

The Role and Impact of Digital Health Literacy in Physical Therapy and Rehabilitation

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Abstract

Digital health literacy is a skill that enables individuals to access health information from digital platforms, critically evaluate that information, and effectively participate in health processes. This study was prepared as a literature review aimed at evaluating the role and impact of digital health literacy in physical therapy processes. The literature indicates that digital health literacy promotes patient engagement, enhances the effectiveness of treatment processes, and facilitates access to healthcare services through innovative approaches such as telerehabilitation. However, it is noted that a low level of digital health literacy can adversely affect the treatment process. In this review, the use of digital health technologies in physical therapy, the challenges encountered, and proposed solutions are discussed. The study emphasizes the importance of educational programs and user-friendly technologies for improving digital health literacy.

Keywords: Digital health literacy, physical therapy, telerehabilitation, mobile health applications, health technologies.

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Introduction

Digitalization not only facilitates individuals' access to healthcare services but also enables them to manage health information effectively. The World Health Organization (WHO) defines digital health literacy as the ability of individuals to access personal health records, utilize electronic health records that support data sharing, and employ technologies such as telemedicine, artificial intelligence, and robotics (WHO, 2020). The COVID-19 pandemic has increased the importance of digital health technologies and made deficiencies in digital health literacy more apparent. During the pandemic, when face-to-face access to healthcare services was limited, digital solutions such as telerehabilitation and mobile health applications came to the forefront. However, it was found that individuals with low digital health literacy struggle to adapt to these technologies (Turolla et al., 2020).

Studies have shown that the ability to evaluate and use online information directly affects an individual's health status and the benefits they receive from healthcare services. Individuals with low socioeconomic status, the elderly, and people with disabilities are among those most affected by insufficient digital health literacy (Chesser et al., 2016). In today's healthcare systems, the role of active and informed individuals is increasingly emphasized. Therefore, it is necessary to make digital health technologies user-friendly and to adapt them for individuals with lower literacy levels.

Physical therapy is an evidence-based treatment approach applied to reduce various functional losses—particularly in the musculoskeletal system—alleviate pain, and increase mobility. Digital health technologies offer innovative solutions in physical therapy processes, such as remote rehabilitation, exercise tracking, and enhanced patient engagement. In addition to traditional face-to-face therapy sessions, digital tools allow for remote rehabilitation, exercise monitoring, and increased patient participation. The use of digital technologies in physical therapy requires patients to actively engage in the treatment process. Digital health literacy plays a critical role in ensuring these technologies are used effectively, thereby enhancing treatment success. Thus, digital health literacy and physical therapy are interconnected in terms of increasing patient participation, monitoring treatment effectiveness, using interactive educational materials, and broadening access to services (Cottrell et al., 2017; WHO, 2019; Norman & Skinner, 2006).

2. Literature Review and Findings

2.1. *The Use of Digital Health Technologies in Physical Therapy*

2.1.1. *Telerehabilitation*

Telerehabilitation transfers physical therapy services to the patient's home through internet-based video conferences, interactive platforms, and remote exercise tracking software in situations where face-to-face participation is challenging due to geographical distance or physical limitations. This approach eliminates travel barriers, ensures continuity of treatment, and allows patients to remain continuously connected to their therapists through interim monitoring. However, the full benefit of these technologies is directly linked to the patient's level of digital health literacy. Patients with low digital health literacy may misinterpret the provided exercise videos, follow recommendations from unreliable sources, or experience difficulties accessing digital platforms, thereby disrupting their treatment processes. Conversely, patients with a high level of digital health literacy benefit from being able to select the most appropriate exercise program for their condition, monitor their progress, and communicate effectively with their physiotherapists. Turolla et al. (2020) reported that 70% of patients who used telerehabilitation during the pandemic experienced increased satisfaction with their treatment, and 85% of these patients participated more regularly compared to traditional face-to-face sessions.

2.1.2. *Mobile Applications*

Mobile health (mHealth) applications are platforms that remind patients of their exercise programs, demonstrate techniques through videos, and record daily pain or functional movement data. This enables patients to self-monitor and report their progress (Faiola, Papautsky, & Isola, 2019). In India, the “mHealth for All” project distributed low-cost tablets in rural areas and provided digital health education. Chan et al. (2020) found that 70% of individuals using mobile applications during the pandemic adhered regularly to their treatment programs, whereas this rate dropped below 30% among those with low digital health literacy.

2.1.3. *Wearable Devices and Sensors*

Smart bracelets, motion sensors, posture tracking devices, and even virtual reality (VR)-based systems objectively measure patients’ exercises, collect data, and assist physiotherapists in optimizing treatment plans. Additionally, patients can track their progress through concrete data, which serves to boost motivation (Laver et al., 2017). Devices such as simplified blood pressure monitors, glucose meters, and oxygen monitors can connect via Bluetooth to mobile applications, ensuring the automatic transfer of data.

2.1.4. *Robot-Assisted Therapy*

Robot-assisted therapy is an innovative rehabilitation method used primarily for patients suffering from upper extremity paralysis, aiming to correct motor function loss by providing highly repetitive, intensive, adaptable, and measurable physical training. Clinical studies have demonstrated that treatment intensity is a critical component of effective post-stroke motor rehabilitation programs, and that repetitive practice improves motor performance (Kwakkel et al., 2004; Nicolas & Gil, 2012; Page et al., 2012). Robotic devices offer the ability to measure and increase repetition levels during rehabilitation sessions, meeting this need. Numerous studies have shown that higher levels of repetition positively impact motor outcomes (Burgar et al., 2011; Duret et al., 2019; Hsieh et al., 2011). Additionally, robotic therapy allows for control over experimental conditions and the evaluation of environmental factors on motor performance. New robotic platforms, such as mobile base platforms and systems like the Stewart Platform, provide opportunities for more intensive and targeted training in lower extremity rehabilitation.

2.2. *The Necessity of Digital Health Literacy in the Treatment Process*

Physical therapy processes aim to improve an individual’s physical function, reduce pain, and enhance quality of life. In this context, digital health literacy plays a critical role by influencing patient adherence to treatment, the implementation of personalized treatment plans, and access to accurate information. The literature examines the importance of digital health literacy under three main themes: treatment adherence, personalized treatment, and access to as well as evaluation of accurate information.

2.2.1. *Personalized Treatment*

Personalized treatment refers to the creation and implementation of treatment plans tailored to an individual’s physical condition, lifestyle, and medical history. This concept enables patients to understand their own data and to evaluate recommendations based on that data, thereby facilitating effective communication with their physiotherapists. Artificial intelligence-supported digital tools can be employed to develop customized physical therapy programs that meet patients’ specific needs. Öztürk (2022) noted that artificial intelligence-based rehabilitation technologies improve personalized



treatment processes. In the rehabilitation of intensive care patients, digital health literacy also helps increase awareness among patients and their families regarding treatment processes, thereby contributing to more effective home care and rehabilitation practices. Digital health technologies are thus essential tools for enhancing physical function and improving adherence to treatment (Health Care and Rehabilitation Journal, 2025).

2.2.2. Access to and Evaluation of Accurate Information

Today, countless exercises, rehabilitation programs, and medical information are available online. However, patients must assess which information sources are reliable, evidence-based, and suitable for their needs. Digital health literacy equips patients with the ability to critically filter and evaluate the information they encounter. The ability to access and critically assess accurate information enables patients to become more independent during the physical therapy process and make more informed decisions. Eysenbach (2020) emphasized that enhancing patients' competencies in evaluating health information allows them to derive greater benefits from digital health technologies.

2.2.3. Treatment Adherence

Even with remote guidance from physiotherapists, it is essential that patients correctly understand and apply digital tools and exercise instructions. Misapplication of exercises learned from digital sources may result in harm rather than benefit. Therefore, the ability to accurately comprehend and execute instructions is critical for treatment success. Studies have shown that reminders and feedback provided through digital health technologies—such as mobile applications and wearable devices—effectively improve patient adherence to treatment. For example, Chan et al. (2019) found that patients using physical therapy applications performed their exercises more regularly and accurately.

2.3. Solutions for Enhancing Digital Health Literacy

2.3.1. Educational Programs

To enhance digital health literacy among individuals with limited technological skills, programs can include practical workshops on using computers, smartphones, and tablets; internet-based simulation exercises; and educational videos. Interactive presentations and case studies can help individuals of all ages recognize reliable health information sources and distinguish between accurate and false information. For specific groups such as individuals with chronic illnesses, the elderly, and pregnant women, educational applications for tools like E-nabiz, telemedicine applications, and mobile health applications can be incorporated along with individualized counseling services. For those with busy lifestyles or existing illnesses, simulation-based application practices and group sessions for appointment tracking, medication reminders, and setting and monitoring health goals via mobile applications can also be integrated. Additionally, training programs for healthcare professionals can be organized so that they can use digital tools effectively and guide patients in their use.

2.3.2. User-Friendly Technologies

For tools such as E-nabiz, telemedicine applications, and mobile health applications, it is important to include educational applications and individualized counseling services. Mobile applications should be developed with user-friendly features such as appointment tracking, medication reminders, and capabilities for setting and monitoring health goals. Moreover, for individuals who experience disadvantages in digital health literacy due to visual impairments, screen reader and multilingual support systems should be developed. Mobile platforms that allow users to access information via voice commands—when setting appointments or accessing health data—can further facilitate ease of use.

3. Findings and Discussion

The literature supports the contribution of digital health literacy to physical therapy. In applications such as telerehabilitation, it has been observed that patients' abilities to access and correctly apply information directly affect the treatment process. However, low digital health literacy may limit treatment effectiveness and reduce patient satisfaction. Expanding educational programs and developing user-friendly technologies emerge as key solutions to overcome these challenges.

A study conducted by Ekinçi et al. (2021) provided a comprehensive examination of the concept of digital health literacy, the measurement tools associated with it, and the studies carried out in this area. Another study by Demiroğlu and Patir (2024) investigated the effects of digital transformation on health literacy and individuals' self-efficacy. The results indicate that digital transformation enhances health literacy and individuals' ability to manage their own health, particularly highlighting the importance of digital health literacy in processes such as physical therapy (Demiroğlu & Patir, 2024).

Conversely, research by Zaimoğlu and Özer (2023) examined the relationship between e-health literacy levels and patient activation among individuals with chronic diseases. This study demonstrated that patients with high e-health literacy manage their health more effectively and participate more actively in treatment processes (Zaimoğlu & Özer, 2023)

Mobile health applications played a critical role in ensuring the continuity of exercise programs during the pandemic. However, insufficient digital health literacy limited the effectiveness of these technologies (Chan et al., 2020).

In a study conducted in Turkey, it was found that 50% of individuals in rural areas experienced difficulties accessing digital health services, compared to only 20% in urban centers (Ekinçi et al., 2021).

Finally, a review by Temür and Aksoy (2022) emphasized the importance of digital health literacy in disease management. The review stated that technological advancements have increased patients' ability to manage their own health and improved the quality of healthcare services, while also highlighting that increasing the digital health literacy of nurses plays a critical role in delivering better healthcare to society.

4. Conclusion and Recommendations

With advancements in technology, digitalization has brought about a significant transformation in healthcare services, making digital health literacy a critical skill for effective physical therapy. Comorbidities commonly observed among middle-aged and elderly patients render this skill even more crucial for treatment adherence and improved health outcomes. However, deficiencies in digital health literacy can lead to disruptions in treatment processes. To address these issues, it is recommended to expand educational programs, develop user-friendly technologies, and have healthcare professionals actively guide patients. Designing accessible and comprehensible platforms to facilitate the use of digital tools is essential.

The pandemic clearly demonstrated the importance of enhancing digital health literacy within healthcare services. Future studies should focus on initiatives aimed at developing this skill, particularly among the elderly and rural populations. Successful policies for increasing digital health literacy are already being implemented internationally. For example:

USA: Under the expansions of Medicare and Medicaid, digital health technologies have been made accessible to individuals, and the "National Digital Health Initiative" has provided public service announcements, interactive web seminars, and free educational content for all age groups (Eysenbach, 2020).

European Union: The eHealth Action Plan has standardized digital health services and organized digital skills courses for the elderly (WHO, 2019).



Japan: Wearable device programs enable elderly individuals to monitor their health processes, with these devices providing personalized health data that helps users adapt to their daily lives (Kwakkel et al., 2004).

Adapting these successful policies to different countries and patient groups can enhance the effectiveness of healthcare services by increasing digital health literacy and enabling individuals to benefit more effectively from available health services.

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