Impact of Role Playing Games on Child and Adolescents: A Brief Overview

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Abstract
Internet gaming is recognized as a psychiatric disorder in the diagnostic and statistical manual of mental disorders, fifth edition (DSM-5) and international classification of Disease, version 11 (ICD-11) as internet gaming disorder (IGD) and gaming disorder (GD), respectively. A strong association was seen between internet gaming behavior and psychiatric disorders such as anxiety disorders, depression, suicidal ideation, behavioral disorders, social phobia, autism spectrum disorder, attention-deficit hyperactivity disorder, obsessive-compulsive disorder, and personality disorders. But the more profound nexus and causative relationship between internet games and psychiatric disorders are yet to unfold. Observations indicate a bidirectional relation-ship between internet gaming behaviors and psychiatric morbidities. With the advent of advanced gaming technology, such as massively multiplayer online role-playing games (MMORPGs) and role-playing games (RPGs) and their increasing use by children and adolescents, again revamp the quest for some fundamental questions like how internet games affect our brains. Do video games predispose individuals to psychiatric disorders? If at all internet gaming is predisposed to psychiatric disorders, then how? For all practical purposes, we restrict our discussion to RPGs only.

INTRODUCTION
Internet games were introduced way back in the 1970s and soon gained popularity worldwide. Excessive internet gaming was quickly recognised to have associated with a range of behavioural and psychiatric problems, so much so that internet games were declared as mental health hazards by the 2010s and finally categorized as a separate mental disorder in the diagnostic and statistical manual of mental disorders, fifth edition (DSM-5) and International Classification of Disease, version 11 (ICD-11) as internet gaming disorder (IGD) and gaming disorder (GD), respectively.\(^1\),\(^2\)

IGD is strongly associated with other psychiatric disorders such as anxiety disorders, depression, suicidal ideation, behavioral disorders, social phobia, autism spectrum disorder, attention-deficit hyperactivity disorder, obsessive–compulsive disorder, and personality disorders across age groups.\(^3\)–\(^5\) With the increasing accessibility of the internet and the sophistication of gaming tech-
nology, the prevalence of IGD is on the rise. One of the most vulnerable age groups is the child and adolescent reported to have serious mental health consequences of internet gaming, such as self-esteem problems, emotional distress, impaired executive control and cognitive function, and disrupted regional structural connectivity.6,7

On the one hand, the internet gaming industry recorded a booming 21.1 billion U.S. dollars in revenue for 2020 due to the COVID-19 pandemic-related social isolation and worldwide lockdowns parcelled with internet-related behavioral problems.8 As per one Indian observation, gaming behavior increased up to 50% in school-going children during the Lockdown.9,10 Excessive gaming among children increases the prevalence of behavioral and psychiatric complications, prompting us to relook at the underlying deeper connections. We as a psychiatrist also need to upgrade our knowledge about the technical aspect of advanced gaming technology.

A Brief History of Internet Games

The video game was first introduced way back in 1972 by Magnavox Odyssey and was quickly embraced by the public in general.11 The initial version of video games was based on hardware platforms used as non-handheld or handheld computer devices ex. PlayStation, Xbox, Nvida Shield. The advent of the Internet in 1983 has significantly changed the gaming world; Gaming technology quickly evolved around various genres and subgenres. These categories of games are so divergent and complex that it is difficult to categorise them into well-defined groups. Most literature classified video games into four broad categories or genres and even subgenres, i.e., simulation, strategic, action and role-play (Table 1).

Advanced gaming technology and the advent of artificial intelligence (AI) further provide a real-life, interactive experience enabling playing multiple players from different places simultaneously. As mobile connectivity and smartphone ownership increased in recent years, so did online gaming. The market for traditional online gaming titles is shrinking; cross-platform titles focusing on mobile are currently pushing the genre forward.

Internet games have several various subgenres with overlapping characteristics. The typical payer vs player (PvP), where one player competes with other players, can be differentiated from the payer vs environment (PvE), where players go against AI-controlled opponents with varying degrees of difficulty. Battle Royale and role-playing games (RPGs) are the dominant game genre of the current time.13

Battle Royale games (BRGs) are currently the most popular genre under players vs environment (PvE) games. It can accommodate multiplayer themed on ‘last-man-standing’ mode gameplay with survival, exploration, and scavenging acts. The player must eliminate all the opponents utilising minimal resources while avoiding being killed or trapped, once killed cannot respawn results in elimination from the game; the strategic player has to rely on stealth or loot for a gunfight, and the gameplay area shrinks as the game progresses, trapping also leads to elimination, hence the pace of the game escalates as the game went are the factors which make BRGs the most popular game of the time. Some of the most successful games in this league are ‘Fortnite Battle Royale’, ‘Player Unknown’s Battleground’ (PUBG), Call of Duty: Warzone, Apex Legends, and Free Fire.

RPGs

These advents around in the 1970s after the success of the early video game console and quickly dominated today’s internet gaming world. A range of RPGs has evolved, such as early videogame consoles, single-player RPGs, massive action RPGs, Sandbox RPGs, Tactical RPGs, Roguelike RPGs, and multiplayer online RPGs (MMORPGs). The detailed discussion of each RPG is beyond the scope of this article.

Interactions of various factors leading to problematic internet gaming and harmful consequences (Figure 1).

In RPGs, players assume the role of a character in a fictional setting, usually narrated around traditional fantasy or sci-fi elements (Figure 2). There are mainly two types, table-top or pen-and-paper role-playing (TRPG), where the players verbally describe their character’s action and live-action role-playing games (LARG), where players physically perform their character’s action. In classic table-top RPGs, clear rules define how characters could interact with the environment.
In this league, MMORPGs added offers the sophistication of creating a player’s avatar interacting with others in a much more realistic virtual setting. The Avatar can be a realistic or imaginative self-representation that exits both online or offline and acquire new skills and maturation; it interacts and makes friends in a virtual community. MMORPGs are the most socially engaged internet game till now associated with addictive potential more than first-person shooter (FPS) and real-time strategic (RTS) games. Examples of RPGs are WOW (World of Warcraft), 2007Scape, Final Fantasy XIV: Stormblood, Dungeons & Dragons and Vampire: The Masquerade.

Psychological Aspect of BRGs & RPGs

It is argued that not all genres of internet games are equally addictive, and perhaps the more advanced genre, such as Battle Royale and RPGs, are more hazardous and addictive. The advanced gaming technologies enabling role-play as ‘avatar’, interactions and socialization in a virtual world can potentially temper and alter our perception of self and the real world.

The psychology of motivation works complexly for an individual; the game provides or compensates for one’s inner needs. For instance, a person with hostile tendencies, poor social skills or social anxiety may have a strong urge to escape from real social situations and may find the virtual world more accommodating.

Gaming motivation is a strong predictor for problematic gaming than the actual duration of gaming. The two primary motivations, obsessive and harmonious, play a crucial role in problematic gaming; both lead to feelings of achievement and socialization. Achievement and socialization are strong motivational forces, along with Immersion, relaxation and escape. Problematic gaming has stronger associations with obsessive than harmonious motivation. Harmonious motivation or passion correlates with positive emotion while gaming, leading to an association with exploration. The motivations of simply wanting to be “immersed” in the game or to relax do not appear to be reliable predictors of addiction. To avoid routine everyday hassles and distress, the ‘negative escapism’ corresponds to playing being negative reinforcement and is also shown as a motivational factor for MMORPGs socialization and exploration rank high among MMOR players’ interests. Achievement is a lesser motivator, followed by identifying with an avatar and escaping from reality.

Potential Psychological Benefits from BRGs & RPGs

IGD has many detrimental effects, yet playing moderately while keeping other goals in mind might have positive influences. Moderate gaming in a non-harmful pattern has also been shown to have several cognitive, emotional, and social benefits. Role-playing games potentially foster various cognitive skills; players exhibit quicker and more precise attentional allocation and more visual spatial resolution. RPGs improve problem-solving, boost creativity, and improve self-efficacy and perceived competence (Table 1). Video games provide a perfect learning environment for developing an incremental theory of intelligence because they give players quick, concrete feedback on the efforts they have made. This motivating behavior may be applied professionally and academically.

Research has demonstrated a link between playing favorite video games and mood improvement or increased happy sentiment. As players learn the advantages of handling frustration and anxiety in adaptive ways, playing games may encourage the capacity to reappraise emotional events flexibly and effectively. By playing different roles and experiencing different perspectives, players can learn to understand and empathize with others. RPGs need quick judgments on who to trust, who to avoid, and how to manage a group best. Given these immersive social circumstances, gamers quickly pick up social

![Figure 1: Interactions of various factors leading to problematic internet gaming and harmful consequences](image-url)
skills and prosocial behavior that may transfer to their interactions with peers and family outside the gaming environment. The capacity to lead organizations and like-minded individuals in social issues is another way that social skills are demonstrated in civic involvement.30

RPGs were also used as therapeutic tools in psychodrama and drama therapy (Table 1); psychodrama therapy involves patients under supervision dramatizing a number of scenes, such as specific happenings from the past, often with help from a group, enabling them to reflect on and explore alternative ways of dealing with them.31

Neurobiology of Internet Games

Psychometric studies suggest that observed self-concept deficits in an addicted MMORPG are compensated through the replacement of their ideal self by their avatar (i.e., graphical agent in the virtual world). Neurobiological studies indicate that increased identification with their avatar in regular MMORPG gamers is possibly reflected by enhanced avatar-referential brain activation in the left AG. The studies based on functional magnetic resonance images (fMRI) showed significantly higher brain activation of the left angular gyrus (AG) compared to non-addict MMORPGs players.32 MMORPGs addicts showed a greatly extended negative body image and lower gender identity levels, as well as decreased bilateral brain activations in the AG and the middle occipital gyrus during self-perception. During avatar perception, they exhibited higher activations in the left AG.33 There are left AG hyperactivations in Internet gamers during avatar reflection and a correlation with symptom severity. Striatal hypoactivation during self-reflection (vs ideal reflection) was observed in social network users and was correlated with symptom severity. Hence, RPGs liked to increase identification with one’s Avatar, evidenced by high left AG activation and emotional regulation deficit reflected by reduced activation during self-reflection in pathological gamers.34

Do Role-playing Games lead to Psychiatric Disorders in Adolescents?

It is interesting to understand why RPGs are so fascinating and addictive compared to other internet games.14–17 Perhaps, it enables us to live up to our fantasy similarly to one dowel over in the fantasy

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Table 1: Different genres of internet games their types and applications in psychiatry

<table>
<thead>
<tr>
<th>The genre of internet games</th>
<th>Simulation</th>
<th>Strategic</th>
<th>Action</th>
<th>Role-play</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td></td>
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<tr>
<td>Types</td>
<td>Simulation</td>
<td>Real-time strategy (RTS) and turn-based strategy (TBS)</td>
<td>FPS, TPS BRGs</td>
<td>RPGs &amp; MMORPGs</td>
</tr>
<tr>
<td>Potential benefits &amp; therapeutic use</td>
<td>Learning, psychomotor skills enhancement.</td>
<td>Problem-solving and Coping strategies</td>
<td>Judgement and team skills</td>
<td>Psychodrama and Avtar therapy</td>
</tr>
</tbody>
</table>

*FPS: First-Person Shooter, TPS: Third-Person shooter, BRGs: Battle Royale games, WOW: World of Warcraft, PUBG: Player Unknown’s Battlegrounds.
world with a closed eye in the imagination during storytelling or pretend playing in childhood.\(^{35}\) The causative relationship of RPGs with childhood-onset psychiatric disorders is not fully understood. Extensive research on associated risk factors and protective factors for IGD revealed that male gender, underline depression, stress, anxiety, hostility, aggression, impulsivity, escape motivation, and low self-esteem were strong risk factors for IGD. At the same time, age, intelligence, education and life satisfaction were protective factors for IGDs (Figure 1).\(^{36}\) The PUBG, perhaps, was the most recently caught in the limelight for its association with suicide in adolescents, its association with enhancing impulsivity, aggression and suicidality and later was banned in India.\(^{37}\) The excessive playing of RPGs can lead to internet addiction, the risk of depression, anxiety, insomnia and social withdrawal.\(^{38}\) Hence, RPGs do not directly lead to psychiatric conditions per se but underline personality factors; individual susceptibility plays a crucial role in eventually developing an overt psychiatric condition.

**CONCLUSION**

Role-playing games are the most recent genre of the gaming world, found to have potential psychological and therapeutic benefits in clinical settings or if used in milder quantities in a non-harmful manner. The individual risk of developing harmful gaming behavior should be gazed at through interaction with personality traits such as endophenotypes, the presence of risk factors and the absence of protective factors. Hence, we need to identify high-risk candidates for the earliest interventions. Moreover, as a psychiatrist, we must update our understanding of advancing gaming technology so we not only understand the present or future generation but also innovate newer strategies to deal with them.

**REFERENCES**

Are Role-Play Internet games a Threat to Children? What a Psychiatrist Should Know


