

# Behavioral and Emotional effect of Digital games in children



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**Digital games** have become an integral part of children's lives in recent years.

From simple mobile games to complex multiplayer online environments, gaming now represents not only entertainment but also a major form of social interaction and identity building.

According to global estimates, children aged 8–12 spend between **1.5 to 3 hours** daily playing digital games, often exceeding recommended screen-time limits.

As a modern entertainment tool, these games have many capabilities to influence children's mental, social, and emotional development.

# American Academy of Pediatrics and WHO guidelines

<b>Age group</b>	<b>Recommended Screen Time</b>	<b>Notes</b>
<b>Under 2 years</b>	<b>Avoid screen time</b> (except for video calls)	Interaction with caregivers is more beneficial for development.
<b>2–5 years</b>	<b>Up to 1 hour per day</b> of high-quality programming	Watch together with parents; focus on educational and age-appropriate content.
<b>6–12 years</b>	<b>1–2 hours per day</b> of recreational screen time	Encourage balance with physical activity, sleep, and social interaction.
<b>13–18 years</b>	<b>Up to 2 hours per day</b> of recreational use	Prioritize meaningful online engagement; monitor for emotional or behavioral effects.
<b>All ages</b>	<b>No screens 1 hour before bedtime</b>	Blue light may interfere with sleep.

The effects of gaming are complex — neither purely beneficial nor purely harmful. The behavioral and emotional consequences depend on the **type of game, duration, context, child's temperament, and family environment**. Understanding these effects is crucial for child psychiatrists, parents, and educators to guide healthy digital habits.

Here, we look at the positive and negative roles of digital games on children's mental health.

# Positive Behavioral and Emotional Effects



# Improved cognitive skills and increasing mental capacity through play

**Attention and processing speed:** Action video games improve selective attention, reaction time, and visuospatial skills.

**Executive functioning:** Strategy and simulation games promote planning, cognitive flexibility, and working memory

# Improved cognitive skills and increasing mental capacity through play

**Problem-solving and creativity:** Sandbox games such as Minecraft foster experimentation, spatial reasoning, and creative thinking

**Persistence and goal orientation:** Reward-based game structures teach perseverance, delayed gratification, and goal-directed behavior

## Emotional Regulation and Stress Relief :

Many children use games as a form of emotional regulation. Gaming can temporarily reduce stress, anxiety, or boredom.

Fantasy immersion allows children to express emotions safely and experience a sense of control.

For shy or socially anxious children, games provide a non-threatening medium to practice emotional expression and social skills.

## Social Benefits:

**Online collaboration:** Cooperative or multiplayer games (e.g., Minecraft, Fortnite) enhance teamwork, communication, and empathy when used positively.

**Belonging and identity:** Online communities offer a sense of belonging, especially for children who feel marginalized offline (e.g., those with ASD or social anxiety).

**Prosocial behavior:** Prosocial games (where players help others) increase empathy and prosocial intentions.

## You can be more physically active as a player.

Most gaming consoles today have technology that gets players off the couch and gets them on their feet and doing physical activities. In the future, virtual reality games will take things to a new level.

Mobile game developers have also started making games that are played in physical space. Building these games is based on data from real-world locations, motivating players to move around in the virtual world to progress.

# Digital games can be fun for everyone

Digital games can be fun for the whole family and provide a refreshing atmosphere for them. For example, parents can choose a game suitable for their child's age and play this game together with him.

Even some games for the age group of the child introduce them to daily activities such as hygiene and hand and face hygiene, brushing teeth, combing hair, eating on time, etc. and life skills.

# Games that have helped with therapy (serious games)

Serious games are interactive digital games designed with purposes beyond entertainment, such as education, training, or skill development. They leverage the engaging nature of gaming to facilitate learning and behavioral change in various fields like healthcare, education, and military training.

# Games that have helped with therapy (serious games)

This games are a promising new approach to support the treatment of clinical symptoms and improve adaptive functioning among different patient groups. The family does not control the child to perform these exercises, and as a result, it does not take away the child's sense of freedom and independence, and on the other hand, the child performs these exercises with desire and interest and under the pretext of having fun in the game world.

The needs and challenges of children with ADHD have been addressed by numerous digital solutions over the years.

These solutions support diverse needs (e.g., diagnosis vs. treatment), pursue diverse goals (e.g., addressing inattention, impulsivity, working memory, executive functions, emotion regulation), and employ a wide range of technologies, including video games, PC, mobile, web, AR, VR, tactile interfaces, wearables, robots, sometimes even simultaneously.

According to studies on the psychological effects of serious games, immersive games could potentially be valuable tools for treating ADHD.

# Negative Behavioral and Emotional Effects

Despite potential benefits, excessive or inappropriate gaming may lead to significant behavioral and emotional challenges



# Behavioral Dysregulation

**Aggression:** Exposure to violent games is linked to increased aggressive thoughts and decreased empathy. Meta-analyses show small but consistent correlations. However, causality remains debated — context and family factors moderate outcomes.

**Impulsivity and inattention:** Prolonged gaming may reinforce rapid reward cycles, reducing tolerance for delayed rewards and increasing inattention. Children with ADHD are particularly vulnerable.

# Behavioral Dysregulation

**Gaming disorder:** Recognized by the WHO (ICD-11) as a pattern of gaming behavior characterized by impaired control, priority of gaming over daily activities, and continuation despite harm. Prevalence ranges from 1% to 9% depending on region and criteria

## Emotional Disturbances:

**Mood instability:** Excessive gaming, especially withdrawal from gaming, may cause irritability, frustration, or anxiety.

**Depressive symptoms:** Children who use gaming as emotional escape are at higher risk for depressive symptoms, particularly when social or academic functioning declines.

## Emotional Disturbances:

**Loneliness and social withdrawal:** When gaming replaces real-world social interaction, it can increase isolation and lower self-esteem.

**Sleep problems:** Playing games before bedtime delays sleep onset, decreases REM sleep, and contributes to fatigue and emotional dysregulation

## Family and Social Conflict:

**Parental tension:** Arguments over screen time or gaming limits are common.

**Academic impact:** Time spent gaming often competes with homework and reading.

**Reduced physical activity:** Sedentary play contributes to obesity and associated mood problems

# The effect of different styles of digital games on children

## Educational games

These games are designed to train and strengthen specific skills. Educational games can help improve problem-solving abilities, logical thinking, and math and language skills. These games encourage children to learn in an attractive and interactive environment and increase their motivation to discover new concepts.

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## Action games

Action games can help improve quick reactions, hand-eye coordination, and concentration. However, if the content of these games is violent, it may lead to increased aggressive behavior and decreased sensitivity to violence. Management and proper selection of action games is very important.

## Adventure and role-playing games

This style of games usually have interesting and adventurous stories that encourage children to explore new worlds and solve complex puzzles. Adventure games can increase imagination, creativity and problem solving ability. Also, these games teach children how to face challenges and plan to achieve their goals.

## Sports and simulation games

Sports games and simulations can help encourage physical activity and familiarity with sports rules and strategies. These types of games enhance quick decision-making and teamwork skills and increase interest in real sports activities.

## Massively Multiplayer Online (MMO)

Online multiplayer games provide a platform for creating social interactions and strengthen cooperation and leadership skills. However, children may be exposed to risks such as cyberbullying or interacting with unknown people. Teaching safety tips and parental supervision is essential in this style of games.

# Factors to Consider:

## Time and Balance

Research suggests a **U-shaped relationship**:

**Light to moderate play ( $\leq 1$  hour/day)** – associated with better psychological adjustment.

**Excessive play ( $> 3$  hours/day)** – linked with poorer emotional well-being

## Child's Temperament and Mental Health

**Vulnerable children** (e.g., ADHD, anxiety, ASD) are more prone to problematic gaming.

**Emotionally resilient children** tend to balance gaming with other activities more successfully

# Parental Involvement

**Co-playing and discussion:** Parents who play with their children and discuss content foster healthy digital habits.

**Modeling:** Parents' own digital behavior strongly influences the child's patterns.

**Monitoring tools:** Setting boundaries and using parental controls reduces risk

# Clinical and Developmental Considerations

## Child psychiatrists should:

Assess **screen use patterns and gaming motives** as part of any behavioral evaluation.

Distinguish between **healthy enthusiasm and addictive use**.

Consider gaming behavior as both **a symptom and a coping strategy** — e.g., avoidance of real-world stressors or peer rejection.

For children with ASD, gaming can serve as a **social bridge**, but needs guidance to avoid overuse.

# Prevention and Intervention Strategies

## Family-Based Approaches

Establish **clear rules** about duration, timing, and content of games.

Encourage **shared playtime** and family discussions about game themes.

Replace punitive restrictions with **collaborative planning** of screen time

# Recommendations for Healthy Gaming:

## **Seek Professional Advice:**

Consult with a healthcare professional or specialist in ADHD management to discuss the potential benefits and risks of digital games for children with ADHD.

## **Prioritize Balance:**

Encourage a balanced approach to digital game use, with time spent on other activities like outdoor play, social interactions, and academic pursuits.

# Recommendations for Healthy Gaming :

## **Choose Appropriate Games:**

Select games that are age-appropriate, engaging, and can help improve cognitive skills.

## **Monitor and Limit Screen Times:**

Set clear guidelines for screen time and monitor game use to ensure it doesn't interfere with sleep, social interaction, or other important activities.

# Conclusion

Digital games are deeply woven into the fabric of childhood today. Their influence is **multifaceted**, capable of fostering cognitive growth, creativity, and social connection, yet also of promoting impulsivity, aggression, and emotional dysregulation when overused or misused.

The key lies in **balance, awareness, and guidance**. Rather than demonizing or idealizing gaming, professionals and parents should help children develop **digital resilience** — the ability to enjoy the benefits of gaming while maintaining emotional and behavioral health.

A wooden easel stands on a light blue surface against a light green background. The easel holds a rectangular sign with a light beige, textured background. The sign features the text "Thank you for your attention" written in a black, elegant cursive font. The text is arranged in three lines: "Thank you" on the top line, "for your" on the middle line, and "attention" on the bottom line. The easel is made of light-colored wood and has a simple, functional design with three legs and a horizontal bar at the top.

Thank you  
for your  
attention