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Role of Virtual Reality in the Rehabilitation of Heart Failure Patients: A Systematic Review

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ABSTRACT

Introduction: Heart failure (HF) is a syndrome characterized by symptoms caused by cardiac dysfunction, thereby leading to reduced life expectancy and quality of life. Cardiac rehabilitation, which involves effective management of symptoms and reduction of HF sequelae, can benefit patients, including reduced readmissions and increased functional and cognitive capacity. In the present era, implementing new technologies, including virtual reality (VR), has facilitated the development of promising rehabilitation programs that address physical and psychological dimensions. The present study systematically investigated the effect of VR in the rehabilitation of HF patients through exercise.

Search Strategy: Articles based on the Prisma checklist were searched in four databases PubMed, Scopus, Web of Science, and Google Scholar using the keywords "rehabilitation", "heart failure", and "virtual reality" between 2007 and 2024. A total of 95 articles were identified through the primary search. After removing duplicates and screening titles and abstracts, we applied the inclusion criteria, which encompassed studies related to heart failure, virtual reality, sports training, compliance with the specified publication time, and randomized controlled trials. Ultimately, 12 articles were included in this study, reviewed by two reviewers. The exclusion criteria involved any violations of entry parameters.

Results: The results showed that using VR with sports exercises in rehabilitation programs can increase a person's capacity and level of physical activity. It can also elevates a person's motivation and lead to greater adherence to the rehabilitation program. This method has been reported to be effective in managing symptoms and pain, as well as improving the cognitive functions of patients. However, some studies have indicated that this type of rehabilitation does not significantly impact patients' quality of life scores or overall distress. Nevertheless, due to the lack of complications, they recommend the continued use of VR.

Conclusion and Discussion: The efficacy of rehabilitative interventions employing VR in treating numerous aspects of HF in affected patients renders it a viable option for use in this field.

Keywords: Heart failure, Rehabilitation, Virtual reality

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