phiri is affiliated with Mzuzu University and focuses on Computer Science research in Africa.

Abstract

The rapid advancement of artificial intelligence (AI) in healthcare diagnostics has significant implications for resource-constrained settings like Malawi. A systematic search was conducted using databases such as PubMed and Google Scholar, with a focus on studies published between and . Inclusion criteria were defined based on specific AI techniques applied to disease diagnosis. AI applications showed promising results in resource-limited settings, particularly in areas where traditional diagnostics are challenging due to limited equipment and trained personnel. The review highlights the potential of AI technologies to improve diagnostic accuracy and efficiency in Malawi's healthcare system, though challenges remain regarding technology integration and workforce training. Expanding access to AI diagnostic tools should be accompanied by comprehensive training programmes for healthcare workers and policies that support technology adoption. Model estimation used $\hat{\{\theta\}} = argmin\{\theta\} \, sumiell(yi, f\theta(\xi)) + \lambda lVert\theta rVert 2^2$, with performance evaluated using out-of-sample error.

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ REQUEST FULL PAPER

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa

Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge