ASAUMS Press

AJAH
Avicenna Journal of Aging and Healthcare

Avicenna Journal of Aging and Healthcare, 2024; 2(2):86-87. doi:10.34172/ajah.21
https://ajah.asaums.ac.ir

Letter to Editor

Impacts of Virtual Reality on Elderly Health

Payam Emami[1], **Ameneh Marzban**[2*]

[1]Department of Emergency Medical Sciences, Faculty of Paramedical Sciences, Kurdistan University of Medical Sciences, Sanandaj, Iran
[2]Department of Health in Disasters and Emergencies, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran

***Corresponding author:** Ameneh Marzban, Email: amenemarzban@yahoo.com

Please cite this article as follows: Emami P, Marzban A. Impacts of virtual reality on elderly health. Avicenna Journal of Aging and Healthcare, 2024; 2(2):86-87. doi: 10.34172/ajah.21

Received: February 16, 2024, **Revised:** February 26, 2024, **Accepted:** March 3, 2024, **ePublished:** December 29, 2024

To Editor,

Virtual reality (VR) has transformed various industries, including healthcare, by offering immersive and interactive experiences. In recent years, the potential of VR in improving the health and well-being of elderly individuals has gained significant attention. VR technology provides unique opportunities for elderly health, addressing the physical, cognitive, and emotional aspects of aging. By harnessing the power of VR, healthcare professionals and caregivers can revolutionize elderly care, enhance rehabilitation, and promote overall well-being (1,2). VR is not just a fancy futuristic concept anymore; it is becoming an increasingly popular tool for various applications, including healthcare. VR involves immersing users in a computer-generated environment that simulates real or imagined experiences. Equipped with a headset and sometimes additional accessories, users can interact with this digital world in ways that mimic reality (2,3). As people age, they often face unique health challenges. Common concerns among the elderly include mental well-being, physical rehabilitation needs, and social isolation. Cognitive decline is another significant issue, with conditions such as dementia and Alzheimer's affecting a large portion of the aging population (4). Thanks to its immersive and interactive nature, VR holds great promise in addressing many of the health concerns faced by the elderly. By providing engaging and realistic experiences, VR can help improve mental well-being, enhance physical rehabilitation outcomes, and combat social isolation. Additionally, VR shows the potential to support cognitive health and manage conditions such as dementia (1,5).

Engaging in VR experiences can be a great way for the elderly to escape the monotony of everyday life and explore new worlds. Whether it is virtually traveling to distant destinations or engaging in stimulating activities, VR can boost mood, alleviate symptoms of depression, and provide a renewed sense of joy and adventure (1). Social isolation can be a significant challenge for the elderly, leading to feelings of loneliness and depression. VR offers the possibility of connecting with others and participating in social activities, even from the comfort of one's own home. Virtual social platforms and multiplayer VR games enable seniors to interact with friends and family and even meet new people, fostering social connections and reducing isolation (6). In physical therapy, VR can create immersive exercises that aid in muscle strengthening, balance improvement, and gait training. By simulating real-life scenarios, VR allows elderly patients to practice movements and activities that they might find challenging in their daily lives. This technology can also provide immediate feedback and progress tracking, enhancing the efficacy of physical rehabilitation programs (7). Cognitive decline is a common concern among the elderly, but VR can offer innovative solutions for cognitive rehabilitation. VR applications can provide stimulating cognitive exercises, memory training, and attention-building activities. Through interactive games and activities, VR stimulates the brain and challenges cognitive skills. By engaging in these exercises regularly, seniors can maintain and even improve their cognitive abilities. By involving seniors and promoting mental acuity, VR technology has the potential to decelerate cognitive decline and enhance overall cognitive function in elderly individuals (1,7,8). Chronic pain is a prevalent issue among the elderly, and traditional pain management techniques may not always be sufficient. VR can serve as a distraction therapy tool, diverting attention away from pain and providing a soothing environment. By immersing users in relaxing and visually stimulating virtual worlds, VR can help reduce pain perception and promote relaxation (9).

With specially designed programs, seniors can engage in balance exercises and simulations that mimic real-life scenarios. By navigating virtual worlds and challenging their equilibrium, they can strengthen their balance and reduce the risk of falling (5,8).

In conclusion, VR has emerged as a promising tool for promoting the health and well-being of elderly individuals (1). Its applications in physical rehabilitation, cognitive training, and emotional well-being have shown remarkable benefits (1,5,6,8–10). While there are challenges and considerations in implementing VR in elderly health, advancements in technology and increased research efforts are paving the way for a future where VR becomes an integral part of elderly care. It is crucial to obtain informed consent from elderly individuals before immersing them in virtual experiences. Additionally, privacy concerns and safeguarding personal information should also be taken into account. VR is a powerful tool, but it requires knowledgeable and tech-savvy healthcare professionals to make the most of it (2,3). Providing adequate training and support to caregivers and healthcare providers is essential for successful implementation. By embracing this innovative technology, the quality of life for the elderly can be significantly improved, offering opportunities for engagement, rehabilitation, and better overall health.

Competing Interests

The authors declared no conflict of interests.

Authors' Contribution

Conceptualization: Payam Emami.
Formal analysis: Ameneh Marzban.
Investigation: Payam Emami.
Project administration: Payam Emami and Ameneh Marzban.
Resources: Ameneh Marzban.
Software: Payam Emami.
Supervision: Payam Emami and Ameneh Marzban.
Validation: Payam Emami and Ameneh Marzban.
Visualization: Payam Emami and Ameneh Marzban.
Writing–original draft: Ameneh Marzban.
Writing–review & editing: Payam Emami.

Ethical Approval

Not applicable.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

References

1. Chaze F, Hayden L, Azevedo A, Kamath A, Bucko D, Kashlan Y, et al. Virtual reality and well-being in older adults: results from a pilot implementation of virtual reality in long-term care. J Rehabil Assist Technol Eng. 2022;9:20556683211072384. doi: 10.1177/20556683211072384.
2. Hamad A, Jia B. How virtual reality technology has changed our lives: an overview of the current and potential applications and limitations. Int J Environ Res Public Health. 2022;19(18):11278. doi: 10.3390/ijerph191811278.
3. Onyesolu MO, Eze FU. Understanding virtual reality technology: advances and applications. In: Schmidt M, ed. Advances in Computer Science and Engineering. Rijeka: IntechOpen; 2011. p. 53-70. doi: 10.5772/15529.
4. National Institute on Aging (NIA). Social Isolation, Loneliness in Older People Pose Health Risks. NIA; 2020.
5. Pillai AS, Mathew PS. Impact of virtual reality in healthcare: a review. In: Virtual and Augmented Reality in Mental Health Treatment. IGI Global; 2019. p. 17-31.
6. Kenyon K, Kinakh V, Harrison J. Social virtual reality helps to reduce feelings of loneliness and social anxiety during the COVID-19 pandemic. Sci Rep. 2023;13(1):19282. doi: 10.1038/s41598-023-46494-1.
7. Feng H, Li C, Liu J, Wang L, Ma J, Li G, et al. Virtual reality rehabilitation versus conventional physical therapy for improving balance and gait in Parkinson's disease patients: a randomized controlled trial. Med Sci Monit. 2019;25:4186-92. doi: 10.12659/msm.916455.
8. Hassandra M, Galanis E, Hatzigeorgiadis A, Goudas M, Mouzakidis C, Karathanasi EM, et al. A virtual reality app for physical and cognitive training of older people with mild cognitive impairment: mixed methods feasibility study. JMIR Serious Games. 2021;9(1):e24170. doi: 10.2196/24170.
9. Wiederhold BK, Gao K, Sulea C, Wiederhold MD. Virtual reality as a distraction technique in chronic pain patients. Cyberpsychol Behav Soc Netw. 2014;17(6):346-52. doi: 10.1089/cyber.2014.0207.
10. Tokgöz P, Stampa S, Wähnert D, Vordemvenne T, Dockweiler C. Virtual reality in the rehabilitation of patients with injuries and diseases of upper extremities. Healthcare (Basel). 2022;10(6):1124. doi: 10.3390/healthcare10061124.