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Article

A Synthesis of Treatment Practices, Facilitations, and Barriers in Treatment of Behavioural Disorders Associated with Gaming Platforms and Excessive Internet Use in Six Countries

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Abstract

A 2020 meta-analysis approximated that 7% of the global population exhibits symptoms consistent with internet addictions. This prompted global attention to the issue, marked by functional impairment in various aspects of life. In 2019, gaming disorder (GD) was added to the 11th revision of the International Classification of Diseases (ICD-11), providing a clearer, monothetic approach to the disorder. Building on this framework, a review for the first world health organization (WHO) meeting on problematic internet use (PIU) identified cross cultural representations in global epidemiological studies from 2000 to 2014; 14 countries submitted reviews of their approaches in 2016. Following GD recognition updates from six countries examined treatment progress from 2016-2024. This report details the various treatments practices, treatment needs, facilitators of treatment response and development as well as identified barriers to GD treatment response in these six countries, accompanied by a discussion of progress and recommendations for the future.

Keywords: ICD-11 criteria; gaming disorder; cross-cultural analysis; world health organization

Background

Since 2014, the World Health Organization (WHO) has been conducting activities related to the public health implications of excessive use of the Internet, computers, smartphones, communication and gaming platforms and similar electronic devices in response to concerns expressed by many stakeholders, including professional health bodies, WHO collaborating centers, academics and clinicians (World Health Organization, 2018). Supporting these concerns, a 2020 meta-analysis estimated that approximately 7% of the global population exhibits symptoms consistent with internet addiction, with prevalence rates indicating a rising trend over time especially amongst youth (Meng et al., 2022). These concerns extend beyond gaming specific behaviours to encompass a broader range

of health and safety issues including weight imbalances, psychological disorders, and sensory impairments (World Health Organization, 2018).

Video gaming is a popular activity globally, especially among youth, and a healthy recreational hobby for most users. There has been increasing recognition, however, that excessive video gaming may lead to functional impairments and psychological distress for a significant, and growing minority of players (Billieux et al., 2017). In an expanding number of countries and jurisdictions, the problem is perceived to be a significant public health concern. For instance, the global prevalence of gaming disorder (GD) has been reported to range from 1.96 – 3.3% with variations from country to country and sampling criteria (Stevens et al., 2021). Additionally, various aspects of GD make it a particularly sensitive case in terms of treatment and structure of the regulatory framework. These include minors' easy internet access, the proliferation of gaming platforms, the manufacturer's integration of artificial intelligence enhanced design features and algorithms that reinforce engagement and extend play duration (Fineberg et al., 2025). As a result, numerous public health entities and scientific societies have issued their support to recognize GD as a health condition from both clinical and public health perspectives (Rumpf et al., 2018) and to improve knowledge on its definition and respective clinical descriptions, in order to improve its management (Humphreys, 2019).

Gaming disorder, encompassing both online and offline gaming, was introduced as a new diagnostic category in the 11th revision of the International Classification of Diseases (ICD-11), adopted by the 72nd World Health Assembly (WHA72) in 2019 (World Health Organization, 2019). The ICD-11 came into effect as a basis for health reporting in January 2022. It outlines a monothetic approach to GDs with its key diagnostic factors being impaired control, increased priority given to gaming over other activities and continuation despite other negative consequences over a span of at least 12 months (World Health Organization, 2019). The clinical, neurobiological, public health and policy making arguments that supported this inclusion and emerging experiences with the use of the newly available criteria for diagnosing GD were published (Reed et al., 2022).

Methods

First, a review for the first WHO meeting on problematic internet use (PIU) was performed to identify the cross-cultural representations of the issue underlying global epidemiological studies between 2000 and 2014 (Achab et al., 2015). The research papers identified (n=88) were sorted by content, year, the efforts and targets within the regions, and the underlying concept in the choice of assessment tools (Table 1).

Table 1. Summary by region of the Global trend in identifying PIU including gaming platforms between 2000 and 2014. Five regions mentioned based on the six World Health Organization (WHO) regions: AFRO: African Region, EURO: European Region, SEARO: South-East Asian Region, WPRO: Western Pacific Region. .

Region	Epidemiological efforts and targets	Underlying concept
AFRO 1	1 study, technology magazine readers	PIU is investigated as a problem
AMRO 1	4 epidemiological studies were conducted between 2001 and 2012 mostly with university students	PIU being stably considered through time as an addictive disorder
EURO 1	24 studies, showed large epidemiological interest between 2004 and 2013, majority oft adolescents, school, online or phone-based recruitment	initial representation of the PIU was that of a pathology (37%), and later in a stable manner but not exclusively, PIU has been considered as an addiction (50%)

SEARO WPRO	et 56 studies from 2003 to 2013, mostly children and adolescents, school-based recruitment	considered the issue massively (77%) as an addictive disorder and to a lesser extent (10%) as a pathological use or as a behavioural (impulse control, compulsion) or a cognitive disorder
WPRO 2		0

Subsequently, due to the limited availability of data on global health system responses to the growing impact of PIU and information and communication technologies (ICT), the WHO conducted a review in 2016 examining the various health system approaches to PIU, including those related to GD (World Health Organization, 2016).

This review consisted of 14 national case studies prepared by key informants from each country. These key informants included national public health professionals, experts in addiction medicine, policy makers, physicians, psychiatrists, psychologists and children and adolescent mental health specialists. The review identified a lack of specific care approaches for PIU (including GD), even in regions where PIU constitutes a major health concern, largely due to economic constraints and substantial regional disparities (Table 2).

Table 2. Program responses to PIU including GD in European (EURO) and American (AMRO) regions, according to key informants (World Health Organization, 2016).

Region	Treatment offers within the health system	Type of offer
EURO 1	1. In 2007 the first specialized service 2. Generalist services mental health and SUDs facilities	Outpatient program devoted to the evaluation and treatment of internet and gambling-related disorders
EURO 2	1. In 2015 the first specialized service 2. Generalist services	Outpatient program devoted to the evaluation and treatment of internet and gambling-related disorders
EURO 3	No formalized treatment available	
AMRO 1	In 2013 the first specialized clinic	In-patient, residential, private
AMRO 2	In 2006 the first specialized clinic	Impulse control disorders outpatient psychiatric
AMRO 3	No formalized treatment available	Outpatient centres or individualized mental health practitioners.

Insufficient financial support for care services emerged as the principal barrier to GD treatment in many countries. In the Americas the concern centred on the absence of ICD codes for internet related disorders, limiting public coverage for treatment. In the Western Pacific region, the concern inadequate funding thus hindering program development and sustainability. The further barrier reported by countries was competing economic interests, which hindered policies to protect individuals from the harms associated with GD (World Health Organization, 2016). Ultimately, the recognition of GD as a health condition in the ICD-11 by WHO provided a foundation for addressing these barriers within health system responses and improving support for affected individuals and their families.

Following the recognition of GD, and the 2016 review of the regional responses, an update to the national case studies was commissioned for this technical brief to assess progress and evolving trends in treatment approaches. Of the original 14 country informants from 2016, six were able to

provide updated national case studies outlining progress made within the past eight years (2016-2024), now considering GD as an addictive behaviour within the ICD-11. It is important to note that most of the 2024 updates were provided by the same key informants who contributed to the original 2016 report. When original informants were unavailable, the new informants were provided with the same 2016 report and accompanying information to similarly redact the 2024 report. However, the absence of some key informants ultimately led to a reduced total number of possible comparisons.

BRAZIL

Trend in Treatments Offered

There has been an increase in the validation of psychometric screening tools for internet and GDs in Brazil (Severo et al., 2020; D. Spritzer & Sordi, 2024) representing an important step in the direction of providing treatment for the disorders found with these tools. In addition, the Federal Government has launched the “Guide for the Conscious Use of Screens and Digital Devices by Children and Adolescents,” which will be used to provide guidance to children, parents, and educators on different gaming and internet use risks and how to try to mitigate them (Secretaria de Comunicação Social da Presidência da República, n.d.). However, while the guide contributes to awareness and prevention, it does not constitute evidence of treatment. To date, there have been few developments in treatments for GD in Brazil. The only outpatient clinic dedicated to the treatment of adults with PIU and GD has recently inaugurated a unit specifically for the care of adolescents with these conditions. More recently, Brazil enacted legislation prohibiting paid loot boxes for children and adolescents, based on public health and child-protection principles rather than gambling law. While this represents an important regulatory advance aimed at preventing exposure to gambling-like mechanisms in digital games, it remains disconnected from broader public health strategies and does not address treatment provision for gaming-related disorders (Spritzer et al., under review).

Trend in Treatment Needs

Brazil is a rapidly digitizing middle-income country. Therefore, despite increased technology use, few policies or treatments address problematic internet and gaming behaviours. Consequently, the country's treatment needs remain extensive. For example, although Brazil has a growing game market, with approximately 73.9% of the Brazilian population reporting video game use (Sioux Group & GoGamers, 2024), there are still no population-based policies to reduce the gaming and internet disorders associated with excessive use (Spritzer & Sordi, 2024). The psychometric instruments for measuring disorders have only recently begun implementation and thus should be used to guide targeted interventions for affected individuals. Moreover, Roza et al. (2023) found that maternal depression was associated with problematic gaming, suggesting the need in Brazil for family based treatment addressing co-occurring conditions that may exacerbate GDs and PIU disorders.

Identified Facilitating Factors for Treatment Response Development

Facilitating factors for treatment response development include better population-based sampling for the prevalence and risk factors for GDs. Two scales (PIUQ-SF-9 and IGDT-10) have been used in the National Survey of Alcohol and Drugs (LENAD) to assess the proportions of problematic internet and gaming use throughout the country. The data from this research are expected to be available by the end of 2025, helping to bring about public awareness on the subject (Universidade Federal de São Paulo, n.d.). Another facilitating factor is the private initiatives of groups that provide support to people with GDs such as Gamer Anon Group (Gamer Anon, n.d.) and Gaming Addicts Anonymous (Gaming Addicts Anonymous, n.d.); which provide social support where structured treatment programs are lacking.

Identified Obstacles Against Treatment Response

Currently, Brazil faces substantial obstacles to effective treatment responses, including a growing gaming market set to lead in South America (Andrade et al., 2023), lack of population-based policy aimed at reducing gaming and internet disorders, and a governmental focus on internet neutrality rather than on safe internet use or country-wide treatment strategies (Spritzer & Kessler, 2018). A major challenge for individuals seeking assistance is the insufficient training of professionals in primary health care to recognize and manage GDs and PIU (Spritzer & Sordi, 2024).

CANADA

Trend in Treatments Offered

Treatments offered in Canada vary due to provincial regulations, funding, and education of public health concerns- in this instance, gambling and gaming. In the province of Ontario, the Centre for Addiction and Mental Health (CAMH) provides support to youth and adults primarily in the form of group treatment for gambling and excessive technology use (Centre for Addiction and Mental Health (CAMH, n.d.). Across Canada, treatment for these behavioural disorders is primarily delivered through outpatient centres or individual mental health professionals, typically funded by provincial health programs. Gambler's Anonymous is also a support group, originated in the U.S, that provides guided recovery support throughout the country for individuals experiencing gambling and gaming related problems (Gamblers Anonymous, n.d.).

Trend in Treatment Needs

Canada's treatment needs have grown steadily from gambling to gaming and internet use disorders. Few studies have examined gaming addiction in Canada, and there is no publicly available treatment for excessive social gaming. In 2020, studies showed that 59% of adolescents in Quebec (13- to 17-year olds) accessed the internet for more than 10 hours per week, and in 2016, 13% (1 in 8) of students showed symptoms of a video game problem, a much higher percentage than the 9% of students that had been previously reported in 2007 (Boak et al., 2016). There is a substantial gap in the development of treatment for behavioural addictions across Canada, particularly for internet and gaming disorders, requiring coordinated federal and provincial action (Derevensky, 2015).

Identified Facilitating Factors for Treatment Response Development

Factors that facilitate treatment response development in Canada include various established treatment centres (for example, the Center for Addiction and Mental Health in Ontario), provincial policies that establish mental health service guidelines for gambling disorders (from gambling revenues), vast amounts of available information for the general public about gambling and internet use, and funding from the Canadian Institutes for Health Research to improve knowledge around gaming and internet use disorders (Derevensky & Gilbeau, 2024). Other facilitators are the many provincially funded gambling centres across Canada for research and treatment initiatives. Dr. David Hodgins and colleagues have also written many articles about treatment models, and the International Centre for Youth Gambling Problems and High-Risk Behaviors has developed some training programs for physicians that could be followed by their implementation in the guidelines for Canadians suffering from these disorders (Derevensky & Gilbeau, 2024).

Identified Obstacles Against Treatment Response

There are, however, multiple obstacles that Canada faces in providing appropriate treatment programs for excessive internet and gaming responses. These obstacles include a growing video game industry that in 2021 reported revenues of \$5.5 billion and the Entertainment Software Association of Canada solely highlighting the positive impact of gaming (Entertainment Software Association of Canada, 2022). Another obstacle is that each province has authority over legislation

and funding for public health problems and education, resulting in inconsistent treatment and funding nationwide. As a result, there is no formalized treatment available in Canada for social gaming, internet use and gambling, Canada has followed the recommendations from the US National Council for Problem Gambling. Unfortunately, there are currently no formal training programs for behavioural addictions. Various universities and treatment centres have programs related to focusing on substance use disorders (Derevensky & Gilbeau, 2024). Given the number of physicians specializing in addiction psychiatry remains small, and behavioural addictions programs are not established, training lacks treatment protocols in this area of behavioural disorders.

CHINA

Trend in Treatments Offered

Treatments in China are moving towards a multifaceted, systematic approach that includes public health campaigns, with the intention of creating future programs involving community and family interventions for social support during recovery. Trends in treatments are also shifting to emphasize early intervention, as well as the investigation of different treatment modalities using machine learning and artificial intelligence (Di et al., 2019). In 2021, the National Press and Publication Administration of China, in the “Notice on Further Strict Management to Effectively Prevent Minors from Becoming Addicted to Online Game (Document No. 14[2021])”, strictly limited the time online game providers can offer services to minors (National Press and Publication Administration, 2021). All online gaming companies may only provide one hour of gaming service to minors from 8:00 pm to 9:00 pm on Fridays, Saturdays, Sundays and statutory holidays. At all other times, they must not provide gaming services to minors in any form (National Press and Publication Administration, 2021).

Trend in Treatment Needs

China lacks large sample survey data based on the ICD-11 standards, meaning that data on the prevalence rate of disorders and their diagnosis vary. The prevalence rate of GD is reported to be about 5% with little change, and the prevalence rates of problematic gaming ranged from 3% all the way to 17% (Long & Hao, 2024). Reports indicate a need to address these behavioural disorders alongside managing comorbid conditions like attention deficit hyperactivity disorder (ADHD), depressive and anxiety disorders, social phobias and personality disorders (Fong et al., 2024).

Identified Facilitating Factors for Treatment Response Development

Facilitating factors found in China include active and engaged health professionals dedicated to addressing GDs with documents like the “Expert Consensus on the Prevention and Treatment of Gaming Disorder (2019 Edition),” which provides a systemic approach to their assessment, treatment and rehabilitation (Xiang et al., 2020). Other facilitating factors include consensus and guidelines on the definition of these gaming and gambling disorders following ICD-11 recommendations, educators creating initiatives to reduce gaming in students, and media outlets providing awareness on these topics (Long & Hao, 2024).

Identified obstacles AGAINST Treatment Response

Identified obstacles against treatment response are the lack of consensus amongst some health professionals on the nature of the addictions (whether physical or psychological issues are more or less relevant to these disorders than social and interpersonal relationships), a reduced volume of healthcare professionals able to diagnose and treat these disorders, and a lack of specific and additional funds meant to implement and monitor the impact of these anti-addiction policies on extensive internet use and gaming disorders (Long & Hao, 2024).

INDIA

Trend in Treatments Offered

In India, treatments for GDs have recently focused on prevention as well as direct treatment (Balhara et al., 2023) and training modules have focused on increasing educators' capacity to detect and prevent addictive behaviours with internet and gaming use (Balhara et al., 2020a). While there are two main addictive behaviour clinics, there is no comprehensive program for these disorders. Steps are being taken to unify the treatments provided. Care standardization efforts include the 2020 "Standard Treatment Guidelines for the Management of Substance Use Disorders and Behavioural Addictions" which recommend either the use of cognitive behavioural therapy or referral to a psychiatric inpatient clinic (Ministry of Health and Family Welfare, 2020).

Trend in Treatment Needs

A review of the studies published from India reported that the prevalence of moderate and severe PIU among Indian school going adolescents was 21.5% (95% CI: 17.0%–26.8%) and 2.6% (95% CI: 1.6%–4.2%) based on the Young Internet Addiction Test (Y-IAT) cutoff points of 50 and 80, respectively (Joseph et al., 2022). Similarly, another review article reported the overall prevalence of internet addiction (IA) as 19.9% (95% CI: 19.3% to 20.5%) and 40.7% (95% CI: 38.7% to 42.8%) based on the Y-IAT cut-off scores of 50 and 40, respectively among college students in India (Joseph et al., 2021). The estimated prevalence of severe IA was significantly higher in the Y-IAT cut-off points of 70 than 80 (12.7% (95% CI: 11.2% to 14.3%) vs 4.6% (95% CI: 4.1% to 5.2%)).

Another study amongst adolescents, young adults and middle-aged adults found that stress, repetitive thoughts, coping strategies, and COVID-19 were predictors of PIU. Specific interventions have been proposed but have not been systematically tested for effectiveness (Sharma et al., 2022). There is little treatment available that addresses family dynamics within the view of these behavioural addictions and their comorbidities (Sahanapriya et al., 2021). Treatment is also available in outpatient clinics (Behavioural Addiction Clinic (BAC), AIIMS, New Delhi) and Services for Healthy Use of Technology clinic (SHUT), NIMHANS Behagaluru) where the focus is on psychoeducation, psychological, and pharmacological interventions. Although there is no specific inpatient behavioural addiction clinic available in the public sector and the outpatient services are very limited across the country, the BAC is emerging as a leading institution in behavioural addiction care and aims to advance the development of specialized clinics in the future (Balhara et al., 2020b).

Identified Facilitating Factors for Treatment Response Development

Factors facilitating treatment response development in India include premier medical centres engaged in clinical research, the approval of instruments for detection of GDs based on the ICD-11 criteria, and individual institutions that set up clinics operating in the public health care system that provide intervention for excessive use of internet and gaming disorders (Balhara et al., 2020b). Another facilitating factor for treatment response is the guide for management of internet, gambling, and gaming addictions within the "Standard Treatment Guidelines for the Management of Substance Use Disorders and Behavioural Addictions" developed by the Ministry of Health and Family Welfare, which increases public awareness and instructs clinicians on the first steps of treatment **following ICD-11 guidelines** (Ministry of Health and Family Welfare, 2020).

Recently, the Indian Council of Medical Research (ICMR) provided funding for the establishment of India's first and only Centre for Advanced Research on Addictive Behaviours (CAR-AB) related to excessive and problematic use of technology at AIIMS, New Delhi. This centre has been mandated to develop evidence-based intervention targeted at excessive and problematic use of technology, especially among youth. The interventions will be comprehensive and aimed at prevention, screening, early detection and intervention for internet and technology related addictions. Also, resources will be developed for education and health sector workers to strengthen

their capacity on prevention and management. The interventions will also help reduce the stress, depression, anxiety, addiction associated with use of internet and technology. Additionally, the centre aims to develop an AI- based predictive model to detect vulnerability to excessive and problematic use of technology among the youth.

Identified obstacles against treatment response

The obstacles against treatment response in India are brought on by the fact that there is no comprehensive program targeting the treatment of behavioural disorders associated with excessive gaming and internet use. Due to this challenge, clinical services are lacking across the country, and treatments are not standardized. Another obstacle is limited public awareness of these behavioural disorders, and their individual clinical presentation. As a result, individuals impacted by these disorders do not know how or if to obtain treatment. Treatment response is also hindered by the limited policy and legislative response from the government, exacerbated by the lack of knowledge about what government branches will handle these different types of behavioural disorders. A pragmatic policy that further clarifies the guidelines mentioned in the guide for treatment would increase public awareness and strengthen the work that clinics are doing to engage the public and aid to unify treatment strategies (Balhara, YPS, 2024).

MALAYSIA

Trend in Treatments Offered

Although public health concerns related to excessive internet and gaming platform use are widespread, Malaysia has yet to establish comprehensive regulatory frameworks at a national level. The Malaysian Communications and Multimedia Commission (MCMC) is working to combat scams, child online gambling, and misinformation, while also implementing regulations to ensure accountability for content creators and media operators (Malaysian Communications and Multimedia Commission, 2024). While MCMC has introduced measures such as blocking gambling websites and regulating online content, these initiatives do not specifically target gaming addictions beyond broader internet controls. Similarly, the Malaysia Cyber Security Strategy 2020–2024 acknowledges health risks associated with excessive internet use but focuses mainly on cybersecurity rather than behavioural disorders linked to gaming or internet addiction (National Security Council, 2020). Despite these initiatives, specialized treatment programs for GD are not institutionalized nationally. Instead, care is typically provided through psychiatry and mental health services in general, university, and private hospitals, with only four mental health institutions explicitly incorporating behavioural addiction treatment. Private centres also offer services, though treatment frameworks remain inconsistent and not standardized.

Trend in Treatment Needs

Evidence from Malaysia highlights growing recognition of mental and behavioural disorders linked to excessive internet and gaming use, yet treatment responses remain limited and fragmented (Tan et al., 2024). Local research shows that internet gaming disorder is influenced by both neurobiological mechanisms, such as stress-related hyperactivation in the brain (Abdull Nasser et al., 2021), and psychosocial factors, including unmet psychological needs (T'ng et al., 2023), suggesting that interventions should address not only behavioural symptoms but also underlying stress and vulnerabilities. Despite these insights, existing initiatives continue to emphasize preventive strategies, such as educational campaigns and responsible internet-use programs under the Malaysia Cyber Security Strategy 2020–2024 (National Security Council, 2020) and *Klik Dengan Bijak* (Malaysian Communications and Multimedia Commission (MCMC), 2020), which, while valuable, do not adequately target the co-occurring conditions identified in research (Omar et al., 2022). Children and adolescents remain particularly vulnerable, as evidenced by high rates of excessive screen time

among young children (Raj et al., 2022) and the strong association between internet gaming disorder and social anxiety disorder in adolescents (Mohamed et al., 2024). Although UNICEF Malaysia and other organizations have introduced resources to promote safer internet use (UNICEF Malaysia, 2020), the absence of a nationwide framework linking parental support, digital literacy, and behavioural health services continues to limit effectiveness.

Identified Facilitating Factors for Treatment Response Development

Several factors have facilitated the development of treatment responses in Malaysia, particularly through the involvement of key ministries and agencies such as the Ministry of Health, Ministry of Communications and Multimedia, the Malaysian Communications and Multimedia Commission, Cyber Security Malaysia, and the National Population and Family Development Board, which have introduced policies and initiatives acknowledging the risks of excessive internet and gaming use. Public awareness campaigns, including *Klik Dengan Bijak* (Malaysian Communications and Multimedia Commission (MCMC), 2020) and CyberSAFE (National Security Council, 2020), have further raised visibility and promoted responsible internet practices, creating momentum for policy integration. Nongovernmental organizations, notably the Malaysian Society of Internet Addiction Prevention and the Malaysia Cyber Consumer Association, have also advanced cyber wellness by disseminating evidence-based practices and collaborating with stakeholders. Finally, the government's recognition of esports and the launch of the National Esports Development Guidelines (Ministry of Youth and Sports, 2023) illustrate a proactive stance in regulating and safeguarding the digital gaming ecosystem, which opens opportunities to integrate health considerations within this emerging industry.

Identified Obstacles Against Treatment Response

The establishment of comprehensive treatment responses for internet and gaming-related disorders in Malaysia is constrained by several obstacles. Specialized programs dedicated exclusively to these disorders are not yet institutionalized, with treatment largely embedded within general psychiatric and mental health services. Resource constraints pose another challenge, as clear funding streams and budget allocations for behavioural addictions have yet to be established, hindering the development of specialized infrastructure and nationwide programs (Rathakrishnan & George, 2021). Outdated legislation, particularly the Common Gaming House Act of 1953, has not kept pace with modern online gaming and gambling platforms, thereby weakening regulatory and enforcement mechanisms ("NST Leader: Online Gambling and Legal Loophole Hurdle," 2023). Collectively, these obstacles indicate that while Malaysia has advanced in prevention and awareness, the development of specialized, accessible, and scalable treatment responses for internet and gaming disorders remains at an early and fragmented stage.

SWITZERLAND

Trend in Treatments Offered

Switzerland is actively working towards early detection and treatment of gaming and internet use disorders. The Federal Office of Public Health (FOPH) has commissioned experts and researchers to identify early signs of these disorders and implement appropriate treatment actions (OFSP, 2022). Studies have shown that cognitive behavioural therapy and family support reinforcement improve outcomes for individuals with video game disorders (Lampropoulou et al., 2022). WHO Collaborating Centre for Mental Health in Geneva (SWI54) led by a member of the constituted FOPH expert Group since 2012, has played a pivotal role in advancing treatment approaches in Switzerland. Its contributions include the collaboration with the FOPH to develop guidelines and training programs for healthcare professionals in the country, research examining the impact of ICD-11 on

GD and problematic use of internet (PUI) in Switzerland, and advocacy efforts to raise awareness of PIU nationally.

However, trends in treatments offered are difficult to quantify due to the lack of current data on the overall availability of treatment in Switzerland, particularly because of the high frequency of comorbidities associated with both gaming and internet disorders (Stortz & Perissinotto, 2024). The effects of the recent ICD-11 inclusion of gaming and gambling disorders on the Swiss population are still under study. In 2024 the Swiss FOPH, commissioned a nationwide study on treatment responses to addictive behaviours and organised a focus group to review and discuss its results (Stortz & Perissinotto, 2024).

Trend in Treatment Needs

In 2018, the FOPH commissioned a survey of addiction institutions, where the area of therapeutic treatment and harm reduction received an unsatisfactory rating from nearly 40% of respondents (Herrmann M et al., 2020). The need for treatment for these behavioural disorders is growing, a trend accentuated by the COVID-19 pandemic. Many addiction professionals (87%) surveyed by the FOPH in 2017 stated that there is a need for additional training on cyberaddiction (Knocks S, 2018).

Reports still highlight the need for the formulation of guidelines and advice relevant to the safe use of online content (Achab, 2021). Outpatient consultations for other disorders, such as eating disorders, increasingly identify excessive social network use as a primary driving force, surpassing video games in prevalence (Krizic I et al., 2023).

In July 2025, the director of SWI 54 was invited to contribute to the Pompidou Group's study and to participate in its expert consortium on developing guidelines for the safe use of online platforms by youth with the aim of harmonizing approaches to PUI across Europe. In November 2025, she was invited to address European ministers at the 19th Ministerial Conference of the Council of Europe, to present key treatment, policy needs and challenges for addressing PUI (Council of Europe, n.d.). The expertise was drawn from the Swiss pioneering centre she has led since 2007, and highlighted the need to strengthen media literacy and school based prevention programs, and to train healthcare professionals to better identify and manage behavioural addictions (Achab, 2025b).

Identified Facilitating Factors for Treatment Response Development

A national framework for prevention and treatment responses has begun to be established in Switzerland through the National Addiction Strategy. This strategy has notably advanced comprehensive frameworks for prevention, including conditions for low-risk use (Achab, 2021).

Another factor is the movement away from measuring "screen time" and the focus on supporting children more holistically (Cekic et al., 2024). To address the pressing issue of healthy digital use (Achab, 2021), SWI54 developed and disseminated two resources in 2025: "10 Tips for Parents to Promote Mindful Screen Use," which supports limit-setting for digital tools and the "Parents & Educators Guide for Gifting Tech Products" which guides individuals through responsible gift giving rules (Achab & Castro, 2025; Castro & Achab, 2025). These guides draw on research in psychology, digital health, and child development.

Identified Obstacles Against Treatment Response

Several factors hinder the development of treatment responses. They include the evolution of a video game market that incorporates "addiction by design" mechanisms which exploit psychological gambling and gaming mechanisms to create a more lucrative and ultimately addictive gaming experience (Achab, 2024; Stortz & Perissinotto, 2024). Also, diagnostic criteria and specific definitions of problematic and "at-risk" screen usage need to be improved. SWI54 is a participating centre for the testing of the WHO Gold standard screening and diagnostic tools for Gaming and Gambling disorders being developed (Carragher et al., 2022).

There is a lack of general psychotherapeutic care for children and adolescents with these disorders, thus hindering access to relevant institutions even if they are undergoing an acute crisis where rapid intervention is key (Stortz & Perissinotto, 2024). A person-centred approach is recommended to capture age and gender specific needs and presentations (Achab, 2025a).

In summary, Switzerland has made significant progress in addressing PUI. However, challenges remain, including adapting laws to new technologies and addictive designs; improving access to care, especially for young people; and raising awareness among parents, educators, and clinicians. The national research and expertise provide a robust framework for addressing the growing issue of PUI in Switzerland, ensuring that both prevention and treatment strategies are evidence-based and effective.

Discussion

This synthesis demonstrates substantial cross-national variation in health-system responses to GD and PIU across Brazil, Canada, China, India, Malaysia, and Switzerland following the ICD-11 recognition of GD. Across all six countries, a consistent pattern emerges: although awareness and preventive initiatives have expanded, the translation of this recognition into structured, accessible, and standardized treatment services remains uneven and fragmented.

Evidence of this growing prevalence highlights how children and adolescents worldwide bear a disproportionately high burden of GD when compared with adults yet the clinical resources and treatment protocols available have been designed for adults, which leaves care in need of modifications (Kewitz et al., 2023). The associated social isolation, academic failure and mental health issues heavily burdening the mental health system could be mitigated by earlier screening and targeted care (Satapathy et al., 2025). However, the current limitations in scientific evidence regarding children presenting symptoms of GD, coupled with the absence of recognized treatment protocols, may ultimately pose a greater strain on the health care system due to misattributed comorbidities and inefficient care pathways.

Preventive efforts have, however, gained momentum in multiple settings. For example, China has implemented regulatory restrictions on minors' online gaming time, while Malaysia has expanded public awareness initiatives such as *Klik Dengan Bijak* under its national cybersecurity agenda. Similarly, Brazil's national guidance on screen use and India's educator-focused prevention programs reflect increasing institutional engagement. In Switzerland, prevention has been embedded within the National Addiction Strategy through digital literacy and community-based interventions. However, these developments remain disproportionately oriented towards prevention rather than clinical service provision, underscoring a persistent gap between recognition and implementation.

High-income countries such as Canada and Switzerland have made progress in integrating gaming-related problems into established addiction frameworks and professional training systems. Nevertheless, they continue to face challenges related to service heterogeneity, limited specialist capacity, and the absence of coherent, nationwide treatment pathways. In contrast, low- and middle-income countries such as Brazil, India, and Malaysia encounter additional barriers, including infrastructural limitations, constrained resources, outdated legislation, and weak institutionalisation of behavioural addiction services, despite rising clinical demand and increasing prevalence.

Across both contexts, a broader "implementation paradox" has emerged. While research on GD has expanded rapidly, the development of structured clinical services, standardized care pathways, and a specialized workforce has lagged. Controversy amongst various health professionals regarding inclusion symptoms, diagnostic criteria and implementation protocols further slows the adoption of harmonised national responses. For example, India hosts medical centres conducting behavioural addiction research yet lacks clear government frameworks, whereas Brazil has validated psychometric screening tools without corresponding development of population-level policy or service planning.

This synthesis also highlights how competing commercial interests operate as structural barriers to effective policy and service development, especially in contexts where digital industries contribute significantly to national economies. In Canada, the rapid growth of the video game sector, combined with industry narratives emphasising the positive aspects of gaming, has complicated the development of stronger regulatory and treatment responses. In Switzerland, experts have drawn attention to “addiction by design” mechanisms embedded within commercial gaming platforms that exploit psychological vulnerabilities. In Malaysia, the growth of esports and the digital gaming economy has advanced faster than corresponding investments in behavioural health services. Similarly, Brazil faces an ongoing tension between digital market expansion and public health imperatives, with policy priorities often favouring internet growth and neutrality over population-level treatment strategies. Collectively, these dynamics illustrate the need for integrated national approaches that move beyond awareness and regulation alone and actively balance economic interests with public health protection.

Although evident that there have been global advancements in the field of GD, the lack of structured and nation-wide responses demonstrates a demand for further research and development. To address these gaps, adaptable WHO toolkits offer a solution that enables different countries to contextualize selected instruments within the local health care system while also aligning with international standard practices (Carragher et al., 2022). Other priorities for the future include structured ICD-11 training programs, dedicated national policies and budgets and a realistic continuum of care across health services. These should all be informed by emerging epidemiological data arising from randomized controlled trials, longitudinal studies and prevention evaluations (King et al., 2025).

Conclusions

For over a decade, the WHO has engaged with academia, the public health sector, policy makers, industry, and civil society, to tackle emerging challenges related to gaming and digital platforms. Its work underpins the different chapters of this technical report, with its aim to present up-to-date evidence on the complex, multidimensional nature of gaming habits, encompassing both their benefits and potential harms. Further developments on public health implications of addictive behaviours include the urgent need for capacity building of professionals on the use of ICD-11 criteria and the management of GD (Long et al., 2022).

There remains a clear need for robust, evidence-based recommendations on prevention and treatment interventions, as well as for strengthening the capacity of health systems globally to conduct coordinated, international monitoring of gaming-related health harms.

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