



## ADDICTION AND RECOVERY: DIGITAL GAMES AS DEVICES FOR COGNITIVE REPAIRMENT

*Original scientific paper*

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### ABSTRACT

*In recent years, digital games have evolved into a worldwide form of entertainment that captivates individuals of all ages. This game addiction has made people less active and less social, which could be harmful to both their mental and physical health. Paradoxically, the very innovation that involves addiction has also emerged as a powerful tool for cognitive repair and recovery. In this research, qualitative methods were used. The qualitative study results came from a wide range of secondary sources, such as medical research articles, academic psychology journal articles, medical blogs, and previous theses. This study looks into the reasons for game addiction as well as the role of digital games in cognitive repair and addiction recovery. The study's findings indicate that gaming addiction has a damaging effect on people's mental and physical health. Integrating digital games as a supporting tool for cognitive repair during addiction recovery will be a promising approach to produce effective results.*

**Keywords:** addiction; recovery; mental health; digital games; cognitive repair

### INTRODUCTION

In recent years, digital games have gained popularity as a tool for addiction recovery. As a means of assisting patients in overcoming their addictive behaviours, many addiction treatment centres have incorporated gaming into their medication therapy. Some people engage in problematic gaming behaviours that can lead to addiction and other psychological problems, despite the fact that many people enjoy playing without the impact of negative side effects. According to studies (Cevasco, Kennedy, & Generally, 2005; Russoniello, O'Brien, & Parks, 2009), gaming can effectively reduce tension and anxiety, enhance mood, and expand social connections, all of which are crucial elements of addiction recovery. People of all ages enjoy playing digital games,

including children and adults. The advancements in technology have made these games more immersive and engaging than ever before. In addition to providing entertainment, they enhance cognitive abilities such as problem-solving and decision-making. According to researchers such as (Malone & Lepper, 2021) playing games is an effective method of education because people invest a great deal of time, effort, and energy in them. Research indicates that digital games can improve hand-eye coordination and mental focus (Rosenberg, Landsittel, & Averch, 2005). It is important to note that excessive gaming can result in negative consequences such as addiction and social isolation. Despite this, playing games is a fun way to learn and socialise and a respectable method of skill development. It is essential to maintain a healthy balance between gaming and

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other activities in order to avoid negative outcomes. In recent years, digital games have become increasingly popular as an entertainment platform, addiction recovery and cognitive repair tool.

## GAME ADDICTION

Game addiction is the excessive or obsessive use of digital games that interrupts daily life. Users may engage in compulsive gaming, isolating themselves from social interaction and concentrating almost exclusively on in-game accomplishments instead of real-life events. Studies (Pinna et al., 2015; Sachdeva & Verma, 2015) show that this type of gaming can negatively impact mental health, physical health, and social functioning, even though it is not officially recognised as an illness in any diagnostic system. Experts consider game addiction a form of behavioural addiction that is similar to being addicted to gambling or the internet (Yau & Potenza, 2015). Several specialists believe dopamine, which is connected to pleasure and reward, may cause addiction. Game addiction influences three types of problems: physical, mental, and social. Negative consequences for mental health bring on issues like sadness, stress, and chronic anxiety. Poor sleep patterns, being overweight, and carpal tunnel syndrome are some of the physical health issues connected to game addiction. Isolation from relatives and closest friends, poor academic or professional performance, and trouble establishing or sustaining connections are all examples of social issues. Even though digital gaming addiction is more common in adults, it can also affect children and teenagers. Additionally, statistics (Su et al., 2020) show that boys are more prone to developing gaming addiction than girls. To overcome gaming addiction, a combination of therapies, medications, and lifestyle changes may be necessary. Therapies such as talk therapy and cognitive-behavioural therapy can be effective, as well as medications like antidepressants or sleep pills. Making lifestyle modifications such as increasing physical activity or seeking social support can also be beneficial.

### Symptoms of Digital game addiction

Addiction makes it difficult for those who suffer from it to control their impulses because it is a chronic disease. These are the primary symptoms of all addictions, whether it's games, drugs, alcohol, or gambling.

1. Low performance in work, education, or household chores because of excessive gaming

2. Withdrawal effects when playing is prohibited or taken away, such as unhappiness, worry, or irritation.
3. Spending more time playing digital games to feel the same level of enjoyment.
4. Giving up social connections because of gaming
5. Deceiving family members or well-wishers about the amount of time spent on gaming.
6. Escaping unpleasant circumstances at the job or home by playing games
7. Playing digital games to get rid of bad feelings like shame or depression.

### Game addiction Causes

Game addiction can be caused by a variety of factors, such as game developers' addictive plan, challenges and rewards, reality escapism, dopamine secretion, and advanced technologies.

#### i) Game developers' plan

When it comes to game designers' addictive plans, they intentionally design games to be addictive in order to increase sales and revenue.

#### ii) Challenging and Rewards

Game designers aim to keep players engaged by creating games that are challenging but not so difficult that players give up. As a result, it's common for players to lose frequently. However, game designers strive to make losing less discouraging by providing feedback, opportunities for growth, and rewards for perseverance.

#### iii) Reality escapism

The game is made to be an escape from reality and gives the player a chance to temporarily switch off their brains in order to fully immerse themselves in whatever virtual world they are playing in.

#### iv) Dopamine secretion

Playing games can become addictive because they trigger the brain to release dopamine, a chemical that can make the brain's receptors less sensitive over time. This means that individuals may need to play for more extended periods to experience the same level of enjoyment they once did.

#### v) Advance technologies

The advancement of technology has led to an increase in gaming addiction. With improved hardware and graphics, gamers are more deeply absorbed in the virtual world, making it harder to detach and re-enter reality.

### Diagnosis and therapies

#### i) DSM-5

Mental health professionals rely on the DSM-5 from the American Psychiatric Association

to identify mental illnesses (Regier, Kuhl, & Kupfer, 2013). The DSM-5 includes criteria for diagnosing internet gaming disorders, such as losing control over gaming, prioritising gaming over other things, and continuing to game despite negative consequences. This diagnosis is crucial in identifying those who may need help and treatment due to excessive gaming. To receive a diagnosis, a person's gaming habits must severely impact their personal, family, social, educational, or work lives for at least a year. It's important to note that a gaming disorder does not necessarily mean addiction but rather a way to identify and improve bad gaming habits. Seeking help for a gaming disorder can positively impact your overall mental health and well-being.

ii) Psychotherapy- Cognitive-behavioural therapy (CBT)

Psychotherapy is the most common way to treat video game addiction (Johnson, 2006; Lemos, Abreu, & Sougey, 2014). It helps people understand and change the negative thoughts, feelings, and behaviours associated with their addiction. Cognitive-behavioural therapy (CBT) is also a practical approach that can help people develop strategies to cope with their addiction and control their cravings (Somers, 2007; Gaudiano, 2008). Additionally, family therapy could be recommended if family issues are contributing to their addiction. Mental health professionals such as psychiatrists and psychologists can offer support, information, and advice. In some cases, medication may be prescribed to address any underlying mental health issues that may have led to your addiction. Experts say that physical activity and exercise, especially sports and other outdoor activities, can help prevent game addiction. Research has shown that regular exercise can help people with game addiction feel less stressed and happier (Hazar & Hazar, 2018). Participating in team sports or group fitness classes can also give social support and a sense of belonging, which can keep the player from playing video games too much.

### iii) Pharmacotherapy

Game addiction leads to different disorders, including attention deficit hyperactivity disorder (ADHA), anxiety disorder, etc. Drugs like bupropion are rectifying these kinds of issues. In a few carefully chosen scientific trials, it has been investigated as a gaming addiction medicine (Han & Renshaw, 2012; Song et al., 2016). The medication revealed variations across the patients and reduced the symptoms of gaming addiction, which persisted for four weeks following therapy. Escitalopram serves as another antidepressant. It

performed less well in symptom reduction than bupropion (Han & Renshaw, 2012; Song et al., 2016).

### iv) Psychodynamic Psychotherapy

In a recent case study, a 14-year-old struggled with an addiction to computer gaming, which resulted in concerns about violent behaviour and a lack of social interaction. To address these issues, the study utilised psychodynamic psychotherapy for two and a half years, incorporating theories of mentalisation, addiction, and self-esteem. At the beginning of therapy, the patient's emotional state and self-esteem were assessed using three projective tests, including the Rosenberg Self-Esteem Scale, Kinetic Family Drawing, and Thematic Apperception Test. Due to his unhealthy mental perceptions, Michael experienced low self-esteem and struggled to connect with his family and peers during therapy. Michael's self-esteem improved as a result of his ability to recognise and fight his destructive thought patterns during treatment. Also, he acquired extraordinary communication abilities that enabled him to forge closer bonds with his family and peers. However, the projective tests and scale administered throughout the therapy sessions revealed that Michael's mental health improved and his sense of self grew stronger (Stavrou, 2018).

### v) Psychoeducation

In treating game addiction, psychoeducation is crucial. It helps individuals comprehend the psychological and emotional aspects of their behaviour, provides strategies for managing addiction, and reduces the negative feelings of shame and guilt. Moreover, it creates a friendly and accepting atmosphere where people can grow and acquire new skills.

### vi) Family therapy

Family therapy can help address game addiction issues by improving communication, establishing boundaries, and promoting healthy habits. Family therapy is a safe space where family members can express their concerns and work together to find solutions. It involves involving family members in the treatment process to promote better communication, understanding, and support. Additionally, it can help to identify patterns of behaviour that may be causing conflicts and provide strategies for resolving them. Ultimately, family therapy can strengthen relationships and improve the well-being of everyone involved. By addressing underlying family issues that may be contributing to addiction and promoting healthier relationships, families can develop stronger bonds and a more profound sense of trust, leading to

long-term healing and recovery.

vii) Individual Counselling

Meeting with an addiction therapist or counsellor on a one-on-one basis can be constructive. In these sessions, individuals can openly discuss their struggles with addiction and work on developing effective coping strategies. The therapist can provide personalised support and guidance throughout the recovery process. These sessions create a safe and secure environment where individuals can explore the underlying causes of their addiction, increase their self-awareness, and learn new ways to manage their gaming habits.

viii) Group Therapy

Group therapy brings together individuals who are facing similar challenges to share their stories, provide mutual support, and learn from each other. It is particularly beneficial for those who feel isolated or alone in their struggles. Being part of a group can provide a sense of community and belonging, especially for those who lack a strong support system outside the group. Moreover, group therapy offers a safe space where individuals can openly discuss their experiences and gain insights from others who are facing similar difficulties. This fosters self-awareness and personal growth.

ix) Virtual Reality Therapy

Virtual reality therapy is a valuable treatment for a number of mental health issues, such as PTSD, phobias, and anxiety. It can also be used to address game addiction by exposing patients to gaming-related triggers in a controlled environment. Compared to traditional therapy methods, VR therapy is more immersive and engaging, which makes it a promising tool for treating a wide range of mental health conditions. Additionally, VR therapy can help individuals develop coping mechanisms and desensitise them to gaming stimuli. It provides a safe and controlled space for people to confront and overcome their fears and anxieties related to gaming addiction and can be customised to meet individual needs and preferences.

When using video games to treat video game addiction, it's essential to be careful and include them as part of a comprehensive treatment plan. The games should focus on the root causes of addiction and promote healthy behaviours. It's also crucial to regularly assess the effectiveness of the games and make any necessary changes. Additionally, it's important to get the person's consent and involve them in selecting the games to ensure they stay engaged and motivated throughout their recovery. When considering game-based approaches, individual needs and preferences should be taken into account, and progress should

be monitored to adjust the approach as needed.

### The pros of gaming

According to studies (Desai et al., 2021; Kowal et al., 2021), playing digital games can improve mental health and possibly lessen stress and anxiety. Also, playing digital games can improve cognitive skills, including focus, memory, and decision-making skills. In fact, several mental health doctors recommend playing digital games as a therapy for people suffering from PTSD and depression (Li, Theng, & Foo, 2014). A sense of accomplishment that comes from playing digital games may also increase one's confidence and self-esteem. Additionally, digital games can provide a social outlet for those who struggle to interact with others in person, as players can communicate and make friends with people from around the world through online gaming communities and multiplayer features. Some studies have even suggested that certain digital games may improve fine motor abilities and hand-eye coordination (Latham, Patston, & Tippett, 2013). Many people use gaming as an escape from stress, challenging emotions, and issues in real life. A study (Hussain et al., 2021) found that this kind of escapism can be a helpful coping mechanism since it relieves stress and increases self-confidence. Escapism may be exhibited in both positive and unhealthy gaming behaviours, and it's crucial to remember that. The same study discovered that people can benefit from escapism. There are online gaming groups that help build social connections and friendships among gamers who share similar interests. For those who may feel isolated in their daily lives, these groups provide a sense of belonging and support. Additionally, they promote collaboration and communication skills, as well as cross-cultural exchanges and understanding, as gamers from different parts of the world come together to play and learn from each other's perspectives. Game-based learning is a way to teach where video games are used to teach. It has three main parts: it makes learning more enjoyable, motivates people, and gives people a chance to practise. This approach to learning has gained popularity in recent years because it is considered a more interactive and enjoyable way to learn compared to traditional methods. Game-based learning has also been shown to help people remember and use what they have learned. It transforms learning into a fun game and rewards students for their achievements with badges, bonuses, and extra lives. Moreover, it enhances critical



thinking and problem-solving skills, as players must use strategy to progress through the game (McDonald, 2017; Darvenkumar & Christopher, 2023). Collaboration and teamwork can also be fostered by certain games that require players to work together to achieve a common objective.

### Cognitive Developments Due to digital games

Playing digital games can be a helpful way to improve cognitive abilities, such as problem-solving and decision-making skills, and even memory retention. Studies (Aghlara & Tamjid, 2011; Blumberg et al., 2019; Karagianni & Drigas, 2022) have shown that certain digital games can be particularly effective in developing these skills.

#### i) Memory Enhancement

Memory can be improved by playing memory-focused games, such as puzzles, matching games, and memory card games. Mindfulness practice and adequate sleep can also improve concentration and reduce stress levels. These games require players to recall information, patterns, or sequences, thereby exercising and enhancing memory functions.

#### ii) Problem-solving and critical thinking

Playing serious or educational games can enhance students' critical reading and thinking skills. Games that involve strategy, puzzles, and text-based challenges require players to analyse problems, think critically, and devise solutions. These games often present complex scenarios that demand assessment of data, decision-making, and consideration of consequences. As a result, they can boost cognitive abilities such as logic, problem-solving, and decision-making.

#### iii) Attention focus

Playing fast-paced or action-oriented digital games can improve the player's attention span and concentration. These games require players to focus on multiple inputs simultaneously, react quickly to changing conditions, and maintain attention for extended periods. Studies (Tenenbaum et al., 1993; Sliwinski, 2011; Glass, Maddox, & Love, 2013) have shown that playing such games can enhance attention focus, cognitive flexibility, and decision-making abilities, which may have real-world benefits in academic and professional contexts.

#### iv) Spatial awareness visualisation

Playing digital games that involve spatial reasoning, like building blocks, labyrinth games, or Tetris-like puzzles, can enhance your spatial awareness and visualisation skills. These abilities are essential in fields like engineering, architecture, and mathematics and can also enhance your overall cognitive performance. Developing

spatial thinking ability is crucial for success in STEM (science, technology, engineering, and mathematics) disciplines, making it a crucial talent to master.

#### v) Language and communication

Word puzzles, language-based quizzes, Text-based games, and language-learning games may all help players improve their vocabulary, comprehension, and communication abilities. It also offers a pleasant and exciting approach to learning and enhancing language abilities. These digital games are very beneficial for people learning a new language and native speakers wishing to broaden their knowledge and push themselves. Language-learning games are also widely available online or through mobile applications, making them a practical and accessible tool for language learners of all ages. Individuals may improve their language skills in a more dynamic and entertaining way by including these activities in their language learning routines. Individuals may enhance their grammar, syntax, pronunciation, reading comprehension, and vocabulary through enjoyable and engaging language games.

#### vi) Executive functioning

Playing resource management games that involve strategic decision-making and planning can enhance executive functioning abilities. These games require players to think critically, prioritise activities, and adapt to changing situations. Regularly playing such games can help individuals improve their ability to focus and prioritise in real-life situations, including attention regulation, working memory, inhibition, and cognitive flexibility.

#### vii) Multitasking and dual tasking

Playing games that involve controlling multiple characters or objects with separate controllers can enhance one's multitasking skills. Such games necessitate players to switch attention between various tasks while prioritising their activities efficiently. Additionally, practising mindfulness and meditation simultaneously can improve multitasking abilities by boosting attention and reducing distractions.

## DISCUSSION

To prevent addiction to gaming, a comprehensive approach is necessary. This approach should involve various methods and considerations in the design of games. Digital games can include specific features to minimise the risk of addiction. These features may include time management options, which includes tools within the game that

measure and display the time spent playing can help users become more aware of their gaming habits and encourage them to regulate their behaviour and prevent the players from getting too absorbed in the social aspect of online gaming. For example, weekly or monthly usage statistics could be shown, or pop-up notifications could appear after a set amount of time has elapsed. A rewards system may be an effective motivator, but it should only be used in a balanced and thoughtful manner. The frequency and potency of rewards can be decreased by game designers to minimise addictive behaviour. Clear progression and ending points are the features which provide players with clear objectives, benchmarks, and endpoints which increase their sense of accomplishment and satisfaction. When players know exactly what they need to achieve and the goal, they are less likely to engage in excessive play that lasts longer than necessary. Offline modes and diversification could prevent game addiction. If a game offers offline options or alternative activities, players may be advised to take breaks and engage in other forms of entertainment or leisure. These could include educational or creative mini-games, puzzles, or virtual experiences. Parental controls are a feature where parents and guardians can set limits for their children's gaming habits by providing powerful and customisable parental control options. These might include features like time limitations, content filters, and the ability to monitor and manage in-game transactions. To maintain a healthy and balanced lifestyle, it's helpful to include regular prompts in the game to take breaks, stretch, exercise, or engage in other real-life activities. Games that incorporate educational elements can enhance learning and personal development. By adding educational information, quizzes, or challenges, players can boost their cognitive abilities and engage in a more comprehensive gaming adventure. The game interface allows players to access resources and assistance. This includes links to educational materials on responsible gaming, information on how to avoid game addiction, and contact details for helplines or support groups for those struggling with gaming addiction. It is important to understand that while certain methods may help reduce game addiction and speed up cognitive repair, no single method will work for everyone. Different people, their own situations, and other things can lead to addictive behaviours. To address game addiction and promote cognitive repair, it is best to adopt a comprehensive approach that involves game design, player education, and a supportive environment.

## CONCLUSION

Game addiction is a widespread problem that affects people all over the world, and the road to recovery can be difficult. Yet, a cutting-edge strategy has arisen that makes use of video games as a tool for cognitive development during the healing process. Digital games have the rare potential to engage and inspire players, giving them a potent instrument to improve their cognitive functioning and help their road to recovery. This method has proven to be very successful in treating patients who have suffered catastrophic brain injuries or cognitive impairments as a result of gaming addiction (Valimaki et al., 2018; Farchakh et al., 2020). These digital games can help people regain and develop particular cognitive abilities that may have been weakened during the addiction cycle. Digital games may also be customised and personalised to each individual's specific needs and preferences in recovery. Digital gaming as a tool for cognitive restoration during addiction treatment is a supplementary strategy that may be used in conjunction with conventional therapy techniques. It helps overall rehabilitation rather than replacing the value of counselling, support groups, or other evidence-based treatments. Further research and thorough assessment are required to develop clear criteria, identify best practices, and evaluate the long-term results of this method. To ensure the appropriate use of digital games and safeguard vulnerable people from possible damage, additional ethical considerations must be made. In conclusion, the integration of digital games as a device for cognitive repair in addiction recovery can be a promising strategy, and it could provide people with valuable skills and support throughout their recovery journey.

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