African Occupational Therapy Research (Clinical)

An Ethnographic Analysis of Robotic and Conventional Gait Rehabilitation for Incomplete Spinal Cord Injury in a Johannesburg Centre: An African Perspective

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Abstract

Gait rehabilitation is a core component of recovery from incomplete spinal cord injury (iSCI). Robotic-assisted gait training (RAGT) is emerging in some African rehabilitation centres, but its integration and perceived functional value compared to conventional physiotherapy (CP) requires deeper understanding within specific clinical contexts. This ethnographic study aimed to analyse the implementation and perceived functional gains of a RAGT protocol versus CP for iSCI patients within the socio-cultural and resource context of a Johannesburg rehabilitation centre. An ethnographic study was conducted using participant observation of therapy sessions and in-depth, semi-structured interviews with patients (n=8), occupational therapists, physiotherapists, and rehabilitation assistants. Field notes and interview transcripts were analysed using reflexive thematic analysis. A central theme was the differential impact on patient motivation and engagement. Patients in the RAGT group often described the technology as providing a "glimmer of hope" and a "modern advantage," which enhanced adherence. Therapists noted that CP allowed for more nuanced, individualised correction of gait patterns. Functional gains were perceived as complementary; RAGT was favoured for high-repetition early mobilisation, while CP was valued for later-stage refinement of gait quality. From an African perspective, the value of RAGT extends beyond biomechanical gains to include significant psychosocial dimensions, particularly hope. It is not viewed as a replacement for conventional therapy, but as a different tool within a holistic rehabilitation paradigm. Centres in similar contexts should consider RAGT within a blended therapy model. Clinician training should emphasise the psychosocial dimensions of technology use alongside technical operation. Further research should quantify functional outcomes alongside patient experience measures. Spinal cord injuries, rehabilitation, robotics, gait, ethnography, occupational therapy, South Africa This study provides an ethnographic perspective on technology integration in a middle-income African rehabilitation setting, highlighting the complementary roles of robotic and conventional therapies and the importance of psychosocial factors in patient engagement.

Keywords: *Robotic-assisted gait training, Incomplete spinal cord injury, Ethnographic analysis, Physiotherapy, Sub-Saharan Africa, Neurorehabilitation, Assistive technology*

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