Inclusive AI in Africa: Contextualizing Artificial Intelligence for Accessibility and Disability Inclusion in Malaria Respons

Background:

Artificial Intelligence (AI) is increasingly applied to strengthen malaria prevention, diagnosis, and surveillance in Africa. From predictive analytics to digital communication tools, AI offers new possibilities for accelerating malaria elimination. Yet, most AI-driven health innovations remain inaccessible to Persons with Disabilities (PWDs), particularly the blind and the deaf, who face persistent communication and participation barriers. Exclusion from health information and digital technologies undermines equitable malaria response efforts. This study explores how AI can be contextualized and localized to promote accessibility, inclusivity, and disability-sensitive approaches in malaria control and prevention across Africa.

Conclusion:

For AI to contribute meaningfully to malaria elimination, it must be inclusive by design. Contextualizing AI for accessibility ensures that no one—regardless of ability—is left behind in health innovation. Building disability-inclusive AI in malaria response demands participatory design with PWDs, localization to African communication systems, and the integration of accessibility standards into digital health strategies. Inclusivity in AI is not only ethical but essential for achieving malaria-free and equitable health systems in Africa.

Methods:

A qualitative review was conducted, examining existing AI applications in malaria response—such as early warning systems, data visualization, and community health communication tools—and assessing their accessibility for PWDs. The study analyzed published literature, global accessibility models, and grassroots innovations from malaria-endemic African countries. Attention was placed on identifying communication and design barriers that limit access for visually and hearing-impaired populations, and on exploring strategies for localizing AI to African languages and disability needs.

Results:

Findings reveal that while AI technologies are increasingly supporting malaria programs through data-driven interventions, inclusivity remains overlooked. Current AI tools are rarely designed for or tested with PWDs, excluding the blind and deaf from life-saving malaria information, early warning alerts, and community education platforms. The lack of accessible formats—such as voice-based malaria dashboards, text-to-speech malaria alerts, or sign language-integrated communication—limits equitable participation. However, Africa's expanding innovation ecosystems, youth-led digital health initiatives, and disability movements provide opportunities to co-create inclusive malaria AI solutions rooted in local languages and cultures.

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