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ABSTRACT

Effectiveness of Using Online Technology Training Program for Post-Stroke Patients Rehabilitation

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Background: The high incidence of stroke makes it one of the most important causes of adult disability, it also causes sensory, motor, cognitive, and visual impairments and restricts performance of activities of daily living. In the field of post-stroke rehabilitation, an innovative online technology training program has been widely used in post-stroke rehabilitation, whose effectiveness and safety have been widely verified. To date, however, there are few studies evaluating the effect of immersive online technology training program on post-stroke rehabilitation. This study outlines the application efficacy of immersive online technology training program rehabilitation of stroke patients at home. Objectives: The aim of this study was to perform a meta-analysis to evaluate the using online technology training program if it is effective for post-stroke patients Rehabilitation.

Methods: We were proposed to do literature review and meta-analysis through a collection of 13 studies about the using online technology training program if it is effective for post-stroke patients rehabilitation. In order to do so, we performed an electronic search in PubMed, Google scholar and Physiotherapy Evidence Database. No date range parameters were used. We included articles that used technological means to help stroke patients conduct rehabilitation at home, reported empirical studies that evaluated the technologies with patients in the home environment. The types

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of technology of reviewed articles included video games, Tele-rehabilitation, robotic devices, and virtual reality devices. We present the merits and limitations of each type of technology.

Results: The search yielded more than 40 potentially relevant studies, leading to 13 studies that were included for in-depth analysis. The types of technology of reviewed studies included Tele-rehabilitation, robotic devices, and virtual reality devices. To summarize the main results of the selected publications, the outcomes to be evaluated will be motor functionality of the extremities performance for activities of daily living and quality of life, through measurement scales. Previous studies on stroke rehabilitation systems indicated that technological interventions can improve patients' motor function, increase their motivation, and provide a great solution for home- based therapy.

Conclusions: This literature review will provide evidence regarding the efficacy of multiple technological interventions are effective and feasible in the recovery of functionality after stroke, for the use of robotics, VR, brain stimulation, and Tele rehabilitation continues to grow and has great potential in helping people make a better recovery from stroke, so that Patients can be used the technologies at their homes or at a local healthcare facility.

Research Keywords: Post-stroke, virtual reality, tele-rehabilitation, technology, robotic, home-based.

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