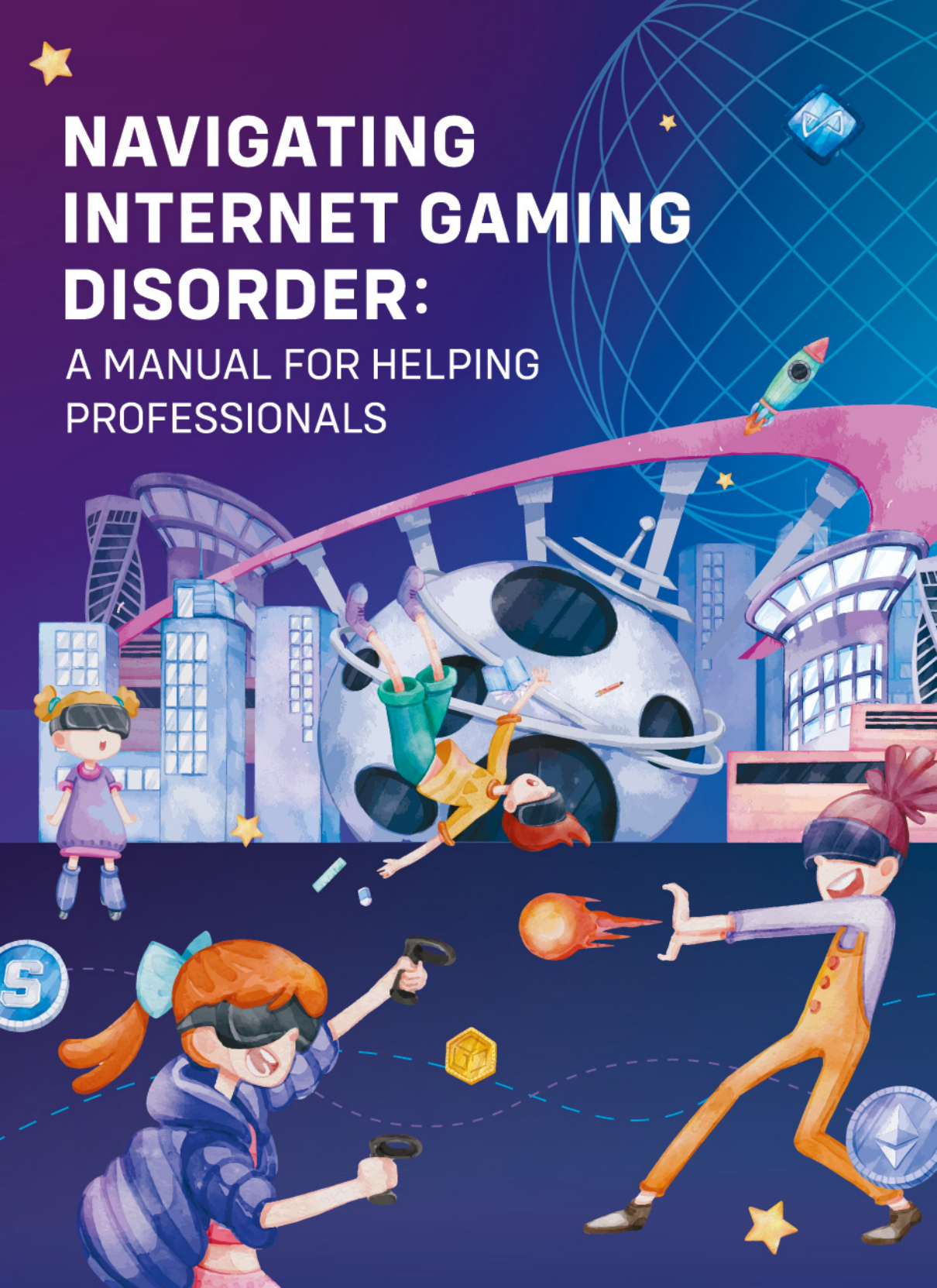


NAVIGATING INTERNET GAMING DISORDER:

A MANUAL FOR HELPING
PROFESSIONALS



Copyright © 2024 Institute of Mental Health

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher.

Authors:

Dr Zhang Weibin Melvyn

Suresh Anantha

Jamie Susie Thomas




Dr Ong Say How


Dr Lambert Low

Adj A/Prof Lee Cheng

Dr Gomathinayagam Kandasami

TABLE OF CONTENTS

| | |
|---|----|
|  FOREWORD | 6 |
|  CHAPTER 1: INTERNET GAMING DISORDER | 8 |
| Objectives | 8 |
| Background | 8 |
| Assessment | 10 |
| Formulation | 13 |
| Research Insights: Summary of the Research Evidence to Date | 13 |
| Potential Treatment Approach | 21 |
| Research Insights: Treatment for Internet Gaming Disorder | 28 |
| Overview of Internet Gaming Disorder in Singapore | 29 |
| The Influence of E-sports in Singapore | 30 |
|  CHAPTER 2: CLINICAL VIGNETTES | 32 |
| <u>Case 2.1: Diagnosing Internet Gaming Disorder</u> | 32 |
| Objectives | 32 |
| Background | 32 |
| Assessment | 33 |
| Formulation | 35 |
| Potential Intervention Plans | 36 |
| When to Refer Cases with Excessive Screen Time? | 36 |
| Self-assessment Questions | 37 |
| <u>Case 2.2: Internet Gaming Disorder and Depression</u> | 38 |
| Objectives | 38 |
| Background | 38 |
| Assessment | 39 |
| Principles of Management | 41 |
| Managing School Refusal | 42 |
| Research Insights 2.2 – Internet Gaming Disorder and Depressive Disorder | 46 |
| Self-assessment Questions | 47 |
| <u>Case 2.3: Internet Gaming Disorder and Anxiety Disorder</u> | 48 |
| Objectives | 48 |
| Background | 48 |
| Assessment | 49 |
| Principles of Management | 51 |
| Research Insight 2.3 – Internet Gaming Disorder and Anxiety Disorder | 52 |
| Self-assessment Questions | 54 |

| | |
|---|----|
| <u>Case 2.4: Internet Gaming Disorder and Attention Deficit Hyperactivity Disorder</u> ... | 55 |
| Objectives | 55 |
| Background | 55 |
| Assessment | 56 |
| Principles of Management | 58 |
| Research Insights 2.4 – Internet Gaming Disorder and Attention Deficit Hyperactivity Disorder | 58 |
| Self-assessment Questions | 60 |
| <u>Case 2.5: Internet Gaming Disorder and Autism Spectrum Disorder</u> | 61 |
| Objectives | 61 |
| Background | 61 |
| Assessment | 62 |
| Principles of Management | 63 |
| Research Insights 2.5 – Internet Gaming Disorder and Autism Spectrum Disorder .. | 64 |
| Self-assessment Questions | 65 |
| <u>Case 2.6: Internet Gaming Disorder and Gambling Disorder</u> | 66 |
| Objectives | 66 |
| Background | 66 |
| Assessment | 67 |
| Principles of Management | 68 |
| Research Insights 2.6 – Internet Gaming Disorder and Gambling Disorder | 74 |
| Self-assessment questions | 75 |
| <u>Case 2.7: Internet Gaming Disorder and Psychosis</u> | 75 |
| Objectives | 76 |
| Background | 76 |
| Assessment | 77 |
| Principles of Management | 78 |
| Research Insights 2.7 – Internet Gaming Disorder and Psychosis | 78 |
|  CHAPTER 3: ROLE OF THE SCHOOL COUNSELLOR | 79 |
| Introduction | 79 |
| Roles of the School Counsellors | 79 |
| Education and Primary Prevention for All | 80 |
| Interventions for At-risk Students | 80 |
| Interventions for Students with Moderate to Severe Problems | 80 |
| Resources in Singapore | 82 |

FOREWORD

Gaming disorder is characterised by persistent gaming behaviour, whether it predominantly occurs online or offline. An individual with gaming disorder experiences impaired control over the onset, frequency, intensity, duration, and termination of gaming behaviour. Like in all addiction disorders, they eventually prioritise gaming over other interests and daily activities in life. This continues to escalate even in the face of negative consequences, including significant impairment in their personal, family, social, educational, occupational, or other important areas of functioning.

This pattern of gaming behaviour may be continuous or episodic and recurrent. Typically, a diagnosis is made after gaming behaviour and its associated features are observed over at least 12 months. However, this duration may be shortened in the event that all other diagnostic requirements are met, and symptoms are severe.

With that being said, the validity of such a diagnosis is controversial as it may cause millions of healthy gamers out there to be stigmatised. Nevertheless, there is evidence that gaming disorder, which neuroscience shows is associated with dopamine release in the brain's reward system, has serious and harmful consequences on an individual and their significant others. The commonly reported mental health consequences include depressive disorder, anxiety disorder, and impulsivity, while prevalent physical health impairments affect one's vision, sleep, and musculoskeletal system.

For the most part, the Internet has transformed our daily lives for the better. However, when it comes to online gaming, challenges arise in terms of cyberbullying, misinformation, and parental supervision for children and teenagers, especially in genres involving violence and sexual content. Furthermore, as game marketing remains largely unregulated and payment processes become increasingly straightforward and accessible, spending more time and money on online gaming has become exceedingly convenient.

For some countries, the answer is a "shutdown" approach. Game providers must cease services during specified hours, especially for teenagers, and entry to

internet cafes may be restricted. Teenagers or caregivers can make “shutdown” requests based on their chosen timings, and the latter are encouraged to monitor gaming activity in minors using content filters or time limitations.

Another means of curbing gaming disorder involves decreasing efficiencies and rewards as usage increases. This may be achieved by making video games more expensive, rating their addictiveness, and including health warning messages similar to those on cigarette packaging. In some countries, individuals who are addicted to gaming can also enrol in residential camps where they participate in individual and group therapy as well as social activities beyond the Internet for weeks.

This guidebook on managing internet gaming disorder (IGD), produced by the National Addictions Management Service (NAMS) and written by Dr Melvyn Zhang et al, could not have come at a better time. Apart from evidence-based insights from researchers, the case vignettes also shed light on the concomitant mental health issues associated with IGD that helping professionals may need to address. These include other addiction disorders such as gambling disorder; as well as major psychiatric disorders such as depression, anxiety disorders, attention deficit hyperactivity disorder, autism spectrum disorder, and even psychosis. To help translate theory into practice, we have also included a section based on role-play exercises between school counsellors and students.

There is no doubt that Dr Melvyn and his team have dedicated numerous after-office hours to complete this book, and I am confident that its quality and relevance will be greatly appreciated by all helping professionals.

Adj A/Prof Lee Cheng

Senior Consultant

Clinical Director, Office Of Population Health

Institute of Mental Health



CHAPTER 1: Internet Gaming Disorder

Objectives

- Understand and recognise the symptoms of internet gaming disorder (IGD)
- Gain insight into other internet-related disorders, such as excessive smartphone use and social media addiction
- Learn how IGDs are managed through both pharmacological and non-pharmacological methods
- Appreciate the resources available locally to help individuals manage IGD

This chapter contains a case vignette to help helping professionals understand the diagnostic criteria for IGD and a series of screening and assessment questions they may use to identify challenges among their clients relating to their gaming/internet behaviours.

Based on the research literature on IGD and its associated internet-related disorders (including internet addiction, smartphone addiction, and excessive social media use), we have summarised recent findings and evidence-based approaches to treatment.

Lastly, you will find an update on the current state of research on internet-related disorders in Singapore and a list of treatment resources available in the country.

Background

John, a 15-year-old male, was accompanied by his parents to the outpatient clinic at National Addictions Management Service (NAMS) for a consultation. His parents sought help because they were concerned about John, who had been gaming excessively and missing school.

Since the start of Secondary 2, John's attendance has been irregular. This worsened after the March school holidays when he began avoiding school altogether. In April and May, he consistently refused to go to school. Instead, he devoted all his time to gaming.

In the past, John spent an average of 2-3 hours on weekdays and 4-5 hours on weekends gaming. However, the time has increased dramatically since he stopped going to school. As soon as he gets out of bed, he begins gaming. He continues throughout the day, taking breaks only during mealtimes. Sometimes, he would even skip meals.

John plays games mainly on his computer, and out of the many genres he enjoys, Fortnite is his favourite. When his parents restricted his access to the computer to curb his gaming habits, he turned to playing mobile games, such as Mobile Legends. He also uses his smartphone to communicate with friends, schedule gaming sessions, and watch YouTube videos from the gaming channels he follows. Additionally, John maintains several social media accounts. He mostly uses them to stay in touch with friends but occasionally shares his gaming scores on these platforms.

Excessive gaming and electronic device use have altered John's behaviours significantly. He used to willingly help with household chores but now refuses to do so. He no longer joins routine family outings and has become withdrawn from them. He has also stopped meeting friends whom he used to enjoy dining out with, maintaining contact with them only in the virtual world.

John's lifestyle of late has impacted his physical health. His sleeping patterns have become irregular because of him staying up late to play games and sleeping in, and his erratic eating habits have led to weight loss. His self-care has also been impacted, as there have been instances where he prioritises completing a game over maintaining basic hygiene and showering.

When asked to cut down on or stop gaming altogether, John becomes irritable. His mood is particularly bad when his gaming gets disrupted by the routine maintenance of gaming servers or issues with the home Wi-Fi. His relationship with his parents has become strained as arguments arise frequently. Recently, this led to a physical altercation when John's parents attempted to restrict his computer usage.

Not long ago, John's parents discovered that he had been using their credit cards to make in-game purchases. These amounted to approximately \$500 over the last two months. Concerns about his spending behaviour snowballed and

culminated in a major argument two days ago. In response, his parents implemented a plan to limit his gaming hours.

Distraught, John expressed despair by saying that life was pointless if he couldn't game, even threatening self-harm. This prompted John's parents to consult a helping professional without delay.

Assessment

Clinical assessment involves a comprehensive interview with both the child and their parents. It is crucial to begin from the child's birth, gathering information that may include:

- Brief history - caregiving and family setup
- Developmental milestones
- General physical health
- Degree of bonding and attachment with caregivers
- Quality of social interactions and relationships
- Academic inclinations and achievements
- Child's hobbies, temperament and characteristics
- Parenting style, including disciplinary styles
- Dynamics and emotional tone at home
- How communication is typically done at home

Based on the information gathered, you may ask the child more questions to determine if they meet the diagnostic criteria for gaming disorder in the International Classification of Diseases, 11th Revision (ICD-11).

ICD-11 diagnostic criteria for gaming disorder

Core/required features:

There needs to be a persistent pattern of gaming behaviour, which may be predominantly online or offline, characterised by the following:

- Impaired control over gaming behaviour in terms of intensity, frequency, duration, termination, and context
- Increasing prioritisation of gaming behaviour to the extent that it takes precedence over other life interests and daily activities
- Continuation or escalation of gaming behaviour despite negative consequences

The gaming behaviour is:

- Observed over a period of at least 12 months, be it continuous or episodic and recurrent
- Not better accounted for by another mental disorder
- Not attributable to the effects of substance or medication
- Resulting in significant distress or impairment in personal, family, social, educational, occupational, or other important areas of functioning

Some guiding questions to ask the child regarding their gaming habits include:

- When did you first start gaming?
- How were you introduced to gaming?
- What types of games did you play?
- When you started gaming, how often and for how long did you play each day?
- How has your gaming behaviour changed since then?
- Can you describe your gaming habits on a typical weekday? How about on a typical weekend?
- On average, how much time do you spend gaming in a day?
- Do you find yourself consistently thinking about gaming at certain times?
- Why have you increased the amount of time you spend gaming?
- Do you feel that gaming is more important than other responsibilities in life? Can you provide an example of this?
- Have there been times when gaming was prioritised over planned activities with your family or friends?
- Are you able to control the amount of time you spend on gaming?

- How has gaming or usage of your device affected your life?
- Has gaming affected your studies? Can you tell me more about it?
- Have you experienced any difficulties in your relationships with family or friends due to gaming?
- Have your gaming habits led to any health problems?
- Have you noticed any other impact of gaming on your life?
- Has anyone talked to you about reducing your gaming hours? How did it make you feel?
- Have you ever tried to reduce your gaming hours? Were you successful? How long were you able to abstain?
- Have you ever felt irritable when asked to reduce your gaming hours?

You may use these questions as a guide to explore the child's gaming habits or modify them to suit the latter's educational level.

For corroboration, it is key to gather additional information from the child's parents. Here are some guiding questions:

- Can you describe a typical school day for your child?
- Can you describe a typical weekend for your child?
- Do you think your child struggles with regulating their screen time? Can you provide more details?
- Are you aware of what your child does online?
- Has your child been able to adhere to the screen time you agreed upon?
- Can your child stop using their devices when their allocated time is up?
- Have you noticed any changes in your child, such as decreased interest in hobbies or enjoyment of their family and friends' company?
- How has gaming affected your child's life?
- How has gaming affected your child's academic life? To what extent has it impacted their attendance, timely completion of assignments, and conduct?
- Has your relationship with your child been affected by their gaming behaviour?
- Has your child's gaming behaviour had any impact on their health?

Formulation

Based on the background provided, it seems likely that John is experiencing IGD. He exhibits impaired control over his gaming habits, prioritises gaming over other activities, and persists in these behaviours, potentially escalates them despite negative consequences. Still, further exploration is necessary to rule out underlying psychiatric conditions that may be contributing to his gaming behaviour.

Research Insights: Summary of the Research Evidence to Date

How is IGD different from internet addiction?

According to the ICD-11, gaming disorder refers to persistent or recurrent gaming behaviour that causes significant distress or impairment in various areas of life, including personal, family, social, educational, or occupational functioning.

While video gaming is one behaviour that can be harmful, there is an ongoing debate about whether other behaviours such as pornography, social media use, and general internet use should be classified as mental health disorders (Kiraly et al., 2023).

For instance, internet addiction, characterised by excessive or poorly controlled preoccupations, urges, or behaviours related to computer and internet use, which typically result in impairment or distress (Shaw et al., 2008), has not been officially recognised as a diagnosis in any classification system.

What are the questionnaires available for the screening and assessment of IGD?

Various questionnaires can help helping professionals screen and assess IGD. One commonly used tool is the Internet Gaming Disorder Scale-Short Form (IGDS9-SF), as highlighted by Pontes et al. (2015). This questionnaire assesses the severity of IGD based on an individual's online and/or offline gaming activities in the past week, utilising nine scaling questions on a 5-point scale, where one represents "Never" and five represents "Very Often." The total score ranges from nine to 45, with higher scores indicating a greater risk of IGD (Pontes et al., 2015).

Meanwhile, other questionnaires have been derived from symptoms listed in the DSM-5 criteria for other addictions or from scales previously employed to measure internet addiction or online video game addiction (Yu Shu M, 2019).

A systematic review conducted by King et al. (2020) aimed to evaluate the credibility of tools in the English language, identifying 32 scales used in 320 studies. Although most accounted for factors like impaired control, excessive gaming, and functional impairment, a few stood out for showing stronger evidence of psychometric properties. They are:

- AICA-S gaming (Assessment of Internet and Computer Addiction Scale – gaming)
- GAS-7 (Game Addiction Scale-7)
- IGDT-10 (Internet Gaming Disorder Test-10)
- IGDS9-SF (Internet Gaming Disorder Scale-Short Form)
- Lemmens IGD-9 scale (Internet Gaming Disorder Scale – 27 items)

How common is IGD across the world?

IGD affects approximately 3.05% of the global population, as indicated by a comprehensive analysis of 53 published studies conducted between 2009 and 2019 by Stevens et al. (2021). Interestingly, the findings also revealed a gender disparity, with IGD affecting males more than females at a ratio of 2.5 to one.

Is there a diagnostic criterion for smartphone addiction?

As of 2023, no official criterion for diagnosing smartphone addiction have been agreed upon. However, in 2016, Lin et al. conducted a study to establish one and proposed the following:

- a) Maladaptive pattern of smartphone use leading to significant impairment or distress over a period of three months. This criterion is met if an individual experiences three or more of the following symptoms:
- Repeated failure to resist the urge to use the smartphone
 - Withdrawal symptoms when not using the smartphone
 - Usage for a longer duration than intended
 - Persistent desire to reduce or quit using the smartphone with unsuccessful attempts
 - Excessive time spent using the smartphone or trying to quit
 - Continued use of the smartphone despite knowing the negative effects on their physical and psychological health

b) Functional impairment. This criterion is met if an individual experiences two or more of the following symptoms:

- Excessive use of smartphone resulting in persistent physical or psychological problems
- Use of smartphone in situations that are physically hazardous
- Impairment of social relationships, academic performance, or job productivity
- Excessive use of smartphone causing significant subjective distress

c) These behaviours could not be better explained by conditions such as obsessive-compulsive disorder (OCD) or bipolar I disorder.

It is worth noting that the definition of smartphone addiction as a disorder remains debatable among researchers. Some argue that the extent to which smartphone use is problematic depends on the content an individual engages with rather than the usage of the device itself.

Is there a diagnostic criterion for social media addiction?

As of 2023, there is no official diagnostic criterion for social media addiction. In fact, whether social media use has risky or even pathological dimensions remains debatable, as highlighted by Paschke et al. (2021).

In some studies, like the one conducted by Paschke et al. (2021), social media use disorder was evaluated using the criteria set out in the ICD-11 for gaming disorders, which include:

- Difficulty controlling the use of social media
- Increasing prioritisation of social media use to the point of neglecting other interests and daily activities
- Continued or escalated use of social media despite experiencing negative consequences
- Significant impairment of personal, family, social, educational, occupational, or other important areas of functioning due to the severity of behaviour
- The pattern of social media use may be consistent or sporadic, recurring over at least 12 months

While writing this book, we became aware of the United States Surgeon General's advisory on social media and its impact on youth mental health. Evidence has shown that while social media may benefit children and adolescents by providing positive community engagement, access to useful information, and a space for self-expression, it can also pose a profound risk to their mental health and well-being. The report stressed the need to create safe and healthy digital environments in order to safeguard and minimise harm to them.

Read the full report here:

<https://bit.ly/youth-social-media-advisory>



What are the predisposing factors that increase the risk of IGD?

Independent studies have examined risk factors associated with IGD, with a recent systematic review by Gao et al. (2022) analysing data across 40,760 participants, 155 published studies, and 33 countries. The review found the pooled prevalence of IGD in adolescents and young adults to be 9.9%, increasing to 10.4% in adolescents, and identified risk factors including:

- Stress
- Long average game time
- Family dysfunction
- Poor academic performance
- Being bullied
- Bullying
- Interpersonal problems
- Hyperactivity/inattention
- Anxiety disorder
- Depressive disorder
- Emotional distress
- Low self-esteem

Research conducted by Yinan Ji et al. (2021) proposed additional risk factors including:

- Individuals with aggression (Cho et al., 2013)
- Individuals who are socially withdrawn
- Individuals with depression (Ha JH et al., 2007)
- Individuals with anxiety disorder (Ko CH et al., 2009)
- Individuals with attention deficit hyperactivity disorder (ADHD)
- Individuals with highly impulsive personalities (Dong et al., 2013)
- Individuals with identity problems and low self-esteem (Stieger S et al., 2010)
- Conflictual relationship between child and parents (van Den Eijnden et al., 2008)
- Amount of time spent on gaming (Gentile D, 2009)
- Positive attitude towards gaming (Haagsma et al. 2013)

Is there a biological basis for IGD?

In their review article, Ji et al. (2021) highlighted the parallels between the biological bases for IGD and substance use disorders. Notably, both impact the brain in similar ways:

Impairment of the prefrontal cortex

The prefrontal cortex plays a crucial role in executive control functions. In both disorders, this part of the brain is affected, resulting in difficulties with self-control and decision-making.

Activation of the mesolimbic dopamine system by cues

This system is responsible for the experience of pleasure and reward. In both disorders, cues related to gaming or substance use can trigger dopamine release, leading to a reinforcing effect and a desire to engage in addictive behaviours.

Deficiencies in the overall neuronal reward system

Individuals with both disorders may experience a reduced sense of reward from activities that are typically pleasurable or fulfilling.

Due to the above, individuals with both disorders often display diminished decision-making abilities when evaluating the advantages and disadvantages of addictive behaviours. This can lead to a lack of awareness regarding the negative consequences associated with excessive gaming or substance use.

These similarities in the biological bases of gaming and substance use disorders highlight the shared mechanisms that contribute to developing and maintaining these addictive behaviours.

Is IGD associated with other psychiatric disorders?

Psychotic disorders

Lavoie et al. (2022) conducted a scoping review to investigate the relationship between gaming and psychotic disorders, but no study has definitively established the prevalence of IGD among individuals with psychotic disorders. Nonetheless, some case reports have highlighted that excessive video game play or the abrupt discontinuation of gaming may trigger psychosis in certain patients.

Attention deficit hyperactivity disorder (ADHD)

Salerno et al. (2022) conducted a narrative review and found ADHD to be a risk factor that predisposes individuals to gaming. Symptoms of ADHD increase the likelihood of problematic gaming behaviour with an odds ratio of 2.43. In other words, the odds of developing IGD is 2.43 times greater in individuals with ADHD compared to those without it.

Another literature review by Muzwgi et al. (2021) found that:

- Children and youths with ADHD are at a higher risk of developing IGD compared to those without ADHD.
- There is a strong association between the severity of ADHD symptoms and IGD.
- Children and youths with IGD are at risk of developing ADHD.
- Adolescents with ADHD and IGD exhibit greater social skills deficits compared to those with ADHD alone.

Depressive disorder

According to a systematic review and meta-analysis by Ostinelli et al. (2021), the pooled event rate for depressive disorder was 0.32 across 21 studies involving 5,025 participants. Although the prevalence of depressive disorder in individuals with IGD varied across these studies, approximately one out of three participants was reportedly affected.

Anxiety disorders

A review conducted by Gonzalez-Buseo et al. (2019), which analysed 21 cross-sectional studies, also discovered significant correlations between IGD and anxiety disorder, social phobia and anxiety, as well as obsessive-compulsive symptoms.

Why do youths game?

Extensive research on internet addiction and, more recently, IGD, has been conducted. One of the earliest theoretical models proposed was the cognitive-behavioural model of IGD by Davis et al. (2001).

According to this model, pathological internet use stems from problematic thoughts and behaviours that intensify or maintain unhealthy responses. It divides maladaptive thoughts into two categories: about self and about the world.

Thoughts about self include self-doubt, low self-efficacy, and negative self-evaluation. An individual with negative self-perception may turn to the Internet for positive social interactions and feedback from others. Such online behaviour may be triggered and perpetuated by maladaptive thoughts such as “I am only good on the Internet” or “I am worthless offline but, online, I am someone.”

On the other hand, thoughts about the world may involve cognitive distortions such as “the Internet is the only place where I can feel safe” or beliefs such as “nobody loves me offline.”

In a review by King et al. (2014), 36 studies on cognitions associated with internet gaming were examined. The authors identified four types of cognitions linked to IGD:

Beliefs about game reward value and tangibility

These include overvaluing gaming items, rewards, and virtual currency, even perceiving them as more significant than other activities in life. An individual may also feel emotionally attached to their avatar or online identity, seeing it as a friend, partner, or an extension of self.

Maladaptive and inflexible rules about gaming behaviour

These include justifying continuous gaming based on the time and effort they have already invested (i.e. sunk cost bias), experiencing tension between game initiation and reward delivery (upon behaviour completion), prioritising gaming over other aspects of life (leading to procrastination), and following maladaptive rules or decision-making processes regarding the duration of gameplay.

Over-reliance on gaming to meet self-esteem needs

This involves making internet gaming a primary source of pride and competence, believing that positive feelings can only be derived from gaming, and expecting negative feelings during periods of abstinence. An individual may also perceive gaming as a means of gaining control, safety, mastery, and personal achievement.

Gaming as a means of gaining social acceptance

This involves believing that gaming elevates one's social status and fosters a sense of belonging in online communities, all while avoiding social rules and responsibilities in the real world. An individual may perceive that they are only understood by fellow gamers and fulfil their social needs by pursuing rank or status in competitive online environments. They may also play games to prevent challenges and failures in real life.

Heiden et al. (2019), who wrote about the association between video gaming and psychological functioning, identified reasons why gamers play video games. They include:

- Distraction from daily hassles
- Enjoyment of social relationships in the virtual world
- Coping with stress

- Escapism
- Personal satisfaction
- Social interaction
- Competition

Notably, they identified coping, social interaction, and competition as the primary motivations of male gamers.

Additional research has explored the appeal of social interactions in gaming, especially among young individuals, and has examined variations in genre preferences based on gender and age. Typically, males lean towards action and strategy games, while females favour skill-based ones. Whereas younger gamers prefer action games, their older counterparts gravitate towards skill-based options.

Potential Treatment Approach

The Biopsychosocial Model of Addiction helps helping professionals understand the interconnecting biological, psychological, and social factors (Marlatt et al., 1988), and gives them clarity when conceptualising presenting addictions (Skewes & Gonzalez, 2013).

Once you have examined these factors and connected individuals with the appropriate support on the biological and social fronts, your next move would be offering the psychological assistance required.

Cognitive Behaviour Therapy (CBT) (“What Is Cognitive Behavioural Therapy?”, 2017) is an effective approach to addictions. The modality focuses on how thoughts affect feelings, creating physiological responses and the behaviours observed. By recognising automatic negative thoughts and cognitive distortions at play, an individual gains insight into their behaviour. This enables them to challenge unhelpful thoughts, plan alternative courses of action, and engage in new behaviours.

Here are the cognitive distortions commonly associated with IGB and their suggested treatment approaches.

| | | |
|--|--|--|
| <p>COGNITIVE DISTORTIONS</p> <p>Catastrophising: Believing that the negative outcomes of abstaining from gaming are far worse than they are in reality</p> | | |
| <p>COMMON THOUGHTS</p> <ul style="list-style-type: none"> • “If I stop gaming, I will be the only person who isn’t gaming in my class. My friends will think I’m a loser, abandon me, and then my life will be ruined.” • “If I cannot complete a certain level at gaming, I’ll just be a complete failure in everything else too.” | <p>PSYCHOLOGICAL INTERVENTIONS</p> <p>Cognitive restructuring: Encourage them to question extreme thoughts about reducing or quitting gaming and consider more realistic possibilities</p> <p>Exposure therapy: To demonstrate that their perceived outcomes are unlikely to occur, gradually expose them to situations based on reduced hours or incomplete levels in the game</p> | <p>INTERVENTIONS IN ACTION</p> <ul style="list-style-type: none"> • Encourage them to examine the realistic outcomes of gaming reduction or cessation • Help them to identify and challenge irrational beliefs about the consequences of cutting back on gaming • Teach coping skills to manage anxiety related to potential negative outcomes |

| | | |
|---|--|--|
| <p>COGNITIVE DISTORTIONS</p> <p>Minimisation or rationalisation:</p> <p>Downplaying the negative impact of excessive gaming, dismissing its consequences, or finding justifications for continuation of gaming despite its adverse effects</p> | | |
| <p>COMMON THOUGHTS</p> <ul style="list-style-type: none"> • “I only play games occasionally; it’s not a big deal.” • “Gaming helps me to relieve stress, so it’s okay to spend hours playing.” | <p>PSYCHOLOGICAL INTERVENTIONS</p> <p>Psychoeducation: Provide information on the negative impacts of excessive gaming to counter rationalisations</p> <p>Motivational interviewing: Explore ambivalence about gaming behaviours and the benefits of reducing gaming</p> | <p>INTERVENTIONS IN ACTION</p> <ul style="list-style-type: none"> • Help them to recognise the negative impact of excessive gaming on their daily life • Promote awareness of the benefits of reducing gaming, such as improved well-being and relationships • Encourage honest self-appraisal of their gaming habits and their consequences |
| <p>COGNITIVE DISTORTIONS</p> <p>Confirmation bias:</p> <p>Focusing only on information that supports the idea that gaming is not problematic while ignoring evidence that suggests otherwise</p> | | |
| <p>COMMON THOUGHTS</p> <ul style="list-style-type: none"> • “I know someone who made a lot of money through gaming, so it’s worth investing more time in it.” • “I only pay attention to stories of successful gamers, ignoring the negative impacts on others.” | <p>PSYCHOLOGICAL INTERVENTIONS</p> <p>Cognitive restructuring: Encourage them to question their selective attention to gaming-related information and seek balanced perspectives</p> <p>Cognitive defusion: Help them detach from gaming-related beliefs to reduce bias in information processing</p> | <p>INTERVENTIONS IN ACTION</p> <ul style="list-style-type: none"> • Encourage them to seek information from diverse sources, including research on the negative effects of excessive gaming • Challenge them to consider alternative viewpoints and evidence that may contradict their existing beliefs |

| | | |
|---|--|---|
| <p>COGNITIVE DISTORTIONS</p> <p>All-or-nothing thinking:</p> <p>Seeing gaming as either entirely positive or entirely negative, without recognising the potential for moderation or balanced gaming habits</p> | | |
| <p>COMMON THOUGHTS</p> <ul style="list-style-type: none"> • “If I can’t be the best player in the game, there’s no point in playing at all.” • “I can’t have a balanced life and play games; it has to be one extreme or the other.” | <p>PSYCHOLOGICAL INTERVENTIONS</p> <p>Goal-setting: Encourage gradual reduction of gaming time instead of complete abstinence to challenge all-or-nothing thinking</p> <p>Behavioural experiments: Engage in activities that disprove the belief that gaming must be extreme to be enjoyable</p> | <p>INTERVENTIONS IN ACTION</p> <ul style="list-style-type: none"> • Help them set realistic goals by reducing gaming time gradually • Encourage a balanced approach where gaming is enjoyed in moderation along with other activities |
| <p>COGNITIVE DISTORTIONS</p> <p>Labelling and self-blame:</p> <p>Using derogatory labels to describe oneself due to gaming behaviour and taking full responsibility for the addiction, which may hinder seeking help</p> | | |
| <p>COMMON THOUGHTS</p> <ul style="list-style-type: none"> • “I’m just a lazy and worthless person addicted to games.” • “My addiction is proof that I’m weak and lack self-control.” | <p>PSYCHOLOGICAL INTERVENTIONS</p> <p>Cognitive reframing: Help individuals challenge negative self-labels and develop a more compassionate self-perception</p> <p>Self-compassion exercises: Foster self-acceptance and understanding that gaming addiction is a behavioural issue, not a personal failing</p> | <p>INTERVENTIONS IN ACTION</p> <ul style="list-style-type: none"> • Promote self-compassion and challenge negative self-talk • Help them understand that gaming addiction is a behavioural issue and not a reflection of their worth as a person |

| | | |
|---|---|--|
| <p>COGNITIVE DISTORTIONS</p> <p>Selective attention: Paying attention only to aspects of gaming that provide immediate pleasure or escape while ignoring the negative consequences</p> | | |
| <p>COMMON THOUGHTS</p> <ul style="list-style-type: none"> • “I ignore the time I spend gaming and only focus on the achievements within the game.” • “I disregard the negative effects gaming has on my relationships and academic performance.” | <p>PSYCHOLOGICAL INTERVENTIONS</p> <p>Mindfulness practices: Enhance awareness of gaming habits and their impact on other aspects of life to reduce selective attention</p> <p>Journaling: Encourage them to keep a record of gaming habits and their effects on emotions, relationships, and responsibilities</p> | <p>INTERVENTIONS IN ACTION</p> <ul style="list-style-type: none"> • Encourage individuals to objectively assess the time spent on gaming and its impact on other areas of life • Use cognitive techniques to broaden their awareness of the negative consequences of excessive gaming |
| <p>COGNITIVE DISTORTIONS</p> <p>Emotional reasoning: Allowing emotions related to gaming, such as excitement or frustration, to dictate behaviours and decisions rather than considering the rational consequences</p> | | |
| <p>COMMON THOUGHTS</p> <ul style="list-style-type: none"> • “I feel so happy when I game; it must mean gaming is good for me.” • “Since gaming makes me feel better temporarily, it can’t be harmful.” | <p>PSYCHOLOGICAL INTERVENTIONS</p> <p>Cognitive restructuring: Challenge the notion that feeling happy while gaming validates excessive gaming behaviour</p> <p>Emotion regulation techniques: Teach skills to manage emotions effectively without relying on gaming</p> | <p>INTERVENTIONS IN ACTION</p> <ul style="list-style-type: none"> • Help them recognise that feelings of happiness or relief from gaming do not necessarily validate the impact on their overall well-being • Help them understand the difference between short-term emotional relief and long-term negative consequences |

| | | |
|--|---|--|
| <p>COGNITIVE DISTORTIONS</p> <p>Escapism: Using gaming as a way to avoid or cope with real-life problems, perpetuating a cycle of gaming as a form of emotional escape</p> | | |
| <p>COMMON THOUGHTS</p> <ul style="list-style-type: none"> • “Gaming is the only way to escape my problems and avoid facing reality.” • “I use gaming to numb my emotions and forget about my troubles.” | <p>PSYCHOLOGICAL INTERVENTIONS</p> <p>Coping skills training: Teach healthy coping strategies for stress and negative emotions to replace the need for escapism through gaming</p> <p>Addressing underlying issues: Explore and address reasons for using gaming to escape from real-life challenges</p> | <p>INTERVENTIONS IN ACTION</p> <ul style="list-style-type: none"> • Explore healthier coping strategies for managing stress and emotions • Assist in addressing underlying issues that may drive the need for escapism through gaming |
| <p>COGNITIVE DISTORTIONS</p> <p>Comparisons and unrealistic expectations: Comparing oneself with others who excel in gaming, leading to feelings of inadequacy or an unrealistic belief that gaming can fulfil life expectations</p> | | |
| <p>COMMON THOUGHTS</p> <ul style="list-style-type: none"> • “Everyone else seems to be doing well in the game; I should be at their level too.” • “I should be able to juggle gaming, work, and social life perfectly, like some streamers do.” | <p>PSYCHOLOGICAL INTERVENTIONS</p> <p>Self-reflection: Encourage individuals to set realistic gaming goals and focus on personal progress rather than comparing with others</p> <p>Social support: Provide a supportive environment where individuals can share their struggles and successes without feeling judged</p> | <p>INTERVENTIONS IN ACTION</p> <ul style="list-style-type: none"> • Encourage individuals to focus on their own progress rather than comparing themselves with others • Help set achievable goals for gaming and realistic expectations for skill development |

| COGNITIVE DISTORTIONS | | |
|--|---|--|
| <p>Personalisation: Taking in-game failures or achievements too personally and attributing self-worth or identity to gaming performance</p> | | |
| <p>COMMON THOUGHTS</p> <ul style="list-style-type: none"> • “My gaming addiction is solely responsible for all my life’s problems.” • “If I could just stop gaming, everything would be better for me and those around me.” | <p>PSYCHOLOGICAL INTERVENTIONS</p> <p>Psychoeducation: Help them understand the multifactorial nature of IGD and avoid self-blame</p> <p>Group therapy: Participate in group sessions to see that personalisation is a common cognitive distortion among individuals with gaming addiction</p> | <p>INTERVENTIONS IN ACTION</p> <ul style="list-style-type: none"> • Encourage them to recognise that gaming addiction is a common issue and not a personal failing • Help them understand the complex factors contributing to gaming addiction beyond personal responsibility |

Mindfulness, in conjunction with CBT, enhances one’s awareness of maladaptive behavioural patterns and helps them develop healthy coping skills (Kim et al., 2022). However, you may not be able to delve straight into them if an individual is not keen on discussing their gaming behaviours. In such situations, motivational interviewing (MI) can help resolve feelings of uncertainty and unpreparedness. MI focuses on building one’s motivation for change while working towards their commitment to it (Hettema et al., 2005). Once motivation and commitment have been achieved, you may follow up with CBT and mindfulness practices.

In some cases, the child may lack social skills and struggle to socialise and interact with his peers. In such instances, social skills training can help them engage with peers in person. Instead of spending all their time online, they may participate in outdoor, physical, or group activities like playing chess, badminton, or soccer. Knowing their child’s past interests and hobbies, parents may encourage structured activities and entice them with interesting outings and activities.

Last but certainly not least, support is essential to recovery. You may evaluate an individual's social, familial, and academic environments for additional assistance, and even collaborate with their school to establish support within their ecosystem.

In some cases, family therapy can also encourage healthy communication and strengthen bonds at home. Parents, in particular, play a crucial role in creating a nurturing and understanding environment at home, which will aid the treatment process.

Research Insights: Treatment for Internet Gaming Disorder

How do we treat IGD? What types of psychotherapies work?

Several reviews have examined and compared different treatment strategies for internet addiction and IGD. A recent one by Chang et al. (2022) focused on studies published between 2000 and 2017 and analysed 29 articles involving 5,601 children and young adults. Noteworthy findings include:

- Combination therapy involving pharmacotherapy and CBT or multi-level counselling appeared to be the most effective treatment approach.
- IGD co-occurring with depression showed poorer treatment outcomes compared to cases with comorbid ADHD.

Based on the studies identified, other psychotherapies included Solution Brief Focused Therapy, Adlerian Group Counselling, and CBT with a focus on positive psychology counselling. Meanwhile, pharmacological options examined included methylphenidate, fluoxetine, bupropion, and atomoxetine. Individuals seeking to understand more about the effectiveness of individual medications should refer to the original article.

A previous review by Zajac et al. (2018) examined various medications and their efficacy. Although clinical trials have indicated the potential of treating IGD with bupropion, an anti-depressant, further double-blinded placebo-controlled trials are necessary. This requirement also extends to medications like escitalopram, methylphenidate, and atomoxetine.

Recently, Chen et al. (2023) conducted a systematic review of randomised controlled trials testing interventions for IGD, identifying four effective interventions:

- Craving behavioural intervention
- Acceptance and cognitive restructuring intervention program
- Group counselling
- Short-term CBT

Overview of Internet Gaming Disorder in Singapore

Internet addiction and excessive internet use have been studied extensively in Singapore. In a study involving 2,735 adolescents, of whom 49.3% were males with a mean age of 13.9 years, 17.1% of participants reported using the Internet for more than five hours daily (Mythily et al., 2008). Factors contributing to excessive internet use included the absence of rules for internet use at home, lack of confidants, feelings of sadness or depression, and poorer grades.

In 2010, Choo Et Al published the results of a three-year study involving 2,527 students. They revealed that males tended to spend more time gaming than females and that 8.7% of the participants were categorised as pathological gamers, with prevalence rates like those in the United States (8.5% for youths between eight to 18 years old).

Later, the prevalence rate for pathological gaming rose to 9%, as reported in a two-year study involving 3,034 children in Grades 3, 4, 7, and 8 by Gentile et al. (2011). Risk factors associated with pathological video gaming included a greater amount of gaming, greater impulsivity, and lower social competence. The study also identified outcomes such as depression, anxiety, and poorer school performance that were found to be associated with gaming.

More recently, a study by Tang et al. (2017) compared internet use, gaming, and social networking rates among young adults in China, Singapore, and the United States, along with their associations with depressive symptoms. It was found that Singaporean students were more addicted to internet use and online social networking than they were to online gaming.

In 2016, the National Addictions Management Service (NAMS) published data collected from individuals seeking treatment for behavioural addictions over the past two and a half years:

- 98% of the sample group were male, with an average age of 15.1 years old
- 6% of the individuals had dropped out of school, and another 10% had retained in their previous grade
- Most individuals were in secondary school, with 32% having conduct issues
- 42% and 24% of the individuals had been previously diagnosed with ADHD and depressive disorder respectively
- A significant proportion (85.7%) reported negative consequences resulting from excessive gaming, with an average gaming time of 45.05 hours per week

The Influence of E-sports in Singapore

In e-sports (electronic sports), which refers to competitive video gaming online (Hamari & Sjöblom, 2017), Singapore has a competitive advantage over other countries for a couple of reasons. Stable internet connectivity is key to e-sports, and according to the Speedtest Global Index, Singapore ranks number one among 181 countries with a fixed broadband speed of 241.35 Mbps (reported in May 2023). Additionally, based on a 2022 market intelligence report from the United States International Trade Administration, Singapore is a prominent player in the Southeast Asian market, with e-sports players spending over \$440 million on games in 2019.

The presence of e-sports in Singapore is further bolstered by the country's infrastructure. The Esports Experience Center at the Singapore Sports Hub and the e-sports platforms at *SCAPE allow gamers to nurture their interest in this newly recognised category in the Olympics. In June 2023, Singapore's global standing in e-sports was notably demonstrated when the country hosted the International Olympic Committee (IOC)'s inaugural Olympic E-sports Week.

While data on e-sports among Singaporean youths is not available, Rakuten Insight's market research from 2022 found that 80% of Singaporean respondents between 16 and 24 years old played online games. Reports of professional gamers making millions of dollars, many of which are easily accessible, have also motivated youths to pursue a similar path. For example, they can learn from E-sports Earnings, a resource ranking countries and winners in e-sports, that Daryl "iceiceice" Koh from Singapore had won over \$2.4 million from Dota 2, a multiplayer online battle video game.

As the e-sports scene continues to expand globally, it is no wonder that youths, empowered by technology and infrastructure, will persist in gaming in hopes of becoming the next millionaire gamer. However, not every player experiences success in professional gaming and enjoys the same windfall or fame as Daryl Koh. In fact, most players do not. To provide a more realistic view of e-sports, the cognitive distortions arising from such success stories need to be addressed. The interventions listed earlier in this chapter are a good place to start.



CHAPTER 2: Clinical Vignettes

Case 2.1: Diagnosing Internet Gaming Disorder

Objectives

- Understand the main diagnostic criteria for internet gaming disorder (IGD)
- Familiarise yourself with interview questions that can aid in the diagnosis
- Differentiate between individuals with excessive screen use and those with IGD
- Gain knowledge about recommended screen time guideline

Below is a case vignette of a child who may be experiencing excessive screen time use. It provides helping professionals with an understanding of the diagnostic criteria for IGD and interview questions to assist in assessing and screening individuals for it. Importantly, you will learn to distinguish individuals with IGD from those who simply struggle with controlling their screen time and tap into recent guidance on how young people in Singapore may manage it. This chapter concludes with a list of self-assessment questions to help you reflect on your learnings thus far.

Background

Joe, a 12-year-old boy, was accompanied by his parents to the outpatient clinic at National Addictions Management Service (NAMS) for an assessment. His parents were worried about his excessive use of smartphones and computer devices after noticing a significant increase in Joe's screen time and device use, particularly since the implementation of home-based learning during the COVID-19 pandemic.

Although Joe completes his school assignments without difficulties, he sometimes spends up to five hours on his devices in a day. On average, he spends two to three hours on weekdays and four to five hours on weekends. He still participates in co-curricular activities at school and spends time with his friends and family. However, his parents are concerned that his gaming behaviour

will eventually affect his academic performance, especially since he will be transitioning from Primary 6 to Secondary 1 next year. Whenever they try to limit Joe's screen time, he becomes irritable and tries to negotiate for more time.

During the assessment, Joe confirmed that his parents accurately described his device use. He explained that he spends approximately one hour a day playing games and the remaining two to three hours on other activities. John uses his devices to chat with friends on social media apps or in-game chatrooms and watch online videos. Lately, he has been dedicating more time to conducting research for a project due at the end of the semester. Additionally, he borrows electronic books from the library using his devices because it is more convenient.

Joe admitted to having disagreements with his parents, who try to regulate his device use. He feels frustrated because they do not understand how he uses the Internet or what he does online. Occasionally, he wishes for extra time to complete all his online activities. Apart from these conflicts, he has no difficulties with his schoolwork and continues to enjoy spending time with friends and family. He does not understand why his parents are so concerned about his screen time and believes he does not need any help.

Assessment

It is important for helping professionals to be cognisant of the diagnostic criteria for IGD as it can guide the clinical interview with both the child and their parents.

International Classification of Diseases, 11th Revision (ICD-11) diagnostic criteria for gaming disorder

Core/required features:

There needs to be a persistent pattern of gaming behaviour, which may be predominantly online or offline, characterised by the following:

- Impaired control over gaming behaviour in terms of intensity, frequency, duration, termination, and context
- Increasing prioritisation of gaming behaviour to the extent that it takes precedence over other life interests and daily activities
- Continuation or escalation of gaming behaviour despite negative consequences

The gaming behaviour is:

- Observed over a period of at least 12 months, be it continuous or episodic and recurrent
- Not better accounted for by another mental disorder
- Not attributable to the effects of substance or medication
- Resulting in significant distress or impairment in personal, family, social, educational, occupational, or other important areas of functioning

Some guiding questions to ask the child regarding their gaming habits include:

- When did you first start gaming?
- How were you introduced to gaming?
- What types of games did you play?
- When you started gaming, how often and for how long did you play each day?
- How has your gaming behaviour changed since then?
- Can you describe your gaming habits on a typical weekday? How about on a typical weekend?
- On average, how much time do you spend gaming in a day?
- Do you find yourself consistently thinking about gaming at certain times?
- Why have you increased the amount of time you spend on gaming?
- Do you feel that gaming is more important than other responsibilities in life? Can you provide an example of this?
- Have there been times when gaming was prioritised over planned activities with your family or friends?
- Are you able to control the amount of time you spend gaming?
- How has gaming or the use of your device affected your life?
- Has gaming affected your studies? Can you tell me more about it?
- Have you experienced any difficulties in your relationships with family or friends due to gaming?
- Have your gaming habits led to any health problems?
- Have you noticed any other impact of gaming on your life?

- Has anyone talked to you about reducing your gaming hours? How did it make you feel?
- Have you ever tried to reduce your gaming hours? Were you successful? How long were you able to abstain?
- Have you ever felt irritable when asked to reduce your gaming hours?

It is also important to gather information from the parents. Here are some questions to ask them:

- Can you describe a typical school day for your child?
- Can you describe a typical weekend for your child?
- Do you think your child struggles with regulating their screen time? Can you provide more details?
- Are you aware of what your child does online?
- Has your child been able to adhere to the screen time you agreed upon?
- Can your child stop using their devices when their allocated time is up?
- Have you noticed any changes in your child, such as decreased interest in hobbies or enjoyment of their family and friends' company?
- How has gaming affected your child's life?
- How has gaming affected your child's academics? To what extent has it impacted their attendance, timely completion of assignments, and conduct in school?
- Has your relationship with your child been affected by their gaming behaviour?
- Has your child's gaming behaviour had any impact on their health?

Formulation

Based on the information provided and the answers to these guiding questions, Joe's parents seem primarily concerned about his screen time and device use. Given that Joe does not meet criteria such as having impaired control over

gaming, prioritising gaming over other activities, or experiencing a negative impact on his psychosocial functioning, it is unlikely that he has developed IGD. In this case, his parents may have misunderstood the nature of his device use, mistakenly attributing it to pathological reasons.

Potential Intervention Plans

Joe and his parents can benefit from a deeper understanding of IGD. To begin, his parents can familiarise themselves with the screen time guidelines provided by the Ministry of Health (MOH). For children aged seven to 12, recommendations include:

- a) Developing a screen use plan collaboratively
- b) Avoiding screens during mealtimes and before bedtime
- c) Engaging in regular conversations with them
- d) Using parental control settings to protect them from online risks

Discover more guidelines tailored for different age groups here: <https://bit.ly/Screen-use-guidelines>



When to Refer Cases with Excessive Screen Time?

While there is no established diagnostic criterion for excessive screen time and device use currently, you may use the assessment questions above to gather more information about their impact on a child's psychosocial functioning. Based on the guidelines by MOH, a child who has difficulty regulating their screen time and device use commonly:

- a) Neglects normal activities
- b) Shows reluctance to share or return the device
- c) Lies about screen activities
- d) Experiences poor sleep quality
- e) Displays anti-social behaviours
- f) Struggles with regulation
- g) Throws extreme tantrums when devices are taken away

Self-assessment Questions

Which of the following is not an essential criterion in the ICD-11 diagnostic criteria for gaming disorder?

- a) Impaired control over one's gaming behaviour
- b) Increased priority of gaming over other activities
- c) Escalation of gaming behaviours
- d) Presence of negative consequences (e.g. on academic performance and relationships)
- e) Cravings

Answer: (e) Cravings

This term refers to the sedentary consumption of information through one's screen without the need to interact or think.

- a) Active screen use
- b) Background screen use
- c) Passive screen use

Answer: (c) Passive screen use

Which of the following does not constitute screen time guidance for children between seven and 12 years old?

- a) Having regular conversations with the child to understand their device and Internet use
- b) Educating the child about online risks
- c) Avoiding screen use during mealtimes and one hour before bedtime
- d) Enforcing a screen use plan without discussing it with the child
- e) Considering the use of appropriate parental control settings

Answer: (d) Enforcing a screen use plan without discussing it with the child

Case 2.2: Internet Gaming Disorder and Depression

Objectives

- Understand the connection between mood disorders and IGD
- Identify the key features and symptoms of depressive disorder in children and adolescents
- Learn and apply interview questions to gather information effectively and clarify the diagnosis
- Learn how to manage mood disorders in individuals with IGD
- Learn how to formulate a safety plan for a child
- Explore recent research advancements on mood disorders and internet gaming

The following case vignette describes a child who sought treatment due to excessive gaming and school refusal, and whose history suggests that his symptoms are mood related. Helping professionals may use it to familiarise themselves with the diagnostic criteria for mood disorders in young people.

Background

Cheng, a 14-year-old boy, was brought in by his parents for an assessment due to his refusal to attend school. Since the beginning of the academic year, he has consistently been absent from school. In addition, his mother has noticed changes in his gaming behaviours and observed him withdrawing from the family.

Before his pattern of school refusal, Cheng's attendance in the latter part of the previous year was already poor; there were times when he only attended school two to three days a week. He struggled academically and barely passed his exams. At a recent parent-teacher meeting, his teachers expressed concerns that he has been appearing tired and sleeping in class. He has also been unmotivated to complete assignments on time. They also noticed that he has become increasingly withdrawn, seldom interacting with his peers.

According to Cheng's mother, he spends most of his time at home, playing games on his computer and smartphone. Whereas he used to game for an

average of three to four hours a day, this duration has increased dramatically to around 16 hours since he stopped attending school. He starts gaming as soon as he wakes up, continuing late into the night and sometimes skipping meals. When asked to stop gaming, he often becomes irritable. His mother recalls several incidents of violence and aggression when she tried to limit his device use earlier in the year.

Cheng has become increasingly withdrawn from his family, spending most of his time alone in his room and avoiding interactions with them. He no longer participates in family activities that he once enjoyed. While he used to join them for meals, he has stopped doing so. He stops attending piano classes regularly, a hobby he once embraced.

His mother has noticed a decline in his mood since the end-of-year examinations, and his emotional state worsened when a close relative died by suicide. Two weeks before that tragic event, during an argument about his gaming habits, Cheng expressed feelings of emptiness and a belief that life had lost its meaning.

There is no known history of mental health conditions in his family. Cheng's development has been typical, and he has not undergone any assessments by mental health professionals in the past.

Assessment

As in previous cases, the clinical assessment involves conducting interviews with both the child and his mother. In this context, however, the four main areas that need to be assessed are gaming habits, school refusal, mood symptoms, and suicide risk.

You may refer to the guiding questions from case vignette 2.1 to assess his gaming habits. Here are some helpful questions to assess school refusal:

- Can you tell me more about school? How are you handling it?
- Have you been attending school?
- How was your attendance in the last 2 weeks?
- You mentioned that you haven't been going to school for some time. How long has this been going on?

- Why have you been avoiding school?
- Have there been any issues or problems at school that made you not want to attend?
- Have you had any problems with your teachers?
- Do you have any issues with your peers or friends at school?
- Are you having trouble catching up with academic demands?
- Are there any difficulties with your co-curricular activities (CCA)?
- Is there someone at school you can talk to if you have any problems?
- Have you experienced any name-calling or bullying at school?
- What do you do when you're not attending school?
- Have you thought about when you want to return to school?
- How can we help you go back to school?

It is also important to recognise the core symptoms of underlying mood or depressive disorders. These include:

- Persistent or pervasive sadness or unhappiness
- Loss of enjoyment in everyday activities
- Mood irritability
- Negative thinking and low self-esteem
- Feelings of hopelessness, guilt, remorse, or worthlessness
- Suicidal thoughts
- Difficulties with concentration
- Changes in appetite
- Changes in sleep patterns

To assess these symptoms, consider asking the following questions:

- How have you been feeling emotionally over the past two weeks?
- For how long have you been feeling down?
- Do you sometimes feel more irritable or angry? Can you tell me more?
- Can you share what is stressing or bothering you?
- Are you still able to enjoy the things you used to enjoy?
- Have you ever felt that life is not worth living?
- Have you had thoughts of ending your life?

- How have your attention and concentration been?
- Have you experienced any changes in your sleep quality?
- Have you noticed any changes in your appetite?

Since Cheng has expressed ideation of self-harm, it is crucial to conduct a suicide risk assessment with the following questions:

- Have you ever felt that life is not worth living?
- When was the last time you felt this way?
- Do you have thoughts of hurting yourself?
- Do you have thoughts of ending your life?
- Are you currently thinking about hurting yourself or ending your life?
- Have you made any specific plans?
- Can you tell me more about these plans?
- When did you make them?
- Have you taken any steps to prepare for them?
- Have you shared them with anyone?
- Have you written any notes or letters to your loved ones?
- When do you think you might act on these plans?
- Have you attempted self-harm in the past?
- Have you attempted suicide in the past?
- What would prevent you from acting on these plans?

Based on the background information, Cheng may have an underlying depressive disorder in addition to gaming issues and school refusal. When dealing with adolescents, it is important to differentiate between depressive disorder and the moodiness typical of their developmental stage. Often, adolescents with a depressive disorder will exhibit the core symptoms above on most days for at least two weeks and experience a decline in functioning.

Principles of Management

The child's IGD and school refusal may be associated with a mood disorder, specifically a depressive disorder. To determine if gaming behaviours are the primary issue or their way of coping with a preceding depressive disorder, gather

a comprehensive history and timeline of symptoms. In the following section, we will explore what researchers have found about the relationship between IGD and depressive disorder.

To address the child’s gaming behaviours, consider implementing the strategies outlined in Chapter 1. Addressing their mood disorder starts with assessing the severity of their depressive symptoms. While supportive management or psychosocial treatment may suit mild to moderate depressive disorder, a combination of psychosocial treatment and antidepressant medications is recommended for severe depressive disorder. Where necessary, you may also work closely with the child’s psychiatrist to manage their mood-related symptoms.

Managing School Refusal

Managing school refusal alone can be an uphill task, causing feelings of fatigue, helplessness, and loneliness. Therefore, a collaborative approach involving parents, school staff, and mental health professionals is the best way forward. Here are some strategies to address school refusal:

| | |
|--|--|
| <p>AREAS OF CONCERNS</p> <p>Identify underlying issues and problem-solve</p> | |
| <p>PARENTS</p> <ul style="list-style-type: none"> • Try to understand their reasons behind school refusal. Common issues may include anxiety, bullying, academic challenges, or social difficulties. • Work with the child to identify specific challenges they face at school. • Brainstorm potential solutions and encourage them to take gradual steps to overcome their fears or concerns. | <p>SCHOOL</p> <ul style="list-style-type: none"> • Identify students with school refusal behaviours early on. • Monitor attendance patterns and look for signs of distress or disengagement. • Foster a supportive and inclusive school environment where students feel safe and accepted. • Address bullying or social issues promptly to create a positive climate for learning. • Intervene promptly to prevent escalation of the issue. • Speak to the student’s parents to gain clarity and work on long-term solutions. |

AREAS OF CONCERNS

Collaboration

PARENTS

- Stay in touch with the school and their teachers.
- Collaborate with the school to find a sustainable solution for underlying issues.

SCHOOL

With parents:

- Establish open communication with parents and caregivers.
- Involve parents in the intervention process and provide them with guidance and resources.

With students:

- Understand the student’s concerns and work together to address their underlying reasons for school refusal.
- Personalise support plans for students with school refusal behaviours. These plans should address the specific needs of each student and may include accommodations, counselling, and gradual reintegration into the school environment.

Within the school:

- Train teachers to recognise signs of school refusal and respond appropriately.
- Encourage teachers to provide emotional support to students experiencing difficulties.
- Establish a multidisciplinary team involving school counsellors, psychologists, social workers, and other professionals.
- Collaborate to develop comprehensive interventions for students with school refusal behaviours.

| | |
|---|---|
| <p>AREAS OF CONCERNS</p> <p>Reintegration</p> | |
| <p>PARENTS</p> <ul style="list-style-type: none"> • Create a daily routine that includes regular school attendance. A predictable schedule provides a sense of stability and security for the child. • Encourage your child to take responsibility for school-related tasks, such as organising their backpack or preparing for the next day. This can help them feel more in control of their school experience. • Encourage your child to face their fears and attend school despite their anxieties. Avoidance can reinforce school refusal behaviour. | <p>SCHOOL</p> <ul style="list-style-type: none"> • Implement a structured reintegration plan for students who were absent for an extended period. • Gradually increase their time at school and provide additional support during this transition. • Encourage positive peer interactions and friendships. • Peer support can help reduce feelings of isolation and provide a sense of belonging, making school more appealing. • Explore flexible learning options, such as online classes or part-time attendance, for students with specific needs or difficulties attending school regularly. |

| | |
|---|--|
| <p>AREAS OF CONCERNS</p> <p>Reinforcement</p> | |
| <p>PARENTS</p> <ul style="list-style-type: none"> • Create a daily routine that includes Praise and reward your child for attending school and participating in classroom activities. • Offer small incentives to motivate them. | <p>SCHOOL</p> <ul style="list-style-type: none"> • Recognise and reward students for attending school and participating in classroom activities. Positive reinforcement can motivate students and increase their willingness to attend school. |

| | |
|--|--|
| <p>AREAS OF CONCERNS</p> <p>Mental health</p> | |
| <p>PARENTS</p> <ul style="list-style-type: none"> • Seek support from a mental health professional, such as a child psychologist or counsellor, who can address underlying issues with specialised interventions and strategies. • Mental health professionals can work collaboratively with the school. | <p>SCHOOL</p> <ul style="list-style-type: none"> • Offer school-based counselling services to students experiencing school refusal. • Trained counsellors can work with students to explore the root causes of their reluctance to attend school and provide coping strategies. |
| <p>AREAS OF CONCERNS</p> <p>Open communication</p> | |
| <p>PARENTS</p> <ul style="list-style-type: none"> • Create an open and non-judgmental environment for your child to express their feelings and concerns about school. • Listen to their perspective and validate their emotions. • Stay patient and avoid expressing frustration or anger towards your child. • Offer reassurance and support as they work through their difficulties. • Set reasonable limits on screen time and video gaming at home. Excessive screen time can contribute to school refusal behaviours. | <p>SCHOOL</p> <ul style="list-style-type: none"> • Organise workshops on stress management, coping skills, and emotional regulation. These workshops can empower students to manage feelings and anxieties related to school. |

Research Insights 2.2 – Internet Gaming Disorder and Depressive Disorder

Is there an association between IGD and depressive disorder?

Yes, multiple studies have reported a connection between these two conditions. For instance, a longitudinal study by Yin et al. (2023) involving 580 Chinese adolescents with an average age of 15.76 years revealed a positive association between IGD and depressive disorder. The study suggested that depressive disorder could be a risk factor for the development and persistence of IGDs.

Furthermore, a cross-sectional study by Yang et al. (2023) involving 2,102 secondary school students in Hong Kong likewise reported that a significant proportion of them showed symptoms of both IGD and depressive disorder.

Separately, a systematic review and meta-analysis by Ostinelli et al. (2021), which analysed 92 studies with a total of 15,148 participants from 25 countries, reported that the pooled prevalence rate of depressive disorder among individuals with IGD was 32%. In other words, approximately one in three individuals with IGD experience symptoms of depressive disorder.

What are the common symptoms of IGD and depressive disorder?

Studies have identified common symptoms in individuals with IGD and depressive disorder, including anhedonia (loss of interest or pleasure), social withdrawal, impaired work and school performance, fatigue, and disrupted sleep patterns (Achab et al., 2011).

Is depressive disorder a predisposing factor for IGD?

According to the cognitive-behavioural model of pathological internet use proposed by Davis et al. (2001), depressive disorder serves as a “distal predictor” of problematic internet use. It suggests that individuals with depressive symptoms may turn to the Internet to alleviate negative emotions or escape from real-life difficulties.

How has IGD co-occurring with depressive disorder been treated?

Benarous et al. (2019) described a case of a 13-year-old boy who experienced social withdrawal and isolation following the death of his father. He subsequently

developed excessive gaming habits, spending 10 to 12 hours per day gaming. He was diagnosed with persistent depressive disorder and treated with sertraline (up to 75mg/day). After four weeks of treatment, his depressive symptoms improved, and his gaming activities were gradually reduced.

Self-assessment Questions

Which of the following statements is not true regarding the common symptoms of depressive disorder in youths and adolescents?

- a) They may exhibit mood irritability.
- b) They typically experience a loss of enjoyment in daily activities.
- c) They may display excessive guilt.
- d) They might have difficulty concentrating.
- e) They may experience bouts of high/expansive mood.

Answer: (e) They may experience bouts of high/expansive mood.

Which of the following is not a common symptom of IGD and depression?

- a) Loss of interest in things
- b) Fatigue
- c) Sleep-wake cycle disturbances
- d) Social withdrawal
- e) Mood congruent auditory hallucinations.

Answer: (e) Mood congruent auditory hallucinations.

All of the following increase one's risk of suicide, except:

- a) Previous history of deliberate self-harm
- b) Comorbid alcohol and substance use
- c) Underlying mood disorder
- d) Preparation of a last note
- e) Having a religion

Answer: (e) Having a religion.

Case 2.3: Internet Gaming Disorder and Anxiety Disorder

Objectives

- Understand the connection between IGD and anxiety disorders
- Recognise the main characteristics of anxiety disorders and how they manifest in youths/adolescents
- Familiarise yourself with interview questions to assess anxiety disorders
- Grasp the fundamental principles of managing anxiety disorders in individuals with IGD
- Stay informed about recent developments in research on anxiety disorders and IGD

The following case vignette introduces a teenager who sought treatment for excessive gaming, and whose history suggests that she may have an underlying anxiety disorder. As helping professionals, we should be cognisant of the association between anxiety disorders and IGD.

Background

Janet, a 16-year-old female, has been referred to the clinic by the polyclinic, which she has visited frequently over the last three months. While she complained of physical ailments such as chest pain, headache, and dizziness, the medical test results have ruled out any underlying medical conditions. During a recent consultation with Janet and her mother, the doctor learned that Janet had been excessively gaming and referred her to a psychiatrist for further assessment.

During the intake session with her addiction counsellor, Janet was open about her troubles. She shared that she has been feeling extremely stressed about her schoolwork, particularly as she needs to prepare for her 'O' Level examinations this year. She attributes her poor performance in the previous year to difficulties in comprehending the material and managing her time. She often prioritises gaming over completing her homework or revision materials.

In addition, Janet worries excessively about her family. When her parents come home late, she becomes extremely concerned about their well-being. Despite her

mother's reassurance, she has been experiencing episodes of intense worry accompanied by breathlessness and chest pain lately. She fears she might pass out or even die during these episodes and has consulted her doctor at the polyclinic repeatedly.

These worries and academic stress have limited her time spent with friends. Although Janet used to enjoy going out for movies or meals with them, she now fears experiencing distressing symptoms in social situations and worries that her friends may not be able to help her.

To cope with these troubling symptoms, Janet has increased her gaming hours as she feels more comfortable gaming and chatting with her friends virtually. She spends an average of three to four hours gaming on weekdays and six to seven hours on weekends. She started gaming last year after her friends introduced her to it, and acknowledges that prioritising gaming over schoolwork has impacted her grades negatively. Janet's school counsellor and mother have advised her to reduce her gaming hours, but she has struggled to do so, believing that gaming is the best way to alleviate her worries and connect with her friends.

Assessment

In this case, the clinical assessment involves exploring Janet's:

- a) Gaming habits and history to determine if she meets the criteria for IGD
- b) Worries to determine if she meets the criteria for any anxiety disorder

To assess Janet for IGD, you may refer to the guiding questions in Chapter 1. To assess for anxiety disorders, it's important to recognise the core symptoms associated with different anxiety disorders. It is also important to delineate whether the onset of the anxiety disorder symptoms preceded her excessive gaming. This is crucial in identifying whether the anxiety disorder was the primary issue or secondary to her excessive gaming.

Generalised anxiety disorder (GAD)

GAD symptoms in adolescents typically include persistent worry and apprehension about everyday problems and events. According to the DSM-5, an individual must experience the following to be diagnosed:

a) Excessive anxiety and worry for at least six months

b) At least three of the following symptoms

- Restlessness
- Fatigue
- Difficulty concentrating
- Irritability
- Muscle tension
- Sleep difficulties

Panic disorder

A key symptom of panic disorder is the sudden onset of intense fear, usually peaking within minutes. During panic attacks, the following physical and mental symptoms may occur:

- Palpitations
- Sweating
- Trembling
- Breathing difficulties
- Feelings of losing control
- Feelings of going crazy

Persistent concerns about having recurrent panic attacks and marked changes in behaviour related to them are also characteristics of panic disorder.

Agoraphobia

Agoraphobia involves significant anxiety and fear in specific situations where escape may be difficult or where help may be unavailable. These situations may include being alone outside, in a crowd, in enclosed and open spaces, or when using public transportation.

Social phobia

Social phobia is characterised by significant anxiety in one or more social situations where individuals worry about being negatively evaluated by others. While avoidance of these social situations is common, a diagnosis of social

phobia requires symptoms to be observed for at least six months, impacting an individual's functioning.

These interview questions can help determine whether an adolescent has developed any of the aforementioned disorders:

- Do you find yourself worrying a lot?
- How often have you felt worried in the past month?
- Is there something specific that you're worried about?
- What physical symptoms do you experience when you're worried?
Do you feel shaky? Do you sweat a lot? Do you have trouble breathing? Does your heart race? Do you experience loose stools? Do you feel dizzy or light-headed?
- Have you ever felt like you might have a heart attack or lose control?
- How frequently do you have these episodes?
- How long does an episode typically last?
- Do you constantly worry about the next panic attack?
- Do you feel anxious in crowded places or when using public transportation?
- Do you have fears when you're away from home?
- Do you tend to avoid certain places?
- Is there a particular situation or object that you're afraid of? Can you tell me more about it?
- Do you worry about social situations where you're the centre of attention?
- Do you feel uncomfortable when others are observing you?

These questions will help you gather information about their worries, physical symptoms, discomfort in social situations, the frequency and duration of panic attacks, and specific fears and avoidance behaviours.

Principles of Management

Based on her background and history, Janet has shown symptoms of an anxiety disorder, specifically GAD or panic disorder. Given that she has turned to gaming

to cope with her anxiety disorder symptoms, she will benefit from interventions targeting both her anxiety disorder and IGD.

To manage her anxiety disorder symptoms pharmacologically, you may consider using antidepressants such as selective serotonin reuptake inhibitors (SSRIs). Meanwhile, psychological treatment options include psycho-education, cognitive restructuring, relaxation strategies, as well as social skills and assertiveness training.

The combination of options depends on an individual’s needs and severity of anxiety disorder. Here are three categories of practical strategies for reducing anxiety disorder:

| PHYSICAL WELL-BEING | MENTAL AND EMOTIONAL WELL-BEING | SOCIAL SUPPORT AND PROFESSIONAL HELP |
|--------------------------------------|---------------------------------|--------------------------------------|
| Deep breathing | Mindfulness meditation | Social support |
| Muscle relaxation | Journaling | Seek professional help |
| Exercise | Create a relaxing space | |
| Limit caffeine and stimulants intake | Limit exposure to triggers | |
| Healthy diet | Set realistic goals | |
| Adequate sleep | Establish a routine | |
| | Limit media exposure | |

Research Insight 2.3 – Internet Gaming Disorder and Anxiety Disorder

How common is the comorbidity between IGD and psychiatric disorders?

In a study by Barrangou-Poueyes-Darlas et al. (2022), the Mini International Neuropsychiatric Interview (MINI 5.0) assessed 92 individuals with IGD for comorbid psychiatric disorders such as anxiety, mood, and psychotic disorders. The researchers also evaluated the participants for Adult attention deficit hyperactivity disorder (ADHD) using the Wender Utah Rating Scale and assessed

their personalities using the 125-item version of the temperament and character inventory.

The study found that:

- 55.4% of individuals with IGD had a comorbid psychiatric disorder.
- There was a high prevalence of probable ADHD (38%) among the sample.
- 29% of the participants suffered from various anxiety disorders including GAD, social anxiety, agoraphobia, and panic disorder.

The high occurrence of comorbid psychiatric disorders in individuals with IGD highlights the importance of carefully assessing individuals who present with IGD, regardless of their age.

Is there an association between anxiety disorder and IGD?

According to Kim et. al (2022), who analysed a dataset including 4,968 Australian adolescents aged between 13 and 14 years old, the prevalence rates of IGD in 13- and 14-year-olds were 15% and 16% respectively. Importantly, they found a bidirectional relationship between IGD and anxiety disorder, indicating that individuals with higher levels of anxiety disorder were more likely to develop IGD 12 months later and vice versa.

A separate study by Wang et al. (2017), in which 87 individuals with IGD and a control group of the same size underwent a diagnostic interview based on the DSM-5, revealed that adults with GAD were significantly more likely (with an odds ratio of 8.11) to develop IGD.

What predisposes individuals with anxiety disorder to gaming?

Based on the Interaction of Person-Affect-Cognition-Execution (I-PACE) model (Brand, 2016), which explores the relationship between anxiety disorder and IGD, individuals may use video games to cope with anxiety disorder after learning that it can help improve their mood or avoid negative emotions. Furthermore, gaming offers immediate gratification, reinforcing their behaviour and leading them to seek out games in situations where they experience negative emotions. This framework suggests a bi-directional relationship between anxiety disorder and IGD.

Self-assessment Questions

Which of the following is not a core sign or symptom of GAD?

- a) Feeling easily fatigued
- b) Restlessness
- c) Muscular tension
- d) Sleep difficulties
- e) Low mood

Answer: (e) Low mood

The following theoretical model suggests a two-way relationship between anxiety disorders and IGD.

- a) Cognitive behavioural model of pathological Internet use
- b) The I-PACE (Interaction of Person-Affect-Cognitive-Execution) model
- c) Self-determination theory
- d) Basic psychological need theory

Answer: (b) The I-PACE (Interaction of Person-Affect-Cognitive-Execution) model

Case 2.4: Internet Gaming Disorder and Attention Deficit Hyperactivity Disorder

Objectives

- Understand the connection between IGD and ADHD
- Acquire interview questions to assess ADHD in adolescents who also engage in gaming
- Grasp the fundamental principles of managing ADHD in individuals with IGD
- Stay informed about recent developments in research on ADHD and IGD

The following case vignette features an adolescent with a history of ADHD who has developed an interest in gaming. By examining it, you will learn to recognise the signs of ADHD and understand how it may predispose individuals to gaming. We have also included pertinent questions to identify ADHD symptoms during assessment and formulation, an overview of the management approach for ADHD, and a review of recent research in this field.

Background

Samuel is a 12-year-old boy preparing for his Primary School Leaving Examinations (PSLE). His parents are apprehensive about his academic performance as he has been struggling since Primary 2. Teachers have raised concerns about his behaviour in class, noting that he can be disruptive and has difficulty staying focused. Over the past four years, Samuel's parents have hired a personal tutor to help him catch up academically. However, even the tutor has found it challenging to keep Samuel engaged due to his poor attention span.

Recently, Samuel's parents have become more concerned about his studies as he has started gaming excessively after being introduced to it by his friends. They are worried that his gaming will escalate, causing him to neglect his studies. In fact, Samuel has expressed to his parents that he has no interest in his studies and is considering a career in e-sports.

His parents feel overwhelmed as they have not been able to limit Samuel's gaming hours effectively. As a result, they decided to seek professional help from the nearest Family Service Centre (FSC).

The social worker gathered that Samuel is the only child. While there is no history of mental health conditions in his family, and he has not experienced any developmental delays, Samuel's behavioural issues precede primary school. In kindergarten, his teachers noted that he was hyperactive and had difficulty sitting still during lessons. He often disregarded rules during outings, making it challenging for the family to engage in activities together.

Samuel has been gaming extensively since the beginning of this year after his friends introduced him to a mobile game called "Mobile Legends", spending at least three to four hours a day on it. He becomes irritable when his parents attempt to control his screen time or ask him to stop gaming. Once, he threatened to damage the television if his phone was taken away. Due to excessive gaming, his assignments are incomplete, and he is tardy in tuition classes, even attempting to play games during lessons.

Samuel's parents are desperate to understand what is happening to their son and how to help him.

Assessment

Samuel may have an underlying psychiatric condition, in addition to his excessive gaming habits. Considering his history, it is likely that he has ADHD. ADHD symptoms include:

- Difficulty paying close attention to details
- Difficulty concentrating and staying focused
- Difficulty sustaining attention during tasks
- Frequent daydreaming and difficulty following normal conversations
- Difficulty organising tasks and activities
- Reluctance to engage in tasks that require sustained attention
- Losing important objects frequently
- Being easily distracted
- Forgetting daily activities

An individual must exhibit either inattention or hyperactivity and impulsivity to be diagnosed with ADHD. Additionally, their symptoms must have manifested before the age of seven, noticeably impacting their functioning in at least two settings (e.g. home and school).

The table below summarises the key ADHD symptoms:

| | |
|---|---|
| <p>Symptoms of inattention: SOLID</p> <p>SStarts tasks without finishing</p> <p>Organisation of tasks is impaired</p> <p>Loses things-required for tasks and activities</p> <p>Instructions are not followed</p> <p>Distracted by external stimuli</p> | <p>Symptoms of hyperactivity and impulsiveness: WORST FAIL</p> <p>Waiting for their turn causes frustration</p> <p>On the move most of the time</p> <p>Restless and jittery</p> <p>Squirms when seated</p> <p>Talks excessively and disregards social constraints</p> <p>Fidgets with hands and feet</p> <p>Answers are blurted out before questions are fully articulated</p> <p>Interrupts others' conversations</p> <p>Loud noises when playing</p> |
|---|---|

The following questions can help you gather additional information from primary caregivers and assess whether their child has ADHD.

- Has your child experienced difficulties at school or home?
- Can you provide more details of these difficulties?
- Have you received feedback that your child is hyperactive or constantly moving?
- Does this hyperactivity occur only at school? Is your child also hyperactive at home or during family outings?
- Have you received feedback regarding your child's attention difficulties? Can you provide more information?
- Does your child struggle to pay close attention to tasks?
- What is your child's attention span like?
- Does your child tend to daydream? Does your child have difficulty following a conversation?
- Do their symptoms of inattention occur both at home and at school?
- Has your child displayed forgetfulness? Can you give an example?
- Does your child frequently misplace their belongings? Can you provide an example?

- Have there been instances where your child behaved impulsively? Can you provide an example?
- Have teachers mentioned that your child struggles with waiting for their turn? Do they answer questions before being called upon in class?
- Has your child attempted to cut in line when asked to queue up?

To address gaming behaviours, refer to the guiding questions in Chapter 1.

Principles of Management

Based on Samuel's background and history, ADHD may be the primary concern, contributing to his excessive gaming habits. In the following section, we will look at evidence from studies of the relationship between ADHD and IGD. Research literature suggests that addressing Samuel's underlying ADHD condition is crucial as it may reduce gaming behaviours.

When it comes to managing ADHD, a chronic condition that can persist throughout an individual's life, psychoeducation is imperative. Non-pharmacological treatments are recommended for a start, with behavioural interventions serving as a first-line approach to treatment for individuals with mild symptoms. Classroom behaviour interventions, training in social and organisational skills, and meditation-based and cognitive therapies can also be helpful. If required, these may be used alongside medication including both stimulants and non-stimulants.

Research Insights 2.4 – Internet Gaming Disorder and Attention Deficit Hyperactivity Disorder

Is there evidence for the association of ADHD with IGD?

To determine the prevalence of IGD in youths with ADHD, Berloff et al. (2022) conducted a study involving 108 patients with ADHD and 147 controls. While 44% of the participants with ADHD scored above the cut-off point for IGD, only 9.5% of the control group did. The study also found that participants with both ADHD and IGD tend to exhibit more severe ADHD symptoms and internalising symptoms, such as withdrawal, depression, and problems with socialisation.

Lee Jung et al. (2021) identified ADHD as a significant risk factor for IGD after studying 127 patients with comorbid IGD and ADHD alongside 128 patients with

IGD alone, all aged between 11 and 42 years old. After eight weeks of treatment and three years of follow-up, patients with comorbid IGD and ADHD showed lower recovery rates, higher odds of recurrence within a year, and increasingly severe IGD symptoms over time. Additionally, the study found that the family environment played a role in mediating the progression of IGD symptoms. It suggests that evaluating and treating ADHD symptoms may improve the overall prognosis of IGD.

Why are individuals with ADHD predisposed to IGD?

- Internet games are engaging and exciting. They offer rapid achievement and a sense of mastery, appealing to individuals with ADHD (Weiss et al., 2011).
- Internet games alleviate boredom, which is a common issue experienced by individuals with ADHD (Weiss et al., 2011).
- Internet games activate the brain's dopamine reward system, which is involved in both ADHD and IGD. The increase in dopamine during gaming compensates for its deficit in patients with untreated ADHD (Weinstein A).
- Internet games serve as an outlet for individuals with ADHD to cope with their frustrations (Weinstein A).

A recent study by Muzwagi et al. (2021) found that:

- Children and adolescents with ADHD were at a higher risk of developing IGD compared to those without ADHD.
- There is a close association between the severity of ADHD symptoms and IGD symptoms.
- Individuals with IGD are at risk of developing ADHD, and those with ADHD are at risk of developing IGD.
- Individuals with both ADHD and IGD exhibit greater deficits in social skills compared to those with ADHD alone.

How similar are the structural and functional brain abnormalities in IGD and ADHD?

Gao et al. (2021) investigated the neuroimaging changes in individuals with ADHD and IGD and found that IGD is associated with structural alterations in the putamen. Meanwhile, ADHD is associated with alterations in the orbitofrontal

cortex. Impaired functional connections in the reward circuit are observed in both conditions.

Is there any evidence of treatment efficacy?

Chang et al. (2020) examined the treatment efficacy of IGD in individuals with ADHD and emotional dysregulation. Among 101 youths with ADHD, emotional dysregulation was common in those who were severely addicted to gaming. The study also found that treatment efficacy for IGD was positive when underlying symptoms of ADHD were effectively managed.

Self-assessment Questions

Which of the following is not a hallmark symptom of ADHD?

- a) Inattention
- b) Hyperactivity
- c) Impulsiveness
- d) Poor social interactions

Answer: (d) Poor social interactions

Which of the following is not a reason why individuals with ADHD are more prone to gaming?

- a) Gaming helps reduce boredom.
- b) Gaming activates the brain's reward system.
- c) Gaming provides an outlet to release frustration.
- d) Gaming provides rewarding experiences that can be achieved rapidly.
- e) Gaming provides an opportunity to break conventional societal norms and rules.

Answer: (e) Gaming provides an opportunity to break conventional societal norms and rules.

Case 2.5: Internet Gaming Disorder and Autism Spectrum Disorder

Objectives

- Understand the potential connection between IGD and Autism Spectrum Disorder (ASD).
- Recognise the main characteristics of ASD in an adolescent with IGD.
- Understand the general principles of managing ASD.
- Grasp the fundamental principles of managing IGD in individuals with underlying ASD.
- Stay informed about recent developments in research on ASD and IGD.

The following case vignette features a child with ASD and the challenges he faces with gaming. You will gain an overview of the diagnostic criteria for ASD and pick up guiding questions to understand ASD and how it impacts children and adolescents. We have also included the management principles for ASD and the latest findings from research on ASD and IGD.

Background

Jonathan, an 11-year-old male, has been referred to a school counsellor due to his excessive gaming habits. There have been instances where he played games during class, leading to disciplinary problems and multiple confiscations of his smartphone.

Jonathan has been under the care of a child and adolescent psychiatrist since he was six years old. At that time, he was referred due to behavioural issues observed during his preschool years. His parents have noticed his difficulties with socio-emotional interactions, not only with them but also with his friends and peers. As he struggles to engage in conversations and maintain eye contact when speaking with others, it was challenging for him to make friends and participate in playtime in preschool. Additionally, his way of playing with toys was different from other children and that he had a particular fascination with MRT trains. As a result, he was diagnosed with ASD.

Jonathan started gaming in Primary 3 when he received his own mobile device. Initially, he played games occasionally, mostly on weekends. However, his gaming hours have increased over the past two years. He plays games during free periods at school and immediately after returning home, spending an average of three to four hours gaming on weekdays and six to seven hours on weekends. He has few friends and avoids family meals. He prioritises gaming over his schoolwork and occasionally submits his homework late.

Assessment

Jonathan was previously diagnosed with ASD and now appears to be gaming excessively. Here is a summary of ASD symptoms:

DSM-5 diagnostic criteria for ASD (adapted)

An individual diagnosed with ASD would experience marked difficulties with communication and engagement with others across multiple social situations. These include:

- Difficulties in demonstrating appropriate behaviours in social contexts
- Difficulties associated with non-verbal communication in social interactions
- Difficulties associated with initiating or adapting to social interactions

Repetitive behavioural patterns, such as stereotypical movements or highly ritualised actions, are also characteristic of individuals with ASD. These behaviours must have started in early development and resulted in marked impairments to their functioning.

As a clinician, you will need to distinguish between ASD and intellectual disability as they may co-occur in some cases.

To assess Jonathan for IGD, refer to the guiding questions in Chapter 1. To understand his clinical history of ASD and current condition, you may ask his parents:

- When was your child diagnosed with ASD?
- How did you get him diagnosed?
- At what age did he begin exhibiting behavioural changes that prompted you to seek help from a child and adolescent psychiatrist?
- What were some of these behavioural changes? Can you provide specific examples?
- Did he experience difficulties with social interactions?
- In social interactions, did he maintain eye contact during conversations? Was he able to reciprocate when you hugged him?
- Did he struggle with forming relationships with his friends?
- Did his teachers provide any feedback about his behaviour?
- Was he able to engage in typical conversations?
- Did he face any language difficulties?
- Did he tend to repeat words or phrases that you said?
- Was he able to engage in typical play?
- You mentioned that his way of playing with toys differed from other children. Can you provide more details?
- Did he have any special interests?
- Did he exhibit extreme rigidity and a need for strict routines?
- Did you observe any abnormal hand or body movements?
- What treatments were offered to him after his diagnosis?
- How are his symptoms currently?

Principles of Management

There are programmes that can help children with ASD improve their communication skills and social interactions. Social skills programmes help them assess real-life situations and acquire the necessary social skills to navigate them. Such programmes aim to:

- Make abstract concepts more understandable for children with ASD.
- Engage them in purposeful and appropriate interactions with typically developing peers.
- Help them set goals that enhance self-appreciation and self-esteem.

In addition to non-pharmacological interventions, pharmacological options can address symptoms associated with ASD. You may consider using:

- Fluvoxamine, an antidepressant, to address repetitive thoughts and maladaptive behaviours.
- Risperidone to manage irritability, hyperactivity, and stereotypical behaviours.
- Methylphenidate to treat hyperactivity.
- Melatonin to manage disturbed sleep.

When managing IGD in individuals with ASD, it is important to consult a psychologist or a specialist in the field, as they can tailor strategies and interventions to the individual's needs and circumstances.

Research Insights 2.5 – Internet Gaming Disorder and Autism Spectrum Disorder

A systematic review by Kervin et al. (2021) investigated the presence of behavioural addiction, including gaming addiction, in individuals with ASD. The findings revealed a positive correlation between behavioural addiction and ASD or autistic traits. However, the researchers noted that many studies did not perform additional analyses to determine the significance of these correlations.

The positive correlation between behavioural addiction and ASD is frequently observed in conjunction with other mental health conditions as well.

In a cross-sectional study by Concerto et al. (2021), 4,260 individuals aged 18 to 55 were administered questionnaires related to IGD, the Autism Spectrum Quotient, and the Adult ADHD Self-Report Scale. The regression analysis showed that the presence of daily spare time, autistic traits, and ADHD symptoms were positively associated with the severity of IGD.

Another study by Murray et al. (2022) compared the severity of IGD symptoms in 230 adults with ASD to that of 272 controls and found that the former exhibited higher levels of IGD symptoms.

Why are individuals with ASD predisposed to IGD?

Individuals with ASD may be more susceptible to IGD as:

- Gaming can be seen as a form of restricted interest, which is a common trait in individuals with ASD (Mazurek et al., 2013).
- Gaming provides a safe space with less social pressure for individuals with ASD (Benford et al., 2009).
- The repetitive and restricted patterns of behaviours, interests, and activities seen in individuals with ASD may contribute to prolonged addictive gaming behaviours (Kawake et al., 2019).
- Individuals with ASD often use video games as a means to escape from the real world (Sundberg et al., 2018).

Self-assessment Questions

Which of the following statements does not describe individuals with ASD?

- a) They may have difficulties with non-verbal communication.
- b) They are likely to struggle with initiating or adapting to social interactions.
- c) They may display stereotypical and repetitive behaviours.
- d) Inattention and hyperactivity are core characteristics of individuals with ASD.

Answer: (d) Inattention and hyperactivity are core characteristics of individuals with ASD.

Case 2.6: Internet Gaming Disorder and Gambling Disorder

Objectives

- Understand the connection between IGD and gambling disorder.
- Recognise how gaming may enable gambling behaviour.
- Acquire interview questions to assess gambling symptoms in adolescents with IGD.
- Grasp the fundamental principles of managing IGD in individuals with a primary issue of gambling.
- Stay informed about recent developments in research on gambling disorder and IGD.

The following case vignette features an adolescent who may have IGD and an issue with gambling, and highlights the ways in which individuals can engage in gambling within games. You will pick up guiding questions to identify features of gambling behaviour and distinguish it from gaming behaviour. We have also included the general principles of managing IGD and gambling disorders as well as the latest findings from research on gaming and gambling.

Background

Sarah, a 15-year-old female in Secondary 2, has been brought to clinic for a consultation by her parents, who are concerned about her excessive gaming and spending habits. According to them, Sarah started gaming in Secondary 1 out of curiosity after her classmates introduced her to it and continued to game to fit in with her peers and have common topics of conversation. Her gaming hours have increased over time, and she now spends an average of six to seven hours gaming on weekdays and ten to twelve hours on weekends. Her parents are worried because she neglects her homework and other responsibilities when she is engrossed in gaming.

Sarah's parents have tried various methods to control her gaming. They created a schedule, but she did not follow it. They attempted to limit her access to WiFi after certain hours, but she became irritable and threatened self-harm, so they gave in to her demands.

Recently, they discovered that Sarah had been using their credit cards without their knowledge. In the past month alone, she has spent \$2,500 on “loot boxes” to obtain rewards and level up in the game. She confessed to using their credit cards and her savings for these purchases, and to spending at least \$1,000 on game skins and other inventories.

Additionally, she has found an online website where she can watch teams compete and place bets on the winning team. She spends 60% of her time on this site and believes she can predict the outcome based on the teams’ gameplay.

Although she once won \$2,000 in a single day, she eventually lost the entire amount. Frustrated by her losses, Sarah continues betting to recoup them, depleting her savings of \$5,000.

Assessment

While Sarah primarily faces issues related to gaming, her excessive gaming has led to gambling within the games she plays. To assess gaming addiction, refer to the guiding questions in Chapter 1.

To evaluate Sarah’s gambling habits, you may ask the following questions.

- You have been spending a lot of money on gaming. Can you tell me more about that?
- Have you paid for in-game credits?
- Have you used money to purchase skins or other inventories?
- What other expenses have you incurred within the game?
- When did you start spending money on “loot boxes”? How much have you spent so far? How frequently do you invest money to open these boxes?
- Do you bet on which team will win on the website you mentioned? How do you decide which team to bet on?
- Do you watch the teams play and then decide, or do you base your bets on the projected odds on the website?
- How much time do you spend investing in the game?
- How often do you spend money on betting in the game?
- When you first started betting, how much money did you place on each bet?

- Have you increased the amount of money you bet since then? How much do you currently bet?
- What was your biggest win?
- What was your biggest loss?
- How do you feel when you sustain a loss? What do you usually do next?
- Have you ever tried to recoup your losses by placing more bets? How frequently do you do this?
- Are there times when you prioritise gambling or betting within the game over playing the game itself or engaging in other activities?
- Do you constantly think about when you will return to place a bet?
- Have your spending or betting habits had consequences?
- Have these habits caused any financial issues for you?
- How have you managed to obtain money to place bets in the past?
- Have you used your own money? Have there been occasions when you used your parents' money? Are your parents aware that you are using their finances to gamble in the game? Have you sought other sources of funds? Have you lied to your friends or parents about why you needed to borrow or obtain additional money?
- Do you have any debts related to your gaming and betting? Have your parents or others helped you settle these debts in the past?
- How has your current behaviour affected your relationships? Does it also impact your schoolwork or other responsibilities?
- Have you ever managed to stop gambling? If so, when was that?
- How long were you able to maintain abstinence?

These questions will provide a comprehensive understanding of the individual's gaming and gambling habits, their impact on various aspects of their life, and potential underlying issues related to addiction.

Principles of Management

When selecting strategies to support a student with co-morbid conditions, it is crucial to recognise that individual needs can vary widely. Tailoring your approach to suit the unique strengths and challenges of each individual is essential. The following strategies have been categorised based on gaming

and gambling. You can personalise these interventions to address the specific needs of each individual, providing targeted support for their overall well-being and academic success.

Motivational interviewing

As mentioned earlier in this guide, motivational interviewing (MI) is a client-centred counselling approach that focuses on building an individual’s motivation for change while working towards their commitment to it. When addressing the convergence of gaming and gambling behaviours, MI can help to resolve ambivalence and conflicting emotions based on the belief that individuals have the capacity to change their gaming and gambling habits. Throughout the process, they will be supported and guided by a counsellor who will:

- Ask open-ended questions
- Listen reflectively
- Provide affirmation
- Summarise
- Elicit self-motivational statements

Counsellors practising MI will demonstrate the following skills:

| CORE PRINCIPLE | CHARACTERISTICS |
|---------------------------------|---|
| Express empathy | The counsellor offers a safe space by showing empathy and understanding. They allow the individual to share their thoughts and concerns freely without judging their gaming and gambling behaviours. |
| Develop discrepancy | The counsellor helps the individual recognise the disparity between their present gaming and gambling behaviours and future goals and values. With this awareness, the individual is motivated to resolve the discrepancy. |
| Roll with the resistance | The counsellor explores different viewpoints without arguing with or imposing their perspective on the individual. Resistance, while acknowledged, is not confronted. Instead, the counsellor encourages them to choose the best solution for themselves. |
| Support self-efficacy | The counsellor reinforces the individual’s confidence and ability to address the convergence of gaming and gambling, overcome obstacles, and make a positive change. |

Practical Steps in Managing Gambling

Self-management and awareness

Self-assessment is essential to evaluating the impact of gambling on various aspects of one's life, including school, work, relationships, finances, and physical health. Educating oneself about gambling addiction and its consequences can also boost one's motivation for change. Additionally, mindfulness techniques can help them become more aware of gambling-related thoughts and impulses, empowering them to make thoughtful choices and foster healthier gaming behaviours.

Spending limits

To manage gambling behaviours effectively, individuals can limit their spending on gambling by:

- Creating a budget
- Refraining from borrowing money to gamble and informing loved ones not to lend it
- Restricting access to credit cards. In the event that a credit card has already been compromised, parents may request a new credit card to prevent unauthorised use
- Limiting access to cash by establishing separate accounts with restricted funds or entrusting financial control to loved ones.

Support and social engagement

Family and friends can provide individuals with the emotional support, encouragement, and accountability required to overcome gambling addiction. Additionally, professional counsellors, therapists, and specialised groups can offer valuable guidance and strategies. A gambling addiction support group (e.g., Gamblers Anonymous) allows individuals to share their experiences and receive support from others facing similar challenges.

To further enhance social engagement and support, individuals may participate in physical activities to counteract sedentary gaming and improve their overall health.

Strategies and tools

Restricted access to gambling sites deters individuals while financial counsellors support them in creating a budget, addressing debt, and recovering financially. Hobbies, sports, and social interactions also serve as alternative sources of enjoyment that do not involve gambling.

Positive reinforcement and progress tracking

Positive reinforcement involves acknowledging and celebrating an individual's progress, milestones, and victories in their journey to recovery. It can bring about positive change in their gambling habits.

Overcoming a gambling problem is challenging and relapses are possible. Thus, we can encourage individuals to be patient with themselves and to seek help when needed. With determination, support, and the right resources, they can regain control over their gambling behaviour and improve their overall wellbeing.

Time management and boundaries

An individual may manage their time and set boundaries effectively by:

- Establishing time limits and setting reminders for breaks using alarms
- Creating a daily schedule that incorporates activities beyond gaming, such as studying, exercising, socialising, and practising their hobbies
- Designating screen-free periods each day to engage in these activities, creating a healthier balance between gaming and real-life experiences
- Avoiding gaming before bedtime to improve sleep quality and overall well-being
- Limiting engagement with multiplayer games to reduce gaming hours
- Uninstall tempting games that trigger excessive gaming behaviours or distress

Diversification of interests

Individuals may also develop new interests unrelated to gaming and reward themselves for balancing gaming with other responsibilities. However, if their

gaming habits become unmanageable or distressing, they should seek support from a mental health professional who specialises in gaming addiction or behavioural issues.

Cognitive-behavioural therapy techniques for gaming and gambling

Cognitive-behavioural therapy (CBT) is an effective approach for addressing gaming and gambling addiction, targeting cognitive distortions and behavioural patterns associated with excessive gaming and gambling behaviours.

CBT for gaming addiction involves challenging an individual's thoughts. It helps them identify and replace irrational thoughts about gaming, including beliefs about virtual achievements and constant gaming rewards. Behavioural exposure gradually exposes individuals to gaming situations while equipping them with coping skills to reduce impulsive behaviours and manage triggers.

Likewise, CBT for gambling addiction utilises cognitive restructuring to modify an individual's distorted beliefs, particularly about luck and winning streaks, and replace them with more rational thoughts. Behavioural exposure helps individuals confront gambling situations while learning coping strategies to reduce anxiety disorder and impulsive gaming behaviours.

Relapse prevention strategies are crucial for both gaming and gambling addictions. They involve devising plans for handling high-risk situations and implementing coping techniques when faced with triggers.

In short, CBT empowers an individual to regain control over their addictions by setting achievable goals, engaging in alternative activities, and promoting healthier patterns of behaviour. A trained mental health professional can tailor their treatment plan to address gaming and gambling addictions effectively.

| CBT APPROACH | GAMING | GAMBLING |
|--------------------------------|--|--|
| Thought records | <ul style="list-style-type: none"> • The individual keeps a record of their gaming-related thoughts and beliefs, such as urges to play, justifications for extended gaming sessions, or fear of missing out on in-game events and social activities. • This process increases their awareness of the cognitive patterns that drive excessive gaming. | <ul style="list-style-type: none"> • Record gambling-related thoughts and identify and challenge irrational thoughts. These include beliefs about luck, winning streaks, or recouping their losses. This process increases their awareness of the cognitive patterns that drive excessive gambling. |
| Cognitive restructuring | <ul style="list-style-type: none"> • The therapist helps the individual challenge and reframe distorted thoughts and beliefs related to gaming. This involves replacing irrational thoughts with balanced thinking and questioning beliefs that encourage excessive gaming. | <ul style="list-style-type: none"> • Modify cognitive distortions and negative thought patterns that drive excessive gambling behaviours and replace them with more rational and balanced thoughts. |
| Functional analysis | <ul style="list-style-type: none"> • The therapist and individual work together to identify triggers of excessive gaming, such as stress, boredom, or social isolation. • By recognising these triggers, the individual can develop healthier coping strategies. | <ul style="list-style-type: none"> • Understand the underlying reasons and triggers for gambling behaviours and explore the consequences and rewards associated with gambling. |
| Behavioural activation | <ul style="list-style-type: none"> • The individual identifies alternative activities to gaming that they find enjoyable and rewarding. • The therapist helps incorporate these activities in their daily routine to reduce their gaming hours. | <ul style="list-style-type: none"> • Encourage engagement in alternative activities and hobbies to reduce gambling time and promote healthier behaviour patterns. |

| | | |
|-------------------------------|--|---|
| Goal-setting | <ul style="list-style-type: none"> • The individual sets realistic and achievable goals to reduce gaming time and find a healthier balance between gaming and other activities. | <ul style="list-style-type: none"> • Establish achievable goals for reducing or quitting gambling, monitor progress, and celebrate successes. |
| Social skills training | <ul style="list-style-type: none"> • For individuals whose gaming habits contribute to social isolation, social skills training can help improve communication and social interactions, leading to a more balanced social life. | <ul style="list-style-type: none"> • Improve social skills and assertiveness to build healthier relationships and enhance social interactions outside gambling environments. |
| Stress management | <ul style="list-style-type: none"> • Mindfulness practices are integrated into CBT to help the individual become more aware of their gaming-related thoughts and impulses. • This enables them to respond more thoughtfully and make healthier choices about gaming. | <ul style="list-style-type: none"> • Teach coping strategies to manage stress and negative emotions without resorting to gambling as a way to cope. |
| Time management | <ul style="list-style-type: none"> • The individual learns effective time management skills to allocate time appropriately for gaming and other important life responsibilities. | <ul style="list-style-type: none"> • The individual engages in other meaningful activities and responsibilities. |

Research Insights 2.6 – Internet Gaming Disorder and Gambling Disorder

What are loot boxes?

Loot boxes, also known as loot crates, prize crates, or gacha mechanisms, serve different functions in gaming. They can be inventory items that enhance gameplay, providing power-ups or new tools. Alternatively, they may be purely aesthetic, offering skins or cosmetic enhancements. Some function as digital trophies that players can collect.

These boxes can be obtained through gameplay by completing specific objectives, purchasing them using real-world currency, or both.

How are loot boxes associated with gambling?

Loot boxes contain random contents that are revealed only when opened. This element of chance has led to their being compared with gambling. Furthermore, certain loot boxes can be sold for real-world money, further blurring the line between gaming and gambling (Kim HS, 2023).

How common are loot boxes and how frequently are they used?

A cross-sectional study by DeCamp et al. (2023), which surveyed students in the fifth, eighth, and 11th grades in America, revealed that loot box consumption increased from 24.9% in 2019 to 31.6% in 2022. Market research by Juniper Research (2021) indicates that loot boxes generated \$15 billion in 2020, projected to increase to \$20 billion by 2025.

What is e-sports betting?

In e-sports, teams or individual players game competitively for prizes. Spectators can watch these events in person or via live streams and place bets on their outcomes using real money. In some cases, they can also use virtual currency or other items for non-monetary bets (Kim HS, 2023). Market research suggests that esports betting reached \$10 billion in 2021 and is projected to increase to \$24 billion by 2028.

Self-assessment questions

Which of the following statements does not describe an individual who has a potential addiction to gambling within games?

- a) They report constant preoccupations regarding when they can game and place a bet.
- b) They report the need to increase their stakes in the game.
- c) They are keen to recoup their losses in a particular game.
- d) They do not experience any withdrawal symptoms when asked to stop.
- e) They tend to lie to others to secure more finances.

Answer: (d) They do not experience any withdrawal symptoms when asked to stop.

Case 2.7: Internet Gaming Disorder and Psychosis

Objectives

- Understand the potential association between IGD and psychosis
- Acquire interview questions to screen for underlying psychosis
- Stay informed about the latest literature on psychosis and its association with IGD

The following case vignette features an adolescent with symptoms of an “at-risk mental state” and how they cope by gaming. You will gain insight into screening for underlying psychosis. We have also included findings on the potential association between psychosis and IGD.

Background

David was a 14-year-old male in Secondary 1. Concerned about his recent school refusal and deteriorating academic performance, his parents sought help from the Family Service Centre (FSC) near their place.

The counsellor attended to David’s parents to understand their concerns. They reported that David has been absent from school since the beginning of March. When asked about his reluctance to return to school, he could not offer any explanation. They believe it is because David is hooked on gaming, noting that he isolates himself in his room and spends the entire day gaming.

According to his parents, he performed well in Primary 6 and scored 250 points for his Primary School Leaving Examination (PSLE). However, he has been struggling since he started Secondary 1. He barely passed all his subjects and was granted a conditional promotion to Secondary 2. If he continues to perform poorly, he may be transferred to another academic stream (i.e. from Express to Normal Academic). His parents have also noticed that he has been more withdrawn from them, and no longer interacts with his classmates and friends since last year.

When the counsellor assessed David, he shared that he had been playing a popular smartphone game called “Mobile Legends”, introduced to him by his

friends in Primary 6. He reported spending his time gaming when not attending school. Although he used to game with his friends, he stopped after an “incident” last year.

Initially reluctant to share the details, he eventually revealed that he began feeling that his classmates and friends, with whom he gamed online, were ganging up against him and hindering his progress in achieving his desired rank in the game. He reported feeling apprehensive about returning to school and was concerned about how his classmates would perceive his absence. He also feels they are making strange remarks about him.

More recently, David reported hearing nasty remarks about him from his friends while gaming at home. He spends more time gaming to cope with these remarks and the negative feelings he has been experiencing.

Assessment

Based on the information gathered, you can assess whether David fulfils the diagnostic criteria for IGD using the guiding questions in Chapter 1. Additionally, you will need to assess for potential comorbidity with an underlying psychotic disorder using the following questions:

- Can you tell me more about what has been troubling you?
- How long have you felt troubled by these symptoms?
- What voices do you hear? Can you tell me more?
- How many voices do you hear? Are they as clear as our conversation?
- Are these voices familiar to you? Are they male or female voices? What do they say?
- Do the voices argue among themselves?
- How do these voices address you?
- Do these voices comment on your actions?
- Do these voices ask you to do anything?
- Apart from these voices, have you had any other unusual experiences? Do you see things which are not there? Do you smell anything unusual? Do you taste anything unusual?
- Do you feel troubled by others? Can you tell me more?

- Do you feel that others are plotting against you or monitoring you?
- How certain are you that they are doing so? Why do you think that they are doing so?
- Can there be an alternative explanation for this? How certain are you?
- Do you feel in control of your own thoughts?
- Do you feel that your thoughts are messed up?
- Do you feel that your thoughts are broadcasted to others?
- Do you feel that others can insert new thoughts into your head or remove thoughts from it?
- Do you feel in control of your emotions?
- Do you feel in control of your own actions?

Principles of Management

More often than not, the gaming issues a child presents with may obscure potential underlying psychotic features. It is critical to conduct a comprehensive assessment of their gaming habits and psychotic symptoms. This helps to determine if there are underlying psychiatric aetiologies that may predispose them to gaming as a way to cope with abnormal beliefs or experiences. If they are showing signs of underlying psychosis for the first time, medical causes need to be ruled out first. Helping professionals may act promptly by referring the child to Early Psychosis Intervention Program (EPIP) and CHAT teams for help.

Research Insights 2.7 – Internet Gaming Disorder and Psychosis

Is there any evidence of the association between psychosis and IGD?

There remains limited evidence to date regarding the association between psychosis and IGD. In a literature review, Lavoie et al. (2023) examined articles on psychosis and IGD and found that no study has examined the prevalence and incidence of IGD among patients with psychosis. However, there are case reports that have highlighted how excessive video gameplay, or the abrupt disruption of gaming could result in psychosis in some patients.



CHAPTER 3: Role of the School Counsellor

Introduction

In recent years, the excessive use of the Internet and online/offline gaming has raised concerns regarding the impact of such activities on a child's development, academic performance, and mental and physical health.

Often, adolescents are referred to school counsellors for behaviours that have impacted their academic performance negatively or caused difficulties in class. Such behaviours could stem from psychological, social, and familial difficulties.

Generally, intensive psychotherapeutic interventions are not expected of school counsellors. However, they are pivotal in identifying emerging problems in youths, screening them with the appropriate tools, and directing them to interventions in a timely manner. The school counsellor's role as the front-line and early intervener cannot be underestimated.

Roles of the School Counsellors

Fortunately, through education and experience, school counsellors are already equipped with the necessary skills to help youths with mild to moderate problems related to excessive Internet use and gaming. Chapter 1 provides guiding questions to help school counsellors explore the extent of internet use and gaming in a student, as well as questionnaires to ascertain if they have an internet use or gaming problem.

Although these tools can help school counsellors spot the signs, they should avoid labelling behaviours as disorders without further assessment and intervention. After all, Internet use and gaming are multi-faceted and have both positive and negative consequences. While they promote social interaction, excessive use increases one's risk of social isolation and addictive behaviours. Furthermore, as highlighted in Chapter 2, many other psychiatric conditions are associated with Internet and internet gaming disorder. Therefore, further psychiatric evaluation and assessment are paramount.

Education and Primary Prevention for All

The school counsellor should facilitate the education of all students by promoting good habits in social media use and other online activities. They can expose students to topics like online safety and security, bullying, effective time management, and setting limits for use. School counsellors already possess the knowledge and skills to conduct such workshops and can tap on online resources to relate to all grade levels.

Teachers can also benefit from workshops by becoming more aware of red flags such as an uncharacteristic drop in performance, unexplained tiredness and fatigue, and lack of self-care. You may find a more exhaustive list of common signs and symptoms in the previous chapters.

Interventions for At-risk Students

In order to identify students in distress and intervene at an early stage, regular feedback sessions with teachers are vital. Through email or an in-person meeting, teachers can highlight suspicions that a student's gaming or internet use has impacted their social performance. They may substantiate these with a list of noticeable signs and reasons for concern. Teachers may supplement casual conversations about Internet use and gaming habits with screening tools, all while putting students at ease lest they react defensively or anxiously.

The symptoms in some students may not be severe enough to warrant an assessment for IGD. As the majority presents with mild symptoms, brief interventions typically suffice. Group counselling, where students brainstorm behavioural goals and strategies for change in a supportive environment, can be helpful and enables busy school counsellors to use their time more efficiently.

Interventions for Students with Moderate to Severe Problems

The school counsellor should involve a student's parents when discussing interventions for students with moderate to severe problems. At this stage, they must prepare the student and their parents for a referral to a professional. Seeing a professional, particularly in medical settings like hospitals, can be daunting, and the school counsellor should explain their rationale for the referral. To reassure the student and their parents, they can share that a referral allows

for further assessment but does not imply that there is something wrong with the child or that they have a mental illness. It also helps to affirm that the school counsellor will continue to work with the professional, support the student in school, and assess whether their grades or problematic behaviours are improving.

Additionally, the school counsellor will need consent from the parents to communicate with professionals and stay in the loop. Ideally, they can also provide details about the clinical assessment, process, and treatment. Whether the student should cease internet use or gaming should be discussed with a professional, as treatment goals depend on the severity of their condition and practical considerations. Last but certainly not least, the student should be allowed to express their concerns. If they perceive that they are forced to see a professional, they may feel negative about it and resist the process.

Resources in Singapore

School

| | |
|--|---|
| <p>RESOURCE</p> <p>School counsellors</p> | <p>SERVICES PROVIDED</p> <ul style="list-style-type: none"> • Identify, address, and/or refer addiction-related issues among students • Provide guidance and support and collaborate with stakeholders to create an effective approach for tackling addiction in schools |
| <p>CONTACT INFORMATION</p> <p>6286 9905</p> | <p>HOW TO BE REFERRED</p> <ul style="list-style-type: none"> • Teachers and/or support staff can identify students who may need counselling • Parents can provide feedback to form teachers who will refer their child to the counsellor |
| <p>RESOURCE</p> <p>SHINE Children & Youth Services</p> | <p>SERVICES PROVIDED</p> <ul style="list-style-type: none"> • Holistic support for students' well-being • Collaborates closely with schools to implement effective programs • Provides targeted interventions for at-risk students, addressing academic, behavioural, and social-emotional challenges |
| <p>CONTACT INFORMATION</p> <p>6286 9905</p> | <p>HOW TO BE REFERRED</p> <ul style="list-style-type: none"> • School referral |
| <p>RESOURCE</p> <p>Response, Early Intervention and Assessment in Community Mental Health (REACH)</p> | <p>SERVICES PROVIDED</p> <ul style="list-style-type: none"> • Provides early intervention and assessment services for individuals in the community who are experiencing mental health issues |
| | <p>HOW TO BE REFERRED</p> <ul style="list-style-type: none"> • School referral |

Community

| | |
|---|---|
| <p>RESOURCE</p> <p>National Addictions Management Service (NAMS)</p> | <p>SERVICES PROVIDED</p> <ul style="list-style-type: none"> • Team of doctors and counsellors collaborating with schools and the community • Assessment, counselling, and personalised treatment options |
| <p>CONTACT INFORMATION</p> <p>6732 6837</p> | <p>HOW TO BE REFERRED</p> <ul style="list-style-type: none"> • School referral • Request for a polyclinic referral • Appointment via NAMS helpline |
| <p>RESOURCE</p> <p>WE CARE Community Services</p> | <p>SERVICES PROVIDED</p> <ul style="list-style-type: none"> • Provides screening, assessment, and treatment planning with counselling • Optional family counselling sessions |
| <p>CONTACT INFORMATION</p> <p>3165 8017</p> | <p>HOW TO BE REFERRED</p> <ul style="list-style-type: none"> • Appointment via WE CARE helpline |
| <p>RESOURCE</p> <p>TOUCH Counselling and Intervention (TCI)</p> | <p>SERVICES PROVIDED</p> <ul style="list-style-type: none"> • Holds regular school workshops and runs family and adolescent-focused cyber wellness enrichment programs • Provides counselling and mentoring • Facilitates behavioural modification to improve self-regulation in Internet use • Provides individual, group, and family therapy |
| <p>CONTACT INFORMATION</p> <p>1800 612 3123</p> | <p>HOW TO BE REFERRED</p> <ul style="list-style-type: none"> • School referral • Appointment via TCI hotline |

Private mental health professionals including psychologists and psychiatrists may also offer treatment for gaming-related struggles.

References:

- 6C51 Gaming disorder. Extracted from <https://icd.who.int/dev11/l-m/en#!/http%3A%2F%2Fid.who.int%2Ficd%2Fentity%2F1448597234>.
- *About REACH - IMH | Institute of Mental Health*. (n.d.). <https://www.imh.com.sg/Clinical-Services/Community-based-Services/REACH/Pages/About-REACH.aspx>
- Achab S, Nicolier M, Mauny F, Monnin J, Trojak B, Vandel P, Sechter D, Gorwood P, Haffen E. Massively multiplayer online role-playing games: comparing characteristics of addict vs non-addict online recruited gamers in a French adult population. *BMC Psychiatry*. 2011 Aug 26;11:144. doi: 10.1186/1471-244X-11-144. PMID: 21871089; PMCID: PMC3176476.
- Barrangou-Pouey-Darlas M, Cabelguen C, Garrouste V, Leboucher J, Rocher B, Challet-Bouju G, Grall-Bronnec M. Gaming Disorder Seen Through the Prism of Dual Diagnosis: Prevalence and Associated Factors. *Front Psychiatry*. 2022 Jul 8;13:821432. doi: 10.3389/fpsy.2022.821432. PMID: 35873269; PMCID: PMC9304658.
- Benarous X, Morales P, Mayer H, Iancu C, Edel Y, Cohen D. Internet Gaming Disorder in Adolescents With Psychiatric Disorder: Two Case Reports Using a Developmental Framework. *Front Psychiatry*. 2019 May 10;10:336. doi: 10.3389/fpsy.2019.00336. PMID: 31133904; PMCID: PMC6524313.
- Berloffia S, Salvati A, D'Acunto G, Fantozzi P, Inguaggiato E, Lenzi F, Milone A, Muratori P, Pfanner C, Ricci F, Ruglioni L, Tacchi A, Tessa C, Villafranca A, Masi G. Internet Gaming Disorder in Children and Adolescents with Attention Deficit Hyperactivity Disorder. *Children (Basel)*. 2022 Mar 18;9(3):428. doi: 10.3390/children9030428. PMID: 35327800; PMCID: PMC8947564.
- Billieux, J., King, D. L., Higuchi, S., Achab, S., Bowden-Jones, H., Hao, W., ... Poznyak, V. (2017). Functional impairment matters in the screening and diagnosis of gaming disorder. *Journal of Behavioral Addictions*, 6(3), 285–289. 10.1556/2006.6.2017.036.
- Brand M, Wegmann E, Stark R, Müller A, Wöfling K, Robbins TW, et al. The interaction of person-affect-cognition-execution (I-Pace) model for addictive behaviors: update, generalization to addictive behaviors beyond internet-use disorders, and specification of the process character of addictive behaviors. *Neurosci Biobehav Rev*. (2019) 104:1–10. 10.1016/j.neubiorev.2019.06.032
- Brand M, Young KS, Laier C, Wöfling K, Potenza MN. Integrating psychological and neurobiological considerations regarding the development and maintenance of specific internet-use disorders: an interaction of person-affect-cognition-execution (I-Pace) model. *Neurosci Biobehav Rev*. (2016) 71:252–66. 10.1016/j.neubiorev.2016.08.033
- Business Research Insights (2022, May). Esports betting market size, share, growth, and industry analysis by type (League of Legends, Dota 2, CS:GO, and others) by application (ages 19–25, ages 26–30, ages 31 and above) regional forecast to 2028. <https://www.businessresearchinsights.com/market-reports/toc/esports-betting-market-100204>.
- Chang CH, Chang YC, Cheng H, Tzang RF. Treatment Efficacy of Internet Gaming Disorder With Attention Deficit Hyperactivity Disorder and Emotional Dysregulation. *Int J Neuropsychopharmacol*. 2020 Jun 24;23(6):349-355. doi: 10.1093/ijnp/pyaa010. PMID: 32047929; PMCID: PMC7311645.

- Chang CH, Chang YC, Yang L, Tzang RF. The Comparative Efficacy of Treatments for Children and Young Adults with Internet Addiction/Internet Gaming Disorder: An Updated Meta-Analysis. *Int J Environ Res Public Health*. 2022 Feb 24;19(5):2612. Doi: 10.3390/ijerph19052612. PMID: 35270305; PMCID: PMC8909504.
- Chen Y, Lu J, Wang L, Gao X. Effective interventions for gaming disorder: A systematic review of randomized control trials. *Front Psychiatry*. 2023 Feb 6;14:1098922. Doi: 10.3389/fpsy.2023.1098922. PMID: 36815197; PMCID: PMC9940764.
- Chia DXY, Ng CWL, Kandasami G, Seow MYL, Choo CC, Chew PKH, Lee C, Zhang MWB. Prevalence of Internet Addiction and Gaming Disorders in Southeast Asia: A Meta-Analysis. *Int J Environ Res Public Health*. 2020 Apr 9;17(7):2582. doi: 10.3390/ijerph17072582. PMID: 32283803; PMCID: PMC7177828.
- Cho SM, Sung MJ, Shin KM, et al. (2013) Does psychopathology in childhood predict internet addiction in male adolescents? *Child Psychiatry & Human Development* 44: 549–555.
- Chuang Wei MW, Le HK, Gomez B, Kee Koh P, Guo S. Profile of adolescents seeking treatment for excessive computer gaming at an addiction treatment service in Singapore. *Aust N Z J Psychiatry*. 2017 Jun;51(6):634-635. doi: 10.1177/0004867416676368. Epub 2016 Oct 31. PMID: 27803132.
- Concerto C, Rodolico A, Avanzato C, Fusar-Poli L, Signorelli MS, Battaglia F, Aguglia E. Autistic Traits and Attention-Deficit Hyperactivity Disorder Symptoms Predict the Severity of Internet Gaming Disorder in an Italian Adult Population. *Brain Sci*. 2021 Jun 11;11(6):774. doi: 10.3390/brainsci11060774. PMID: 34207989; PMCID: PMC8230698.
- Davis, R.A. A cognitive-behavioral model of pathological Internet use. *Comput. Hum. Behav*. 2001, 17, 187–195.
- DeCamp W, Daly K. Loot box consumption by adolescents pre- and post- pandemic lockdown. *PeerJ*. 2023 May 1;11:e15287. doi: 10.7717/peerj.15287. PMID: 37151299; PMCID: PMC10158757.
- Dong G, Wang J, Yang X, et al. (2013) Risk personality traits of Internet addiction: A longitudinal study of Internet-addicted Chinese university students. *Asia-Pacific Psychiatry* 5: 316–321.
- Gao X, Zhang M, Yang Z, Wen M, Huang H, Zheng R, Wang W, Wei Y, Cheng J, Han S, Zhang Y. Structural and Functional Brain Abnormalities in Internet Gaming Disorder and Attention-Deficit/Hyperactivity Disorder: A Comparative Meta-Analysis. *Front Psychiatry*. 2021 Jul 1;12:679437. doi: 10.3389/fpsy.2021.679437. PMID: 34276447; PMCID: PMC8281314.
- Gao YX, Wang JY, Dong GH. The prevalence and possible risk factors of internet gaming disorder among adolescents and young adults: Systematic reviews and meta-analyses. *J Psychiatr Res*. 2022 Oct;154:35-43. Doi: 10.1016/j.jpsychires.2022.06.049. Epub 2022 Jul 19. PMID: 35926424.
- Gentile D (2009) Pathological video-game use among youth ages 8 to 18: A national study. *Psychological Science* 20: 594–602.
- Gentile DA, Choo H, Liau A, Sim T, Li D, Fung D, Khoo A. Pathological video game use among youths: a two-year longitudinal study. *Pediatrics*. 2011 Feb;127(2):e319-29. doi: 10.1542/peds.2010-1353. Epub 2011 Jan 17. PMID: 21242221.

- González-Bueso V, Santamaría JJ, Fernández D, Merino L, Montero E, Ribas J. Association between Internet Gaming Disorder or Pathological Video-Game Use and Comorbid Psychopathology: A Comprehensive Review. *Int J Environ Res Public Health*. 2018 Apr 3;15(4):668. Doi: 10.3390/ijerph15040668. PMID: 29614059; PMCID: PMC5923710.
- Haagsma MC, King DL, Pieterse ME, et al. (2013) Assessing problematic video gaming using the theory of planned behavior: A longitudinal study of Dutch young people. *International Journal of Mental Health and Addiction* 11: 172–185.
- Ha JH, Kim SY, Bae SC, et al. (2007) Depression and Internet addiction in adolescents. *Psychopathology* 40: 424–430.
- Hamamura T, Kobayashi N, Oka T, Kawashima I, Sakai Y, Tanaka SC, Honjo M. Validity, reliability, and correlates of the Smartphone Addiction Scale-Short Version among Japanese adults. *BMC Psychol*. 2023 Mar 23;11(1):78. Doi: 10.1186/s40359-023-01095-5. PMID: 36959621; PMCID: PMC10034913.
- Hamari, J., & Sjöblom, M. (2017). What is eSports and why do people watch it? *Internet Research*, 27(2), 211–232. <https://doi.org/10.1108/intr-04-2016-0085>
- Hettema, J., Steele, J., & Miller, W. R. (2005, April 1). Motivational Interviewing. *Annual Review of Clinical Psychology*, 1(1), 91–111. <https://doi.org/10.1146/annurev.clinpsy.1.102803.143833>
- Home | SHINE Children and Youth Services. (n.d.). SHINE. <https://www.shine.org.sg/>
- Hout-Lavoie M, Gabriel-Courval M, Bechard L, Corbeil O, Brodeur S, Masse C, Fournier E, Essiambre AM, Anderson E, Cayouette A, Giroux I, Khazaal Y, Demers MF, Roy MA. Gaming disorder and psychotic disorders: A scoping review: *Psychopathology*. 2023,56(4)315-323.
- https://www.researchgate.net/publication/312827299_Effects_of_Digital_Gaming_Among_Children_and_Adolescents_in_Singapore_A_Summary_of_Research_Findings/link/60e17dbb92851ca944a6e5de/download
- Huot-Lavoie M, Gabriel-Courval M, Béchard L, Corbeil O, Brodeur S, Massé C, Fournier É, Essiambre AM, Anderson E, Cayouette A, Giroux I, Khazaal Y, Demers MF, Roy MA. Gaming Disorder and Psychotic Disorders: A Scoping Review. *Psychopathology*. 2022 Nov 1:1-9. Doi: 10.1159/000527143. Epub ahead of print. PMID: 36318899.
- International Olympic Committee. (2023, June 20). FAQs. *Olympics.com*. <https://olympics.com/en/esports/>
- International Trade Administration– United States of America, Department of Commerce. (n.d.). *E-sports and E-gaming in Singapore*. International Trade Administration | Trade.gov. <https://www.trade.gov/market-intelligence/e-sports-and-e-gaming-singapore>
- Ji Y, Yin MXC, Zhang AY, Wong DFK. Risk and protective factors of Internet gaming disorder among Chinese people: A meta-analysis. *Aust N Z J Psychiatry*. 2022 Apr;56(4):332-346. Doi: 10.1177/00048674211025703. Epub 2021 Jul 10. PMID: 34250835.
- Ji Y, Yin MXC, Zhang AY, Wong DFK. Risk and protective factors of Internet gaming disorder among Chinese people: A meta-analysis. *Aust N Z J Psychiatry*. 2022 Apr;56(4):332-346. Doi: 10.1177/00048674211025703. Epub 2021 Jul 10. PMID: 34250835.

- Juniper Research (2021, March 9). Video game loot boxes to generate over \$20 billion in revenue by 2025, but tightening legislation will slow growth. [https://www.juniperresearch.com/press/video-game-loot-boxes-to-generate-over-\\$20-billion](https://www.juniperresearch.com/press/video-game-loot-boxes-to-generate-over-$20-billion).
- Kawabe K, Horiuchi F, Miyama T, Jogamoto T, Aibara K, Ishii E, Ueno SI. Internet addiction and attention-deficit / hyperactivity disorder symptoms in adolescents with autism spectrum disorder. *Res Dev Disabil*. 2019 Jun;89:22-28. doi: 10.1016/j.ridd.2019.03.002. Epub 2019 Mar 14. PMID: 30877993.
- Kervin R, Berger C, Moon SJ, Hill H, Park D, Kim JW. Behavioral addiction and autism spectrum disorder: A systematic review. *Res Dev Disabil*. 2021 Oct;117:104033. doi: 10.1016/j.ridd.2021.104033. Epub 2021 Jul 26. PMID: 34325098.
- Kim HS, Leslie RD, Stewart SH, King DL, Demetrovics Z, Andrade ALM, Choi JS, Tavares H, Almeida B, Hodgins DC. A scoping review of the association between loot boxes, esports, skin betting, and token wagering with gambling and video gaming behaviors. *J Behav Addict*. 2023 May 9. doi: 10.1556/2006.2023.00013. Epub ahead of print. PMID: 37159337.
- Kim, J., Lee, S., Lee, D., Shim, S., Balva, D., Choi, K. H., Chey, J., Shin, S. H., & Ahn, W. Y. (2022, November 28). Psychological treatments for excessive gaming: a systematic review and meta-analysis. *Scientific Reports*, 12(1). <https://doi.org/10.1038/s41598-022-24523-9>
- Kim S, Champion KE, Gardner LA, Teesson M, Newton NC, Gainsbury SM. The directionality of anxiety and gaming disorder: An exploratory analysis of longitudinal data from an Australian youth population. *Front Psychiatry*. 2022 Nov 4;13:1043490. doi: 10.3389/fpsy.2022.1043490. PMID: 36405898; PMCID: PMC9672463.
- King DL, Chamberlain SR, Carragher N, Billieux J, Stein D, Mueller K, Potenza MN, Rumpf HJ, Saunders J, Starcevic V, Demetrovics Z, Brand M, Lee HK, Spada M, Lindenberg K, Wu AMS, Lemenager T, Pallesen S, Achab S, Kyrios M, Higuchi S, Fineberg NA, Delfabbro PH. Screening and assessment tools for gaming disorder: A comprehensive systematic review. *Clin Psychol Rev*. 2020 Apr;77:101831. Doi: 10.1016/j.cpr.2020.101831. Epub 2020 Feb 11. PMID: 32143109.
- King DL, Delfabbro PH. The cognitive psychology of Internet gaming disorder. *Clin Psychol Rev*. 2014 Jun;34(4):298-308. Doi: 10.1016/j.cpr.2014.03.006. Epub 2014 Apr 13. PMID: 24786896.
- Király O, Koncz P, Griffiths MD, Demetrovics Z. Gaming disorder: A summary of its characteristics and aetiology. *Compr Psychiatry*. 2023 Apr;122:152376. Doi: 10.1016/j.comppsy.2023.152376. Epub 2023 Feb 1. PMID: 36764098.
- Ko CH, Yen JY, Chen CS, et al. (2009b) Predictive values of psychiatric symptoms for internet addiction in adolescents: A 2-year prospective study. *Archives of Pediatrics & Adolescent Medicine* 163: 937-943.
- Ko, C. H., Yen, J. Y., Chen, S. H., Wang, P. W., Chen, C. S., & Yen, C. F. (2014). Evaluation of the diagnostic criteria of Internet gaming disorder in the DSM-5 among young adults in Taiwan. *Journal of Psychiatric Research*, 53(6), 103-110. 10.1016/j.jpsychires.2014.02.008.
- Lee J, Bae S, Kim BN, Han DH. Impact of attention-deficit/hyperactivity disorder comorbidity on longitudinal course in Internet gaming disorder: a 3-year clinical cohort study. *J Child Psychol Psychiatry*. 2021 Sep;62(9):1110-1119. doi: 10.1111/jcpp.13380. Epub 2021 Mar 9. PMID: 33751554.

- Lin YH, Chiang CL, Lin PH, Chang LR, Ko CH, Lee YH, Lin SH. Proposed Diagnostic Criteria for Smartphone Addiction. *PloS One*. 2016 Nov 15;11(11):e0163010. Doi: 10.1371/journal.pone.0163010. PMID: 27846211; PMCID: PMC5112893.
- Marlatt, G. A., Baer, J. S., Donovan, D. M., & Kivlahan, D. R. (1988). Addictive Behaviours: Etiology and Treatment. *Annual Review of Psychology*, 39(1), 223–252. <https://doi.org/10.1146/annurev.ps.39.020188.001255>
- Mazurek MO, Engelhardt CR. Video game use in boys with autism spectrum disorder, ADHD, or typical development. *Pediatrics*. 2013;132(2):260–266. doi: 10.1542/peds.2012-3956
- Murray A, Mannion A, Chen JL, Leader G. Gaming Disorder in Adults with Autism Spectrum Disorder. *J Autism Dev Disord*. 2022 Jun;52(6):2762-2769. doi: 10.1007/s10803-021-05138-x. Epub 2021 Jun 28. PMID: 34184139; PMCID: PMC9114087.
- Muzwagi AB, Motiwala FB, Manikkara G, Rizvi A, Varela MA, Rush AJ, Zafar MK, Jain SB. How Are Attention-deficit Hyperactivity and Internet Gaming Disorders Related in Children and Youth? *J Psychiatr Pract*. 2021 Nov 5;27(6):439-447. Doi: 10.1097/PRA.0000000000000582. PMID: 34768266.
- Mythily S, Qiu S, Winslow M. Prevalence and correlates of excessive Internet use among youth in Singapore. *Ann Acad Med Singap*. 2008 Jan;37(1):9-14. PMID: 18265891.
- Ostinelli EG, Zangani C, Giordano B, Maestri D, Gambini O, D'Agostino A, Furukawa TA, Purgato M. Depressive symptoms and depression in individuals with internet gaming disorder: A systematic review and meta-analysis. *J Affect Disord*. 2021 Apr 1;284:136-142. Doi: 10.1016/j.jad.2021.02.014. Epub 2021 Feb 5. PMID: 33592432.
- *Our Services - National Addictions Management Service (NAMS)*. (n.d.). <https://www.nams.sg/our-services/Pages/default.aspx>
- Paschke K, Austermann MI, Thomasius R. ICD-11-Based Assessment of Social Media Use Disorder in Adolescents: Development and Validation of the Social Media Use Disorder Scale for Adolescents. *Front Psychiatry*. 2021 Apr 22;12:661483. Doi: 10.3389/fpsy.2021.661483. PMID: 33967862; PMCID: PMC8100192.
- Pontes H.M., Griffiths M.D. Measuring DSM-5 internet gaming disorder: Development and validation of a short psychometric scale. *Comput. Hum. Behav*. 2015;45:137–143. Doi: 10.1016/j.chb.2014.12.006
- R.A. Davis. A cognitive-behavioral model of pathological Internet use. *Computers in Human Behavior*, 17 (2001), pp. 187-195
- Salerno L, Becheri L, Pallanti S. ADHD-Gaming Disorder Comorbidity in Children and Adolescents: A Narrative Review. *Children (Basel)*. 2022 Oct 6;9(10):1528. Doi: 10.3390/children9101528. PMID: 36291464; PMCID: PMC9600100.
- *SCAPEsports - Twitch*. (n.d.). Twitch. <https://www.twitch.tv/scapesports>
Singapore Sports Hub – Esport Experience Centre. (n.d.). Esport Experience Centre. <https://www.sportshub.com.sg/shop-dine/shops/esports-experience-center>
- Shaw M, Black DW. Internet addiction: definition, assessment, epidemiology and clinical management. *CNS Drugs*. 2008;22(5):353-65. Doi: 10.2165/00023210-200822050-00001. PMID: 18399706.

- Shu M Y, Ivan Jacob AP, Meng Xuan Z, Anise M S W. Psychometric validation of the Internet Gaming Disorder-20 Test among Chinese middle school and university students. *J Behav Addict.* 2019 Jun 1;8(2):295-305. Doi: 10.1556/2006.8.2019.18. Epub 2019 May 23. PMID: 31120320; PMCID: PMC7044552.
- *Singapore Esports Results & Statistics :: Esports Earnings.* (n.d.). Esports Earnings. <https://www.esportsearnings.com/countries/sg>
- Skewes, M. C., & Gonzalez, V. M. (2013). The Biopsychosocial Model of Addiction. In *Elsevier eBooks* (pp.61-70). <https://doi.org/10.1016/b978-0-12-398336-7.00006-1>
- *Speedtest Global Index – Internet Speed around the world – Speedtest Global Index.* (n.d.). Speedtest Global Index. <https://www.speedtest.net/global-index>
- Statista. (2023, May 22). *Primary device used for online gaming Singapore 2022.* <https://www.statista.com/statistics/1116255/singapore-primary-device-used-for-online-gaming/>
- Stevens MW, Dorstyn D, Delfabbro PH, King DL. Global prevalence of gaming disorder: A systematic review and meta-analysis. *Aust N Z J Psychiatry.* 2021 Jun;55(6):553-568. Doi: 10.1177/0004867420962851. Epub 2020 Oct 7. PMID: 33028074.
- Stieger S, Burger C (2010) Implicit and explicit self-esteem in the context of internet addiction. *Cyberpsychology, Behavior, and Social Networking* 13: 681–688
- Sundberg, M. (2018). Online gaming, loneliness and friendships among adolescents and adults with ASD. *Computers in Human Behavior*, 79, 105–110. <https://doi.org/10.1016/j.chb.2017.10.020>.
- Tang CS, Koh YW, Gan Y. Addiction to Internet Use, Online Gaming, and Online Social Networking Among Young Adults in China, Singapore, and the United States. *Asia Pac J Public Health.* 2017 Nov;29(8):673-682. doi: 10.1177/1010539517739558. Epub 2017 Nov 30. PMID: 29191049.
- Teng Z, Pontes HM, Nie Q, Griffiths MD, Guo C. Depression and anxiety symptoms associated with internet gaming disorder before and during the COVID-19 pandemic: A longitudinal study. *J Behav Addict.* 2021 Mar 10;10(1):169-180. doi: 10.1556/2006.2021.00016. PMID: 33704085; PMCID: PMC8969853.
- *TOUCH Counselling and Intervention | Gaming Addiction, Internet Addiction.* (n.d.). <https://www.touch.org.sg/about-touch/our-services/touch-counselling-and-intervention-homepage>
- Van Den Eijnden RJ, Meerkerk GJ, Vermulst AA, et al. (2008) Online communication, compulsive Internet use, and psychosocial well-being among adolescents: A longitudinal study. *Developmental Psychology* 44: 655–665.
- Von der Heiden JM, Braun B, Müller KW, Egloff B. The Association Between Video Gaming and Psychological Functioning. *Front Psychol.* 2019 Jul 26;10:1731. Doi: 10.3389/fpsyg.2019.01731. PMID: 31402891; PMCID: PMC6676913.
- Wang CY, Wu YC, Su CH, Lin PC, Ko CH, Yen JY. Association between Internet gaming disorder and generalized anxiety disorder. *J Behav Addict.* 2017 Dec 1;6(4):564-571. doi: 10.1556/2006.6.2017.088. PMID: 29280398; PMCID: PMC6034959.

- *WE CARE Community Services : Gambling Addictions.* (n.d.). <https://www.wecare.org.sg/addiction-internet-gaming.php>
- Weinstein A, Weizman A. Emerging association between addictive gaming and attention deficit/hyperactivity disorder. *Curr Psychiatry Rep.* 2012; 14: 590;597
- Weiss MD, Baet S, Allan BA et al. The screens culture: impact on ADHD. *Atten Defic Hyperact Disord.* 2011;3:327-334.
- What is Cognitive Behavioural Therapy? (2017, July 31). <https://www.apa.org/ptsd-guideline/patients-and-families/cognitive-behavioral>
- World Health Organization . (2019). *International Statistical Classification of Diseases and Related Health Problems* (11th ed.). World Health Organization.
- Yang X, Ebo TO, Wong K, Wang X. Relationships between psychological flexibility and internet gaming disorder among adolescents: Mediation effects of depression and maladaptive cognitions. *PLoS One.* 2023 Feb 3;18(2):e0281269. doi: 10.1371/journal.pone.0281269. PMID: 36735753; PMCID: PMC9897526.
- Yen JY, Higuchi S, Lin PY, Lin PC, Chou WP, Ko CH. Functional impairment, insight, and comparison between criteria for gaming disorder in the International Classification of Diseases, 11 Edition and internet gaming disorder in Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. *J Behav Addict.* 2022 Nov 2;11(4):1012-1023. Doi: 10.1556/2006.2022.00079. PMID: 36326855; PMCID: PMC9881664.
- Yin M, Huang S, Yu C. Depression and Internet Gaming Disorder among Chinese Adolescents: A Longitudinal Moderated Mediation Model. *Int J Environ Res Public Health.* 2023 Feb 18;20(4):3633. doi: 10.3390/ijerph20043633. PMID: 36834332; PMCID: PMC9962867.
- Zajac K, Ginley MK, Chang R, Petry NM. Treatments for Internet gaming disorder and Internet addiction: A systematic review. *Psychol Addict Behav.* 2017 Dec;31(8):979-994. Doi: 10.1037/adb0000315. Epub 2017 Sep 18. PMID: 28921996; PMCID: PMC5714660.

All case studies presented in this book are purely hypothetical and are not based on real individuals or actual events. Any resemblance to real persons, living or deceased, is entirely coincidental. The scenarios are created solely for illustrative and educational purposes.

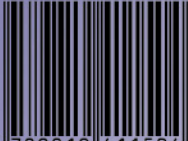
ISBN: 978-981-94-1150-4

**Scan to
visit our website**





ISBN 978-981-94-1150-4



9 789819 411504