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Evolution of Healthcare - Role of Telerehabilitation and IoT in Robot assisted Knee Replacements: A Narrative Review

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ABSTRACT

Health care has evolved over the last decade, diversifying its horizons from in-person rehabilitation care to technology-based tele-rehabilitation facilities. Latest trends like Internet of Things (IoT), sensors and virtual reality have changed the defi nition of telehealth. This narrative review aims to identify the impact of in-person physiotherapy care and telerehabilitation.

To review recent literature on technological interventions and tools utilised in physiotherapy teleconsultations on effectiveness, patient satisfaction, access, and clinical outcomes.

A narrative review was performed using the Scopus, Elsevier, PubMed, Google Scholar, and Web of Science databases, with a temporal scope extending from 2015 to 2025. Eligibility was restricted to articles that examine technological advancements pertinent to physiotherapy, encompassing not only Artificial Intelligence (AI), but also other modalities employed within teleconsultative settings.

In total, 17 studies qualified for our analysis. The primary technologies employed consisted of video conferencing, wearable sensors, mobile applications, AI, and virtual and augmented reality. The majority of studies found an increase in patient and clinician involvement, compliance with exercise regimens, and clinical results.

Virtual reality, machine learning, and distributed sensor technologies have profoundly enhanced teleconsultation in the field of physiotherapy. When combined, AI-augmented diagnostic instruments, tethered and untethered biofeedback systems, and bidirectional immersive environments have elevated both the efficacy and the responsiveness of remote physiotherapy interventions clinically applied to musculoskeletal, cardiac, and neurological disorder domains.

Keywords: Artificial intelligence, Internet of Things, Rehabilitation care

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