



# MANAGEMENT GUIDELINES



# BEHAVIOURAL ADDICTION

For MOH Hospitals





Ministry of Health Malaysia

**MANAGEMENT GUIDELINE OF BEHAVIOURAL ADDICTION  
FOR MOH HOSPITALS**

MEDICAL DEVELOPMENT DIVISION

**Ministry of Health Malaysia**

This guideline was developed by the Medical Services Unit, Medical Services Development Section of the Medical Development Division, Ministry of Health Malaysia and the Drafting Committee for the Management Guideline of Behavioural Addiction

A catalogue record of this document is available from the library and Resource Unit of the Institute of Medical Research, Ministry of Health

MOH/P/PAK/539.24(GU) – e

And also available from the National Library of Malaysia;

e ISBN 978-967-26135-6-5



Published in October 2024 by:

Medical Development Division,  
Level 7, E1, Complex E, 62692,  
Wilayah Persekutuan Putrajaya  
03-88831047

All rights reserved. No part of this publication may be reproduced or distributed in any forms or by means or stored in a database or retrieval system without prior written permission from the Director of Medical Development Division, Ministry of Health Malaysia.

## **GUIDELINE DEVELOPMENT GROUP MEMBERS**

### **ADVISORS**

YBhg Dato' Indera Dr Nor Azimi binti Yunus  
Deputy General of Health (Medical)

YBhg Dato' Dr Mohd Azman bin Yacob  
Director  
Medical Development Division

Dr Nor Hayati binti Ali  
Head of Specialty (Psychiatry), Ministry of Health

### **CHAIRPERSON**

Dr Norliza binti Che Mi  
Consultant Addiction Psychiatrist,  
Hospital Kajang

### **COMMITTEE MEMBERS**

Dr Parameswaran A/L Ramasamy  
Consultant Addiction Psychiatrist,  
Hospital Tuanku Ja'afar, Seremban

Dr Norni binti Abdullah  
Consultant Addiction Psychiatrist,  
Hospital Tengku Ampuan Rahimah,  
Klang

Dr Mohd Fadzli bin Mohamad Isa  
Addiction Psychiatrist,  
Hospital Kuala Lumpur

Dr Al-Zilal Bin Abdul Wahid  
Addiction Psychiatrist,  
Hospital Kuala Lumpur

Dr Mohammad Firdaus bin Abdul Aziz  
Addiction Psychiatrist,  
Hospital Queen Elizabeth, Kota Kinabalu

Dr Joven Mailvaganam  
Psychiatrist,  
Hospital Kuala Lumpur

Dr Assvin Alaga  
Addiction Psychiatrist,  
Hospital Kuala Lumpur

Dr Sasitharan Moorthi  
Psychiatrist,  
Hospital Kuala Lumpur

Dr Muhammad Arif bin Muhamad Rasat  
Addiction Psychiatrist,  
Hospital Tuanku Ja'afar, Seremban

Dr Norsuhana binti Sainal  
Psychiatrist,  
Hospital Kuala Lumpur

Dr Nor Hazlin Talib  
Consultant Family Medicine & Addiction  
Specialist  
Klinik Kesihatan Batu 9, Cheras

## **EXTERNAL REVIEWERS**

Dr Omar bin Ali  
Consultant Psychiatrist  
Hospital Sultanah Bahiyah, Alor Setar

Prof Dr Hj. Firdaus binti Mukhtar  
Deputy Dean of School of Graduate  
Studies,  
Universiti Putra Malaysia

Associate Prof Dr Anne Yee Hway Ann  
Consultant Psychiatrist,  
Universiti Malaya

Dr Haslina binti Mohd Yusof  
Consultant Psychiatrist  
Hospital Permai, Johor Bahru

Dr Nurulwafa binti Hussain  
Consultant Child and Adolescent  
Psychiatrist,  
Hospital Melaka

Dr Rashidi Mohamed bin Pakri Mohamed  
Consultant Family Medicine Specialist,  
Universiti Kebangsaan Malaysia

Dr Norsiah Ali  
Consultant Family Medicine & Addiction  
Specialist  
Klinik Kesihatan Masjid  
Tanah

## **SECRETARIAT**

Dr Shahanizan Mohd Zin  
Head of Medical Services Unit  
Medical Development Division

Dr Nor Azilah binti Abu Bakar @ Mansor  
Senior Principal Assistant Director  
Medical Services Unit  
Medical Development Division

### **Acknowledgement**

The Medical Development Division would like to thank the Technical Advisor for the Drafting Committee for the Management Guideline of Behavioural Addiction In MOH Hospitals, panel of External Reviewers for reviewing the draft form, Dr Vijay Ganasan for his assistance in the production of this guideline, Sector Evidence-Based Healthcare, National Institute of Health, Psychiatry Addiction Unit (PAdU) Hospital Kuala Lumpur, Dr Harmi Izzuan bin Baharum for his expertise in proofreading this guideline and all those who have contributed, whether directly or indirectly, towards developing this guideline.

### **Legal disclaimer**

The information, including but not limited to text, graphics, images, and other material in this guideline, is for informational and educational purposes only. No material in this guideline is intended to substitute for professional medical advice, diagnosis or treatment. Furthermore, this guideline does not protect any entity from legal mitigations due to unlawful acts under the law.



**FOREWORD**  
**DIRECTOR - GENERAL OF HEALTH**  
**MINISTRY OF HEALTH MALAYSIA**

It is with great pleasure and enthusiasm that we release our much-awaited guideline on behavioural addiction. In an era where technology permeates every aspect of our lives, understanding and addressing behavioural addiction have become paramount. This guideline is more than just a document; it is a testament to our commitment to the well-being of individuals in our society.

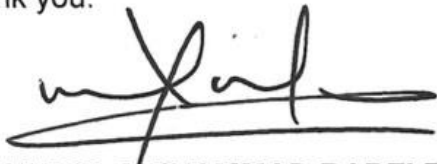
Behavioural addictions, whether to the internet, gaming, gambling, or inappropriate sexual conduct, can have catastrophic repercussions on mental health, relationships, and general quality of life. With this guideline, we aim to empower medical staff, both in MOH hospitals or in health clinics, to manage behavioural addictions effectively.

Through evidence-based recommendations, practical strategies, and collaboration across various sectors, we can mitigate the risks associated with behavioural addiction and foster a culture of balanced and responsible technology use.

As we embark on this journey, let us remember that the actual measure of success lies not only in the dissemination of this guideline, but in its implementation and the positive influence it has on the lives of those it affects.

Together, let us strive to create a world where digital technologies enhance, rather than detract from our well-being - a future in which people are empowered to make informed decisions and live fulfilling lives.

Thank you.



**DATUK DR. MUHAMMAD RADZI BIN HASSAN**

**FOREWORD**  
**DEPUTY DIRECTOR GENERAL OF HEALTH (MEDICAL)**  
**MINISTRY OF HEALTH MALAYSIA**

The MOH Psychiatric Services have undergone substantial transformation since the Mental Health Act [Act 615] was implemented in 2001, with the addition of seven subspecialties: Child and Adolescent, Geriatric, Consultation-Liaison, Community Rehabilitation, Addiction, Forensics, and Neuropsychiatry. Each of the subspecialties is responsible for monitoring current societal developments and ensuring that their services are adaptable and capable of remaining relevant and valuable to service users.

The intended impact of this guideline is to initiate calls for action among service providers and users. Although addiction psychiatrists can provide subject-matter expertise, their numbers remain limited. Nevertheless, efforts will be amplified when other workers in the field of behavioural addiction consult and engage with them. With collaboration and commitment at national, state, and local levels within the Ministry of Health and with partners from other ministries, the private sector, academia, non-governmental organisations, as well as the community, I am optimistic that we can make significant progress in the management of behavioural addiction in our country.

I would like to extend my sincere congratulations to the committee members for their commitment and dedication in seeing through the completion of this guideline.

Thank you

A handwritten signature in black ink, consisting of stylized, overlapping loops and curves, positioned above the printed name.

**DATO' INDERA DR. NOR AZIMI BINTI YUNUS**



## FOREWORD

### THE HEAD OF SPECIALTY (PSYCHIATRY), MINISTRY OF HEALTH MALAYSIA

In the field of Addiction Psychiatry, it is becoming increasingly clear that behavioural addiction – gambling, gaming, internet, problematic sexual disorder etc. – has a great impact on mental health. Formation of the ‘Substance-Related and Addictive Disorder’ category in the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5) [2013] is a clear indication of this concern. It proves that behavioural addiction shares - if not most - the core symptomatology and mechanism of addiction, minus the substance itself.

The scarcity of local literature and the absence of local guidelines hinder medical practitioners from managing these patients adequately and comprehensively. Hence, I would like to applaud the efforts of the Addiction Psychiatry Sub-specialty in compiling, deliberating, and summarizing numerous resources into this guideline to assist practitioners in managing the complex issues.

My sincere gratitude goes to the drafting committee for their tremendous commitment in completing this Management Guideline for Behavioural Addiction. I sincerely hope that this guideline will catalyse other innovative efforts, alongside to the enhancement of addiction psychiatry services in the country.

Thank you.



**DR NOR HAYATI BINTI ALI**

## TABLE OF CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>11</b>
<b>INTRODUCTION</b>	<b>13</b>
<b>OBJECTIVES</b>	<b>15</b>
<b>NEUROBIOLOGY AND ETIOLOGY OF ADDICTION</b>	<b>16</b>
<b>EPIDEMIOLOGY OF BEHAVIOURAL ADDICTION</b>	<b>19</b>
<b>GENERAL PRINCIPLES IN APPROACHING BEHAVIOUR ADDICTION</b>	<b>23</b>
<b>GAMBLING DISORDER</b>	<b>26</b>
Risk Factors	<b>26</b>
Screening and Investigation	<b>27</b>
Management	<b>28</b>
<b>GAMING DISORDER</b>	<b>29</b>
Risk Factors	<b>29</b>
Screening and Investigation	<b>30</b>
Management	<b>31</b>
<b>INTERNET ADDICTION</b>	<b>32</b>
Risk Factors	<b>33</b>
Screening and Investigation	<b>34</b>
Management	<b>35</b>
<b>PROBLEMATIC SEXUAL BEHAVIOUR (PSB)</b>	<b>37</b>
Risk factors	<b>37</b>
Screening and Investigation	<b>37</b>
Management	<b>40</b>
<b>REFERENCES</b>	<b>43</b>
<b>APPENDIX</b>	<b>49</b>

## LIST OF ABBREVIATIONS

ADHD	Attention Deficit Hyperactive Disorder
ASAM	American Society of Addiction Medicine
ASEAN	Association of Southeast Asian Nations
BBGS	Brief Biosocial Gambling Screen
CBT	Cognitive Behavioural Therapy
CIAS-R	Revised Chen Internet Addiction Scale
CPA	Cyproterone Acetate
CSB	Compulsive Sexual Behaviour
CT Scan	Computerized Tomography Scan
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
GD	Gaming Disorder
GnRH	Gonadotropin-Releasing Hormone
HDSI	Hypersexual Disorder Screening Inventory
HIV	Human Immunodeficiency Virus
HVSB	High Volume Sexual Behaviours
IA	Internet Addiction
ICD-11	International Classification of Diseases, Eleventh Revision
IPR	Internet Penetration Rate
IGD	Internet Gaming Disorder
IGDS9-SF	Internet Gaming Disorder Scale-Short-Form
MDD	Major Depressive Disorder
MPA	Medroxyprogesterone Acetate
miRNA	Micro Ribonucleic Acid
MRI	Magnetic Resonance Imaging
MVIAT	Malay Version Internet Addiction Test
NORC	National Opinion Research Center
NODS-SA	NORC Diagnostic Screen for Gambling Problems- Self Administered
PIUQ	Problematic Internet Use Questionnaire

P.O.	Per Oral
PSB	Problematic Sexual Behaviour
SAST-R	Sexual Addiction Screening Test-Revise
SCS	Sexual Compulsivity Scale
SOGS	South Oaks Gambling Screen
SSRI	Selective Serotonin Reuptake Inhibitor
STI	Sexually Transmitted Infection

## INTRODUCTION

Behavioural addiction is considered one of the new concepts in psychiatry. The issues that surround this concept are numerous. There are controversies in determining normal and acceptable behaviour compared to pathological and addictive behaviour. There is an ongoing debate about whether behavioural addiction is an impulse control disorder rather than a form of addiction (Miller, 2018).

Kardefelt-Winther (2017) defined behavioural addiction as 'A repeated behaviour leading to significant harm or distress. The behaviour is not reduced by the person and persists over a substantial period. The damage or distress is functionally impairing' (Kardefelt-Winther et al., 2017).

Behavioural addiction may be best understood from a biopsychosocial model. The essential feature of behavioural addictions includes failure to resist impulses, drives, or temptations, which, if engaged excessively, may result in harmful consequences (Derevensky et al., 2019).

In understanding the concept of behavioural addictions, it has been hypothesised that they share many similarities with other forms of addictive disorders. Emerging neuroscientific data supports a unified neurobiological theory of addictions, independent of the specific substances, substrates, or activities (Grant et al., 2010).

Behavioural addiction has been included in classifications of psychiatric diagnoses in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) and International Classification of Diseases, Eleventh Revision (ICD-11). This was in line with robust empirical data indicating that several potentially risky behaviours, besides psychoactive substance ingestion, produce short-term rewards that result in persistent behaviours despite the individual's understanding and awareness of adverse consequences. Gambling and gaming disorders were the only two disorders included in the classifications. It was noted by both bodies that further research was necessary before including other conditions such as internet use disorder, smartphone disorder, sex addiction, exercise addiction, and shopping addiction in the classifications (Deleuze et al., 2015; Kardefelt-Winther et al., 2017; Konkolj Thege et al., 2015).

According to the American Society of Addiction Medicine (ASAM), behavioural addiction can be divided into three main categories:

1. Gambling Disorder or also known as Pathological Gambling
2. Microprocessor-Based Disorders include smartphone and computer-related addiction (social media, internet gaming addiction) (Miller, 2018).
3. Problematic Sexual Behaviour includes pornography, excessive masturbation, paraphilia, and compulsive sexual behaviour.

These three categories serve as a platform in which further understanding and treatment for behavioural addiction can be discussed.

In this guideline, we will not highlight paraphilia and paraphilic disorders. The closest constructs to sexual addiction are high-volume sexual behaviours (HVSb), which are generally characterised by increased numbers of partners, increased frequency of partnered sex or masturbation, or increased use of pornography (Miller, 2018).

Studies done globally have reported a significant prevalence of this disorder. Behavioural addiction is seen as an emerging issue that needs to be addressed. In Malaysia, although there is still a lack of data on the trend of patients with behavioural addiction, a growing number of patients with this condition has been identified. The challenge is how to manage behavioural addiction in Malaysia. Although international guidelines and recommendations exist, we must integrate our unique socio-cultural differences to ensure the best treatment for these patients (Skewes & Gonzalez, 2013).

## **OBJECTIVES**

This guideline on behavioural addiction is intended for healthcare professionals who may encounter patients with behavioural addiction in their clinical practice.

This guideline provides a practical guide to assessing, diagnosing, and managing behavioural addiction, specifically within the context of sociocultural aspects of Malaysian healthcare. We hope this guideline may serve as a reference for nursing and medical curriculum developers, heads of departments, policymakers, and hospital administrators.



## NEUROBIOLOGY AND ETIOLOGY OF ADDICTION

Addiction is a treatable, chronic medical disease involving complex interactions among brain circuits, genetics, the environment, and an individual's life experience (ASAM).

Engagement in certain behaviours such as gambling, Internet Gaming, and sexual conduct may become compulsive. A portion of those engaging in these acts develop a loss of control over their actions and may be considered a behavioural addiction.

The DSM 5 denotes two types of these behaviours: Gambling Disorder and Internet Gaming Disorder (IGD). The diagnosis criteria for both disorders are similar to other substance use disorders, evidenced by symptoms of tolerance, withdrawal, loss of control over the activity, and continued use despite knowing its consequences. (Choi et al., 2019)

However, many other emerging behaviours and acts, such as smartphone addiction, pornography addiction, et cetera, are not included in the DSM5, albeit having similar neurobiological mechanisms underlying the formation of the behaviours. Hence, it is essential to understand the neurobiological basis for forming and perpetuating these acts to identify means of managing these conditions.

Experts in behavioural addiction have tried to understand the neurobiological mechanism underpinning repetitive maladaptive behaviours that form the basis of behavioural addiction. The salient network plays a significant role in forming behavioural addiction. Structurally, increased insular cortex thickness has been identified to be related to the severity of Internet Gaming Disorder (Wang et al., 2018). At a molecular level, the downregulation of Micro RNAs (miRNA) in the subregions of the salience network, and reduction in circulating miRNA in plasma/serum, have also been associated with the formation and severity of behavioural addiction, primarily IGD (Lee et al., 2018)

Impairment of self-regulation is also an essential factor in forming addictive behaviours. Failure to self-regulate and satisfy basic needs may lead to over-reliance on social media, internet games, and pornography. Reduced brain activity at the inferior parietal lobule, which manages emotional regulation and negative self-evaluation, is noted among patients with IGD (Kim et al., 2018).

Structural and hormonal changes are also being investigated in cases of behavioural addiction. Chun (2018) investigated the role of Frontal-striatal connectivity in adolescents with excessive use of smartphones and found an alteration in connectivity in these areas. The study also identified a correlation between the severity of withdrawal symptoms with excessive serum cortisol and a negative correlation with the Orbitofrontal Cortex connectivity among adolescents with excessive smartphone use.

For decades researchers have tried to identify and explain the complex etiological factors responsible for the formation of addictive behaviour. The 1980s brought forth four main conceptual models, namely:

1. The Moral Model
2. The Medical/Disease Model
3. The Enlightenment Model
4. The Compensatory Model

To further understand the complex aetiology of addiction, Shaffer (2004) later proposed the notion of 'Addiction Syndrome,' which encompasses antecedents and premorbid addiction syndrome as depicted in Figure 1.

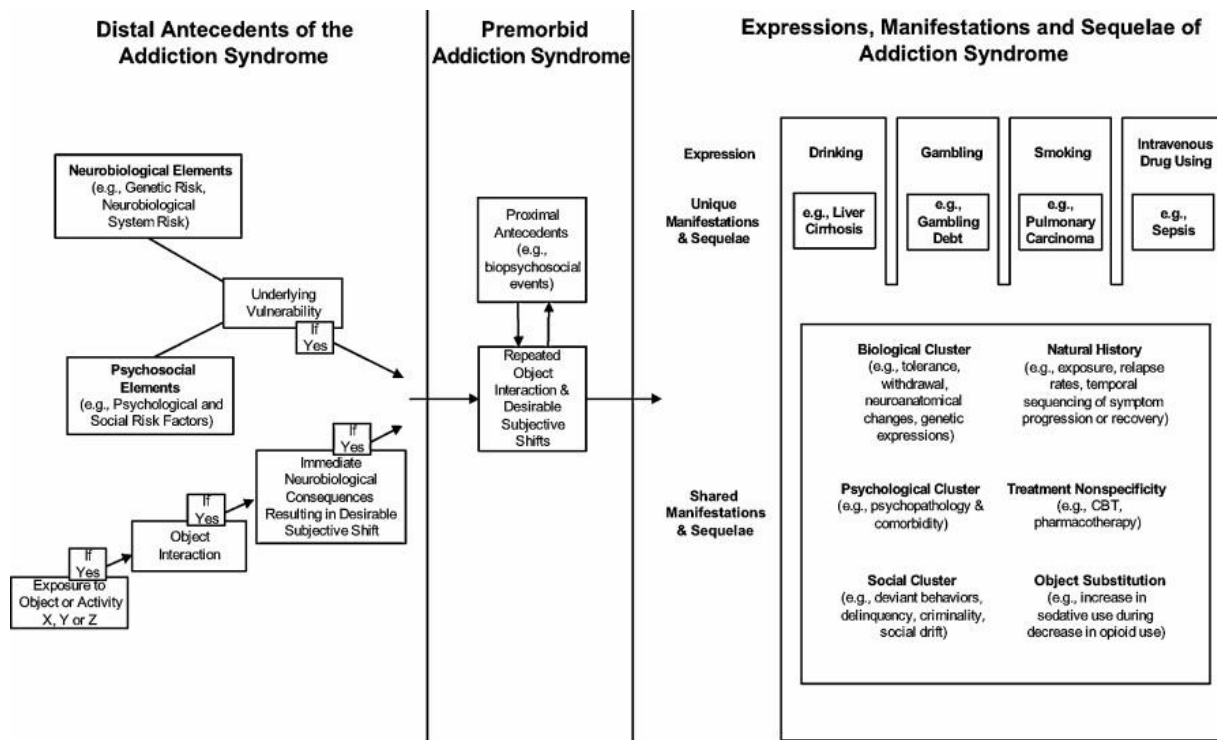


Figure 1: Model of the addiction syndrome (Shaffer et al., 2004)

Antecedents of the addiction syndrome include individual vulnerability, object exposure, and object interaction. Throughout development, people encounter and accumulate specific combinations of neurobiological and psychosocial elements that can influence their behaviour. Certain features increase the likelihood of addiction, whereas other protective factors reduce the chance of addiction.

Various authors explained many other etiological models and theories in the past. As time progressed, researchers approached the problem as a bio-psycho-social model, which is accepted widely today. The Bio-psycho-social model explains the various etiological factors involved in addiction formation in a more holistic approach and allows interventions to be tailored towards each patient. Available evidence suggests that biological, genetic, personality, psychological, cognitive, social, cultural, and environmental factors interact to produce substance use disorder. Multiple factors must be addressed in the prevention and treatment programs (Skewes & Gonzalez, 2013).

## **EPIDEMIOLOGY OF BEHAVIOURAL ADDICTION**

The concept of addiction has been expanded in recent years to include many excessive behaviours, not limited to those related to the misuse of substances. Lifetime prevalence was estimated at 0.5-3% (Chamberlain et al., 2015). A longitudinal study involving a cohort of 4,121 adults from Ontario, Canada, reported that 458 (11.1%) participants had at least one excessive behaviour, with the highest value reported for excessive eating (Konkolý Thege et al., 2015). An online survey of 819 individuals in Belgium reported that the three-month prevalence of behavioural addiction was comparable to substance addiction (online activities 84.53/100,000, gambling 29.84/100,000, alcohol use 83.36/100,000, and drugs 5.94/100,000) (Deleuze et al., 2015).

### **Gambling disorder**

Most individuals have gambled at some point in their lives (Calado & Griffiths, 2016). It is estimated that 0.1-5.8% of adult populations fulfilled the diagnostic criteria for problematic gambling based on worldwide studies from 2000 to 2015 (Calado & Griffiths, 2016). Prevalence rates vary across different continents, with North American rates ranging between 2% to 5%, Asia (0.5% to 5.8%), Oceania (0.4% to 0.7%) and Europe (0.1% to 3.4%). The emergence of new forms of gambling via the internet, mobile phone, and interactive television has also attracted adolescents' involvement in gambling activities (Griffiths & Wood, 2007). About 0.2% to 12.3% of adolescents and young people reported gambling problems (Calado et al., 2017).

In Asia, 32 to 60% of young people participated in gambling, with 0.07% to 2.66% having pathological gambling (Liu et al., 2013), with Macau having the highest gambling participation and pathological gambling problems. Macau is one of Southeast Asia Field's busiest and highest revenue-generating casino operations (Tse et al., 2004). Localities with a higher commercial degree of gambling, such as Macau, Hong Kong, Singapore, and South Korea, regularly organise gambling investigations (Liu et al., 2013). Another meta-review by William (2012) reported that higher problem gambling rates were seen in Asian countries, with a prevalence of 5.6% in Hong Kong, 6% in Macau, and 3.8% in Singapore compared to the international average of 2.3%. There were also high rates of problematic gamblers among Asian immigrants in New Zealand (Casino & Authority, 1999; Toronto, 1995; Wong & Tse, 2003) and Australia (Blaszczynski et al., 1998).

In Malaysia, Loo & Ang (2013) found that 4.4% of the 5.5 million population in Selangor are problem gamblers, while 10.2% are moderate-risk gamblers. In a more recent cross-sectional study among 2265 secondary school students in Negeri Sembilan, 29.6% of adolescents reported participating in some form of gambling activity within the previous 12 months, with 3.6% being problem gamblers (Sheela et al., 2016).

### **Internet and gaming disorder**

In 2014, Cheng (2014) estimated that the global prevalence of internet addiction was 6% in which prevalence according to regions were the Middle East (10.9%), North America (8%), Asia (7%), South and East Europe (6.1%), Oceania (4.3%), North and West Europe (2.6%) and South America (0%). As for gaming, Muller et al. found the overall prevalence among seven European countries to be 1.6% (Muller et al., 2015). Mihara & Higuchi (2017), in a systemic review of 37 cross-sectional and longitudinal epidemiological studies on internet gaming disorder, reported that the prevalence widely ranged between 0.7% to 27.5%. Another most recent systematic review in 2021, which included 226,247 participants from 17 countries, estimated that the worldwide prevalence of gaming disorder was 3.05% (Stevens et al., 2021).

Internet Penetration Rate (IPR) for Southeast Asia was ranked at 9<sup>th</sup> place (66%) as of January 2020, behind Northern Europe in the first place (95%), followed by Western Europe (92%) and Northern America (88%) (Chia et al., 2020). However, despite the lower IPR, pooled prevalence rates of internet addiction and gaming disorder in Southeast Asia were 20% and 10.1%, respectively, higher than in other world regions (Chia et al., 2020). The study also reported that the highest pooled prevalence of internet addiction was in Thailand (44.7%), followed by Indonesia (38.5%), Vietnam (21.6%), and Malaysia (19.2%). At the same time, Singapore has the highest prevalence of 13% for gaming disorders (Chia et al., 2020). Another study by Turnball (2015) reported an overall prevalence of pathological internet use among university students in ASEAN countries was 35.9% ranging from 16.1% in Myanmar to 52.4% in Thailand. Internet addiction may be more prevalent in Asian countries than in other parts of the world, as shown from the above studies, and becoming more prevalent due to the popularity of computers and smartphones.

In Malaysia, few studies have been conducted on the internet and gaming disorders. Among adult populations, the prevailing rate of internet addiction ranges from 13.3% (Ainin et al., 2016) to 43.9% (Ching et al., 2017; Guan et al., 2015; Othman et al., 2017; Siraj et al., 2015; Turnbull et al., 2018) whereas, among adolescent, the prevalence rate ranges as low as 2.4% (Mak et al., 2014) up to as high as 92.4%. All the studies among the adult population were done among university students. Not much data looking at the general population was found. A study by Mak (2014) among adolescents in Malaysia reported that the prevalence of Internet addiction was 2.4% screened using the Internet Addiction Test. In contrast, a higher prevalence was seen when screened using the Revised Chen Internet Addiction Scale (CIAS-R)(14.1%). However, CIAS-R has not been validated in Malaysia. CIAS-R also may overestimate the prevalence of internet addiction, as found in this study. Another study among 157 students from various government secondary schools found that 92% had problematic internet use screened by the Problematic Internet Use Questionnaire (PIUQ) (Ke & Wong, 2018).

### **Problematic Sexual Behaviour**

According to the American Society of Addiction Medicine, problematic sexual behaviour includes pornography, excessive masturbation, paraphilia, and compulsive sexual behaviour (CSB). There are no epidemiological studies of CSB, and only a few population-level studies were done, limited to Western countries or cultures. In older literature, the prevalence of compulsive sexual behaviour was estimated to be around 3 to 6% in the general population (Don't Call It, 1989; Goodman, 1993; Kuzma & Black, 2008). Data from the National Survey of Sexual Health and Behaviour in the US in 2016 reported that 8.6% of 2325 adult populations met the criteria for compulsive sexual behaviour (Dickenson et al., 2018). About 10.3% of men and 7.0% of women reported having occasional subjective distress over difficulty controlling sexual behaviours, impulses, or desires. In a population-based epidemiological study among 2450 participants in Sweeden, Langstrom & Hanson (2006) defined high rates of enacted sexual behaviour (12.1% in males and 6.8% in females).

Higher prevalence rates are suggested in specific populations such as sex offenders and HIV patients (Coleman et al., 2010; Marshall & Marshall, 2006). Studies done on particular populations reported the prevalence of CSB for male military veterans (16.7%) (Smith et al., 2014) and gay populations (7.93%) (Coleman et al., 2010; Gleason et al., 2021). A higher prevalence of sexual addiction score (35.1%) was reported by Yoni et al. in a study among those who use internet dating sites (Zlot et al., 2018). A

study among 791 private college students in Minnesota looking at impulse control disorder reported that 3.7% had symptoms consistent with compulsive sexual behaviour (Odlaug & Grant, 2010). Another study among university students (n=1837) reported a prevalence rate of CSB of 2% (Odlaug et al., 2013). Both studies were done as a self-reported clinical scale without in-person clinical evaluation for more accurate prevalence estimations due to potential embarrassment. A most recent systematic review in 2021 looked at studies using standardised questionnaires between 2000-2021, where high prevalence rates were seen among student populations between 10.1 to 19.4% (Kürbitz & Briken, 2021). Additionally, a multicenter study done in India in 2020 among undergraduate students reported that 14.6% of the participants had problematic pornography consumption (19% male, 3.3% female) (Kadavala et al., 2021).



## GENERAL PRINCIPLES IN APPROACHING BEHAVIOUR ADDICTION

Behavioural addiction shares almost similar presentation to substance addiction in many aspects, such as natural history (chronic, relapsing course with higher incidence and prevalence in adolescents and young adults), phenomenology (subjective craving, intoxication [“high”], and withdrawal), tolerance, comorbidity, overlapping genetic contribution, neurobiological mechanisms (with roles for brain glutamatergic, opioidergic, serotonergic and mesolimbic dopamine systems), and response to treatment (Grant et al., 2010). Therefore, in general, approaching behavioural addictions shall be loosely based on the approaches for substance addiction.

Behavioural addictions may pose a challenge in diagnosis and assessment. Every management of behavioural addiction shall be individualised. Evidence for pharmacotherapy is limited, and the non-pharmacological approach should be considered primarily. No pharmacological agent has been approved to treat behavioural addiction (Dannon, 2007).

Cognitive behaviour therapy (CBT) is primarily used in the recent development of treatment for behavioural addiction. Rational emotive therapy, motivational interviewing, and relapse prevention are the different approaches of CBT used in treating behavioural addiction (Griffiths et al., 2014).

Patients struggle to cope with difficult situations and handle dysphoric moods and peer pressure. CBT aims to help them live without addictive behaviour. It assists them in recognising, avoiding or coping with the high-risk situation. In his paper, Griffiths indicated that CBT is a promising treatment modality for managing behavioural addictions (Griffiths, 2015).

A meta-analysis of psychotherapy and behavioural treatment for behavioural addiction showed significant improvement and positive effect retained up to 2 years follow up (Pallesen et al., 2005). Self-help therapy is also a known therapy for behavioural addiction. It is based on the 12-step model of Alcoholics Anonymous and tailored accordingly to behavioural addiction treatment such as Gamblers Anonymous and Sex and Love Addicts Anonymous. The experienced group members of a support group network called “sponsors” will facilitate them in this therapy (Yau & Potenza, 2015).

Several studies have shown that a brief motivational interviewing effectively treats behavioural addiction. It helps patients solve problems by exploring and resolving their ambivalence towards change. It facilitates patients' intrinsic motivation and self-efficacy. The therapy is cost-effective and can help patients who cannot attend a long session due to individual issues (Hodgins et al., 2004).

Many more angles of treatment in behavioural addiction need to be studied as some were proven beneficial in treating substance use disorders, such as family involvement and other psychosocial approaches (Copello et al., 2005). Combining complementary treatments is effective in behavioural addictions, such as gambling disorders, complementing each treatment's weaknesses and benefits (Grant et al., 2014).

Based on the available literature, the general treatment approach to behavioural addiction can be summarized as follows (Hayer T, 2015):

1. Treatment should be readily available;
2. Treatment should be individualised;
3. It is better for an addict to be treated than not to be treated;
4. It does not seem to matter which treatment an addict engages in, as no single treatment is demonstrably better than any other;
5. A variety of treatments simultaneously appear to be beneficial to the addict;
6. Individual needs of the addict have to be met (the treatment should be fitted to the addict, including being gender-specific and culture-specific);
7. Clients with co-existing addiction disorders should receive services that are integrated;
8. Remaining in treatment for an adequate period is critical for treatment effectiveness;
9. Medications are an essential element of treatment for many patients, especially when combined with counselling and other behavioural therapies;
10. Recovery from addiction can be a long-term process and frequently requires multiple episodes of treatment;
11. There is a direct association between the length of time spent in treatment and positive outcomes;

12. Individual needs determine the duration of treatment interventions, and there are no pre-set limits to the course of treatment.

## **GAMBLING DISORDER**

Gambling is defined as placing something of value at risk to gain something at a greater value. Based on DSM 5, Gambling is defined as a persistent and recurring maladaptive gambling behaviour indicated by four or more of the following criteria:

- A. Persistent and recurrent problematic gambling behaviour leading to clinically significant impairment or distress, as indicated by the individual exhibiting four (or more) of the following in a 12 month period:
  - a. Needs to gamble with increasing amounts of money in order to achieve the desired excitement.
  - b. Is restless or irritable when attempting to cut down or stop gambling.
  - c. Has made repeated unsuccessful efforts to control, cut back, or stop gambling.
  - d. Is often preoccupied with gambling (e.g., having persistent thoughts of reliving past gambling experiences, handicapping or planning the next venture, thinking of ways to get money with which to gamble).
  - e. Often gambles when feeling distressed (e.g., helpless, guilty, anxious, depressed).
  - f. After losing money gambling, often returns another day to get even ("chasing" one's losses).
  - g. Lies to conceal the extent of involvement with gambling.
  - h. Has jeopardised or lost a significant relationship, job, or educational or career opportunity because of gambling.
  - i. Relies on others to provide money to relieve desperate financial situations caused by gambling.
- B. The gambling behaviour is not better explained by a manic episode.

### **Risk Factors**

There are no conclusive data regarding the risk factors associated with gambling disorder. However, particularly high-risk groups have a higher rate of gambling disorders than the average population.

#### **1. Age group:**

Gambling is common among children and adolescents (HJ, MN, & J, 1999) as well as the elderly male population. (Guillou Landreat, Cholet, Grall Bronnec, Lalande, & Le Reste, 2019)

## 2. Gender:

Despite the progression of gambling disorder being faster in women, the prevalence of problematic gambling is 2-3 times higher in males as compared to females. (Cunningham-Williams, Cottler, Compton, & Spitznagel, 1998)

Other risk factors include adults in mental health treatment, patients with nicotine and substance use, positive family history, childhood abuse, early adverse events, and lower socioeconomic status.

## Screening and Investigation

The diagnosis of gambling disorder is made using the criteria based on the DSM 5 stated above. Several screening tools are available to help screen and identify problematic gambling behaviour.

Among the most widely used tools to screen and diagnose problematic gambling are The South Oaks Gambling Screen (SOGS), NORC diagnostic screen for gambling problems- self-administered (NODS-SA), Problem Gambling Severity Index, and the Gamblers Anonymous 20 Item survey (**Refer Appendix A**).

Short screening tools are also helpful, for example, the 3-item Brief Biosocial Gambling Screen (BBGS) and the 2-item Lie-Bet Questionnaire.

### **Lie-Bet Questionnaire (Götestam et al., 2004; Johnson et al., 1997)**

Have you ever felt the need to bet more and more money?

Have you ever had to lie to people important to you about how much you gamble?

An affirmative response to either question is considered a positive screen and identifies a person with gambling problems

## Management

Currently, there are limited available evidence showing strong recommendations for treating gambling disorder. However, various models have been proposed to manage gambling disorders with modest to moderate benefits.

Currently, there is limited evidence for pharmacotherapy to manage gambling disorders. A multimodal or combined approach may be beneficial in managing these patients.

Psychological intervention techniques include behavioural approaches, cognitive behavioural therapy, and the 12-step gambling anonymous. Other methods such as motivational interviewing, mindfulness, and contingency behavioural management may also be useful in managing gambling disorder patients. It is also beneficial to include occupation therapy such as relaxation techniques, imagery techniques.

For this guideline, we would recommend a simple, 6-12 session Gambling Disorder Counselling approach for use in a clinical setting consisting of exploring the below headings:

- Assessment of motivation to change and goal setting.
- Understanding of gambling and the recovery process.
- Handling high-risk situations and strategies to overcome them.
- Cognitive Restructuring and Functional Analysis.
- Discuss and practice challenging gambling-specific thinking errors.
- Relaxation and imaginal exposure.
- Managing and exploring the client's negative emotions.
- Explore the consequences of actions and behaviour.
- Strengthening a balanced lifestyle and improving coping skills.

## **GAMING DISORDER**

The World Health Assembly formally recognised Gaming Disorder as a diagnosis in the International Classification of Diseases (ICD-11) in May 2019. ICD-11 defined Gaming Disorder as a pattern of gaming behaviour characterised by impaired control over gaming, increasing priority given to gaming over other activities to the extent that gaming takes precedence over other interests and daily activities, and continuation or escalation of gaming despite negative consequences. These behaviour patterns should adequately cause significant socio-occupational dysfunction over at least 12 months.

In contrast, Internet Gaming Disorder (IGD) is conveyed provisional status in the Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> edition (DSM-5). The DSM-5 summarises IGD as the “persistent and recurrent use of the Internet to engage in games, often with other players, leading to clinically significant impairment or distress,” as indicated by five or more out of nine proposed items.

Most recently, the worldwide prevalence of gaming disorder was estimated to be 3.05% (Stevens et al., 2021), while the prevalence in South East Asia was estimated to be higher than worldwide figures at 10.1% (Chia et al., 2020).

### **Risk Factors**

Gaming Disorder generally starts in late adolescence, with a mean age of onset of 17.55 years (Stevens et al., 2021). Males were found to have significantly higher rates of Gaming Disorder than females based on compiled worldwide data with a ratio of approximately 2.5:1 (Stevens et al., 2021).

Muller (2014) found interesting associations between individuals suffering from Gaming Disorders and personality traits. These individuals were found to have higher neuroticism, decreased conscientiousness, and low extraversion (Müller et al., 2014).



Furthermore, Rho (2017) identified eight characteristics associated with Gaming Disorders; impulsivity, low self-control, anxiety, the pursuit of desired appetitive goals, money spent on gaming, high weekday game time, offline game club attendance, and presence of game club membership (Rho et al., 2017).

Adolescents with Gaming Disorders were found to have several psychiatric comorbidities, namely Attention Deficit Hyperactivity Disorder and conduct disorders (Sugaya et al., 2019). They also reportedly had lower academic performance than their non-problematic gamers and non-gamers (Sugaya et al., 2019). As expected, secondary school students with Gaming Disorder showed decreased physical activity and more sleep disturbances (Sugaya et al., 2019).

On average, sufferers of Gaming Disorder engage in gaming activities for 3 to 6 hours daily (Sugaya et al., 2019). They preferred massive multiplayer online games and shooting games in first-person or third-person (King & Delfabbro, 2016).

## **Screening and Investigation**

As of writing, there is no gold standard screening tool (King et al., 2020), while sensitivity and specificity of available screening tools are rarely reported (King et al., 2020)

The Internet Gaming Disorder Scale-Short-Form (**IGDS9-SF**) was the first brief standardised psychometric tool to assess Internet Gaming Disorder (IGD) according to the nine Internet Gaming Disorder (IGD) criteria as suggested by the American Psychiatric Association in the latest edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (Pontes & Griffiths, 2015). IGDS9-SF has coverage for the DSM-5 criteria (King et al., 2020) and is validated in the Malaysian Malay Language (T'ng & Pau, 2020). Access to IGDS9-SF is free, and no author permission is required for use in clinical practice (**Refer to Appendix B**).

## **Management**

### **Pharmacotherapy**

Available data indicate that Bupropion was more effective than Escitalopram in treating Gaming Disorder (Zajac et al., 2017). Treating ADHD with Bupropion in Young Adults (Han et al., 2010) and Methylphenidate in Children helped improve IGD (Han et al., 2009).

### **Psychotherapy**

In adults, some trials indicate CBT as an effective treatment for IGD (Zhang et al., 2018; Zhang et al., 2016). One study found that CBT was no more beneficial than basic supportive counselling in the adolescent group (Li & Wang, 2013)

A randomised trial compared bupropion plus eight CBT sessions to bupropion alone for adolescents with comorbid IGD and MDD and found no statistically significant between-group differences in reductions in depression symptoms. However, the CBT group showed significantly more substantial reductions in time spent gaming and IGD symptoms compared to medication-only at post-treatment, and this effect was maintained at four weeks post-treatment. However, there was no control for therapist time (i.e., CBT sessions were between 90 and 120 minutes weekly, whereas medication management consisted of 10-minute weekly check-ins (Kim et al., 2012).

### **Prevention and Harm Reduction (Xu et al., 2012)**

1. Attention Switching - meaningful activities are offered to distract an individual with GD attention from engaging in problematic behaviour.
2. Handling trigger- Meaningful activities are offered to distract and handle the trigger. This method is more frequently used in local setting.
3. Dissuasion - efforts to prevent playing an online game utilising exhortation.
4. Rationalisation / education - understanding the issues associated with a problematic behaviour program.
5. Parental Monitoring - parents/guardians are advised to pay attention and monitor the whereabouts and activities of individuals with GD.
6. Resource Restriction (supply reduction) - constraining game-playing resources such as

money, equipment, regulation, and guidance.

7. Perceived Cost – instilling the perception that the cost of gaming is high in terms of time, money etc.

## **INTERNET ADDICTION**

### **INTRODUCTION**

In this modern epoch, people are profoundly hooked on the internet for a multitude of reasons. It has become the norm and culturally acceptable that being on the internet for a prohibitively long time is warranted for work and educational purposes or leisure. Even though the immeasurable benefits of the internet are indubitable, people are increasingly becoming addicted to the internet. Although the diagnosis of internet addiction disorder is still debatable globally among academics and researchers, this state of affairs is undeniable.

Internet addiction was first researched in 1996, and findings were presented at the American Psychological Association. The study reviewed over 600 cases of heavy Internet users who exhibited clinical signs of addiction measured through an adapted version of the DSM-IV criteria for pathological gambling (Young 1998). Since then, subsequent studies have examined various aspects of the disorder over the past decade. Early studies attempted to define Internet addiction and examined behaviour patterns that differentiated compulsive from normal Internet usage. More recent studies investigated the etiologic factors or causes associated with the disorder. Much of this examined the impact of computer-mediated communication on the way people will adapt to interactive features of the Internet, and initial studies from the United States spread into countries such as Taiwan, Russia, China, and the United Kingdom

### **DEFINITION**

Defining Internet addiction is still posing a diagnostic conundrum. Unlike chemical dependency, the Internet offers several direct benefits as a technological advancement in our society and is not a device to be criticized as “addictive” (Levy, 1996). Furthermore, many researchers argued that the definition of addiction should be applied only to cases involving drug ingestion (Rachlin, 1990; Walker, 1989). However, defining addiction has moved beyond this to include other behaviours that do not involve an intoxicant, such as compulsive gambling (Griffiths, 1990). During the past decade, a growing body of

peer-reviewed literature adopted the term Internet addiction and its acceptance as a legitimate disorder grew (Ferris, 2001; Greenfield, 1999; Hansen, 2002).

## **Risk Factors**

Risk factors for Internet addiction vary slightly among adolescent and adult populations. In general, students have a greater tendency to have an Internet addiction (Widyanto & Griffiths, 2006) due to their natural attraction to the Internet (Veen & Vrakking, 2006) and their excellent knowledge of the Internet (Leung & Lee, 2012). Students also have unlimited Internet access without parental supervision, and assignments must be done online, with freedom and flexibility to use the Internet wherever and whenever they want (Moore, 1995; Young, 2004).

Many studies have been done to identify risk factors for Internet addiction. However, due to the lack of unified definition, diagnostic criteria, and assessment tools, study results vary in determining the risk factors for Internet addiction. Personality traits have been identified as a risk factor for Internet addiction. High scores in neuroticism (Dong et al., 2013; Tsai et al., 2009) and low scores in extraversion (Xiuqin et al., 2010), agreeableness and emotional stability (Van der Aa et al., 2009) are risk factors for Internet addiction. Social applications such as social media, online chatting, online forums, online shopping, and online gaming activities are risk factors for Internet addiction (Kuss et al., 2013). The Covid-19 pandemic is a risk factor for Internet addiction as many people, especially young people, have to stay home and spend more time on the Internet (Oka et al., 2021) & Chen (Chen et al., 2020).

In another study, depressive symptoms, higher positive outcome expectancy of Internet use, higher Internet usage time, lower refusal self-efficacy of Internet use, higher impulsivity, lower satisfaction with academic performance, being male, and insecure attachment style were positively correlated with Internet addiction (Lin et al., 2011).

A study in Malaysia showed that Malaysian youth aged 18-25 are at high risk of developing internet addiction (Kapahi et al., 2013). This is the age where the child or young adults attend college or spend most of their time at university pursuing their studies. Another study done by (Alam et al., 2014) revealed that excessive internet usage among young adults in Malaysia leads to interpersonal

problems, work-related problems, psychological problems, and behavioural problems. These problems were common among males.

### **Screening and Investigation**

Many screening or assessment tools for Internet addiction are available. However, due to the non-availability of a unified and centralised definition and diagnostic criteria for Internet addiction, these screening tools vary in describing Internet addiction across the instruments. The most commonly used assessment tools are listed below:-

1. Internet Addiction Test (Young, 1998)
2. Chen Internet Addiction Scale (Chen et al., 2003)
3. Diagnostic Interview of Internet Addiction for Adolescents (Ko et al., 2005)
4. Compulsive Internet Use Scale (Meerkerk et al., 2009)
5. Malay Version Internet Addiction Test (MVIAT) (Chong Guan et al., 2015)

### **DIAGNOSTIC CRITERIA**

Since Internet Addiction Disorder is still being debated globally, there are no approved diagnostic criteria for Internet Addiction Disorder. Many diagnostic criteria used for research purposes were modified by DSM-5 substance use disorder criteria. However, the Internet Addiction Test (IAT) (Young 1998) is reliable for diagnosing Internet Addiction.

#### **Internet Addiction Test (IAT) (Young 1998)**

1. Do you feel preoccupied with the Internet (think about previous on-line activity or anticipate next online session)?
2. Do you feel the need to use the Internet with increasing amounts of time in order to achieve satisfaction?
3. Have you repeatedly made unsuccessful efforts to control, cut back, or stop Internet use?
4. Do you feel restless, moody, depressed, or irritable when attempting to cut down or stop Internet use?
5. Do you stay online longer than originally intended?

6. Have you jeopardized or risked the loss of a significant relationship, job, educational, or career opportunity because of the Internet?
7. Have you lied to family members, a therapist, or others to conceal the extent of involvement with the Internet?
8. Do you use the Internet as a way of escaping from problems or of relieving a dysphoric mood (e.g., feelings of helplessness, guilt, anxiety, depression)?

If the patient answered 'yes' to 5 or more of the questions, they are considered to have internet dependence.

## **Management**

The treatment aspect of Internet addiction can be conveniently divided into pharmacological and non-pharmacological treatment. Many studies have incorporated either monotherapy with pharmacological or non-pharmacological treatment or both. Many types of medication were used on patients with Internet addiction, but the studies were merely case reports, and the data for pharmacological treatment of Internet addiction is lacking.

Among the antidepressant agents used for Internet addiction treatment, Escitalopram at 30mg/day effectively treated Internet addiction (Sattar & Ramaswamy, 2004). In another case report, Bupropion was also found to effectively treat IA (Han et al., 2011).

Although opioid antagonists are commonly used as an anti-craving medication for addiction, only one case report showed effectiveness in treating IA with Naltrexone (Bostwick & Bucci, 2008).

Among the antipsychotics, only one case report was available using T. Quetiapine 200mg/day, added to citalopram in inpatient with Internet addiction. The improvement was maintained at a 4-month follow-up. No other studies or even case report is available for other antipsychotics.



Other than these three treatments mentioned above, no further data or case reports were available for other pharmacological agents.

Non-pharmacological treatments which showed promising results were listed below:-

1. Cognitive Behaviour Therapy (Du et al., 2010; Young, 2007)
2. Family Therapy (Kim et al., 2008; Zhong et al., 2011)
3. Behaviour Modification (Yang et al., 2002)
4. Cognitive Restructuring (Young, 2011)

## **PROBLEMATIC SEXUAL BEHAVIOUR (PSB)**

### **Definition**

Problematic sexual behaviour (PSB) describes a condition of recurrent and intense sexual fantasies and behaviours that cause distress, are inappropriately used to cope with stressful events or dysphoric emotional states, cannot be voluntarily curtailed, and risk or cause harm to oneself or others (Hall, 2019). The condition is the deviation from normative or typical sexual behaviour. PSB includes behaviours that are self-focused, such as excessive masturbation or behaviours that involve others. PSB can be distressing to the patient, their partners, or others and can cause impairment in functioning. The problematic behaviour may come to clinical attention at the initiative of the individual or their partner otherwise through involvement in the legal system.

### **Risk factors**

There are limited data concerning the risk factors associated with PSB. Certain well-documented risk factors correlated with a higher rate of PSB in certain people than in the normal population (Miller, 2018). Traumatic experiences such as childhood sexual abuse, early substance use, impulse inhibition problems, and peer and family influences can predispose to PSB. Earlier age of first sexual experience, multiple sexual partners, and more varied sexual behaviours while young are significantly related to PSB. There is a high co-occurrence of individuals with PSB and family members with PSB or addictive disorders.

### **Screening and Investigation**

Assessment of Problematic Sexual Behaviour (PSB) consists of detailed history taking, mental state examination, physical examination, and investigation (Hall, 2019). The vital point during history taking include:

- Socio-demographics information
- The chief complaint of the current presentation
- Precipitating factors of the current presentation

- History of the PSB: Onset, frequency, any particular circumstances, gender & age of the partners involved,
- Triggers/factors that worsen the symptoms.
- Methods/factors that helped reduce the severity of symptoms or distress in the past.
- History of sexual abuse, physical abuse, and physical trauma as a child.
- A detailed history of legal problems/sex offences or court cases.
- Assessment of personality disorders, if needed.
- Evaluation of treatment motivation and Capacity.
- Past psychiatry history & substance abuse.
- Past medical history (especially STIs).
- History of previous treatment of the sexual disorder (efficacy, compliant, and side effect).
- Employment history and pattern.

Several scales have been developed with established psychometric properties to provide a valid and reliable assessment of the PSB (Hook et al., 2010). Hypersexual Disorder Screening Inventory (HDSI) and Sexual Addiction Screening Test-Revised (SAST-R) are the two most commonly used assessment measures of PSB with valid and reliable psychometric properties.

HDSI has seven items measuring recurrent and intense sexual fantasies, urges, behaviours, and distress and impairment in the prior six months. The seven items' response scores are 0 (Never True) to 4 (Almost always true). The summed scores range from 0 to 28, with higher scores indicating greater severity. The scale is reliable; a single cut-off score of 20 significantly identifies hypersexual disorder (Parsons et al., 2013). **(Refer to Appendix C1)**

SAST-R is the most popular assessment scale for PSB and was recently revised. The scale has 45 items with 'yes' or 'no' responses that can be administered. Each affirmative answer scores 1 point. The summed score for each core item and subscale is available. The assessment scale is suitable for

heterosexual and homosexual men and women and cybersex and has a good Internal consistency variable (alpha 0.77 -0.92) (Carnes et al., 2010). **(Refer to Appendix C2)**

Other assessment scales for PSB are available, such as the Sexual Outlet Inventory, Sexual Compulsivity Scale (SCS), Compulsive Sexual Behaviour Inventory, Hypersexual Behaviour Inventory, and Minnesota Impulsive Disorders Inventory.

**Investigation**

**Baseline Investigations**

It is advisable to do basic blood and/or radiological investigations to rule out organic causes, and complications of high-risk sexual behaviour, and as preparation for possible long-term pharmacotherapy intervention. The baseline investigations are as follows:

- Full blood count
- Liver function test
- Renal profile
- Thyroid function test
- Fasting blood sugar
- Fasting lipid profile
- Electrocardiogram
- STI screening
- Brain imaging CT-scan/MRI (if any history of head trauma)

Additional baseline investigations are needed if the patient is going to be started with an antiandrogen or GnRH agonist (Thibaut et al., 2020).

Parameters	Justification
Calcium level	Increase risk of osteoporosis
Phosphate level	Increase risk of osteoporosis

Plasma hormone level (Testosterone, testosterone-binding proteins, Luteinizing Hormone, prolactin)	Testosterone can be monitored for compliance.
Osteodensitometry	For individuals more than 50 years old due to increased risk of osteoporosis
Electrocardiogram	Increased risk of cardiovascular disease
MRI brain scan	Repeat in the 5 <sup>th</sup> year then every 2 years throughout the treatment; increased risk of pituitary and hypothalamic disease or meningioma

## Management

The primary treatment modalities in the management of PSB are psychotherapy and pharmacotherapy. These treatments are offered based on the patient's previous medical and psychiatric history, the patient's adherence to treatment, the intensity of sexual urge, compulsion and fantasies, the risk of sexual violence, and the availability of treatment forms.

## Psychotherapy

### Cognitive Behaviour Therapy (CBT)

CBT is a structured and widely available psychotherapy. CBT is evidence-based therapy and effectively treats PSB (Dilley et al., 2008). It was highly recommended as a first-line treatment in mild PSB clients. CBT can be used as monotherapy in mild severity of PSB and as combination therapy with pharmacotherapy in moderate and severe PSB clients.

Refer to **Appendix C3** for steps of CBT for PSB. The efficacy of other psychotherapy methods for PSB treatment has not been reported.

## **Pharmacotherapy**

Pharmacotherapy is the mainstay of treatment for moderate to severe PSB. Many pharmacotherapy classes are available, such as Selective Serotonin Reuptake Inhibitor (SSRI), Naltrexone, antiandrogen, and Gonadotropin-releasing hormone (GnRH) agonists. Patients should be assessed, counselled, and offered the pharmacotherapy suitable for them.

### **Selective Serotonin Reuptake Inhibitor (SSRI)**

SSRI reported high efficacy of up to 70% in treating PSB patients with no sexual offences. It was based on a hypothesis of underlying serotonergic dysfunction and treatment-emergent sexual dysfunction. SSRI has a good safety profile, low cost, and is widely available. This class of medication can be used in all subtypes of PSB clients and combined with CBT and antiandrogen/GnRH agonist therapy (Stein et al., 1992). The recommended SSRI medications are Fluoxetine (40-60mg/day) (Kafka & Prentky, 1992) or Sertraline (200mg/day) (Kafka, 1994). The estimated onset of efficacy is within 1 to 3 months. The duration of treatment can be two years for mild severity or five years or longer for moderate or severe PSB.

### **Naltrexone**

Naltrexone is an opioid antagonist, and it acts via the opioid-dopamine pathway reward system, thereby reducing the euphorogenic properties of PSB. Naltrexone was reportedly efficacious for non-paraphilic disorders of PSB and PSB with co-morbid substance abuse. The recommended dosage is 100-200mg/day, whereas a 50mg or lower dosage is not efficacious and results in recurrence (Ryback, 2004). Naltrexone has a well-reported safety profile and adverse effects and can be combined with psychotherapy (CBT). The estimated onset of efficacy is within 1 to 3 months. The suggested duration of treatment can be two years for mild severity or five years or longer for moderate or severe PSB.

### **Antiandrogen / GnRH agonist**

Antiandrogen/ GnRH agonist is the treatment of choice when there are unsatisfactory results from SSRI or psychotherapy. However, this treatment can only commence if the patient has completed puberty and is only recommended for severe PSB (especially Paraphilic disorders) and/or high risk for sexual offences (Thibaut, 2011). The clinician must get an expert opinion from an endocrinologist and written

informed consent from patients before initiating the therapy. Antiandrogen/ GnRH agonists can be combined with SSRI (for comorbidity/augmentation) and psychotherapy. There is no marker of compliance for oral form. The recommended dosage and duration of antiandrogen/ GnRH agonist is as below (Thibaut et al., 2020):

- Cyproterone acetate (CPA) 50- 200 mg/day p.o., or IM 200-400mg (if available) once weekly and then 2-4 weekly.
- If CPA is unavailable, initiate treatment with medroxyprogesterone acetate (MPA); the recommended dosage of MPA is 50-400mg/d p.o., or IM 400mg weekly and then monthly.
- If the patient's oral compliance is poor, long-acting GnRH agonist triptorelin or leuprolide acetate can be used; 3.75mg /monthly or 11.25mg/3 monthly.
- The estimated onset of efficacy is within 1 to 3 months with high effectiveness (80-90%).
- The suggested duration of treatment can be two years for low risk of PSB or five years or longer for increased risk of PSB.

## REFERENCES

- Ainin, S., Jaafar, N. I., Ashraf, M., & Parveen, F. (2016). Exploring the Role of Demographics and Psychological Variables in Internet Addiction. *Social Science Computer Review*, 35(6), 770-780.
- Alam, S. S., Hashim, N. M. H. N., Ahmad, M., Wel, C. A. C., Nor, S. M., & Omar, N. A. (2014). Negative and positive impact of internet addiction on young adults: Empirical study in Malaysia. *Intangible Capital*, 10(3), 619-638.
- Blaszczynski, A., Huynh, S., Dumlao, V., & Farrell, E. (1998). Problem gambling within a Chinese-speaking community. *Journal of Gambling Studies*, 14(4), 359-380.
- Bostwick, J. M., & Bucci, J. A. (2008). Internet sex addiction treated with naltrexone. *Mayo Clinic Proceedings*.
- Calado, F., Alexandre, J., & Griffiths, M. D. (2017). Prevalence of Adolescent Problem Gambling: A Systematic Review of Recent Research. *Journal of Gambling Studies*, 33(2), 397-424.
- Calado, F., & Griffiths, M. D. (2016). Problem gambling worldwide: An update and systematic review of empirical research (2000–2015). *Journal of behavioral addictions*, 5(4), 592-613.
- Carnes, P., Green, B., & Carnes, S. (2010). The Same Yet Different: Refocusing the Sexual Addiction Screening Test (SAST) to Reflect Orientation and Gender. *Sexual Addiction & Compulsivity*, 17, 17-30.
- Casino, V., & Authority, G. (1999). Seventh survey of community gambling patterns and perceptions. Melbourne: Victorian Casino and Gaming Authority.
- Chamberlain, S., Lochner, C., Stein, D., Goudriaan, A., Holst, R., Zohar, J., & Grant, J. (2015). Behavioural addiction - a rising tide? *European Neuropsychopharmacology*, 26.
- Chen, I. H., Chen, C. Y., Pakpour, A. H., Griffiths, M. D., & Lin, C. Y. (2020). Internet-related behaviors and psychological distress among schoolchildren during COVID-19 school suspension. *Journal of the American Academy of Child and Adolescent Psychiatry*, 59(10), 1099.
- Chen, S.-H., Weng, L.-J., Su, Y.-J., Wu, H.-M., & Yang, P.-F. (2003). Development of a Chinese Internet addiction scale and its psychometric study. *Chinese Journal of Psychology*.
- Cheng, C., & Li, A. Y. (2014). Internet addiction prevalence and quality of (real) life: a meta-analysis of 31 nations across seven world regions. *Cyberpsychol Behav Soc Netw*, 17(12), 755-760.
- Chia, D. X. Y., Ng, C. W. L., Kandasami, G., Seow, M. Y. L., Choo, C. C., Chew, P. K. H., Lee, C., & Zhang, M. W. B. (2020). Prevalence of Internet Addiction and Gaming Disorders in Southeast Asia: A Meta-Analysis. *Int J Environ Res Public Health*, 17(7).
- Chia, D. X. Y., Ng, C. W. L., Kandasami, G., Seow, M. Y. L., Choo, C. C., Chew, P. K. H., Lee, C., & Zhang, M. W. B. (2020). Prevalence of Internet Addiction and Gaming Disorders in Southeast Asia: A Meta-Analysis. *International Journal of Environmental Research and Public Health*, 17(7), 2582.
- Ching, S. M., Hamidin, A., Vasudevan, R., Sazlyna, M., Wan Aliaa, W., Foo, Y. L., Yee, A., & Hoo, F. (2017). Prevalence and factors associated with internet addiction among medical students-A cross-sectional study in Malaysia. *Med J Malaysia*, 72(1), 7-11.
- Choi, J. S., King, D. L., & Jung, Y. C. (2019). Editorial: Neurobiological Perspectives in Behavioral Addiction. *Front Psychiatry*, 10, 3.
- Chong Guan, N., Isa, S. M., Hashim, A. H., Pillai, S. K., & Harbajan Singh, M. K. (2015). Validity of the Malay version of the Internet Addiction Test: A study on a group of medical students in Malaysia. *Asia Pacific Journal of Public Health*, 27(2), NP2210-NP2219.
- Chun, J. W., Choi, J., Cho, H., Choi, M. R., Ahn, K. J., Choi, J. S., & Kim, D. J. (2018). Role of Frontostriatal Connectivity in Adolescents With Excessive Smartphone Use. *Front Psychiatry*, 9, 437.
- Coleman, E., Horvath, K. J., Miner, M., Ross, M. W., Oakes, M., Rosser, B. R. S., & Men's, I. S. T. (2010). Compulsive sexual behavior and risk for unsafe sex among internet using men who have sex with men. *Archives of Sexual Behavior*, 39(5), 1045-1053.
- Copello, A. G., Velleman, R. D., & Templeton, L. J. (2005). Family interventions in the treatment of alcohol and drug problems. *Drug Alcohol Rev*, 24(4), 369-385.
- Dannon, P. N., Lowengrub, K., Musin, E., Gonopolsky, Y., & Kotler, M. . (2007). 12-month follow-up study of drug treatment in pathological gamblers: a primary outcome study. *J Clin Psychopharmacol*, 27(6), 620– 624.



Deleuze, J., Rochat, L., Romo, L., Van der Linden, M., Achab, S., Thorens, G., Khazaal, Y., Zullino, D., Muraige, P., & Rothen, S. (2015). Prevalence and characteristics of addictive behaviors in a community sample: A latent class analysis. *Addictive Behaviors Reports*, 1, 49-56.

Derevensky, J. L., Hayman, V., & Gilbeau, L. (2019). Behavioral addictions: excessive gambling, gaming, Internet, and smartphone use among children and adolescents. *Pediatric Clinics*, 66(6), 1163-1182.

Dickenson, J. A., Gleason, N., Coleman, E., & Miner, M. H. (2018). Prevalence of Distress Associated With Difficulty Controlling Sexual Urges, Feelings, and Behaviors in the United States. *JAMA Network Open*, 1(7).

Dilley, J. W., Loeb, L., Marson, K., Chen, S., Schwarcz, S., Paul, J., & McFarland, W. (2008). Sexual Compulsiveness and Change in Unprotected Anal Intercourse: Unexpected Results From a Randomized Controlled HIV Counseling Intervention Study. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 48(1), 113-114.

Don't Call It, C. P. (1989). *Love: Recovery from sexual addiction*. New York: Bantam.

Dong, G., Wang, J., Yang, X., & Zhou, H. (2013). Risk personality traits of Internet addiction: A longitudinal study of Internet-addicted Chinese university students. *Asia-Pacific Psychiatry*, 5(4), 316-321.

Du, Y. S., Jiang, W., & Vance, A. (2010). Longer term effect of randomized, controlled group cognitive behavioural therapy for Internet addiction in adolescent students in Shanghai. *Australian & New Zealand Journal of Psychiatry*, 44(2), 129-134.

Gleason, N., Finotelli, I., Miner, M. H., Herbenick, D., & Coleman, E. (2021). Estimated Prevalence and Demographic Correlates of Compulsive Sexual Behavior Among Gay Men in the United States. *The Journal of Sexual Medicine*, 18(9), 1545-1554.

Goodman, A. (1993). Diagnosis and treatment of sexual addiction. *Journal of Sex & Marital Therapy*, 19(3), 225-251.

Götestam, K. G., Johansson, A., Wenzel, H. G., & Simonsen, I. E. (2004). Validation of the lie/bet screen for pathological gambling on two normal population data sets. *Psychological Reports*, 95(3), 1009-1013.

Grant, J. E., Odlaug, B. L., Chamberlain, S. R., Potenza, M. N., Schreiber, L. R., Donahue, C. B., & Kim, S. W. (2014). A randomized, placebo-controlled trial of N-acetylcysteine plus imaginal desensitization for nicotine-dependent pathological gamblers. *J Clin Psychiatry*, 75(1), 39-45.

Grant, J. E., Potenza, M. N., Weinstein, A., & Gorelick, D. A. (2010). Introduction to behavioral addictions. *Am J Drug Alcohol Abuse*, 36(5), 233-241.

Griffiths, M. (2015). Classification and treatment of behavioural addictions. *Nursing in Practice*, 82, 44-46.

Griffiths, M., Kuss, D., & Demetrovics, Z. (2014). Social Networking Addiction: An Overview of Preliminary Findings. *Behavioral addictions*.

Griffiths, M. D., & Wood, R. (2007). Adolescent Internet gambling: Preliminary results of a national survey. *Education and Health*, 25(2), 23-27.

Guan, N. C., Isa, S. M., Hashim, A. H., Pillai, S. K., & Harbajan Singh, M. K. (2015). Validity of the Malay version of the Internet Addiction Test: a study on a group of medical students in Malaysia. *Asia Pac J Public Health*, 27(2), Np2210-2219.

Han, D. H., Hwang, J. W., & Renshaw, P. F. (2010). Bupropion sustained release treatment decreases craving for video games and cue-induced brain activity in patients with Internet video game addiction. *Exp Clin Psychopharmacol*, 18(4), 297-304.

Han, D. H., Lee, Y. S., Na, C., Ahn, J. Y., Chung, U. S., Daniels, M. A., Haws, C. A., & Renshaw, P. F. (2009). The effect of methylphenidate on Internet video game play in children with attention-deficit/hyperactivity disorder. *Compr Psychiatry*, 50(3), 251-256.

Hayer T, G. M. (2015). The prevention and treatment of problem gambling in adolescence. *Handbook of Adolescent Behavioral Problems: Evidence-based Approaches to Prevention and Treatment*

Hodgins, D. C., Currie, S., el-Guebaly, N., & Peden, N. (2004). Brief motivational treatment for problem gambling: a 24-month follow-up. *Psychology of addictive behaviors: Journal of the Society of Psychologists in Addictive Behaviors*, 18(3), 293-296.

Hook, J. N., Hook, J. P., Davis, D. E., Worthington, E. L., Jr., & Penberthy, J. K. (2010). Measuring sexual addiction and compulsivity: a critical review of instruments. *J Sex Marital Ther*, 36(3), 227-260.

Johnson, E. E., Hamer, R., Nora, R. M., Tan, B., Eisenstein, N., & Engelhart, C. (1997). The Lie/Bet Questionnaire for screening pathological gamblers. *Psychological reports*, 80(1), 83-88.

Kadavala, B., Vasavada, D., Kumar, P., Bhatt, R., Patel, V., & Tiwari, D. (2021). A multicenter study on problematic pornography consumption: prevalence and correlates among undergraduate medical students. *Asian Journal of Social Health and Behavior*, 4(3), 122-127.

Kafka, M. P. (1994). Sertraline pharmacotherapy for paraphilias and paraphilia-related disorders: an open trial. *Ann Clin Psychiatry*, 6(3), 189-195.

Kafka, M. P., & Prentky, R. (1992). Fluoxetine treatment of nonparaphilic sexual addictions and paraphilias in men. *The Journal of clinical psychiatry*, 53, 351-358.

Kapahi, A., Ling, C., Ramadass, S. & Abdullah, N. (2013). Internet Addiction in Malaysia Causes and Effects. *iBusiness*, 5 (2), 72-76.

Kardefelt-Winther, D., Heeren, A., Schimmenti, A., van Rooij, A., Maurage, P., Carras, M., Edman, J., Blaszczynski, A., Khazaal, Y., & Billieux, J. (2017). How can we conceptualize behavioural addiction without pathologizing common behaviours? *Addiction*, 112(10), 1709-1715.

Ke, G. N., & Wong, S. F. (2018). Outcome of the psychological intervention program: Internet use for youth. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 36(2), 187-200.

Kim, E. J., Namkoong, K., Ku, T., & Kim, S. J. (2008). The relationship between online game addiction and aggression, self-control and narcissistic personality traits. *European psychiatry*, 23(3), 212-218.

Kim, M. K., Jung, Y. H., Kyeong, S., Shin, Y. B., Kim, E., & Kim, J. J. (2018). Neural Correlates of Distorted Self-concept in Individuals With Internet Gaming Disorder: A Functional MRI Study. *Front Psychiatry*, 9, 330.

Kim, S. M., Han, D. H., Lee, Y. S., & Renshaw, P. F. (2012). Combined cognitive behavioral therapy and bupropion for the treatment of problematic online game play in adolescents with major depressive disorder. *Computers in Human Behavior*, 28(5), 1954-1959.

King, D. L., Chamberlain, S. R., Carragher, N., Billieux, J., Stein, D., Mueller, K., Potenza, M. N., Rumpf, H. J., Saunders, J., Starcevic, V., Demetrovics, Z., Brand, M., Lee, H. K., Spada, M., Lindenberg, K., Wu, A. M. S., Lemenager, T., Pallesen, S., Achab, S., Kyrios, M., Higuchi, S., Fineberg, N. A., & Delfabbro, P. H. (2020). Screening and assessment tools for gaming disorder: A comprehensive systematic review. *Clinical Psychology Review*, 77, 101831.

King, D. L., & Delfabbro, P. H. (2016). The Cognitive Psychopathology of Internet Gaming Disorder in Adolescence. *J Abnorm Child Psychol*, 44(8), 1635-1645.

Ko, C. H., Yen, J. Y., Chen, C. C., Chen, S. H., & Yen, C. F. (2005). Proposed diagnostic criteria of Internet addiction for adolescents. *The Journal of nervous and mental disease*, 193(11), 728-733.

Konkolj Thege, B., Woodin, E. M., Hodgins, D. C., & Williams, R. J. (2015). Natural course of behavioral addictions: A 5-year longitudinal study. *BMC psychiatry*, 15(1), 1-14.

Kürbitz, L. I., & Briken, P. (2021). Is Compulsive Sexual Behavior Different in Women Compared to Men? *Journal of Clinical Medicine*, 10(15), 3205.

Kuss, D. J., Griffiths, M. D., & Binder, J. F. (2013). Internet addiction in students: Prevalence and risk factors. *Computers in Human Behavior*, 29(3), 959-966.

Kuzma, J. M., & Black, D. W. (2008). Epidemiology, prevalence, and natural history of compulsive sexual behavior. *Psychiatric Clinics of North America*, 31(4), 603-611.

Långström, N., & Hanson, R. K. (2006). High Rates of Sexual Behavior in the General Population: Correlates and Predictors. *Archives of Sexual Behavior*, 35(1), 37-52.

Lee, M., Cho, H., Jung, S. H., Yim, S. H., Cho, S. M., Chun, J. W., Paik, S. H., Park, Y. E., Cheon, D. H., Lee, J. E., Choi, J. S., Kim, D. J., & Chung, Y. J. (2018). Circulating MicroRNA Expression Levels Associated With Internet Gaming Disorder. *Front Psychiatry*, 9, 81.

Leung, L., & Lee, P. S. (2012). The influences of information literacy, internet addiction and parenting styles on internet risks. *New media & society*, 14(1), 117-136.

Li, H., & Wang, S. (2013). The role of cognitive distortion in online game addiction among Chinese adolescents. *Children and youth services review*, 35(9), 1468-1475.

Lin, M. P., Ko, H. C., & Wu, J. Y. W. (2011). Prevalence and psychosocial risk factors associated with Internet addiction in a nationally representative sample of college students in Taiwan. *Cyberpsychology, Behavior, and Social Networking*, 14(12), 741-746.

Liu, L., Luo, T., & Hao, W. (2013). Gambling problems in young people: experience from the Asian region. *Current Opinion in Psychiatry*, 26(4), 310-317.

Loo, J., & Ang, K. (2013). Prevalence of problem gambling in Selangor urban areas: Insights from a population research.

- Mak, K. K., Lai, C. M., Watanabe, H., Kim, D. I., Bahar, N., Ramos, M., Young, K. S., Ho, R. C., Aum, N. R., & Cheng, C. (2014). Epidemiology of internet behaviors and addiction among adolescents in six Asian countries. *Cyberpsychology, Behavior, and Social Networking*, 17(11), 720-728.
- Marshall, L., & Marshall, W. (2006). Sexual addiction in incarcerated sexual offenders. *Sexual Addiction & Compulsivity*, 13(4), 377-390.
- Meerkerk, G. J., Van Den Eijnden, R. J., Vermulst, A. A., & Garretsen, H. F. (2009). The compulsive internet use scale (CIUS): some psychometric properties. *Cyberpsychology & behavior*, 12(1), 1-6.
- Mihara, S., & Higuchi, S. (2017). Cross-sectional and longitudinal epidemiological studies of Internet gaming disorder: A systematic review of the literature. *Psychiatry and Clinical Neuroscience*.
- Miller, S. (2018). The ASAM principles of addiction medicine. *Lippincott Williams & Wilkins*.
- Moore, D. W. (1995). The emperor's virtual clothes: The naked truth about Internet culture. *Algonquin Books*.
- Müller, K. W., Beutel, M. E., Egloff, B., & Wölfling, K. (2014). Investigating Risk Factors for Internet Gaming Disorder: A Comparison of Patients with Addictive Gaming, Pathological Gamblers and Healthy Controls regarding the Big Five Personality Traits. *European Addiction Research*, 20(3), 129-136.
- Muller, K. W., Janikian, M., Dreier, M., Wölfling, K., Beutel, M. E., Tzavara, C., Richardson, C., & Tsitsika, A. (2015). Regular gaming behavior and internet gaming disorder in European adolescents: results from a cross-national representative survey of prevalence, predictors, and psychopathological correlates. *Eur Child Adolesc Psychiatry*, 24(5), 565-574.
- Odlaug, B., Lust, K., Schreiber, L., Christenson, G., Derbyshire, K., Harvanko, A., Golden, D., & Grant, J. (2013). Compulsive sexual behavior in young adults. *Annals of clinical psychiatry: official journal of the American Academy of Clinical Psychiatrists*, 25, 193-200.
- Odlaug, B. L., & Grant, J. E. (2010). Impulse-control disorders in a college sample: results from the self-administered Minnesota Impulse Disorders Interview (MIDI). *Prim Care Companion J Clin Psychiatry*, 12(2).
- Oka, T., Hamamura, T., Miyake, Y., Kobayashi, N., Honjo, M., Kawato, M., Kubo, T., & Chiba, T. (2021). Prevalence and risk factors of internet gaming disorder and problematic internet use before and during the COVID-19 pandemic: A large online survey of Japanese adults. *Journal of Psychiatric Research*, 142, 218-225.
- Othman, Z., Lee, C. W., & Kueh, Y. C. (2017). Internet addiction and personality: association with impulsive sensation seeking and neuroticism-anxiety traits. *Int Med J*, 24(5), 375-378.
- Pallesen, S., Mitsem, M., Kvale, G., Johnsen, B. H., & Molde, H. (2005). Outcome of psychological treatments of pathological gambling: a review and meta-analysis. *Addiction*, 100(10), 1412-1422.
- Parsons, J. T., Rendina, H. J., Ventuneac, A., Cook, K. F., Grov, C., & Mustanski, B. (2013). A psychometric investigation of the hypersexual disorder screening inventory among highly sexually active gay and bisexual men: an item response theory analysis. *J Sex Med*, 10(12), 3088-3101.
- Pontes, H. M., & Griffiths, M. D. (2015). Measuring DSM-5 internet gaming disorder: Development and validation of a short psychometric scale. *Computers in Human Behavior*, 45, 137-143.
- Rho, M. J., Lee, H., Lee, T. H., Cho, H., Jung, D. J., Kim, D. J., & Choi, I. Y. (2017). Risk Factors for Internet Gaming Disorder: Psychological Factors and Internet Gaming Characteristics. *Int J Environ Res Public Health*, 15(1).
- Ryback, R. S. (2004). Naltrexone in the treatment of adolescent sexual offenders. *The Journal of clinical psychiatry*, 65, 982-986.
- Sattar, P., & Ramaswamy, S. (2004). Internet gaming addiction. *The Canadian Journal of Psychiatry*, 49(12), 871-872.
- Shaffer, H. J., LaPlante, D. A., LaBrie, R. A., Kidman, R. C., Donato, A. N., & Stanton, M. V. (2004). Toward a syndrome model of addiction: Multiple expressions, common etiology. *Harvard Review of psychiatry*, 12(6), 367-374.
- Sheela, P. S., Choo, W. Y., Goh, L. Y., & Tan, C. P. L. (2016). Gambling Risk Amongst Adolescents: Evidence from a School-Based Survey in the Malaysian Setting. *Journal of Gambling Studies*, 32(2), 643- 659.
- Siraj, H. H., Salam, A., Hasan, N., Jin, T. H., Roslan, R. B., & Othman, M. N. B. (2015). Internet usage and academic performance: a study in a Malaysian public university. *International Medical Journal*, 22(2), 83-86.
- Skewes, M. C., & Gonzalez, V. M. (2013). The biopsychosocial model of addiction. *Principles of addiction*, 1, 61-70.

- Smith, P., Potenza, M., Mazure, C., McKee, S., Park, C., & Hoff, R. (2014). Compulsive sexual behavior among male military veterans: Prevalence and associated clinical factors. *Journal of behavioral addictions*, 3(4), 214-222.
- Stein, D. J., Hollander, E., Anthony, D. T., Schneier, F. R., Fallon, B. A., Liebowitz, M. R., & Klein, D. F. (1992). Serotonergic medications for sexual obsessions, sexual addictions, and paraphilias. *The Journal of clinical psychiatry*, 53, 267-271.
- Stevens, M. W., Dorstyn, D., Delfabbro, P. H., & King, D. L. (2021). Global prevalence of gaming disorder: A systematic review and meta-analysis. *Aust N Z J Psychiatry*, 55(6), 553-568.
- Sugaya, N., Shirasaka, T., Takahashi, K., & Kanda, H. (2019). Bio-psychosocial factors of children and adolescents with internet gaming disorder: a systematic review. *BioPsychoSocial Medicine*, 13(1), 3.
- T'ng, S. T., & Pau, K. (2020). Validation of a translated internet gaming disorder scale (short form) and measurement invariance across sex groups in Malaysian samples. *Current Psychology*, 39(6), 1977-1989.
- Thibaut, F. (2011). Pharmacological treatment of sex offenders. *Sexologies*, 20, 166-168.
- Thibaut, F., Cosyns, P., Fedoroff, J. P., Briken, P., Goethals, K., Bradford, J. M. W., & Paraphilias (2020). The World Federation of Societies of Biological Psychiatry (WFSBP) 2020 guidelines for the pharmacological treatment of paraphilic disorders. *World J Biol Psychiatry*, 21(6), 412-490.
- Timothy M. Hall, S. H. S., Steven Shoptaw (2019). The ASAM Principles of Addiction Medicine (6 ed., pp. 1539-1541).
- Tsai, H. F., Cheng, S. H., Yeh, T. L., Shih, C.-C., Chen, K. C., Yang, Y. C., & Yang, Y. K. (2009). The risk factors of Internet addiction- a survey of university freshmen. *Psychiatry research*, 167(3), 294-299.
- Tse, S., Wong, J., & Kim, H. (2004). A public health approach for Asian people with problem gambling in foreign countries. *Journal of Gambling issues*, (12).
- Turnbull, N., Peltzer, K., Pengpid, S., Yun Low, W., Nguyen Huu, T., Rochmawati, E., & Hla Win, H. (2018). Pathological Internet use and psychosocial risk factors among ASEAN university students. *Iranian Journal of Psychiatry and Behavioral Sciences*, 12(1).
- Ursua, M. P., & Uribelarrea, L. L. (1998). 20 questions of Gamblers Anonymous: A psychometric study with population of Spain. *Journal of Gambling Studies*, 14(1), 3-15.
- Van der Aa, N., Overbeek, G., Engels, R. C., Scholte, R. H., Meerkerk, G. J., & Van den Eijnden, R. J. (2009). Daily and compulsive internet use and well-being in adolescence: a diathesis-stress model based on big five personality traits. *Journal of youth and adolescence*, 38(6), 765-776.
- Veen, W., & Vrakking, B. (2006). Homo Zappiens: Growing up in a digital age. A&C Black.
- Wang, S., Liu, J., Tian, L., Chen, L., Wang, J., Tang, Q., Zhang, F., & Zhou, Z. (2018). Increased Insular Cortical Thickness Associated With Symptom Severity in Male Youths With Internet Gaming Disorder: A Surface-Based Morphometric Study. *Front Psychiatry*, 9, 99.
- Widyanto, L., & Griffiths, M. (2006). 'Internet addiction': a critical review. *International journal of mental health and addiction*, 4(1), 31-51.
- Williams, R. J., Volberg, R. A., & Stevens, R. M. (2012). The population prevalence of problem gambling: Methodological influences, standardized rates, jurisdictional differences, and worldwide trends.
- Wong, J., & Tse, S. (2003). The face of Chinese migrants' gambling: A perspective from New Zealand. *Journal of Gambling Issues*. (9).
- Xiuqin, H., Huimin, Z., Mengchen, L., Jinan, W., Ying, Z., & Ran, T. (2010). Mental health, personality, and parental rearing styles of adolescents with Internet addiction disorder. *Cyberpsychology, Behavior, and Social Networking*, 13(4), 401-406.
- Xu, Z., Turel, O., & Yuan, Y. (2012). Online game addiction among adolescents: motivation and prevention factors. *European journal of information systems*, 21(3), 321-340.
- Yang, R., Shao, Z., & Zheng, Y. (2002). Comprehensive intervention on Internet addiction of middle school students. *Chinese mental health Journal*, 7.
- Yau, Y. H., & Potenza, M. N. (2015). Gambling disorder and other behavioral addictions: recognition and treatment. *Harv Rev Psychiatry*, 23(2), 134-146.
- Young, K. (1998). Internet addiction: The emergence of a new clinical disorder. *Cyberpsychology & Behavior*, 1, 237-244. In.
- Young, K. S. (2004). Internet addiction: A new clinical phenomenon and its consequences. *American behavioral scientist*, 48(4), 402-415.

- Young, K. S. (2007). Cognitive behavior therapy with Internet addicts: treatment outcomes and implications. *Cyberpsychology & behavior*, 10(5), 671-679.
- Young, K. S. (2011). CBT-IA: The first treatment model for internet addiction. *Journal of Cognitive Psychotherapy*, 25(4), 304-312.
- Zajac, K., Ginley, M. K., Chang, R., & Petry, N. M. (2017). Treatments for Internet gaming disorder and Internet addiction: A systematic review. *Psychology of addictive behaviors : journal of the Society of Psychologists in Addictive Behaviors*, 31(8), 979-994.
- Zhang, J. T., Ma, S. S., Li, C. R., Liu, L., Xia, C. C., Lan, J., Wang, L. J., Liu, B., Yao, Y. W., & Fang, X. Y. (2018). Craving behavioral intervention for internet gaming disorder: remediation of functional connectivity of the ventral striatum. *Addict Biol*, 23(1), 337-346.
- Zhang, J. T., Yao, Y. W., Potenza, M. N., Xia, C. C., Lan, J., Liu, L., Wang, L. J., Liu, B., Ma, S. S., & Fang, X. Y. (2016). Altered resting-state neural activity and changes following a craving behavioral intervention for Internet gaming disorder. *Sci Rep*, 6, 28109.
- Zhong, X., Zu, S., Sha, S., Tao, R., Zhao, C., Yang, F., Li, M., & Sha, P. (2011). The effect of a family-based intervention model on Internet-addicted Chinese adolescents. *Social Behavior and Personality: an international journal*, 39(8), 1021-1034.
- Zlot, Y., Goldstein, M., Cohen, K., & Weinstein, A. (2018). Online dating is associated with sex addiction and social anxiety. *Journal of behavioral addictions*, 7(3), 821-826.

## APPENDIX

### Appendix A

#### Gamblers Anonymous 20-Question Survey (Ursua & Uribe Larrea, 1998)

1. Did you ever lose time from work due to gambling?
2. Has gambling ever made your home life unhappy?
3. Did gambling ever affect your reputation?
4. Have you ever felt remorse after gambling?
5. Did you ever gamble to get money with which to pay debts or otherwise solve financial difficulties?
6. Did gambling cause a decrease in your ambition or efficiency?
7. After losing, did you feel you must return as soon as possible and win back your losses?
8. After a win, did you have a strong urge to return and win more?
9. Did you often gamble until your last dollar was gone?
10. Did you ever borrow to finance your gambling?
11. Have you ever sold anything to finance your gambling?
12. Were you reluctant to use gambling money for normal expenditures?
13. Did gambling make you careless of yourself or your family?
14. Have you ever gambled longer than you planned?
15. Have you ever gambled to escape worry and trouble?
16. Have you ever committed or considered committing an illegal act to finance gambling?
17. Has gambling caused you to have difficulty in sleeping?

18. Have arguments, disappointment, or frustrations caused you to gamble?

19. Have you had an urge to celebrate any good fortune with a few hours of gambling?

20. Have you ever considered self-destruction as a result of your gambling?

Seven or more positive responses suggest pathologic gambling.

Data from Gamblers Anonymous International Service Office, Los Angeles, CA.

## Appendix B1

### Internet Gaming Disorder Scale–Short-Form (IGDS9-SF) (Pontes & Griffiths, 2015)

**Instructions:** These questions will ask you about your gaming activity during the past year (i.e., last 12 months). By gaming activity we understand any gaming-related activity that has been played either from a computer/laptop or from a gaming console or any other kind of device (e.g., mobile phone, tablet, etc.) both online and/or offline.

	Never	Rarely	Sometimes	Often	Very Often
1. Do you feel preoccupied with your gaming behavior? (Some examples: Do you think about previous gaming activity or anticipate the next gaming session? Do you think gaming has become the dominant activity in your daily life?)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Do you feel more irritability, anxiety or even sadness when you try to either reduce or stop your gaming activity?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Do you feel the need to spend increasing amount of time engaged gaming in order to achieve satisfaction or pleasure?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Do you systematically fail when trying to control or cease your gaming activity?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Have you lost interests in previous hobbies and other entertainment activities as a result of your engagement with the game?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Have you continued your gaming activity despite knowing it was causing problems between you and other people?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Have you deceived any of your family members, therapists or others because the amount of your gaming activity?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Do you play in order to temporarily escape or relieve a negative mood (e.g., helplessness, guilt, anxiety)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Have you jeopardized or lost an important relationship, job or an educational or career opportunity because of your gaming activity?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Appendix B2

### Internet Gaming Disorder Scale–Short-Form (IGDS9-SF) Malay Version (Pontes & Griffiths, 2015; T'ng & Pau, 2020)

**Instructions:** Anda diperlukan untuk melaporkan tentang aktiviti permainan atas talian anda di sepanjang tahun yang lalu berdasarkan soalan-soalan berikut:

	Tidak Pernah	Jarang	Kadang – Kadang	Kerap	Sangat Kerap
1. Adakah anda berasa obses dengan tingkah laku permainan atas talian? (Contoh: Adakah anda berfikir tentang aktiviti permainan yang sebelumnya atau menjangka sesi permainan seterusnya? Adakah permainan merupakan aktiviti yang utama dalam kehidupan seharian anda?) *obses = sentiasa dalam fikiran	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Adakah anda menjadi lebih cepat marah, bimbang atau sedih apabila anda cuba mengurangkan atau menghentikan aktiviti permainan atas talian anda?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Adakah anda berasa perlu menghabiskan lebih banyak masa bermain demi mencapai kepuasan atau keseronokan?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Adakah anda gagal secara berulang kali ketika anda cuba mengawal atau menghentikan aktiviti permainan atas talian anda?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Pernahkah anda hilang minat terhadap hobi dan aktiviti hiburan lain yang biasa anda lakukan akibat daripada penglibatan dalam aktiviti permainan atas talian?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Pernahkan anda meneruskan aktiviti permainan atas talian walaupun anda tahu ia menyebabkan masalah antara anda dan orang lain?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Pernahkah anda menipu mana-mana ahli keluarga anda, ahli terapi atau orang lain disebabkan masa yang digunakan untuk aktiviti permainan atas talian?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Tidak Pernah	Jarang	Kadang – Kadang	Kerap	Sangat Kerap
8. Adakah anda bermain untuk melarikan diri atau melegakan sementara waktu daripada perasaan negatif (contoh, rasa tidak berdaya, bersalah dan bimbang)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Pernahkah anda menjejaskan atau mengalami kehilangan sesuatu hubungan yang penting, peluang pendidikan atau kerjaya akibat aktiviti permainan anda?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## **Appendix B3**

### **Scoring information for IGDS9-SF:**

Total scores can be obtained by summing up all responses given to all nine items of the IGDS9-SF and can range from a minimum of 9 to a maximum of 45 points, with higher scores being indicative of a higher degree of Internet Gaming Disorder. In order to differentiate disordered gamers from non-disordered gamers, researchers should check if participants have endorsed at least five criteria out of the nine by taking into account answers as '5: Very Often', which translates as an endorsement of the criterion.

## Appendix C1

### Hypersexual Disorder Screening Inventory

Your name: \_\_\_\_\_ Date: \_\_\_\_\_

**Part I:** Sexual behaviours can occur either by themselves or in combinations. In the Hypersexual Disorder Screening Inventory, the following sexual behaviours are examined to see if they are causing you a problem:

1. Masturbation, either by itself or during other sexual activities
2. Pornography (some examples include: Internet video, images and webcasts, porno magazines,
3. DVDs/videos, X-rated TV and films.)
4. Sexual Behaviour with Consenting Adults (direct contact) (some examples include: use of escort services, prostitutes, repeated “one-night stands”, anonymous brief sexual encounters, repeated affairs, massage parlour visits that include sex.)
5. Cybersex activities (some examples include: Internet-related sexual talk, sexual behaviour with webcams, and other
6. virtual sexual behaviours.)
7. Telephone Sex
8. Strip Clubs
9. Other sexual behaviours:

**Part II:** Rate how often each item is true or how accurately it describes your sexual behaviour:

A.1. During the past 6 months, I have spent a great amount of time consumed by sexual fantasies and urges as well as planning for and engaging in sexual behaviour.

0 = never true 1= rarely true 2 = sometimes true 3 = often true 4 = almost always true

A.2 During the past 6 months, I have used sexual fantasies and sexual behaviour to cope with difficult feelings (for example, worry, sadness, boredom, frustration, guilt, or shame).

0 = never true 1= rarely true 2 = sometimes true 3 = often true 4 = almost always true

A.3 During the past 6 months, I have used sexual fantasies and sexual behaviour to avoid, put off, or cope with stresses and other difficult problems or responsibilities in my life.

0 = never true 1= rarely true 2 = sometimes true 3 = often true 4 = almost always true

A.4 During the past 6 months, I have tried to reduce or control the frequency of sexual fantasies, urges, and behaviour but I have not been very successful.

0 = never true 1= rarely true 2 = sometimes true 3 = often true 4 = almost always true

A.5 During the past 6 months, I have continued to engage in risky sexual behaviour that could or has caused injury, illness, or emotional damage to myself, my sexual partner(s), or a significant relationship.

0 = never true 1= rarely true 2 = sometimes true 3 = often true 4 = almost always true

B.1 During the past 6 months, frequent and intense sexual fantasies, urges, and behaviour have made me feel very upset or bad about myself (for example, feelings of shame, guilt, sadness, worry, or disgust) or I tried to keep my sexual behaviour a secret.

0 = never true 1= rarely true 2 = sometimes true 3 = often true 4 = almost always true

B.2 During the past 6 months, frequent and intense sexual fantasies, urges and behaviour have caused significant problems for me in personal, social, work, or other important areas of my life.

0 = never true 1= rarely true 2 = sometimes true 3 = often true 4 = almost always true

HDSI total score \_\_\_\_\_

Are criteria met for a probable diagnosis of Hypersexual Disorder? Y / N

### **Part III:**

C 1. Place an "X" on the line to the left of each different kind of sexual behaviour that you think has caused you to have problems with either bad feelings (as in Part.1) and/or significant consequences (as in Part 2) during the past 6 months.

\_\_\_\_ Masturbation, either by itself or during other sexual activities

\_\_\_\_ Pornography (some examples include: Internet video, images and webcasts, magazines, DVDs/ videos, X-rated TV and films)

\_\_\_\_ Sexual Behaviour with Consenting Adults (direct contact) (some examples include: use of escort services, prostitutes, repeated "one-night stands", anonymous brief sexual encounters, repeated affairs, massage parlour visits that include sex.)

\_\_\_\_ Cybersex activities (some examples include: Internet-related sexual talk, sexual behaviour associated with webcams, and other virtual sexual behaviours)

\_\_\_\_ Telephone Sex

\_\_\_\_ Strip Clubs

\_\_\_\_ Other sexual behaviours: (please specify \_\_\_\_\_)

Total # of different sexual behaviours reported \_\_\_\_\_ (0-7)

**For the clinician scoring the HDSI:**

There are seven core diagnostic criterion questions included in Part II of the HDSI (five A+ two B criteria). Each criterion item is rated on a 5-item severity index (0 - 4) so the total score can range from 0 to 28 points as a dimensional measure of the diagnostic criteria and associated adverse consequences.

To screen positive for a probable diagnosis of a Hypersexual Disorder, a person must:

- Score 3 or 4 points on at least 4 of the 5 A criteria AND
- Score 3 or 4 points on at least 1 of the 2 B criteria.

Thus, the minimum total score to reach a probable diagnosis of Hypersexual Disorder in Part II would be 15 points gathered from at least four A plus one B criterion. The maximum summed score would be 28 points.

The HDSI provides a dimensional measure of Hypersexual Disorder based on the total summed score (0-28 points). The HDSI provides an additional dimensional measure of Hypersexual Disorder severity based on the total number of different sexual behaviours affected (C.1; 1-7 different sexual behaviours)

## Appendix C2

### SAST - R 2.0

The Sexual Addiction Screening Test (SAST) is designed to assist in the assessment of sexually compulsive or "addictive" behavior. Developed in cooperation with hospitals, treatment programs, private therapists and community groups, the SAST provides a profile of responses which help to discriminate between addictive and non-addictive behavior. To complete the test, answer each question by placing a check in the appropriate yes/no column.

- |  |   |
|--|---|
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 1. Were you sexually abused as a child or adolescent?   |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 2. Did your parents have trouble with sexual behavior?  |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 3. Do you often find yourself preoccupied with sexual thoughts?   |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 4. Do you feel that your sexual behavior is not normal?   |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 5. Do you ever feel bad about your sexual behavior?   |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 6. Has your sexual behavior ever created problems for you and your family?  |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 7. Have you ever sought help for sexual behavior you did not like?  |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 8. Has anyone been hurt emotionally because of your sexual behavior?  |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 9. Are any of your sexual activities against the law?   |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 10. Have you made efforts to quit a type of sexual activity and failed?   |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 11. Do you hide some of your sexual behaviors from others?  |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 12. Have you attempted to stop some parts of your sexual activity?  |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 13. Have you felt degraded by your sexual behaviors?  |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 14. When you have sex, do you feel depressed afterwards?  |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 15. Do you feel controlled by your sexual desire?   |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 16. Have important parts of your life (such as job, family, friends, leisure activities) been neglected because you were spending too much time on sex? |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 17. Do you ever think your sexual desire is stronger than you are?  |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 18. Is sex almost all you think about?  |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 19. Has sex (or romantic fantasies) been a way for you to escape your problems?   |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 20. Has sex become the most important thing in your life?   |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 21. Are you in crisis over sexual matters?  |
| <input type="checkbox"/> YES <input type="checkbox"/> NO | 22. Has the internet has created sexual problems for you?   |

- ☐ YES ☐ NO      23. Do you spend too much time online for sexual purposes?
- ☐ YES ☐ NO      24. Have you purchased services online for erotic purposes (sites for dating, pornography, fantasy, and friend finder)?
- ☐ YES ☐ NO      25. Have you used the internet to make romantic or erotic connections with people online?
- ☐ YES ☐ NO      26. Have people in your life have been upset about your sexual activities online?
- ☐ YES ☐ NO      27. Have you attempted to stop your online sexual behaviors?
- ☐ YES ☐ NO      28. Have you subscribed to or regularly purchased or rented sexually explicit materials (magazines, videos, books or online pornography)?
- ☐ YES ☐ NO      29. Have you been sexual with minors?
- ☐ YES ☐ NO      30. Have you spent considerable time and money on strip clubs, adult bookstores and movie houses?
- ☐ YES ☐ NO      31. Have you engaged prostitutes and escorts to satisfy your sexual needs?
- ☐ YES ☐ NO      32. Have you spent considerable time surfing pornography online?
- ☐ YES ☐ NO      33. Have you used magazines, videos or online pornography even when there was considerable risk of being caught by family members who would be upset by your behavior?
- ☐ YES ☐ NO      34. Have you regularly purchased romantic novels or sexually explicit magazines?
- ☐ YES ☐ NO      35. Have you stayed in romantic relationships after they became emotionally or physically abusive?
- ☐ YES ☐ NO      37. Have you maintained multiple romantic or sexual relationships at the same
- ☐ YES ☐ NO      38. After sexually acting out, do you sometimes refrain from all sex for a significant period?
- ☐ YES ☐ NO      39. Have you regularly engaged in sadomasochistic behaviour?
- ☐ YES ☐ NO      40. Do you visit sexual bath-houses, sex clubs or video/bookstores as part of your regular sexual activity?
- ☐ YES ☐ NO      41. Have you engaged in unsafe or "risky" sex even though you knew it could cause you harm?
- ☐ YES ☐ NO      42. Have you cruised public restrooms, rest areas or parks looking for sex with strangers?
- ☐ YES ☐ NO      43. Do you believe casual or anonymous sex has kept you from having more long- term intimate relationships?
- ☐ YES ☐ NO      44. Has your sexual behaviour put you at risk for arrest for lewd conduct or public indecency?
- ☐ YES ☐ NO      45. Have you been paid for sex?



<b>Core Item Scale</b>	<b>Questions 1-20</b>	<b>(Over 6)</b>	<b>_____</b>
<b>Subscales:</b>			
<b>Internet Items</b>	<b>Questions 22-27</b>	<b>(3 or more)</b>	<b>_____</b>
<b>Men's Items</b>	<b>Questions 28-33</b>	<b>(2 or more)</b>	<b>_____</b>
<b>Women's Items</b>	<b>Questions 34-39</b>	<b>(2 or more)</b>	<b>_____</b>
<b>Homosexual Men</b>	<b>Questions 40-45</b>	<b>(3 or more)</b>	<b>_____</b>

#### **Addictive Dimensions:**

<b>Preoccupation</b> <b>Items 3, 18, 19 and 20</b>	<b>(2 or more)</b>	<b>_____</b>
<b>Loss of Control</b> <b>Items 10, 12, 15 and 17</b>	<b>(2 or more)</b>	<b>_____</b>
<b>Relationship Disturbance</b> <b>Items 6, 8, 16 and 26</b>	<b>(2 or more)</b>	<b>_____</b>
<b>Affect Disturbance</b> <b>Items 4, 5, 11, 13 and 14</b>	<b>(2 or more)</b>	<b>_____</b>

**Associated Features (not rated as a subscale)**  
**Items 1, 2, 7, 9 and 21**

#### **Relative Distributions of Addict & Nonaddict SAST Scores**

This instrument has been based on screenings of tens of thousands of people. This particular version is a developmental stage revision of the instrument, so scoring may be adjusted with more research. Please be aware that clinical decisions must be made conditionally since final scoring protocols may vary.

Only the first 20 items make the SAST-R core, with a cut-off of 6. The additional subscales are for clinical use. The men's items, women's items and homosexual men's items are items that are more highly predictive of sex addiction for those population subsets - so e.g. you may have a straight male who scores high on the gay male items -it doesn't mean he is gay, just engaging in behaviours typical for gay male sex addicts.

## Appendix C3

### Cognitive Behavioural Therapy for Problematic Sexual Behaviour:

- Preparation for the therapy sessions:
- Explanation about making the diagnosis of PSB
- Information about neuroplasticity and the biological aspect of PSB as an addiction
- Functions of the pre-frontal cortex

### Session 1: Identify the problems & Goal-setting

- Identify the problems and how they are manifested
- Set up goals to manage the problems

### Session 2: Cost-Benefit Analysis/Decisional Matrix

(Advantage of continuing the behaviour)	(Disadvantage of continuing the behaviour)
(Advantage of stopping the behaviour)	(Disadvantage of stopping the behaviour)

### Session 3: Motivational Interview ('the rulers')

- Importance to change ruler
- Confidence to change ruler

## Session 4: Behavioural Changes Programme

Based on the concept of Accessibility, Availability & Anonymity (3As)

Accessibility	Availability	Anonymity
Phone	Daily tracking sheet	Location
Laptop	Prepaid	Join or invite others
TV	Wi-Fi limit	Call people
Books	Invest time	Hands
Spa/karaoke	invest money (charity, donate)	Legs
Friend	Invest activity	Pants
Block	Activity that makes you happy	Body position
Unsubscribe	Sleep	Physiological respond
Software	Exercise	
	Nutrition	

## Session 5: Time Management

1. Planners/Schedules:
  - a. Daily
  - b. Weekly
  - c. Monthly
2. Be flexible
3. To create empowerment
4. Highlight the times of 'not using' rather than times 'using'

## **Session 6: Behavioural Therapy**

### Behavioural Activation

1. Understanding how behaviours influence emotion ie. 'triggers' in situations such as:
  - a. Social
  - b. Entertainment
  - c. Recreational
  - d. Education
  - e. Nurturing
  - f. Existential
    - Can be done through daily activity monitoring (activity scheduling) and identifying goals and values
    - Increasing motivation through pleasure and mastery
    - Application of problem-solving techniques and reducing avoida
2. Sensory Activation (doing activities with a purpose)

Exercising and stimulating any of the six senses through positive physical, emotional and social development.

  - a. Sight
  - b. Taste
  - c. Touch
  - d. Smell
  - e. Hearing
  - f. Vestibular

## **Session 7: Cognitive Therapy**

1. Identify:
  - a. (negative) emotions & turn them into helpful thoughts
  - b. Unhelpful thoughts
2. Challenge beliefs about sex
3. Challenge perfectionism

## Appendix D

### Ministry of Health Hospital Facilities with Resident Psychiatrists

State	Hospitals & Institutions	
	With Psychiatric Ward	Without Psychiatric Ward
<b>Perlis</b>	Hospital Tuanku Azizah, Kangar	
<b>Kedah</b>	Hospital Sultanah Bahiyah, Alor Setar  Hospital Sultan Abdul Halim, Sungai Petani	Hospital Kulim  Hospital Sultanah Maliha, Langkawi
<b>Pulau Pinang</b>	Hospital Pulau Pinang	Hospital Bukit Mertajam  Hospital Seberang Jaya
<b>Perak</b>	Hospital Raja Permaisuri Bainun, Ipoh  Hospital Bahagia Ulu Kinta  Hospital Taiping  Hospital Slim River  Hospital Teluk Intan	Hospital Sri Manjung
<b>Selangor</b>	Hospital Tuanku Ampuan Rahimah, Klang*  Hospital Kajang*  Hospital Selayang  Hospital Sungai Buloh	Hospital Ampang  Hospital Banting  Hospital Cyberjaya  Hospital Serdang  Hospital Shah Alam
<b>Wilayah Persekutuan</b>	Hospital Kuala Lumpur*	Hospital Tuanku Azizah, Kuala Lumpur (HTA)  Hospital Putrajaya  Hospital Labuan
<b>Negeri Sembilan</b>	Hospital Tuanku Jaafar Seremban*	Hospital Kuala Pilah  Hospital Port Dickson
<b>Melaka</b>	Hospital Melaka	
<b>Johor</b>	Hospital Sultanah Aminah, Johor Bahru (HSA)	Hospital Sultan Ismail,

	Hospital Permai Hospital Sultanah Nora Ismail, Batu Pahat Hospital Pakar Sultanah Fatimah, Muar Hospital Segamat	Hospital Enche' Besar Hajah Kalthom, Kluang
<b>Kelantan</b>	Hospital Raja Permaisuri Zainab II, Kota Bahru, Hospital Sultan Ismail Petra, Kuala Krai	Hospital Gua Musang Hospital Tanah Merah
<b>Terengganu</b>	Hospital Sultanah nur Zahirah, Kuala Terengganu	Hospital Besut Hospital Dungun Hospital Kemaman
<b>Pahang</b>	Hospital Tuanku Ampuan Afzan Kuantan Hospital Sultan Haji Ahmad Shah Temerloh Hospital Bentong	Hospital Kuala Lipis Hospital Pekan
<b>Sabah</b>	Hospital Mesra Bukit Padang* Hospital Duchess of Kent Sandakan Hospital Tawau	Hospital Queen Elizabeth, Kota Kinabalu (HQE) Hospital Keningau Hospital Lahad Datu
<b>Sarawak</b>	Hospital Umum Sarawak Hospital Sentosa Hospital Miri Hospital Sibul Hospital Sri Aman	Hospital Bintulu Hospital Limbang Hospital Sarikei Hospital Serian

\* Centres with Addiction Psychiatrist (as of September 2024)

Every general psychiatrist should possess the capability to handle behavioural-related addictions. Consulting with an addiction psychiatrist for additional expertise is advisable in cases presenting with challenges or complexity.

