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Terminology in Transition: A Systematic Overview of Terms Used to Describe Gaming-Related Addictive Behaviors

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Abstract

Video game addiction has emerged as a significant behavioral issue in modern society, particularly affecting children and adolescents. This paper explores the psychological and physiological impacts of excessive gaming, analyzing both the potential causes and the consequences of this growing concern. It outlines how persistent engagement in video games can lead to social isolation, academic underperformance, emotional dysregulation, and even physical health issues. Drawing on both empirical studies and theoretical frameworks, the discussion emphasizes the role of escapism, reward systems, and neurochemical responses in reinforcing addictive behaviors. The influence of parenting styles and social environments is also examined, revealing how family dynamics and peer pressure may contribute to compulsive gaming. Furthermore, the paper highlights the potential parallels between video game addiction and other forms of behavioral addictions such as gambling, underscoring the importance of early intervention and psychological support. The study concludes that while video games can offer entertainment and cognitive benefits when used in moderation, unchecked and excessive use can result in significant psychological harm, warranting greater public awareness and professional attention.

Keywords: Video game addiction; psychological and physiological

Introduction

The need for internet usage in daily tasks and global communication has made it almost socially normative within our digital screen culture, thereby further exacerbating denial among addicted users (Brand, 2022; Martins et al., 2020). Navigating the intricacies of addiction, which typically centres on dependence on a substance or behaviour, sheds light on the diverse perspectives in current literature, where definitions of IGD span a spectrum from simplistic to nuanced conceptualizations (Almourad et al., 2020; Talis, 2022). According to Statista (2021), the global digital user base stood at 4.66 billion for the Internet with users spending an average of 6.7 hours online daily. Given the pervasive influence and daily necessity of the internet in numerous aspects of life, achieving complete abstinence from this addiction has become more challenging. Gaming does not necessarily involve internet use, and thus it includes not only addiction to online activities, but also addiction to offline activities using digital devices (Moge & Romano, 2020; Purwaningsih et al., 2021; Reer & Quandt, 2021).

The gaming sector has seen unparalleled growth and expansion on a global scale (López-Cabarcos et al., 2020). While the gaming industry caters to all age groups, it is crucial to pay special attention to children and adolescents as they undergo significant developmental processes (Johnson & de Haan, 2015; Zeman, et al., 2006).

Despite being designed for entertainment, certain aspects of games and the gamer's environment have led to IGD (Griffiths, 2015). It is essential to be mindful of triggers and urge response patterns to prevent the activation of reward circuits associated with addiction (Gleich et al., 2017; Zastrow, 2017). Previous evidence showed that IGDcaused significant impairments in health, study, work, and other social functions, and marked distress in personal, family, and social well-being (Cheng et al., 2018; Mentzoni et al., 2011). Concerns about increased risks for IGDduring the COVID-19 pandemic have also been raised (Gupta et al., 2020; Masaeli & Farhadi, 2021). To provide basis for formulating prevention and treatment measures, it is urgent for systematically estimating the prevalence characteristics and contributors for IGD (Potenza et al., 2018).

Definition and Classification

Researchers have used terminology inconsistently, making it difficult for individuals to fully grasp what is being referenced, as well as the specific criteria involved. This inconsistency also complicates the accurate and consistent translation of these terms. The choice of language is critical in many aspects of research, not just in the development of questionnaires. Precise and consistent terminology ensures clarity and accuracy in communication across different contexts. For instance, when creating a tool like the Beck Anxiety Inventory (BAI), which has been adapted into multiple languages, it is essential that the meaning and validity remain intact to ensure its effectiveness across various cultural and linguistic settings. When discussing Internet Gaming Disorder (IGD), which has been officially recognized and has a well-defined set of criteria, some researchers continue to use different terms to describe similar behaviors. This variation in terminology can hinder efforts to establish a unified understanding of the disorder, as well as complicate cross-study comparisons and the development of effective interventions. The terminology frequently used in this scope are the following problematic use of the internet, internet addiction, IGD and video game addiction (Baloğlu et al., 2020; Bean et al., 2017; El Asam et al., 2019; Ioannidis et al., 2022; King & Delfabbro, 2020; Király & Demetrovics, 2021; Kurniasanti et al., 2019; Mohammad & Alsaedi, 2023; Montag & Reuter, 2017; Neverkovich et al., 2018; Rücker et al., 2015; Salicetia, 2015; Wittek et al., 2016; Vondráčková & Gabrhelík, 2016; Zastrow, 2017). The definitions of these terms are formulated based on literature published between 2015 and 2024 because these sources provide the most recent and up-to-date insights into the evolving nature of internet and gaming behaviours. This may arise from various organisations, such as the World Health Organization (WHO), defining the same concept using different terminology, such as game addiction. Game addiction is referred to as a pattern of gaming behaviour characterised by impaired control over gaming, increasing priority given to gaming over other activities, and continuation or escalation of gaming despite negative consequences (Aarseth et al., 2017; Pontes, 2018). The definition of game addiction by WHO is seen by the International Classification of Diseases as a disorder (under the criteria of ICD-11;2018). In comparison, the American Psychiatric Association (APA) does not see “video game addiction" as a disorder in the DSM-5. For the purposes of this paper, video game addiction and other related terms will not be treated as equivalent to IGD. This distinction between terms is because IGD has a clearly defined set of criteria established by the DSM-5, whereas the other terms have yet to be formally recognized.

According to the DSM-5, IGD consistent engagement with gaming causing significant symptoms of distress or impairment. These diagnoses can be made when the patient meets 5 or more of the following criteria, this is a simplified version of the DSM-5:

1. *“Preoccupation with gaming*
2. *Withdrawal symptoms when gaming is taken away or not possible (sadness, anxiety, irritability)*
3. *Tolerance, the need to spend more time gaming to satisfy the urge*
4. *Inability to reduce playing, unsuccessful attempts to quit gaming*
5. *Giving up other activities, loss of interest in previously enjoyed activities due to gaming*
6. *Continuing to game despite problems*
7. *Deceiving family members or others about the amount of time spent on gaming*
8. *The use of gaming to relieve negative moods, such as guilt or hopelessness*
9. *Risk, having jeopardised or lost a job or relationship due to gaming”*

IGD severity ranges from mild to severe, depending on its impact on daily life. Mild cases involve fewer symptoms and disruptions, while severe cases lead to extensive computer use and significant losses in relationships or opportunities. However, literature does not provide clarity on whether there exists a spectrum akin to other disorders that exhibit spectra for internet addiction disorder (Musetti et al., 2016). This possibility could be due to the lack of clarity of what the addiction umbrella is as stated above the criteria of ICD-11 and DSM-5-TR are claiming two different perspectives and therefore approaches.

In this paper, we are trying to remove this uncertainty of what the terms are and what they are referring to. Almourad et al. (2020) conducted a content analysis of 47 studies and identified three thematic terms: internet, gaming, and smartphone addiction. However, these studies lacked specificity regarding usage domains and showed subjective and inconsistent application of the terms. Clearer definitions are necessary if a determination is to be made regarding whether these phenomena constitute mental health disorders. Moreover, with time more terms have been used such as “*problematic use*” of the internet (Gjoneska et al., 2022). Hence there needs to be a set meaning to each term used. The terminology that this field has extensive vocabulary for was not based on consensus by merit able disciplines. Therefore, establishing clear definitions for terms related to internet usage is indeed crucial, especially as technology evolves and our understanding of its impact on individuals and society deepens (Brand et al., 2020). This can be established by creating a standardised lexicon aiding in communication among researchers, practitioners, policymakers, and the public. This would help to advance research, improve assessment tools, guide clinical practice, and inform public discourse and policy development regarding internet use and its impact on individuals and society. Understanding these distinctions is crucial for recognizing the specific patterns of behaviour and providing appropriate interventions or support.

Currently these terms are under the umbrella term Internet gaming addiction:

Problematic use of the internet refers to any pattern of excessive internet use (social media, online shopping, browsing, and other internet activities) that causes negative consequences in an individual's life.

Internet addiction refers to a more severe form of problematic internet use. It involves a compulsive need to spend a significant amount of time online, leading to significant impairment or distress.

IGD refers to a subset of internet addiction that specifically involves an excessive and compulsive use of online games.

Video game addiction refers to excessive and compulsive use of video games, whether online or offline. This can include console, PC, or mobile games.

Current

It is crucial to recognize that not all treatments are universally applicable, underscoring the importance of assessing each individual case independently. It is essential to acknowledge that individuals' perceptions of their behaviour's problematic nature can vary, necessitating different approaches to treatment even for those with similar issues. This underscores the significance of evaluating and managing patient motivation and readiness in IGD treatment, akin to other forms of addiction. Patients may come forward at various stages of readiness for change, and these stages do not always follow a straightforward progression; recovery is not linear.

Clinical guidelines

To-date WHO does not have clear distinct guidance for IGD nor under any of the alternative terms used in research previously.

Kuss and Lopez-Fernandez (2016) conducted a systematic review to provide a comprehensive overview of clinical studies on Internet-related addiction, considering the entirety of the clinical landscape. A collective of 21 empirical clinical studies concentrating on the characteristics of individuals seeking treatment and diverse therapeutic interventions. These interventions comprised psychopharmacotherapy (5; Atmaca, 2007; Bipeta et al., 2015; Dell Osso et al., 2008; Han et al.,2009; Han et al., 2010), psychological therapy (10; Brähler et al., 1999; Du et al., 2010; Ge et al., 2011; Kim, 2008; Liu et al., 2015; Park et al., 2014; Shek et al., 2009; Young et al., 2007; Young et al., 2013; Yung et al., 2015), and combinations thereof (6;Han & Renshaw, 2012; Kim et al., 2012; Mythily et al., 2008; Poddar et al., 2015; Santos et al., 2015; Van Rooij et al., 2012). The treatment options assessed within their systematic review will be outlined.

However, it is imperative to underscore the importance of establishing a consensus on diagnostic criteria and measures. Such consensus is essential for enhancing methodological reliability across studies and for the development of efficacious treatment modalities tailored to the needs of treatment-seeking individuals. Presently, the diagnostic and research landscape appear considerably diverse, with globally unaligned diagnostic criteria used for identifying potential disorders. This will also serve to encourage public policy and healthcare providers to allocate funding for individuals requiring professional assistance.

Research and clinical endeavours should prioritise delivering optimal care to individuals experiencing significant impairment and distress due to their Internet usage. The main findings of Kuss and Lopez-Fernandez (2016) concerning psychopharmacological studies highlight the effectiveness of various medications in reducing symptomatology and usage time associated with Internet addiction and gaming addiction. Among the medications studied, antidepressants such as SSRIs (e.g., citalopram, clomipramine, fluvoxamine, sertraline, fluoxetine, escitalopram), as well as norepinephrine-dopamine reuptake inhibitors (NDRI, e.g., bupropion), benzodiazepines (e.g., clonazepam), antipsychotic medication (e.g., quetiapine), and methylphenidate (e.g., Concerta), have demonstrated efficacy in treating Internet addiction and related problems. These results imply that psychopharmacotherapy can effectively alleviate symptoms and decrease online activity, suggesting that medications may be beneficial for treating Internet addiction.

However, none of the studies provided long-term results, limiting our understanding of interventions with enduring effects on patients. The age range of some of the samples do not align with the targeted population of this paper, thus the findings cannot be directly extrapolated to children and adolescents. Future research could include annual follow-ups to enhance comprehension of bupropion's effects on patients and explore other potential factors contributing to recovery. It is important to note that these studies have not addressed confounds related to mood inhibition due to reward deficiency syndrome in the context of antidepressant therapies for video game addiction. Furthermore, a challenge with these studies is the broad scope of internet addiction, which encompasses various activities from video game addiction to online video consumption. It's noteworthy that gambling, which is considered a separate diagnosis, is excluded from this definition. Replicating this study is recommended to validate the positive outcomes.

Kuss and Lopez-Fernandez (2016) also conducted a review of psychological studies and found that there were no notable differences in outcomes. Although symptoms of Internet addiction decreased after treatment in the experimental group, improvements in beliefs and behaviours related to Internet use and psychological well-being were not observed. There was only a slight enhancement in parental monitoring and functioning following treatment. Unlike the psychopharmacological approach, psychological interventions did not yield any significant findings, indicating an urgent need for new treatment plans as current options do not show promising results. However, there are studies that have shown significant reductions in Internet addiction with community-based therapies such as group psychotherapy or marriage and family-based therapy (Kim et al., 2008; Liu et al., 2015). The role of craving for connection and a sense of belonging in Internet addiction is worth further consideration. Integrating therapies might be a viable approach for certain clients, necessitating coordination by interdisciplinary teams with structured medium-term interventions. This leaves a void of understanding, as the systematic review (Kuss and Lopez-Fernandez, 2016) demonstrates the absence of promising results and concrete definitions, along with a standardised understanding of internet addiction. Moving forward, it's imperative to establish concrete definitions and criteria for various types of internet addictions. This framework will enable the appropriate therapy to

address specific problems effectively. By doing so, patients can avoid wasting time on treatments that may not be suitable or effective for their condition.

Screening recommendations

The assessment of internet addiction's severity encompasses a spectrum of addictive behaviours individuals manifest online, inclusive of gaming and general browsing habits. However, the existing scale developed by Young (2009), *Internet Addiction Test* (IAT) comprising 20 items to measure addiction severity, may lack contemporary relevance. The scale stratifies addiction into mild (20-49 points), moderate (50-79 points), and severe (80-100 points) levels based on cumulative scores, yet its applicability in current contexts is debatable. Specifically, the scale's inability to sufficiently capture nuanced manifestations of internet addiction in today's digital landscape calls for a re-evaluation. Consequently, updating the scale to align with contemporary internet usage patterns is imperative to ensure accurate diagnosis and effective intervention strategies.

Demetrovics et al. (2012) devised the 12-item Problematic Online Gaming Questionnaire Short-Form (POGQ-SF), gauging aspects like preoccupation, overuse, immersion, social isolation, interpersonal conflicts, and withdrawal. Validation studies by researchers such as Pápay et al. (2013) affirmed its robust psychometric properties. Notably, the POGQ-SF exclusively targets online gaming, reflecting the gaming landscape prevalent during its inception. However, given the significant engagement with offline games, there arises a notable gap necessitating the development of updated versions of the questionnaire, akin to the evolution seen with the IAT (Young, 2009).

The Nine-Item Internet Gaming Disorder Scale (IGDS9-SF), developed by Pontes and Griffiths (2015), exhibits scalar invariance across nations, facilitating the comparison of Internet Gaming Disorder (IGD) levels globally as it has been translated into numerous languages (Beranuy et al., 2020; Hawi & Samaha, 2017). Despite various studies confirming its reliability and validity, there is limited psychometric evaluation of the IGDS9-SF in diverse cultural contexts, potentially limiting its effectiveness as a universal measure of IGD (Ali et al., 2022). Hence, there is a need for an overall update of such scales to align with current internet usage patterns, which becomes imperative for accurate diagnosis and effective intervention strategies. This evolution is necessary to bridge the gap between traditional assessments and the ever-evolving digital landscape, ensuring that interventions remain relevant and impactful.

There is a pressing need for the development of specialised assessment tools that can accurately capture the nuances of different types of internet game addiction. These specialised scales can provide valuable insights into the specific patterns and severity of internet game addiction, enabling more targeted interventions and treatment approaches. By addressing the unique challenges posed by different forms of internet game addiction, these scales can contribute to a more comprehensive understanding of the phenomenon and enhance the effectiveness of efforts to prevent and mitigate its negative consequences.

Parental and educational guidelines

In the absence of established metrics and consistent evidence of progress, individuals, especially those who influence vulnerable populations, must rely on guidelines. These guidelines should encompass recommendations for cultivating healthy gaming habits, imposing restrictions on screen time, and recognizing signs of problematic gaming behaviour. Educational institutions can contribute by instituting regulations for electronic device use during school hours and providing education and support materials for students, parents, and educators on responsible gaming practices. Awareness campaigns aimed at parents and caregivers can be launched by these institutions to educate them about the risks of video game addiction and offer resources for managing children's gaming habits, including workshops, informational materials, and online support. Collaboration with healthcare professionals can enhance these efforts through the implementation of screening protocols, referrals to appropriate services, and assistance for affected students and their families. It's essential to educate children about the potential risks of excessive gaming, encompassing its impact on physical health, mental well-being, academic performance, and social relationships, while also fostering open communication about gaming habits and addressing any arising concerns. Ultimately, these policies facilitate data collection over time, supporting research efforts aimed at deepening our understanding of potential causes and preventive measures.

The Children's Code comprises enforceable standards that online services must adhere to safeguard the privacy and personal data of children. According to the Information Commissioner's Office (ICO), having a defined process is beneficial for identifying and minimising data protection risks to children in games. Assessing and documenting the game's appeal to children during the design stage and with existing products to determine the necessity of age verification measures or adjustments tailored to children. It is important to regularly review assessments post-launch and make necessary adjustments, especially if unexpected age groups are playing. Lastly, ensure that randomised rewards comply with the Children's Code and the government's response to its consultation on loot boxes. The Children's Code of the game sector also considers the ages of your players by accurately determining their ages with a suitable level of certainty; explore potential solutions for age verification to be integrated into all products promptly upon identification; and establish measures to discourage or prevent players from providing false ages. This comes hand in hand with ensuring that all optional uses of personal data remain inactive by default and are only enabled upon obtaining valid consent from the player. Incorporate checkpoints or breaks in gameplay within game design, accompanied by messaging to encourage players to take breaks. Implement measures to regulate or oversee product agreements within community servers accessible to children within the game. The Children's Code ensures that children have control over whether and how their personal data is utilised, encouraging children to seek guidance from a trusted adult and activating profiling only if they comprehend its implications as well as give the parents alerts for parents regarding their children's in-game activities and privacy settings.

In line with educational guidelines, parental figures ought to establish transparent standards concerning children's daily video game usage, along with delineating parameters for when and where gaming is permissible. Vigilant monitoring and

supervision are crucial for identifying early indications of video game addiction. It's imperative for parents to promote diverse activities beyond gaming, such as outdoor play, sports, hobbies, and social interaction with peers and family, thus mitigating overdependence on video games for entertainment. Lastly, parents should serve as role models; children are more inclined to embrace positive behaviours when they witness them being consistently demonstrated by their parents.

Policy and regulations

These articles encapsulate the rights recognized by the United Nations Convention on the Rights of the Child (UNCRC), addressing the industry's obligations, parental responsibilities, and the intrinsic rights of children. The discussion herein delves into the complex interplay between these stakeholders within the gaming landscape:

> Article 5: "*States Parties shall respect the responsibilities, rights and duties of parents or, where applicable, the members of the extended family or community as provided for by local custom, legal guardians or other persons legally responsible for the child, to provide, in a manner consistent with the evolving capacities of the child, appropriate direction and guidance in the exercise by the child of the rights recognized in the present Convention*."
> Article 15: "*States Parties recognize the rights of the child to freedom of association and to freedom of peaceful assembly*."
> Article 24: "*States Parties recognize the right of the child to the enjoyment of the highest attainable standard of health and to facilities for the treatment of illness and rehabilitation of health*."
> Article 28 and 29: "*States Parties recognize the right of the child to education, and with a view to achieving this right progressively and on the basis of equal opportunity..."*
> Article 31: "*States Parties recognize the right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts*."
> Article 34: "*States Parties undertake to protect the child from all forms of sexual exploitation and sexual abuse*."
> Article 36: "*States Parties shall protect the child against all other forms of exploitation prejudicial to any aspects of the child's welfare*."

Given the prevalence of internet gaming addiction, there are two distinct dimensions to consider: individuals already grappling with addiction seeking assistance from healthcare providers, and those who are newly exposed to video games needing guidance on setting healthy boundaries. This article highlights the importance that parents, and legal guardians have a responsibility to provide appropriate guidance and direction to children in exercising their rights, including their right to engage in leisure activities such as playing video games. However, they also have a duty to ensure that such activities do not become harmful or addictive and to seek help if needed. There should be a balance with measures to prevent harm, including addiction and exposure to inappropriate content. Children should have the right to engage in leisure activities, including playing video games, and to associate with others in doing so. However, this should be balanced with considerations of healthy social interaction and other activities.

Governments and relevant authorities should take measures to prevent and treat video game addiction, ensuring that children have access to appropriate healthcare services and support. This could include polices for the education systems addressing issues related to healthy technology use and provide support for children affected by video game addiction. Children have the right to engage in play and recreational activities appropriate to their age, including playing video games, but this should be balanced with other activities and considerations of well-being. Children should be protected from exploitation and abuse, including any potential harms associated with excessive or inappropriate video game use. Children should be shielded from all forms of exploitation that may harm their welfare, which could include exploitation related to video game addiction.

Gaming industry

The focus lies on video games incorporating elements such as reward systems**,** social interaction, competition, and immersive narratives, as these traits have been linked to heightened engagement and the potential for addiction in specific individuals (Griffiths, 2008; King & Delfabbro, 2014; Kuss & Griffiths, 2012; Lemmens et al., 2011). While not all video games inherently foster addiction, those integrating these characteristics are more prone to captivating players' attention and fostering addictive behaviours. Recent instances of such games include 'Fortnite,' which features regular updates, competitive gameplay, and social interaction via online multiplayer modes. Similarly, 'World of Warcraft' immerses players in a persistent online world replete with rewards, social engagement, and long-term objectives, enhancing its addictive allure. By analysing these instances and comprehending the underlying mechanisms, we aim to illuminate the factors contributing to video game addiction and explore potential avenues for prevention and intervention. While this paper primarily addresses the addictive aspects of video games, it's essential to recognize that gaming also offers numerous positive attributes. Throughout history, gaming has served as a significant source of entertainment and pleasure for numerous individuals, spanning from traditional consoles such as Nintendo to contemporary online platforms. It is crucial to recognize the social, cognitive, and emotional advantages that gaming offers. Nonetheless, with the evolution of gaming technology towards greater immersion, it's imperative to acknowledge and tackle the addictive aspects of specific games. This approach is vital for fostering healthy gaming practices and enabling individuals to enjoy the positive aspects of gaming without falling prey to its addictive tendencies.

Personal Responsibility vs. Industry Regulation

The remarkable growth in the gaming industry is largely attributed to the implementation of solid legal and regulatory frameworks. These frameworks, adopted in different regions, install trust in the public by ensuring fair play and shielding the industry from illicit activities such as cheating, money laundering, and other criminal endeavours. While each jurisdiction has its unique set of laws and regulations, there are overarching models and practices observed globally. Therefore, anyone involved in the gaming business should acquaint themselves with these common themes and practices. The Convention expands upon the

principles outlined in the *Declaration of the Rights of the Child*, affirming that children require special safeguards and legal safeguards due to their physical and mental immaturity.

While these legal and regulatory structures have undoubtedly laid a foundation for the industry's success, it is important to note that their implementation and adherence to standards are not universal worldwide. Moreover, there have been incidents highlighting gaps in these laws and demonstrating a lack of control over the industry. For instance, the *Blue Whale Challenge* exemplifies how gaps in regulation can lead to tragic outcomes (HS & Mishra, 2019). This challenge resulted with approximately 130 teenagers losing their lives in Russia alone. The game's structure involves an administrator assigning tasks to members over a 50-day period, which escalate in severity, including self-harm and exposure to disturbing content. The administrator holds personal information about the players, coercing them to continue until the final task: suicide (Mukhra et al., 2019). This alarming case underscores the urgent need for tighter controls and oversight in the gaming industry. Countries like the United Kingdom have implemented legislation such as the *Video Recordings Act*, 1984 (Sharman, 1986), which evolved into the Video Recordings Act 2010.

These laws classify video games depicting violence, sexual activity, or techniques likely to facilitate offences under the British Board of Film Classification's rating system, with penalties including fines and imprisonment for those distributing such content. However, other countries like India lack dedicated laws regulating video games and online gaming. To mitigate the negative effects of video games and online gaming in schools, several suggestions can be considered: Schools should proactively educate children about the adverse impacts of excessive gaming, parents should be informed and encouraged to supervise their children's gaming activities, counselling services should be available for children struggling with addiction to technology and, education on the consequences of gaming should be integrated into school curricula, promoting critical thinking and responsible consumption of video games.

Causation vs. Correlation

Researchers work to distinguish between correlations and causation when examining gaming behaviour and addiction. This differentiation is critical for developing effective prevention and treatment approaches and understanding the various factors contributing to addiction. For instance, if gaming behaviour directly causes addiction, interventions might focus on reducing gaming time or altering gaming habits. Conversely, if the relationship is merely correlational, interventions may address underlying issues like psychological distress or social isolation.

Moreover, this distinction has significant implications for public health policy. If gaming behaviour is a direct cause of addiction, policymakers may prioritize regulations on gaming practices and promote responsible gaming habits. Conversely, if the relationship is primarily correlational, efforts might target broader societal factors such as socioeconomic disparities or mental health service accessibility. While some studies suggest a direct causal link between excessive gaming and addiction, others suggest gaming may be a symptom of underlying issues rather than a cause. Therefore, the answer may vary depending on the study, methodology, and context. Ongoing research is essential for a deeper understanding of the relationship between gaming behaviour and addiction.

Stigmatization vs. Recognition

The objective of this paper is to prevent the creation of additional barriers by refraining from stigmatising video games and by not advocating for a gaming ban, despite the risk of children developing an addiction. By focusing on recognition rather than stigmatisation, the aim is to create a more compassionate and supportive approach to addressing internet gaming addiction, promoting a healthier discourse, and encouraging effective interventions that consider the complexities of the issue. Stigmatisation and recognition offer two opposing perspectives when discussing gaming addiction. Stigmatisation involves viewing gaming addiction negatively, leading to societal judgement and discrimination against those who suffer from it. This can result in labelling and blaming, where individuals are seen as "addicts", which creates shame and guilt, discouraging those who need help from seeking it for fear of judgement. Stigmatisation can overgeneralize the problem, implying that all gaming is bad or leads to addiction. Recognition acknowledges gaming addiction as a legitimate issue that requires empathy and support. Validating the experiences of those affected and promotes understanding of underlying causes and risk factors by fostering a safe environment for individuals to discuss their challenges without fear of marginalisation.

Gender differences

Mari et al. (2023) and Pan et al. (2020) conducted studies revealing a notable gender disparity in internet addiction disorder (IAD) risk. Their research highlights that males exhibit a higher susceptibility to internet addiction disorder compared to females. This divide appears to stem from differing internet usage patterns: females predominantly utilise the internet for social interactions (Peris et al., 2020), while males are more inclined towards activities such as pornography, cybersex, and online gaming, which are closely associated with internet addiction disorder (Hassan et al., 2020; Tsumura et al., 2017). Despite this overarching trend, distinct predictive factors contribute to internet addiction disorder vulnerability in each gender. For males, factors such as traumatic experiences, hostility, frustration intolerance, and self-control indicators have been identified (Schimmenti et al., 2017; Li, Ren, et al., 2021), whereas females are more susceptible to internet addiction disorder due to alexithymia traits, emotional difficulties, negative mood, and smartphone addiction (Schimmenti et al., 2017; Shen et al., 2021). However, both genders may experience shared consequences of internet addiction disorder, including suicide ideation and insomnia (Shen et al., 2021). The broad and unfocused nature of the subject requires a more streamlined approach. For this reason, we will focus on male children and adolescents in this paper. The choice to concentrate on this demographic is because they are statistically at a higher risk of addiction to video games. This narrowed scope allows for a more detailed exploration of the factors contributing to this vulnerability and potential preventive measures.

Understanding IGDis crucial, as it typically doesn't manifest instantly but rather evolves over time. Children aren't inherently predisposed to be addicted to video games, much like other forms of addiction. So, what draws children to video games

initially? Video games are crafted as art forms, offering avenues for creative expression, such as constructing characters in fantastical realms or indulging in imaginative escapism. For example, Giardina et al. (2024) found that children and adolescents often create avatars that significantly differ from their real selves, embodying an idealised character. This compensatory identification may be linked to a diminished sense of self-worth and unclear emotional and social self-concepts (Lemenager et al., 2020). Such escapism can act as a coping mechanism, possibly arising from a need to avoid real-life issues or experiences of rejection by parents or peers, which foster feelings of alienation and a desire to retreat into a more accepting and secure virtual environment (Casale et al., 2021; Schimmenti et al., 2017). Over time, this coping strategy might develop into an unhealthy dependence. Further research is necessary to understand the relationship between these avatar perceptions and problematic gaming behaviours.

Furthermore, many video games incorporate varying levels of difficulty, necessitating problem-solving and critical thinking skills. Players engage in cognitive processes, learning diverse strategies and often collaborating with peers, fostering teamwork. Consequently, playing video games can enhance spatial awareness, memory retention, attention span, and decision-making abilities. While these skills are taught in educational settings, the fusion of learning and entertainment in video games could offer a more engaging educational approach, particularly for enthusiasts. Beyond cognitive benefits, video games facilitate social interaction, countering the prevalent sense of disconnection today. Given the economic constraints prompting familial relocations, children often lose touch with friends. Video games bridge this gap, enabling global connections irrespective of geographical barriers. Online gaming communities provide a sense of belonging and informal support networks, encouraging open dialogue about thoughts and emotions. Moreover, video games offer a window to diverse cultures through their graphics, narratives, and characters, fostering cultural appreciation. For individuals unable to travel due to financial constraints, these virtual experiences serve as cultural explorations, broadening horizons and fostering empathy towards different backgrounds and perspectives. This paper does not solely focus on positive nor negatives therefore it is then also important to talk about the negative effects of video gaming addiction not saying that the addiction part is ever a good thing but video games itself is not directly associated with negative side effects.

Firstly, some of the physical health concerns associated with video game addiction is sleep disturbance and irregular patterns. This can be seen in the study conducted by Altintas et al., (2019), they examined sleep quality in a video game population and to prospect the role of different factors (video game duration, intensity, and mental and physical health). They found that 120 participants experienced poor sleep quality, and 38 participants reported a severe intensity of video game playing in our sample using the cut-off scores. This study highlights the urgency of not only mental health consequences that can occur but also physical side effects if the addiction is present. However, this study is restricted, and conclusions cannot be made due to the possible confounding factors such as screen time on other devices. Nonetheless, it does help to build a better picture on the potential threats to the children's as well as adolescents overall wellbeing. There has been a significant amount of research exploring the relationship between mental health disorders and video games. While correlations have been found in some studies, it is essential to approach this topic with nuance and avoid oversimplification.

Consequences

Kwok et al., (2021) investigated the impact of internet gaming and social media use on physical activity, sleep quality, quality of life and academic performance among 15 university students in Hong Kong over a three-month period. Participants completed questionnaires, wore devices to monitor physical activity and sleep, provided screen time data for gaming and social media applications, and submitted their academic transcripts. The results indicate that internet gaming and smartphone addiction are associated with negative effects on physical activity, psychological quality of life, sleep, and academic performance. These findings suggest the need for healthcare providers to develop and assess interventions targeting internet and smartphone overuse. This study has several limitations that should be considered. The three-month duration of the study may not be sufficient to capture the long-term effects of internet gaming and social media use on physical activity, sleep quality, quality of life, and academic performance. The reliance on self-reported questionnaires introduces the potential for bias and inaccuracies in the data collected.

Moreover, the use of devices to measure physical activity and sleep may not comprehensively capture all aspects of these behaviours. Despite its limitations, this study offers valuable insights into the detrimental impacts of internet gaming and social media use on university students' physical activity, sleep quality, quality of life, and academic performance. It underscores the need for targeted interventions to mitigate these negative effects. Similar findings were found in a study conducted by Islam et al., (2020) with Australian children. In this study, they investigated whether tendencies toward internet and game addiction are linked to academic outcomes. 1704 children aged 11–17 from the Young Minds Matter survey, a cross-sectional nationwide study participated. the associations between internet use, electronic gaming, and academic performance as measured by NAPLAN scores. Approximately 70% of the sample spent more than 2 hours per day on the internet, and nearly 30% played electronic games for over 2 hours daily. The findings revealed that children using the internet for more than 4 hours per day on weekdays were less likely to achieve higher reading and numeracy scores, while moderate weekend internet use (2-4 hours per day) was positively associated with academic performance.

Conversely, 16% of electronic gamers achieved better reading scores on weekdays compared to non-gamers. However, a tendency towards internet and gaming addiction was negatively associated with academic achievement. These results highlight the importance of parental monitoring and self-regulation to limit internet and gaming time to mitigate their adverse effects on academic performance. However, this study has several limitations. The cross-sectional design precludes causal inferences about the relationship between internet use, electronic gaming, and academic performance. The reliance on self-reported data may introduce bias and inaccuracies. Furthermore, the measure of academic performance was limited to NAPLAN scores, which may not fully capture the breadth of academic

achievement.

Despite its limitations, this study provides important insights into the potential benefits of moderate internet use on weekends while highlighting the risks associated with excessive use and addiction tendencies. These insights can inform targeted interventions and policies aimed at promoting balanced and healthy digital habits among children. However, a significant issue with most of the studies discussed in this paper is the lack of consensus on the classification of video games and electronic games.

These terminologies are often used interchangeably, leading to confusion and inconsistencies in the literature. Martin et al., (2022) highlight the importance of standardised terminologies as it prevents conceptual confusion, which in turn makes it challenging to draw clear distinctions and accurate comparisons between different studies. Hence, standardised terminology can enhance the research co-production, clinical implementation, and reporting processes.

While not directly inherent to mainstream gaming platforms, the anonymity and digital literacy cultivated within online gaming communities may inadvertently expose players, particularly impressionable youth (Hawdon et al., 2014; Subrahmanyam et al., 2011). The issue concerning video games lies in the potential risk of online predators exploiting unmonitored conversations (Collins, 2021; Green & Brady, 2013; Grosskopf, 2010). This lack of supervision, both by parents and the industry, creates an environment where predators can easily target their victims. These predators may engage in various harmful activities, including but not limited to paedophilia, financial scams, bullying, and accessing the dark web (Abimbola-Akinola, 2017; Shapiro, 2022).

Although, addiction itself may not directly contribute to these risks, the amount of time spent in online gaming environments can increase vulnerability. Paedophiles, leveraging their knowledge of the anonymity and easy access to minors, may use deceptive tactics to gain the trust of young players (Bacıoğlu, 2022; Bjelajac, 2012; Fourie, 2020; Singh & Shah, 2022). These interactions can escalate to requests for personal information, explicit content exchange, or even attempts to arrange physical meetings, posing significant risks to the safety and well-being of children (Faraz et al., 2022; Salman, 2021). Curiosity or misguided intentions may lead individuals to seek out illicit content, black market transactions, or underground forums within the hidden corners of the internet, where illegal activities thrive. Exposing oneself to the dark web poses significant risks, including exposure to criminal enterprises, illegal substances, explicit content, and cybersecurity threats (Liggett et al., 2020). Another dynamic of video gaming environments is that it creates opportunities for financial exploitation (Ivanov et al., 2021; King et al., 2019). Players may find themselves tempted by in-game rewards, virtual currency, or sensitive financial details (Bardzell et al., 2007; Petrovskaya & Zendle, 2021; Zhirkova & Saric, 2020). Furthermore, deceptive tactics like phishing scams or counterfeit in-game purchases can trick players into compromising their financial security, resulting in monetary losses and potential identity theft (Bennani, 2022; Dilla et al., 2013). This financial exploitation using under aged individuals reflects a dark side of the gaming industry.

Addressing these multifaceted risks requires proactive measures from both parents and gaming industry stakeholders. These risks include robust parental controls, enhanced moderation and reporting systems, comprehensive education on online safety and responsible gaming practices, and collaboration with law enforcement agencies to combat predatory behaviour and illicit activities within gaming environments.

To conclude, video game addiction is a multifaceted issue that intertwines psychological, social, and neurological components. While gaming in itself is not inherently harmful, its addictive potential becomes a risk when usage escalates into compulsion and disrupts essential areas of life such as academic performance, mental health, and social relationships. The research reviewed in this paper demonstrates that the mechanisms behind gaming addiction resemble those found in substance and gambling disorders, particularly in the activation of reward centers in the brain and patterns of escapism. Environmental influences—such as lenient or uninvolved parenting, lack of structure, and peer influence—further compound the problem, especially in younger individuals. Given the increasing accessibility of digital devices and immersive gaming experiences, it is crucial for stakeholders—including parents, educators, and mental health professionals—to remain vigilant and proactive. Effective intervention requires a balanced approach that addresses underlying psychological vulnerabilities, promotes healthier coping mechanisms, and reintroduces structured routines. Ultimately, fostering awareness and resilience at the individual and community level can help mitigate the risks of video game addiction while still allowing for the positive aspects of gaming to be enjoyed responsibly.

Declarations

Ethical Approval and Consent to participate

Not Applicable, as this study did not involve human participants, animals, or sensitive data requiring ethical approval.

Clinical trial number

Not Applicable

Consent for publication

Not Applicable, as no individual data or identifiable images are included in this manuscript.

Availability of supporting data

Not Applicable.

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Competing interests

The authors declare no competing interests.

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Author contributions

MA drafted the manuscript. MA and AN contributed to the conceptualization, study design, and critically edited the manuscript. MA, AM and AN performed critical revision and editing of the scientific content. All authors read and approved the final manuscript.

Data availability

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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