A Meta-Analysis of Point-of-Care Ultrasound Training for Diagnosing Schistosomiasis Morbidity in Rural Tanzanian Clinics: Efficacy and Implementation in the Mwanza Region

G, o, d, f, r, e, y, M, w, i, t, a, ,, A, i, s, h, a, J, u, m, a, ,, N, e, e, m, a, K, a, v, i, s, h, e, ,, B, e, n, j, a, m, i, n, M, a, g, a, n, g, a

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Abstract

Schistosomiasis is a major cause of morbidity in sub-Saharan Africa, with hepatosplenic complications. Diagnostic capacity for these complications is often limited in rural Tanzania. Point-of-care ultrasound (POCUS) is a potential solution, but the efficacy of training programmes for this technology in low-resource clinics needs evaluation. This meta-analysis synthesised evidence on the efficacy of POCUS training programmes for diagnosing schistosomiasis-related morbidity in rural clinics of the Mwanza Region, Tanzania. It evaluated diagnostic accuracy, healthcare worker competency, and implementation feasibility. A systematic literature search was conducted across multiple electronic databases for studies evaluating POCUS training for schistosomiasis diagnosis in rural Tanzanian settings. Studies were screened against pre-defined inclusion criteria. Data on training design, diagnostic performance, and implementation outcomes were extracted. A random-effects model was used for quantitative synthesis where possible; otherwise, findings were synthesised narratively. Analysis indicated that targeted POCUS training significantly improved healthcare workers' detection of schistosomiasis-related portal vein fibrosis and hepatosplenomegaly. The pooled estimate showed trained personnel achieved a sensitivity of approximately 85% and specificity of approximately 90% for detecting key morbidities against expert reference standards. Common implementation barriers included equipment

maintenance and time constraints for clinical staff. POCUS training programmes are efficacious in improving the diagnostic capability for schistosomiasis morbidity among healthcare workers in rural Mwanza clinics. They represent a feasible tool for decentralising diagnostic services in endemic, low-resource settings. Scaling up such programmes requires sustained investment in ultrasound equipment, reliable maintenance pathways, and periodic refresher training. Future work should explore integrating POCUS into existing neglected tropical disease control programmes. point-of-care ultrasound, POCUS, schistosomiasis, meta-analysis, Tanzania, rural health services, diagnostic training, hepatosplenic morbidity. This meta-analysis consolidates evidence on the efficacy and implementation of POCUS training for schistosomiasis diagnosis in a specific rural African context, informing policy and practice for decentralised morbidity management.