The impact of gaming on the ageing population: A scoping review

Muhammad Haziq Razali, Zatul-'Iffah Abu Hasan, Siva Gowri Pathmanathan

Faculty of Medicine and Health Sciences, Universiti Sains Islam Malaysia, 71800 Bandar Baru Nilai, Negeri Sembilan, Malaysia

ABSTRACT

Introduction: The global increase in life expectancy has sparked interest in developing new methods to promote healthy ageing. Digital gaming has emerged as a potential avenue to encourage cognitive, physical, and mental health and well-being in the elderly. Although many studies have reported benefits ranging from improving executive function to reducing loneliness, the evidence base is fragmented across disciplines. Therefore, this scoping review aimed to systematically map the extent, range and aspects of research examining the impacts of gaming on cognitive, physical, mental health and well-being in the ageing population. **Materials and Methods:** A literature search was conducted in PubMed, Scopus and Google Scholar from 2015 to 2025, using terms related to "gaming," "video games," "exergames," and "elderly." Eligible studies included empirical research involving participants aged ≥60 years and reporting cognitive, physical, mental health and well-being outcomes linked to gaming interventions. Eligible studies were identified, and data extraction captured study design, gaming modality, duration, outcome measures, and key findings. **Results:** A total of 40 studies met the inclusion criteria, encompassing randomised controlled trials (23 studies), quasi-experimental studies (6), pretest-post-test design (7), longitudinal study (2), pilot study (1) and qualitative approach (1). Gaming interventions were delivered on two main platforms: conventional screens (31 studies) and immersive virtual reality (9). The screen-based interventions were further categorised by their primary purpose, including exergames (19 studies), cognitive training games (6), general video games (5), and one educational game. Reported outcomes were clustered into three domains. Sixteen studies in the cognitive domain demonstrated improvements in memory, attention, executive functioning and processing speeds, particularly through serious games designed for cognitive training. Eleven studies in the physical domain reported enhanced balance, mobility, fall prevention, gait, muscle strength and aerobic endurance, in exergame interventions. Six studies in the mental health and well-being domain highlighted reduced loneliness, increased social engagement, improved mood, enhanced sense of belonging and reduced depressive and anxiety symptoms. The remaining seven studies demonstrated mixed improvement across cognitive (attention, memory, executive function), physical (balance, mobility, aerobic fitness, gait) and mental health (reduced depression symptoms) domains. **Conclusion:** This review highlights gaming as a promising strategy to improve cognitive, physical, and mental health and well-being in older adults. However, the available evidence is limited by small sample sizes, short intervention durations, the absence of an active control group for comparison, and the overall limited number of studies. Considerations for future research include developing larger longitudinal studies, involving elderly individuals with both healthy and various physical or mental conditions, and examining the duration of improvements in outcome measures after training sessions. Future research should also compare gaming interventions with conventional methods, considering long-term effects and including cognitive, physical, mental health, and well-being outcomes. Collaborative efforts between researchers and game developers are essential for designing engaging, tailored, and sustainable interventions for older adults. This review underscores gaming as a potentially valuable, engaging, and accessible strategy for enhancing quality of life in ageing societies. This review was undertaken to fulfil the requirements of the Special Study Module (SSM) in Year 5, FPSK, USIM.

Keywords: Gaming, video games, exergames, elderly