Journal Health Sciences Perspective

Ilam University of Medical Sciences Publications

Gaming for Better Cognition: Boosting Problem-Solving Ability in Elderly with Cognitive Disfunction (Policy Brief)

Mosayeb Mozafari [1], Masoumeh Otaghi [1], Maryam Pakseresht [1], Alireza Vasiee [1]✉

[1] Department of Nursing, Faculty of Nursing and Midwifery, Ilam University of Medical Sciences, Ilam, Iran

Article Info

Article type:

Policy Brief

Article History:

Received: July. 12, 2025
Revised: Aug. 16, 2025
Accepted: Sep. 04, 2025
Published Online: Sept. 22, 2025

✉ ***Correspondence to:***

Alireza Vasiee
Department of Nursing, Faculty of Nursing and Midwifery, Ilam University of Medical Sciences, Ilam, Iran

Email:
rezawest10@gmail.com

A B S T R A C T

Introduction: Due to the increasing elderly population and the prevalence of mild cognitive impairment, the need for new cognitive rehabilitation methods is increasingly felt. Video games, by providing attractive auditory and visual feedback, can improve cognitive performance and problem-solving ability of the elderly. Therefore, this study was conducted to investigate the effect of video games on problem-solving ability in elderly people with cognitive impairment.

Materials & Methods: In a randomized, double-blind, experimental study, 60 elderly people with mild cognitive impairment were randomly selected from among the elderly in Ilam city and then divided into two control and intervention groups. Individuals in the intervention group performed the designed intervention three times a week for 12 weeks, and individuals in the control group did not receive any intervention. The problem-solving ability questionnaire was completed before the intervention, eight weeks after the start of the intervention, and four weeks after the end of the intervention, and the data were analyzed with descriptive and inferential statistical tests in SPSS version 26 software ($P<0.05$).

Results: The mean and standard deviation of the age of the samples was 71.43 ± 2.59. The findings showed that the mean and standard deviation of problem-solving ability scores in the intervention group (1.35 ± 21.15) was significantly improved compared to the control group (1.07 ± 13.73) ($P<0.001$).

Conclusion: Playing video games three times a week for twelve weeks in the elderly can improve problem-solving ability.

Keywords: Video games, mild cognitive impairment, problem-solving ability, aging

➢ **How to cite this paper**

Mozafari M, Otaghi M, Pakseresht M, Vasiee A. Gaming for Better Cognition: Boosting Problem-Solving Ability in Elderly with Cognitive Disfunction (Policy Brief). *Journal of Health Sciences Perspective*. 2025; 1(4):27-31.

Introduction

The phenomenon of aging has been one of the challenges of the global healthcare system over the past two decades. During these years, with the increase in life expectancy and the decrease in mortality, the number of elderly people has been on an upward trend. It is predicted that the number of elderly people in the world will reach more than 22% by the end of 2050. In Iran, statistics also show that more than 25% of the population will reach old age by the end of 1410 (1). During the aging process, changes occur in various organs of the body that lead to the development of diseases in the elderly; one of these changes is impaired cognitive status and memory function (2). Cognitive disorders in the elderly are classified into a spectrum including mild, moderate, and severe, including Alzheimer's dementia (3). In this disorder, changes occur in the cortical tissue of the brain that cause a decrease in cognitive function, which negatively affects short-term and long-term memory, the speed and performance of information processing, and the quality of life (4). Technology, as a practical tool, allows activities that enhance cognitive performance to be presented in a new and innovative way. For example, video games that have moving images and auditory feedback are more attractive than games without moving images and auditory feedback. According to studies, shooting, sports, driving, problem-based, and adventure video games have been the most popular with the elderly, respectively, and have changed and improved learning in some way (5). One of the important goals of learning is the ability to solve problems (6). The ability to solve problems in aging societies measures cognitive performance in the elderly and, as a valid criterion, shows the feedback of learning outcomes (7). In people with cognitive disorders, the ability to solve problems decreases (8). Impaired problem-solving ability causes disability and makes it difficult to overcome problems and has a negative impact on individual activities (9). Having the ability to solve useful problems plays a major role in promoting self-care and improving the elderly's social relationships with society (10). In studies, the use of technology in the elderly has reduced social isolation, increased energy, and happiness in them. Therefore, this study aimed to investigate the effect of video games on problem-solving ability in the elderly with cognitive impairment.

Materials and methods

The present study was an experimental study that, after obtaining permission from the Ethics Committee of Ilam University of Medical Sciences under the number IR.MEDILAM.REC.1402.094, was conducted on 60 elderly people with mild cognitive impairment with inclusion criteria including age 65 years and older, literacy, having a smart phone, obtaining a score between 23 and 18 on the Mental Status Questionnaire and exclusion criteria including absence of more than 2 sessions, having a history of cerebrovascular accidents, using cholinesterase inhibitors, taking various antidepressants. They were included in the study as control and intervention groups. The intervention period was considered to be 12 weeks and the people in the intervention group played 3 games in three 45-minute sessions per week. The three selected games in this study included classic Sudoku, golf, and archery. The people in the control group also did not receive any intervention and only received periodic assessments such as adherence to medication programs and blood sugar and blood pressure measurements, which were once a month, like the intervention group. Finally, data were collected before the intervention, eight weeks after the start of the intervention, and four weeks after the end of the intervention and analyzed in SPSS version 26 at a significance level of $P<0.05$.

Results

The mean and standard deviation of the total age of the samples was 71.43 ± 2.59. The mean scores of problem-solving ability in the control and intervention groups did not differ significantly before the intervention; while eight weeks after the

intervention and four weeks after the end of the intervention, this difference was significant (P<0.05). A repeated measures analysis of variance test showed that there was a statistically significant difference in the increase in the mean scores of problem-solving ability in the control and intervention groups during the study period (P<0.001).

Suggested Policies

Development of video game-based cognitive rehabilitation programs

Design and implement regular digital game therapy programs (such as Sudoku, archery, and light sports games) for seniors with mild cognitive impairment, with the aim of improving cognitive function, strengthening memory, and promoting problem-solving ability.

Creating digital education infrastructures for seniors and families

Holding simple and practical training workshops to familiarize seniors and their caregivers with the use of video games as a low-cost and accessible rehabilitation method.

Integrating video games into primary care services for seniors

It is recommended that digital cognitive games be included as part of non-pharmacological care alongside other rehabilitation services in health centers and nursing homes.

Insurance and policy support for digital interventions in seniors

Developing national guidelines for insurance coverage of game therapy and other digital interventions in seniors, with the aim of increasing access and reducing financial barriers.

Requirements and barriers to policy implementation

Implementation requirements

The implementation of these policies requires the development of official clinical guidelines by the Ministry of Health and relevant scientific societies. Also, investment in technology infrastructure, including the provision of tablets, Persian-language applications, and the provision of cheap and stable internet, seems essential. In addition, training of medical staff such as nurses, psychologists, and occupational therapists to supervise the implementation of cognitive rehabilitation programs based on video games is a key requirement.

Potential barriers

One of the main barriers is the cultural resistance of some elderly people and their families to accepting technology and using video games. On the other hand, economic constraints and the cost of purchasing digital equipment can be an obstacle to the widespread participation of the elderly. At the organizational level, the lack of adequate coordination between health centers, insurance companies, and support organizations will be among the important challenges in the implementation of these policies.

Barrier-removing strategies

To overcome cultural barriers, awareness and acceptance of this approach can be increased through educational workshops and briefing sessions for families and health workers. In the context of economic constraints, piloting in one province and then gradually expanding to the national level can help reduce costs and better manage resources. Finally, developing inter-sectoral cooperation between the Ministry of Health, the Welfare Organization, and insurance companies will play an important role in financing and providing the necessary equipment for the successful implementation of these policies.

Research Audience

At the professional level, treatment staff including psychologists, occupational therapists, nurses, and neurologists can use the results of this study in

designing cognitive rehabilitation programs based on video games. Also, decision-makers and policymakers in the field of elderly health, including officials from the Ministry of Health and insurance organizations, can develop effective support programs and national policies to improve the quality of life of elderly people with cognitive impairment based on the findings.

References

1. Shams Ghahfarokhi M. Rising living alone among the elderly in Iran: prevalence and associated factors. BMC geriatrics. 2022;22(1):622.
2. https://www.who. WHOAah, int/news-room/fact-sheets/detail/aging-and-health.
3. Dominguez-Chavez CJ, Murrock, C. J., & Salazar-Gonzalez, B. C. (2019)., Mild cognitive impairment: A concept analysis. Nursing Forum, https://doi.org/10.1111/nuf.12299.
4. Gorelick PB CS, Nyenhuis D: Vascular cognitive impairment and dementia. Biochim Biophys Acta, 2016; 1862: 860–68.
5. Chesham A, Wyss P, Müri RM, Mosimann UP, Nef T. What older people like to play: genre preferences and acceptance of casual games. JMIR serious games. 2017;5(2):e7025.
6. Najafi M BITrolsitposm, org/ hCCPhd, 6081 q.
7. Brandt J AE, Neijstrom E et al. Selectivity of executive, impairment. fdimc, 607–18 N.
8. Burton CL, Strauss E, Hultsch DF, Hunter MA. Cognitive functioning and everyday problem solving in older adults. The Clinical Neuropsychologist. 2006;20(3):432-52.
9. Allanson F PC, Gignac GE, Yeo YX, Weinborn M. Neuropsychological predictors of follow-up outcome, doi:10.1007/s11065-017-tbiiaa-aNR-, 9353-5.
10. Ashouri A TMM, Fadaee Z. The effectiveness of assertive, academic tgtidaai, Clinical aihssIJP, 2009;14(4):389–93.