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Application of virtual reality for supportive care in cancer patients: a systematic review

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Abstract

Background: In recent years, virtual reality (VR) technology has been widely used to support cancer patients with physical, emotional, and functional needs. This systematic review aimed to investigate the application of VR in the supportive care of cancer patients.

Method: This systematic review was conducted in 2024. In this study, various databases including PubMed, Web of Science, Scopus, the Cochrane Library, Ovid, IEEE Xplore, and ProQuest were searched, and quantitative, qualitative, and mixed-method studies which were in English and published up to 20th May 2024 were included. The keywords consisted of "virtual reality," "supportive care," and "cancer". Studies were assessed in terms of quality and risk of bias using standard tools, and results were analyzed and reported narratively.

Results: A total of 33 articles were reviewed. VR interventions, primarily using fully immersive head-mounted displays, were associated with significant reductions in anxiety, pain, and fatigue. VR also improved mood, relaxation, and overall quality of life, and some studies noted enhanced vital signs such as heart rate and blood pressure. This technology could be used along with other medical interventions. Both patients and healthcare providers reported high level of satisfaction with VR, and appreciated its ease of use and therapeutic benefits. However, some technical barriers, like inadequate visual performance and realism, were reported.

Conclusion: VR demonstrates substantial potential benefits as a supportive care tool for cancer patients, effectively addressing their psychological, physiological, psychosocial needs. Despite technical challenges, high level of user satisfaction and benefits underscore the need for further research to optimize VR interventions in cancer care.

Keywords: Cancer; Supportive care; Systematic review; Virtual reality.

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