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Letter to the Editor

A Journey to Childhood for Therapeutic Purposes: Utilizing Gamification for the Rehabilitation of Stroke Patients

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Dear Editor-in-Chief

Stroke is one of the leading causes of motor disability, and patients require creative and effective therapeutic and care programs for rehabilitation and reintegration into society after discharge. The rehabilitation methods that are commonly used often fail to engage patients effectively in the rehabilitation program and are unable to motivate them. To address this issue, the use of innovative rehabilitation approaches such as gamification can be employed (1).

Gamification, defined as the application of game elements in non-game contexts, is used with the aim of incorporating aspects such as rewards, challenges, and interactive feedback into rehabilitation programs. It can transform traditional therapeutic methods, which are often dull, into more engaging experiences for patients (2). One of the main advantages of gamification in stroke rehabilitation is its ability to create and enhance motivation among patients. Conventional therapeutic exercises often lack the necessary capacity to foster commitment in patients to rehabilitation programs. By integrating game elements, gamification turns rigid and monotonous treatment programs into engaging challenges for patients, leading to sustained connection and commitment to the treatment plan (3). The results of studies indicate that the combination of gamified devices, such as the Nintendo Wii, is more appealing to patients due to the excitement and enjoyment they create during rehabilitation exercises, leading to significant improvements in patients' motor performance after using this therapeutic method. This direct interaction between increased enjoyment and motivation affects the adherence of stroke patients to their rehabilitation programs (4).

Increasing patient engagement is another fundamental aspect facilitated by gamification interventions. Stroke rehabilitation is often a tedious process, ultimately leading to a decrease in patients' cognitive and emotional involvement in the rehabilitation program. Gamification creates a dynamic environment in which patients actively participate in their recovery process through interactive tasks that require effort and specific skills. Research results indicate that patients using non-robotic neurorehabilitation systems have a greater ability to adapt and adjust compared to standard care. Furthermore, the competitive nature present in many of these games can encourage patients to strive for optimal performance, resulting in sustained engagement in therapeutic exercises (5). On the other hand, gamified rehabilitation programs can lead to improvements in mental and cognitive abilities alongside motor

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skills. Cognitive engagement in interpreting and processing the rules and objectives of the game stimulates neural pathways, which enhances mental and cognitive functions in stroke patients (2). Additionally, the use of advanced gaming technologies such as immersive virtual reality (IVR) reinforces this mental and cognitive interaction by creating realistic environments that provide both challenges and opportunities for skill practice in a safe space. IVR-based methods can lead to significant improvements in physical activity levels and balance maintenance in stroke patients, thereby significantly moderating the sensory-motor impairments created in the upper and lower limbs (5).

The use of a gamification approach in the rehabilitation of stroke patients, despite its positive aspects, faces limitations in its implementation. For example, the varying therapeutic responses of stroke patients to gamified interventions can affect the outcomes of using this method. Additionally, the complexity and high costs associated with quality-gamified methods may limit the acceptance and use of this approach, especially in communities with low economic levels (3).

Ultimately, the use of a gamification approach, by increasing motivation, facilitating engagement, and enhancing cognitive and motor recovery outcomes, represents an innovative strategy that, despite the challenges in its implementation, can be utilized for the rehabilitation of stroke patients. With advancements in rehabilitation methods, integrating gamified interventions into conventional rehabilitation programs can create promising prospects for improving stroke patients' conditions. Therefore, it is essential for physicians, rehabilitation teams, and researchers to collaborate in the application and development of these interventions. The goal of creating gamified rehabilitation should be to establish a standard practice that transforms treatment into not only a necessity but also a pleasurable experience for patients on their path to recovery.

Conflict of interest

The authors declare that there is no conflict of interests.

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