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Opinion

Telerehabilitation Trends with Orthopedic Injuries Before COVID-19 and Post-Pandemic Recommendations

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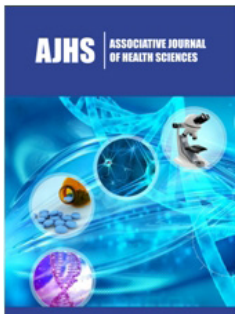

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Opinion

Abstract

The COVID-19 pandemic triggered a transformative change in healthcare delivery. Clinicians looked for alternatives means of providing services while limiting physical contact, and traditional face-to-face rehabilitation was progressively replaced or complemented with digital solutions such as telehealth. Numerous studies conducted before the COVID-19 Pandemic have reported promising results regarding the benefits of using telerehabilitation instead of traditional rehabilitation for orthopedic conditions, which has been shown to improve or at least maintain the continuity of rehabilitation care and services. However, the research also highlighted many limitations involving the level of research, sample size, or research process. Considering the promising results and the limitations of the studies that involved telerehabilitation of orthopedic injuries before COVID-19 and the current post-pandemic stage where face-to-face therapy is not restricted, recommendations include the following: to consider telerehabilitation when traditional face-to-face rehabilitation is not possible; to prioritize video or phone conferencing or interface, virtual reality interface, and mobile applications platforms; to prioritize pain, quality of life (QoL), range of motion, and function outcomes; to support telerehabilitation with traditional face-to-face rehabilitation when possible.

What is telerehabilitation?

Telerehabilitation involves dispensing rehabilitation services from a distance, with patients and practitioners using technology to communicate [1]. Services are delivered from a remote location via telecommunication, information technology, or digital systems that are specifically designed for conditions or locations [2]. Telerehabilitation is known to be a valid medium for physical and occupational therapists to remotely carry out several components of a physical examination, including observation and analysis, muscle strength tests, and assessment of the joint range of motion [3]. Examples of telerehabilitation platforms include video conferences, digital systems, virtual exercise rehabilitation assistants, video/photo interfaces, over-the-phone supervision, virtual reality, and mobile applications.

Trends and limitations in the research before the COVID-19 pandemic

Numerous studies conducted before the COVID-19 Pandemic have reported promising results regarding the benefits of using telerehabilitation instead of traditional rehabilitation for orthopedic conditions [4-6]. Telerehabilitation has been shown to improve or at least maintain the continuity of rehabilitation care and services by making them more efficient and cost-effective [1,5,7-10]. Telerehabilitation based on video conferencing showed statistically superior results over traditional outpatient therapy in improving the participants' pain, quality of life (QoL), range of motion and function [7] and over-the-phone telerehabilitation showed statistically superior results than traditional home exercise programs for improving the range of motion [10]. Video and over-the-phone telerehabilitation showed statistically

equivalent outcomes to traditional face-to-face therapy and outpatient therapy for improving shoulder function and ROM [8,11] and for improving pain, function, and QoL [10]. Telerehabilitation assessments based on video/phone interface, virtual reality interface, and mobile applications also yielded statistically significant equivalence to traditional goniometric measurements of the shoulder ROM [12,13].

Despite the promising results of telerehabilitation of orthopedic conditions, the research conducted before the COVID-19 Pandemic showed many limitations. For example, Macías-Hernández et al. [1] conducted a quasi-experimental study that tested the effectiveness of a telerehabilitation platform on an intervention group without considering a control group to rule out the placebo effect. Although Worboys et al. [14] and Lade et al. [3] found a level of agreement between telerehabilitation and traditional rehabilitation for ROM assessments, circumferential measurement, pain, and edema, these studies had small sample sizes and were pilot studies. The participants in Lade et al. [3] study tended to disclose more information during the face-to-face appointments as compared with the telerehabilitation examinations, which may have influenced the accuracy of diagnoses, and Worboys et al. [14] study required an allied health assistant (AHA) to be present at the patients' houses during telerehabilitation, which limited the accessibility of the platform for some patients depending on the availability of the AHAs.

Post-pandemic recommendations

The COVID-19 pandemic triggered a transformative change in healthcare delivery. Clinicians looked for alternatives means of providing services while limiting physical contact. Traditional face-to-face rehabilitation was progressively replaced or complemented with digital solutions such as telehealth [15]. Even though the research prior to the pandemic showed the effectiveness of telerehabilitation compared to traditional rehabilitation in assessing or treating patients with orthopedic injuries, the limitations highlighted in the studies warrant further research based on higher levels of evidence and focusing on specific telerehabilitation interventions to validate telerehabilitation as a reliable intervention [16-18]. The following recommendations are pending new updates in the research focused on telerehabilitation of orthopedic injuries.

a) Consider telerehabilitation when traditional face-to-face rehabilitation is not possible.

b) Prioritize the following platforms during telerehabilitation for orthopedic injuries: video or phone conferencing or interface, virtual realith interface, and mobile applications.

c) Prioritize the following outcomes during telerehabilitation for orthopedic injuries: pain, quality of life (QoL), range of motion, and function.

d) Support telerehabilitation with traditional face-to-face rehabilitation when possible.

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