

A Short Report: Evaluating a Virtual Reality-Based Rehabilitation System for Upper Limb Motor Function in a Post-Stroke Cohort at Rwanda Military Hospital, Kigali

C, h, a, n, t, a, l, U, w, a, s, e, ,, M, a, r, i, e, A, i, m, e, e, M, u, k, a, n, t, w,
a, r, i, ,, J, e, a, n, d, e, D, i, e, u, U, w, i, m, a, n, a, ,, S, a, m, u, e, l, H, a, b,
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| Abstract

Stroke is a leading cause of long-term disability in Rwanda, with upper limb impairment a common and challenging consequence. Access to intensive, engaging rehabilitation is often limited. Virtual reality systems offer a potential means to deliver repetitive, task-oriented therapy. This short report aimed to conduct a preliminary evaluation of a commercially available virtual reality-based rehabilitation system on upper limb motor function in a post-stroke cohort at Rwanda Military Hospital, Kigali. A cohort of adult patients with post-stroke upper limb hemiparesis underwent a standardised virtual reality rehabilitation programme alongside conventional therapy. The programme utilised a non-immersive system with gamified exercises targeting shoulder and elbow movements. Upper limb function was assessed pre- and post-intervention using the Fugl-Meyer Assessment for Upper Extremity. Preliminary findings indicated a positive trend in upper limb motor recovery. The mean Fugl-Meyer Assessment score showed improvement post-intervention. Furthermore, over 80% of participants reported high levels of engagement and satisfaction with the virtual reality sessions. The virtual reality-based system appeared to be a feasible and engaging adjunct to conventional upper limb rehabilitation in this clinical setting, showing preliminary promise for supporting motor recovery post-stroke. Further research with a controlled design and larger sample size is required to establish efficacy.

Consideration should be given to the cost, technical support, and integration into standard clinical pathways. Stroke rehabilitation, virtual reality, upper extremity, Rwanda, feasibility, motor function. This report provides initial, context-specific data on the application of virtual reality technology for post-stroke care in a Rwandan tertiary hospital, informing future service development and research.
