ABSTRACT

Mobile app for the Telerehabilitation of Elderly People after Total Hip Arthroplasty Surgery

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Life expectancy has increased worldwide, especially in developed countries. Still, this growth has been accompanied by a rise in musculoskeletal diseases, which impact functionality and quality of life, particularly in individuals over 60. Hip fractures are one of the leading causes of disability, reducing life expectancy by nearly two years and requiring permanent healthcare assistance in at least one in five cases [1]. By 2050, it is estimated that over 2 billion people will suffer from hip fractures, with countries like Mexico seeing an incidence of 1,500 per 100,000 inhabitants [2]. The typical treatment for these fractures is total hip arthroplasty, which requires crucial rehabilitation in the first two months to regain mobility. However, in countries like Mexico, the lack of medical professionals [3] [4] and difficulties in elderly patients traveling to hospitals present significant barriers. A potential solution for providing care without needing long-distance travel is telerehabilitation through mHealth (mobile health) applications. These have emerged as a promising tool for managing and monitoring patients undergoing total hip arthroplasty. While mHealth apps can improve the experience of hip arthroplasty patients, their effectiveness depends on the design and quality of the application, as well as the patient's willingness to follow the recommendations provided through these platforms. At the National Rehabilitation Institute in Mexico, we are developing a mHealth application to facilitate remote monitoring, continuous education, and patient health tracking. To ensure its effectiveness, we have incorporated the participation of medical professionals and elderly individuals in the development process. The proposed application includes personalized exercises designed by healthcare professionals and integrates markerless motion analysis using artificial intelligence to provide real-time patient feedback.

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