Learning to deal with Problematic Usage of the Internet

Revised Edition

Edited by the COST Action CA16207

In collaboration with
the International College of Obsessive-Compulsive Spectrum Disorders (ICOCS) and the International Obsessive Compulsive and Related Disorders Research Network of the European College of Neuropsychopharmacology (OCRN-ECNP)

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EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

https://doi.org/10.5167/uzh-208132
ISBN 978-9955-15-738-0

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This publication is based upon work from COST Action CA 16207, supported by COST (European Cooperation in Science and Technology), linked to the Project "European Research Network into Problematic Usage of the Internet" (EU-PUI) and funded by the Horizon 2020 Framework Programme of the European Union in collaboration with: the International College of Obsessive-Compulsive Spectrum Disorders (ICOCS) and the Obsessive Compulsive and Related Disorders Research Network (OCRN) of the European College of Neuropsychopharmacology (ECNP), and the Anxiety and Obsessive-Compulsive Disorders Scientific Section of the World Psychiatric Association (WPA)

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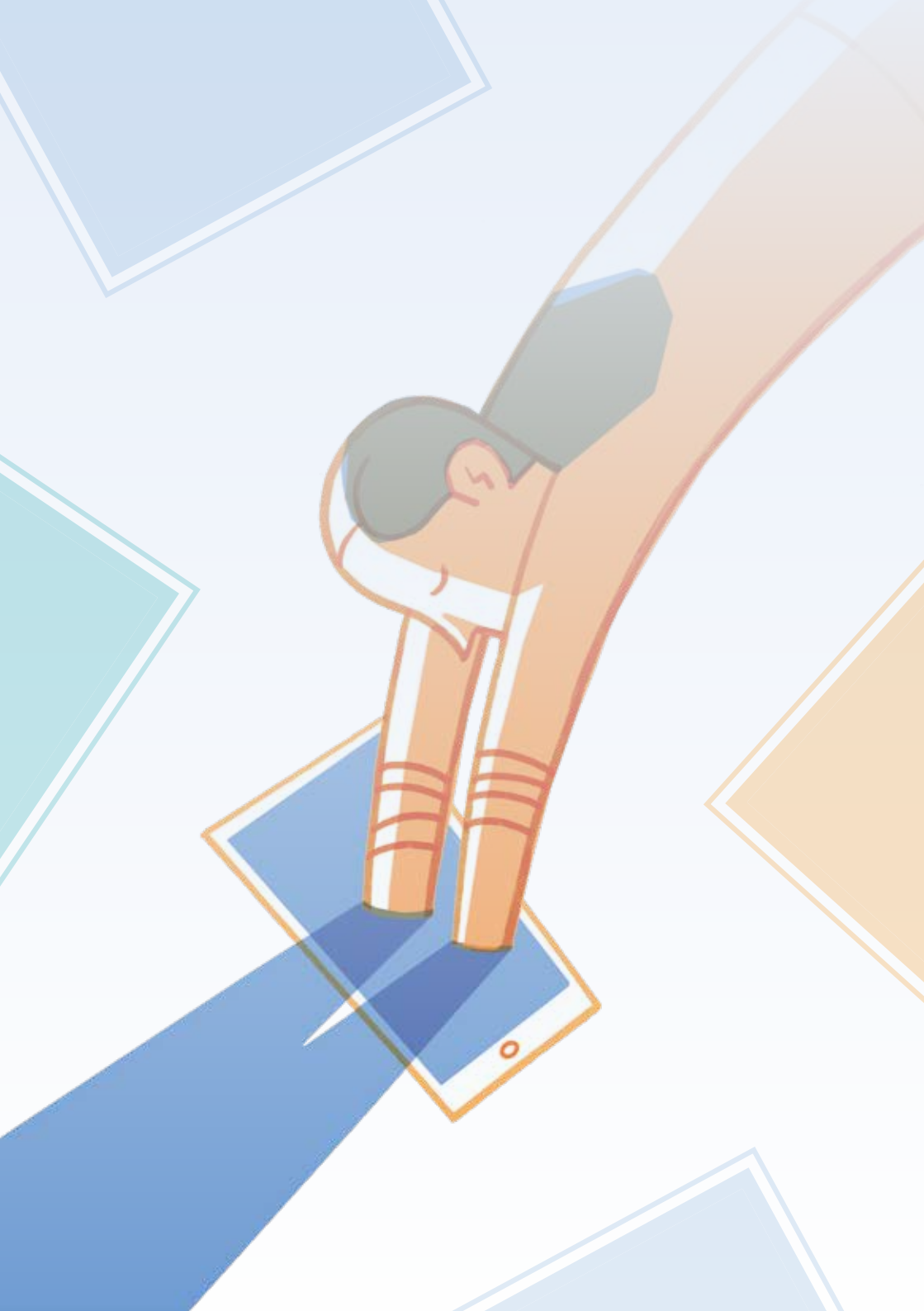

PREFACE OF THE REVISED EDITION

This publication is based upon work from COST Action CA16207 - European Network for Problematic Usage of the Internet, supported by COST (European Cooperation in Science and Technology).
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In light of the success of the first edition of the companion e-book entitled "How to deal with Problematic Usage of the Internet", officially launched during the International Festival of Science and Arts "Raising the Public Voice on Problematic Use of the Internet" in April 2021, after more than a year of work, achieved through the support of the COST Action CA16207 - European Network for Problematic Usage of the Internet, and endorsed by the large number of downloads and numerous requests for translation into different languages, we have decided to create this new, updated, revision based on the suggestions and comments of colleagues and experts in the field as well as other stakeholders including individuals with problematic usage of the Internet and their family members.

In this revised edition of the Companion Book, we have included a wider editorial board, a new chapter entitled "Tips For Individuals With PUI", and several additional integrations and updates along with an expanded bibliography.

Indeed, the subject matter of the book – problematic usage of the Internet – is by definition in continuous turnover, so that whereas the current world health emergency related to the COVID-19 pandemic has given further impulse to the use of the Internet in its useful expressions and opportunities, it has also amplified some of its more problematic manifestations, which we aim to address.

Ultimately, we hope that this new and updated revision of the Companion Book will constitute a primary and useful source of information for all those who are interested in the topic, including those who are personally involved, or those searching to better understand this phenomenon and its unprecedented socio-cultural and public health implications.

INTRODUCTION

Since its development in the early 1990's, the Internet has become highly pervasive across most of the civilized world. While the majority of Internet users take advantage of its many positive uses (including professional and recreational ones), some individuals can develop Problematic Use of the Internet (which we will refer to as PUI). This term encompasses a wide range of repetitive disabling behaviors characterized by compulsivity and addiction. These include, but are not limited to, Internet gaming, compulsive online sexual behaviors/cyberpornography, Internet-related buying or shopping disorder, Internet-related gambling disorder, cyberbullying, cyberchondria, and social media/network forum use, among others.

Although PUI affects a minority of individuals who routinely use the Internet, several reports have documented a series of unhealthy lifestyles and medical disturbances that are thought to represent the consequences of severe forms of PUI, and that are of special concern in relation to children and young people. People affected by PUI and their family members often do not know about the signs and symptoms of these conditions. For example, they do not know how to recognize PUI, or whom to go to for help, and often they do not know whether this is a treatable condition and/or how to manage it. Because of this, national health authorities around the world are concerned about the health and societal costs that PUI may entail. Some authorities are starting to recognize particular forms of PUI as serious and disabling manifestations of behavioral addiction.

We developed this companion book in an attempt to provide an easily accessible guide for the public, patients, caregivers, family members, and health care professionals by presenting a state-of-the-art overview of PUI. This initiative stems from the work of an international panel of experts participating in a 4-year COST Action "European Network for Problematic Usage of the Internet" CA16207, Chair, Prof. Naomi A Fineberg, funded by the Horizon 2020 framework of the European Union, which began in October 2017, with the aim of bringing a multidisciplinary and geographically diverse group of experts and opinion leaders together under one European-led network to advance the understanding of PUI from a bio-psycho-social perspective, to clarify brain-based causal mechanisms and to develop effective interventions for the various forms of disorder.

An easily accessible guide for patients, caregivers, family members, and health care professionals presenting a state of the art overview of PUI.

1 ONCE UPON A TIME IN THE INTERNET

In recent years, the Internet has become an integral part of everyday life. People use it for leisure and pleasurable activities, like listening to music, watching media content, playing video games, online shopping, online dating, or communicating with friends via social networks. People also rely on the Internet for education and business, and this has become increasingly evident during the pandemic, when it has been used greatly for remote working or schooling, attending virtual meetings and exchanging ideas with business partners via video conferencing platforms. ***The worldwide diffusion of the Internet has effected a major and irreversible change in life.*** In the past, technological advances such as automobiles, locomotives, and other industrial inventions mainly supported human physical activities and helped mankind control their surrounding environment. In the last decades, however, the "digital revolution" has brought the invention of computers and the Internet that have served to support people's mental activities.

In fact, the Internet has changed how we read, write, learn, remember, process information, make judgments and daily decisions. It has even enabled extension of our real identities (via virtual profiles and online avatars), offering new ways to perceive and present ourselves, thus creating

situations where the virtual world can overlap, substitute or spill over into the real world. Several sociologists, psychologists, and anthropologists have gone as far as calling the new generation of people raised in the age of the Internet as "Homo digitalis" or "Homo technologicus".

However, the social and cultural changes that were propelled by the Internet have brought certain health risks. One of the most important risks and challenges is associated with the potential addictiveness of some online activities, as highlighted by researchers since the early 1990's. These are reinforced by some of the main properties of the Internet, otherwise considered advantageous, including easy access and affordability, anonymity and privacy, as well as flexibility of use that is tailored to meet the individual needs of different people. These characteristics have been coupled with further technological advances including mass production of devices offering Internet content, faster connectivity and wider outreach. In essence, problematic online behaviors have emerged as a collateral effect of the massive diffusion of the Internet into our daily lives. According to recent estimates from large scale systematic research (examining 113 epidemiologic studies that spanned 22 years and 31 nations, covering around 700.000 citizens and about 53.000 affected individuals), 7 out of 100 people on average are likely to experience some sort symptoms or negative consequences related to their Internet use. The rates of PUI varied according to the timing and place of the study, the age and gender of the respondents, and various other contexts. The COVID-19 pandemic, in particular, has been marked by an increase in certain problematic Internet-related behaviours, such as gaming or pornography viewing (as reported by the largest platforms for gaming and pornography use, during the initial phases of the pandemic).

The term "Internet Addiction Disorder" (IAD) was first introduced in 1995, by Ivan Goldberg. He formalized a list of symptoms drawn from the

characteristics of pathological gambling. The following year, Kimberly Young conducted an empirical investigation of the phenomenon. The term IAD remains widely used even nowadays, to indicate Internet-related psychopathology. The pioneering work by several research groups in the following couple of decades resulted in a set of proposed diagnostic criteria for IAD, that were later adapted to define "Internet Gaming Disorder" (IGD). However, it was not until recently that gaming disorder was officially recognized as a diagnosable condition by the medical community (as outlined in the concluding remarks of this section).

Another important contribution is the conceptual distinction, led by Mark Griffiths and colleagues from the mid 1990's, that differentiates between addictions ***on*** the Internet (where Internet is used as a medium to engage in specific addictive behaviors that could be conducted offline), versus addictions ***to*** the Internet (where individuals are primarily addicted to content that is generated inside the world wide web). Indeed, different expressions of PUI can be seen to represent variants of conditions that are already recognized as problematic and/or classified as mental disorders in the major diagnostic and classification systems used in psychiatry, such as the International Classification of Diseases (ICD) of the World Health Organization (WHO), or the Diagnostic and Statistical Manual of Mental Disorders (DSM) of the American Psychiatric Association (APA). In this regard, gaming disorder and gambling disorder are now officially accepted in the ICD-11 (latest edition) as "*disorders due to addictive behaviors*".

The worldwide diffusion of the Internet has effected a major and irreversible change in human life.

2 CLINICAL PRESENTATION AND FORMS OF EXPRESSION

Our understanding of PUI and of the mental disorders related to PUI remains in its infancy. Some of the terms researchers have used to refer to PUI are Internet Addiction, Computer Addiction, Pathological Internet Use, Compulsive Internet Use, and Impulsive-Compulsive Internet Usage Disorder. The differences in terminology reflect the existence of different approaches in defining the sort of mental health symptoms and clinical features associated with PUI. Some clinical manifestations of PUI show similarities with established behavioral addictions (e.g., gambling disorder), impulse-control disorders (e.g., compulsive sexual behaviour disorder) or obsessive-compulsive and related disorders (e.g., obsessive-compulsive disorder – OCD). Some forms of PUI additionally may exhibit various degrees of involvement of underlying and commonly overlapping psychological dimensions (obsessive-compulsive, impulsivity and addiction).
For instance, PUI subtypes that share features with established forms of behavioral addiction are characterized by impaired control (e.g., unsuccessful attempts to reduce or stop the repetitive behavior), preoccupation with and craving for the Internet, functional impairment (e.g., neglect in other areas of life), and persistence of problematic Internet use despite damaging effects. Ultimately, they may even show symptoms akin to those of physical addiction (tolerance and withdrawal).

Other forms of PUI such as digital searching for medical information (cyberchondria) or digital hoarding may share closer similarities with OCD and other obsessive-compulsive related disorders. These may be characterized by a tendency to excessively collect, store or hoard digital material including photos, music videos and/or YouTube videos, and persistent reassurance seeking (e.g., list-making and diarizing).
While yet other forms of PUI, such as Internet Social-Media/Forum use, appear more related to social anxiety and demonstrate the phenomenon of "FOMO," or the fear of missing out from activities which peers post online. Finally, some forms of online shopping, cyberbullying and cyberpornography may exhibit clinical features that are typical of impulse control disorders and/or sexual disorders. ***A common element across all the expressions of PUI is the excessive time spent online, which contributes to significant functional impairment with negative consequences for the daily life of the involved subjects and their relatives.***

PUI FORMS OF EXPRESSION

From the first reports on the abnormal use of the Internet, a distinction has been made between so-called "generalised" and "specific" problematic uses of the Internet, referring, respectively, to multiple uses of the Internet, misuse by an individual tied to a specific content/online activity or platform/device. More recently, several specific PUI subtypes have been identified, which include the following:

Internet-Related Gaming Disorder

Internet-Related Gaming Disorder is a condition characterized by excessive use of the Internet for the purposes of playing online games that becomes associated with the development of loss of control of the gaming behaviour, prioritization of gaming over other important everyday activities (e.g., socializing, working, studying, eating, self-care) resulting in significant and substantial impairment in multiple areas of psychosocial or physical functioning. Different factors contribute to determine online video games' reinforcing properties. These include the ease of access a game provides via portable or handheld devices, the possibility of engaging in competition with other gamers, the perception of oneself in a manner that is more rewarding and less impacted by real-world issues and the specific genres, designs and content of the games that are played, including the possibility of financial rewards or achieving winning status. The World Health Organisation (WHO) has recently recognized Gaming Disorder as a diagnosable mental disorder and classified it as a disorder of addictive behaviour in the most recent revision of the International Classification of Diseases, 11th Edition (ICD-11).

Internet-Related Gambling Disorder

Gambling disorder is another mental disorder, recognized by the WHO and classified as a disorder of addictive behaviour in the ICD-11. Gambling disorder is characterized by a pattern of persistent or recurrent gambling, which may be online or offline and which results in impaired control over gambling, increased priority given to gambling over other interests and activities and continuation or escalation of gambling despite the occurrence of negative consequences resulting in significant impairment in personal, family, social, educational, occupational or other important areas of functioning. Compared to traditional gambling, the use of the Internet has allowed new types of gambling to be available online (in addition to the traditional games such as poker, casinos, and sports betting). Thus Internet-related Gambling Disorder feeds one of the most popular and lucrative businesses on the Internet. Internet gambling represents a fundamental shift in the way consumers engage in gambling, and several concerns have been expressed by various stakeholders regarding this new frontier. Internet gambling is concerning because, as personally reported by Internet gamblers themselves, it highlights an easy and more convenient possibility to spend money online rather than in the real world. The high accessibility of Internet gambling e.g., via smartphones, likely increases the risk for Internet-related Gambling Disorder, particularly among youth and females, who may be less likely to visit a casino or betting shop. Of note, while land-based gambling decreased during the COVID-19 pandemic, it is thought that engagement in online gambling has increased, possibly as a way to relieve increased anxiety about general welfare and health.

Internet-Related Buying-Shopping Disorder

Internet-related buying-shopping disorder is increasingly recognized as a candidate mental disorder. Buying-shopping disorder is characterized by extreme preoccupations with and craving for buying or shopping and by irresistible urges to possess consumer goods. People with buying-shopping disorder buy more consumer goods than they can afford, need or frequently use. Purchasing often produces short-lived feelings of pleasure, relief or coping with inadequacy, but with time the persistent loss of self-control results in extreme distress, relationship breakdown, clutter from accumulated goods, indebtedness and, in some cases, even in deception and embezzlement in order to continue overspending despite financial difficulties. E-commerce provides a range of potential addictive features that reinforce the development of buying-shopping disorder, such as immediate product availability, anonymity, easy accessibility, and affordability. Online shopping could even be considered more addictive than shopping in the real world. Difficulties regulating and controlling immediate urges and impulses have been identified as an important predictor for buying-shopping disorder.

Cyberchondria

Cyberchondria is currently defined as an individual's excessive or repeated online search for medical information driven by a need to alleviate distress or anxiety regarding their health, and ultimately resulting in the worsening of such symptoms and behaviors. Cyberchondria resembles an urge-driven compulsive or repetitive behavior and is excessively time-consuming for patients.

Descriptions of cyberchondria among patient-groups remain very limited and most of the information we have is derived from the general population or university students who were recruited through online surveys. A consensus on a definition for cyberchondria is still lacking, but the link between cyberchondria and other psychiatric disorders has been established in research. In short, cyberchondria appears to cut across many existing diagnoses with a strong link to PUI, as well as health anxiety or Hypochondriasis and Obsessive-Compulsive and Related Disorders. Of note, cyberchondria can also be a vulnerability factor for developing anxiety in the age of COVID-19, particularly when the Internet is filled up with mis-information.

Cyberpornography Addiction

When the act of using the Internet to view or interact with pornographic material becomes excessively time-consuming, distressing and difficult to resist, it indicates the potential presence of cyberpornography addiction. Around 12% of cyberpornography users may develop recurring and uncontrollable patterns of pornography use, which can be associated with other sexual concerns and which cause distress and affect wellbeing in a variety of social or even physical domains. Males tend to be affected more than females. People with cyberpornography addiction were found to spend an average of 110 minutes per day watching pornography and report a sense of loss of control over the behaviour and emotional distress. As a result, their relationships may suffer and they may find themselves avoiding real life sexual relationships, experiencing reduced pleasure from sex and

even physical impairment such as erectile difficulties. The WHO has recently included compulsive sexual behaviour disorder as a newly diagnosable mental disorder and classified it in the Impulse Control Disorders section of the ICD-11. Whereas compulsive sexual behaviour disorder is associated with loss of control of many aspects of sexual behaviour, loss of control of pornography use is a cardinal symptom and may possibly indicate this diagnosis.

Cyberbullying

The term "cyberbullying" was coined to describe the use of digital technology to seek to harm, intimidate, or coerce other people online. A strong association between cyberbullying and mental health problems (e.g., those suffering from social anxiety, depressive disorders, substance abuse, and/or suicidal behaviors) has been reported. Scientists are seeking to increase our knowledge about the causes and effects of cyberbullying both on the bully and the victims.

Internet Social-Media/Forum Addiction and others

To date, the definition of Internet social-media/forum addiction is not the only term used to describe this subtype of PUI. Several synonyms exist such as Facebook Dependence, Facebook Addiction, Social Networking Addiction, Twitter Addiction, Social Media Addiction, and Social Media Disorder. Social-media/forums are in continuous turnover with novel features and facilities that can rapidly make other forms obsolete. Therefore, individuals with Internet social-media/forum addictions can dismiss one specific social-media type and become addicted to another. Internet social-media/forum addictions involve a range of symptoms that appear similar to addiction, including an excessive preoccupation with social media use as well as

increased amounts of time using social media, negative feelings and psychological symptoms such as irritability, anxiety when social media use is restricted, interpersonal problems as a direct result of social media usage, and relapse after a period of abstinence. Despite the conceptual confusion surrounding its classification as a possible form or forms of mental disorder, studies converge in emphasizing detrimental consequences on an individual's functioning, triggered by excessive and time-consuming use of social media, especially affecting the young.
Some studies suggested that excessive social-media users had trouble with work, academic performance, and personal relationships.
It has also been found to be associated with symptoms of depression and negative self-esteem. The repeated exposure to images and videos proposing unrealistic standards of beauty, or social media trends such as "fitspiration" (the aim to inspire individuals to exercise and be healthy), might also lead to body image disorders, exercise addiction, or the unsupervised intake of performance and image enhancing drugs in the attempt to boost physical appearance.
Other forms of expression of PUI have been described, including web surfing, mail checking, cyber-hoarding and cyberstalking. At the present time, however, the amount and the quality of scientific evidence in these fields is just not sufficient for us to present here in detail.

3 DIAGNOSIS AND ASSESSMENT

In the following section we describe how PUI is assessed and diagnosed. We have designed it for those wishing for a deeper understanding of this area and a number of technical issues are covered. Do feel free to skip this section if you are not interested in learning about this particular aspect of PUI.

Internet use constitutes a large part of everyday life for many people. This is why it is essential to be able to distinguish between what is considered normal behavior from problematic or pathological Internet use. For this purpose, the application of psychological instruments and the diagnostic process represent key tools for clinicians. Published in 2013, the fifth and latest edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) [(American Psychiatric Association (2013)] provided an important contribution to PUI research in the form of two significant innovations: for the first time ever, the DSM acknowledged the existence of behavioral addiction as a form of mental disorder to be classified alongside substance addictions in a newly expanded "Substance-Related and Addictive Disorders" category. The DSM-5 went on to include gambling disorder (on or offline) as the first diagnosable form of behavioral addiction.

BEHAVIOURAL ADDICTIONS

Although classical addictive disorders are related to psychotropic substance use, in recent years, a new group of psychopathologies, conceptualized as behavioural addictions or non-substance addictions, has been identified and investigated as modern clinical forms of addiction. Similar to psychoactive substances, several pleasurable activities such as gambling, gaming, shopping or Internet use may reflect a primary drive and be capable of activating the brain reward system, thereby leading to addiction. Researchers have often defined and diagnosed behavioural addictions within a substance addiction model because both traditional psychoactive substance addictions and behavioural addictions manifest an overlap in symptom presentations and etiological mechanisms. Moreover, every subtype of behavioural addiction is characterized by a repetitive and persistent habit, which becomes progressively dysfunctional and impairing for several areas of everyday life.

Behavioural addictions can be defined as repetitive urge-driven behaviours that lead to significant distress with consequent functional impairment. They are characterized by a progressive loss of control over a certain behaviour despite the occurrence of negative consequences, an impossibility for delaying satisfaction and a constant urge to relive the initial state of euphoria felt when the behaviour was first implemented. The behaviour persists over a significant period of time and cannot be controlled by the patient himself or herself.

Research into the brain-based biological features of behavioural addiction is still in its infancy, nonetheless, a few brain imaging and genetic studies have found similar anomalies in patients with behavioural addictions and those with substance addictions, suggesting that a relationship exists between these different forms of addiction and emphasising the importance of taking behavioural addiction seriously.

The decision to align gambling disorder with other addictive disorders was based on research that demonstrated clinical, genetic, neurobiological and other similarities between gambling and substance-use disorders. Gambling disorder is classified in this category, acknowledging the addictive nature of problematic gambling and providing a conceptual framework for the future inclusion of other PUI-related disorders into the same category as well. The inclusion of Internet gaming disorder in the DSM-5 Section III as a new condition worthy of further study represented another important and unprecedented change. Because of the inclusion of Internet gaming disorder into the DSM-5, the existence of a specific PUI-related condition as a potential mental disorder was acknowledged for the first time. Diagnostic criteria, as a basis for further investigation in the field, were proposed for the future classification of this and other PUI-related conditions.

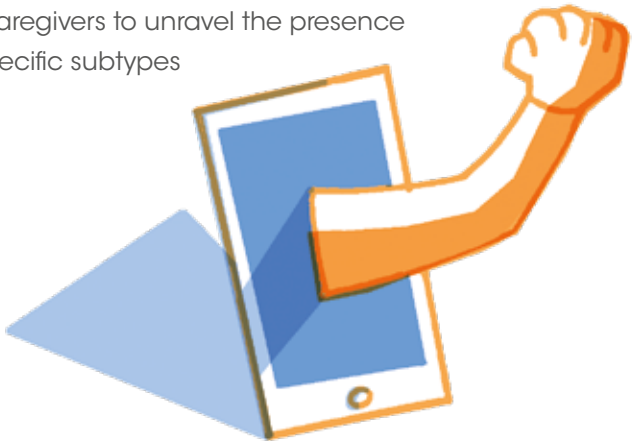
For Internet gaming disorder, the DSM-5 proposed nine different criteria: preoccupation or obsession, withdrawal symptoms, tolerance, loss of control, loss of interest, continued overuse, deceiving, escape of negative feelings, and functional impairment. Time and frequency were not necessarily red flags for PUI, even though adolescents and young adult males spending an average of 12 hours per week playing video games were found to be at a higher risk of experiencing problematic and pathological gaming. For a detailed list of diagnostic criteria see the Section III of the DSM-5.

In May 2019, the WHO took a step further and alongside gambling disorder included gaming disorder (both either online or offline) in the most recent revision of the International Classification of Diseases, 11th Edition (ICD-11), classifying them both in a new section entitled "Disorders due to substance use or addictive behaviours". Gaming disorder is defined in the ICD-11 as a pattern of gaming behavior characterized by impaired control over gaming,

increased priority given to gaming over other activities or interests and continuation or escalation of gaming despite the occurrence of potentially harmful consequences. Both the ICD-11 and the DSM-5 diagnostic criteria endorse loss of control over gaming behaviour as a core symptom of the disorder. The ICD-11 diagnosis emphasizes serious symptoms, such as functional impairment caused by excessive gaming, but unlike the DSM-5 does not consider certain secondary phenomena such as "deception" as a diagnostic criterion. See https://icd.who.int/browse11/l-m/en#/http://id.who.int/icd/entity/144859734 for a complete description of the diagnostic criteria.

ASSESSMENT TOOLS

The first questionnaire was developed at the end of the 1990s to measure PUI as a general phenomenon. A distinction between the various types of PUI was not specified.
More recently, several new instruments have been developed to help define specific PUI forms. The use of questionnaires can be a good tool for clinicians, patients or other individuals potentially afflicted by PUI and caregivers to unravel the presence and the severity of specific subtypes of PUI.



To assess internet gaming disorder, several tools have been identified, many of them emerging after the DSM-5's introduction of the prototype research diagnosis. These are the:

- ✔ Internet Gaming Disorder Test (IGD-20),
- ✔ Ten-Item Internet Gaming Disorder Test (IGDT-10),
- ✔ Internet Gaming Disorder Scale – Short Form (IGDS9-SF),
- ✔ Problematic Online Gaming Questionnaire (POGQ),
- ✔ Game Addiction Scale-7 items (GAS-7),
- ✔ Assessment of Internet and Computer Addiction Scale-Gaming (AICA-S gaming),
- ✔ Clinical Video Game Addiction Test (C-VAT 2.0),
- ✔ Internet Gaming Disorder Scale-9 items (IGDS-9).

These instruments can be downloaded and used for screening purposes. Of these tools, the IGDS9-SF and IGDT-10 are the most used worldwide, with numerous validations and translations into different languages.

Moving onto problematic gambling, gambling disorder can be screened for using a brief 3-item screening test called the National Opinion Research Centre DSM Screen for Gambling Problems (NODS-CLiP) which investigates three main areas: loss of control, deception, and preoccupation. The Problem Gambling Severity Index (PGSI), which is a 9-item questionnaire, measures gambling severity in the previous 12 months of a patient's life with a score of 8 or above indicating "problem gambling".

For the assessment of the Internet buying-shopping disorder, an 18-item scale called the Online Shopping Addiction Scale has been developed to measure the severity of the condition. It is based on the widely accepted six-factor component model (salience, mood modification, tolerance, withdrawal symptoms, conflict, and relapse). Moreover, the Online Shopping Addiction Scale was found to predict self-perceived online shopping addiction to a relatively high degree.

The Cyberchondria Severity Scale is a 33-item self-administered questionnaire that measures cyberchondria severity by specifically exploring 5 domains: compulsion, distress, excessiveness, reassurance and mistrust of medical professionals. A shorter 12-item questionnaire, consisting of only 4 domains, has also been validated for the assessment of cyberchondria.

For cyberpornography addiction, a 31-item questionnaire, the Cyber Pornography Use Inventory (CPUI), is among the most widely used instruments to assess three dimensions of pornography use i.e., compulsivity, intensity of efforts to access pornography and emotional distress associated with pornography use. Another available tool is the Internet Sex Screening Test (ISST), which is a 25 true-false item test that identifies low-risk, at-risk and high-risk individuals for abnormal Internet-related sexual behaviours.

Despite the psychological impact of cyberbullying on youth, few assessment instruments exist. The Cyberbullying Questionnaire is an 88-item test, whose purpose is to screen for cyberbullying in and out of schools. Recently, novel assessment instruments have been developed as well: first the Cyberbullying Test which has confirmed reliability and validity, and second the Cyber Victimization Emotional Impact Scale, which assesses the emotions experienced by victims as well as bullies.

Finally, although there is a lack of validated psychometric instruments to assess Internet social-media/forum addiction, some existing tools exist. These are based on specific social media platforms, such as the Facebook Addiction Symptoms Scale, the Facebook Addiction Scale, the Bergen Facebook Addiction Scale, and the Facebook Intrusion Questionnaire.

In conclusion, persistent significant distress resulting in functional impairment, as a consequence of abnormal Internet use, should be considered the most important PUI diagnostic feature. Therefore, when a subject presents with these symptoms, or with any of the common comorbidities of PUI (see chapter 4), it is important to investigate further in order to define the particular subtype(s) of PUI, while exploring the main psychological (obsessive-compulsive, impulsive or addictive) features.

4 OVERLAPS WITH OTHER DISORDERS

It is common for PUI to occur in the presence of (together with) other emotional, mental and psychosomatic problems. Due to its varying etiology, PUI can stand alone but usually overlaps with other symptoms and disorders that may act as a risk factor for or a cause of PUI, a dysfunctional coping strategy/consequence of PUI, a catalyst for other problems and psychiatric disorders or a true "comorbidity" as a separate entity. PUI often co-occurs with symptoms of sleep-wake disturbances, irritability, craving and aggressive as well as internalizing (e.g. depressive, social withdrawal) and externalizing (e.g. aggressive, impulsive, compulsive) behaviors and obesity. Furthermore, PUI commonly overlaps or co-occurs with other mental or neurodevelopmental disorders such as attention-deficit hyperactivity disorder (ADHD), anxiety and mood disorders, autism spectrum disorders (ASD), obsessive-compulsive and related disorders, sleep wake disorders, substance-related and addictive disorders including eating disorders, disruptive impulse-control and conduct and personality disorders.

There is a complex mutual relationship between PUI and these other psychiatric disorders. People who suffer from PUI are at higher risk of developing anxiety or depression, and the co-occurrence of PUI in people with psychiatric problems is higher than in the general population. Considering these findings, PUI could be considered as a potential vulnerability or risk factor for the development of another disorder such as anxiety or depression, rather than a separate entity.

PUI or poor control of Internet use frequently co-occurs with substances/alcohol misuse and addiction. Research shows that all different kinds of substance misuse, early alcohol misuse and tobacco smoking strongly indicate a higher risk for developing PUI. Abuse of multiple substances is even more strongly associated with PUI. This "overlap" in the occurrence of addictive disorders may be explained by shared biological factors and/or personality traits such as "impulsivity", "sensation/novelty seeking" and "reward dependence" that render individuals vulnerable to both chemical and behavioral addictions. Similar to substance misuse, people may choose the Internet to find an escape from themselves, from real social interactions and-or their reality (defined as "escapism"). In the case of comorbid ADHD the media use may be viewed as a solution to escape monotony, as a coping strategy for restless behaviors or as a way to deal with intrusive thoughts. For the same reason, "novelty-seeking" and "impulsivity" are also well-known risk factors for PUI. Also, PUI may become a sort of self-treatment for stress, mood management or for emotion regulation of negative feelings, such as unhappiness, anger, boredom or procrastination. But at the same time, PUI induces stress (endless games or negative feedback within social media chats) and procrastination due to the inability to stop the Internet use. People with PUI accompanied by a "chemical addiction" show more severe psychological problems.

It has also been demonstrated that obsessive-compulsive personality traits like rigidity, perfectionism, emotional dependency and harm avoidance are common in problematic Internet users, suggesting that an obsessive temperament may also predispose to develop PUI. Indeed, research exploring the relationship between PUI and the spectrum of obsessive-compulsive disorders (OCD) and ASD is showing interesting findings. Particularly in older age, PUI is strongly associated with OCD and generalized anxiety disorder, whereas in young subjects the associations for PUI are strongest with ADHD, ASD and social anxiety disorder.

There are also considerable sex and gender effects showing more associations of PUI in males with ADHD, ASD and externalizing disorders and female PUI with more pronounced pathological social media use with internalizing disorders, anxiety and depression, which is in line with the common gender distribution within these disorders.

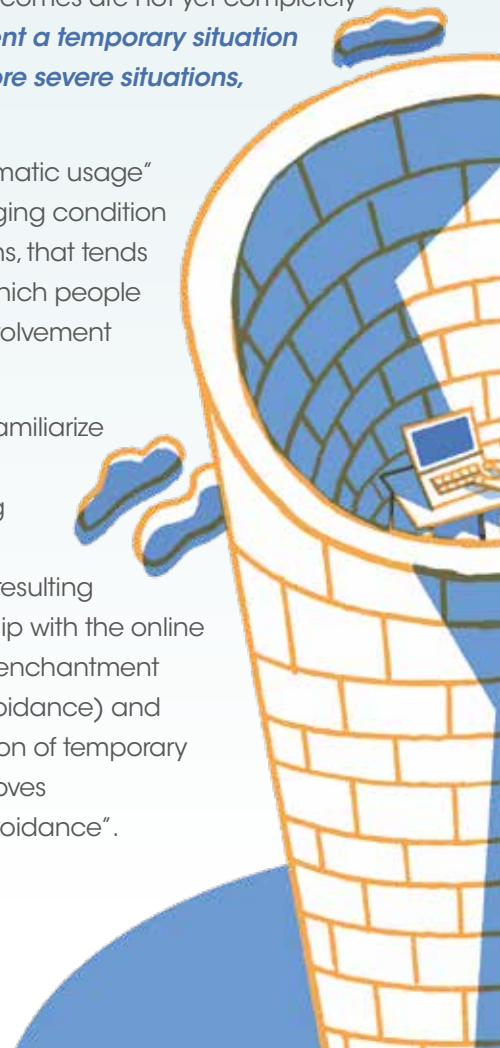
Furthermore, PUI is known to be associated with unfavorable health consequences and psychosomatic symptoms such as sleep disturbances, dry eyes with impaired vision, back and neck ache, eating irregularities, poor personal hygiene, carpal tunnel syndrome, and problems of the musculoskeletal system including reduced bone density. It is well known, for example, that an increased use of technology is associated with obesity due to a decreased physical activity, a sedentary lifestyle and disordered eating habits including eating snacks and irregular meals. Importantly, obesity itself adversely affects self-esteem and body image dissatisfaction and further contributes to eating disorders, anxious and depressive symptoms. This can be a reinforcing cycle and lead again to withdrawal into media consumption.

5 COURSE AND EVOLUTION

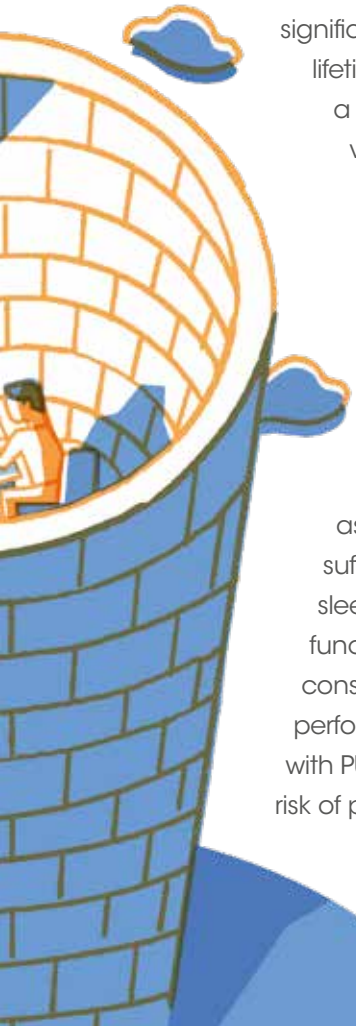
As PUI is a relatively newly recognized set of conditions and our understanding is in its infancy, long-term outcomes are not yet completely known. ***For some subjects, PUI may represent a temporary situation and spontaneously resolve, whereas in more severe situations, PUI may become chronic.***

The first scenario termed "temporary problematic usage" refers to a transient and less severely damaging condition that occurs for a period of one to five months, that tends to resolve spontaneously and throughout which people maintain awareness of their problematic involvement in online activities.

This first scenario take place as individuals familiarize themselves with the Internet for the first time. They discover the potential value of entering a virtual world and become increasingly engaged in online experiences, potentially resulting in adverse consequences. In their relationship with the online world, they may pass through three stages: enchantment (obsession), disillusionment (rejection or avoidance) and then finally balance (normality). The condition of temporary problematic usage regresses as the user moves to the second stage "disillusionment and avoidance".



In order to better understand the course and outcomes of more severe and chronic forms of PUI, there is a pressing need for community-based studies that follow-up people with PUI from the earliest stages over the long-term and map the trajectory of their difficulties. Preliminary research data suggests that PUI may be exacerbated by the co-occurrence of depression, anxiety, social phobia, and poor school-work performance. Future studies of different forms of PUI and their clinical evolution are needed to examine protective factors as well as risk factors to improve our ability to determine which individuals are likely to achieve a better (or worse) long-term clinical outcome.



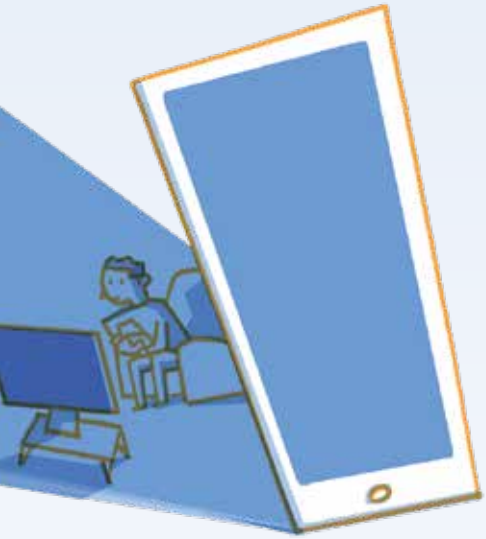
Preliminary evidence suggests that, once established, PUI significantly affects school/work performances, increases lifetime use of tobacco, alcohol and/or drug use (including a wide range of novel psychoactive substances available via the Internet), suicidal thoughts, self-harming and illegal behaviors. The aforementioned negative evolutions of PUI, in terms of lost school years and altered psychological and physical development, with the risk of persistent consequences, may be even more severe if we consider the adolescent population.

Altered sleep patterns represent another critical and common manifestation of PUI. Frequently, PUI is associated to poor sleep quality. For example, subjects suffering from PUI have trouble initiating and maintaining sleep, which leads to non-restorative sleep and daytime functional impairment. For adolescents especially, this consequence may be particularly detrimental to their school performance as well as development. Indeed, adolescents with PUI and co-occurring sleep problems show an increased risk of psychiatric disorders and suicide-related behaviors.

6 FAMILY INVOLVEMENT

For people with PUI, family dynamics can be vitally important. On the one hand, family members struggle with the frustration and worry related to the consequences of PUI for their loved one and with the burden it places on them e.g., in the case of parents with unemployed young adult children with PUI, who are obliged to work harder to provide for them. On the other hand, parents represent important and influential agents on child development, and their parenting approaches may help to promote or deter the development of Internet-related problems.

Given that many forms of PUI are considered within an addiction framework, all co-habiting family members can be seen to have their role in the development and maintenance of the problems. This "systematic approach" gains some support in the scientific literature, according to which there is a clear link between certain aspects of family environment and the development of PUI. These factors include family satisfaction, family economic status, parents' marital status, the frequency of conflicts with relatives, and the habitual use of alcohol within the family. Importantly, protective factors such as family monitoring, family cohesion, and a good parent-child relationship have been shown to positively influence PUI symptoms. Therefore, the importance of family functionality and parenting practices in the development of PUI should not be underestimated.



Accordingly, some authors suggest a family centered approach as a way of reducing the risk of developing PUI among adolescents and young adults, even before they develop real problems. This approach is essentially focused on improving communication between parents and their children.

Interventions such as these, carried out when both offspring with PUI and parents or other relatives are present, have in some studies demonstrated a significant reduction in PUI related symptoms with consequent improvement of self-control and self-esteem. Potentially preventive actions that parents may actively engage in include taking control from the outset over the young child's time spent online and the content of their online activity, sharing the use of the Internet with the child e.g., on educational or safe recreational websites to promote conscious use, and negotiation with the child on establishing rules and boundaries relating to the use of the Internet. Parental training on these strategies may therefore represent an effective preventive strategy.

In conclusion, at the present time, the most recommended intervention in regard to the prevention of the development of PUI is encouraging healthy family involvement. In the following two section we provide more specific suggestions for how these strategies could be successfully implemented by parents, family members or caregivers.

7 TIPS FOR INDIVIDUALS WITH PUI

- ✔ Professional help for PUI exists and should be sought by people who think they have a problem in their relationship with digital media. Talking to a doctor or mental health professional about these difficulties could be an effective step in overcoming them.
- ✔ Use of the Internet can result in losing control over the time spent online, e.g., "losing track of time", which is one of the cardinal signs of PUI. Losing control over time could result in impairment of occupational performance and/or appointment skipping. Setting in advance the periods of time intended to be spent on the web could be a useful way of controlling use of the Internet.
- ✔ It is advisable to be aware of the reasons for using the Internet (to work, to check e-mails and respond, to play etc.) and to set times for specific activities. Developing this habit might help to overcome mindless automatic scrolling on what is new online. Being aware of Internet content may promote critical thinking on whether the time spent online really is useful.
- ✔ People whose emotional investment in online activities outweighs the investment in offline activities may be particularly vulnerable to developing PUI. It is important to keep a balance between the two, monitoring the quality of the emotional investment. If free time is spent entirely online and/or offline activities bring poor emotional quality, it would be useful to reflect on whether PUI may be a cause. For some

individuals, making a list of desired non-Internet related goals might be useful, in order to replace the time spent online with other valuable offline activities.

- ✔ Repetitive e-mail or social media checking should be avoided where possible. Fixed times should be scheduled during the day for checking e-mails and social media. Most importantly, it would be useful to understand if this behavior has become "automatic" or if it remains under conscious control (e.g., I am actually waiting for an important e-mail).

- ✔ Those affected by PUI struggle to restrict the use of the Internet, and this struggle is enhanced by automatic notifications that new information has arrived, such as audio signals or "bleeps", that nullify these efforts. Therefore, if you think you are vulnerable to PUI, consider re-setting the App settings on smartphones to prevent automatic "notifications".
- ✔ Students should consider turning off their devices while studying or putting them in a room far away to prevent distraction. This has been linked to better study performance. If the studying has to be performed exclusively using technological devices, it is advisable to make access to online sources of distraction more difficult (e.g., switch off "notifications" of other online messages arriving, or advertisements by switching).

- ✔ Offline moments should be set during the day, such as later in the evening. During these moments all electronic devices should be turned off or set in airplane mode. Offline time should be spent for quality activities (e.g., sit down with friends or family members, reading a book, etc.).
- ✔ For highly engaging Internet activities, such as gaming online, a fixed daily interval of 1 or 2 hours should be set (or when playing a multiplayer game, a fixed number of games). A timer could be used, or, if ineffective, specific Internet-blocking software has been developed.
- ✔ Some features of Internet games are considered to have much in common with gambling (e.g., loot boxes, micro-transactions, skins, etc.). Gamers should be aware of the highly engaging potential of such features. To set a fixed amount of money dedicated to these purchases could be useful. If it is impossible to stay within the budget, it is important to contact a specialist to further investigate the gaming/gambling problem.
- ✔ Using electronic devices 1 hour before bedtime should be avoided, because this can produce sleeping difficulties and reduce sleep quality and wellbeing. In general, electronic devices should not be used in bed. It is important to avoid the progressive reduction of sleeping hours and/or the overturning of the sleep-wake schedule that online activities can bring.

- ✔ Lying to friends and family members about Internet use could indicate a problem. Feeling ashamed could also represent one of the first signs. Loved ones could be the first with whom you might want to talk about potential difficulties related to the Internet.
- ✔ The Internet is sometimes used as a tool to manage psychological discomfort linked to daily life (e.g., anxiety, feelings of sadness, loneliness, etc.). Awareness of this dynamic is helpful to prevent an excessive use of the digital media. It is also important to understand how someone feels if the Internet connection is unavailable. Difficulty dealing with anger and frustration in an environment without Internet connection could be a sign of PUI. Systematically avoiding places without Internet could also be a sign of PUI.
- ✔ PUI often occurs together with other significant mental disorders (e.g., mood disorders, anxiety disorders, substance use disorders). If a person thinks that his-her mental health difficulties are not exclusively linked to PUI, professional help should be sought.
- ✔ Nowadays, sociability is robustly linked to social media and online activities. However, for individuals with PUI, it is important to increase sociability offline, instead of being dependent on the Internet for socializing. Trying to spend more time with loved people and focusing on offline hobbies could be a good way to limit Internet use.

- ✔ How comfortable an individual feels in live interactions compared to offline ones could also indicate signs of PUI. In such circumstances, it is advisable to monitor how involved someone is during offline interactions: e.g., when I'm having dinner with friends or loved ones, how often do I step in the conversation? If someone only feels comfortable in online interactions and tends to undervalue the live ones, he-she should consider consulting with a professional.
- ✔ Compulsive information seeking, especially about health topics, could be a manifestation of PUI. People who compulsively seek medical information should instead consult with a trusted medical professional and restrict their searching to reliable websites of recognized Institutions.
- ✔ Compulsive pornography seeking could be a manifestation of PUI. It is important to have a correct balance between online and offline experiences. If the individual thinks he-she can only express sexuality online, or they are experiencing sexual performance difficulties such as erectile problems that they believe are linked to excessive pornography viewing, consider seeking professional help.

8 TIPS FOR PARENTS

We make the following recommendations regarding children's screen time use. These tips are based on experience and on the authors' reading of guidelines from elsewhere[1]:

- ✔ Age-appropriate content:
  - fast-paced content can overstimulate young children, therefore it should be avoided;
  - aggressive, scary and adult content should also be avoided for children.
- ✔ Digital media for toddlers: for this age group physical activity, free play and social interactions are important for a healthy physical, emotional and mental development. Digital media may promote sedentary behavior, thus hindering physical activity. If watched alone, it also decreases the amount of social interaction with family members.
- ✔ Screens can be introduced gradually around the age of 2 years by watching age-appropriate content together with the parents, so that screen time becomes family time promoting social interaction rather than alone time (i.e., the case of "digital babysitting" when the toddler is left alone).

[1] Recommendations of the American Academy of Pediatrics (AAP) for children's media use, as well as the guide of the Vodafone Foundation for digital parenting were particularly considered.

- ✔ For small children, screen time should be limited to approximately 1 hour per day, age appropriate and high-quality content, closely monitored so that the parents can talk with their children and be responsive to their questions related to the content watched.
- ✔ Family mealtimes should be screen-free so that the family members can pay attention to each other and spend quality time together.
- ✔ Using screens 1 hour before bedtime should be avoided regardless of age (using screens before falling asleep may reduce sleep quality).
- ✔ For older children and adolescents it is important that they sleep enough (8-10 hours per day), get enough physical activity (approximately 1 hour per day), spend enough time studying and doing homework, hang out with friends, engage in free play and screen-free family time regularly.
- ✔ Digital devices (e.g., television, PCs) should be turned off when not in use, because functioning as a background noise it may divert attention and decrease the amount of interaction and communication between family members.
- ✔ Digital media should not be used as an "emotional pacifier". Even if it is an easy and effective way to calm down and "babysit" the kids, they must be taught alternative ways to manage boredom and handle strong emotions. Exceptions can be made (e.g., during long distance flights) but media and digital devices should not be the main tools used for such purposes.
- ✔ Tech-free zones should be created in the house. Digital devices should be kept out of the children's bedrooms. Placing them in the common areas makes monitoring easier.

- ✔ Keeping a healthy balance between different hobbies and spare time activities (e.g., sports, social programs, video games) is essential. Parents should provide opportunities for small children and support older children in engaging a variety of activities.
- ✔ Parents should be clear when making the rules and consistent and firm when asking their children to comply with them.
- ✔ Setting the rules together with the children may help them understand why the rules are needed and may increase their concern and tendency to comply with them.
- ✔ Playing video games should not be a solitary activity: playing with friends and/or family members makes it a social experience.
- ✔ Regular breaks should be taken during longer video gaming sessions/ screen time.
- ✔ Playing different video games interchangeably may prevent immersing oneself too much in one single title (e.g., certain massive multiplayer online role-playing games) and developing problems due to excessive gaming.

- ✔ The age ratings and content information of video games should always be checked carefully.
- ✔ When asking children to stop playing on particular occasions, the "exit point" should be carefully chosen. A lot of games today are match-based, and people play together with others online. In such cases, forcing the children to stop playing strictly after 1 or 2 hours almost certainly means that they have to stand up in the middle of a match, which also means that her-his team is going to lose because they left before the match ended. Consequently, the child will become highly frustrated and her-his social bonds with friends or online teammates may also suffer. To avoid this, "exit points" should be given in the number of matches rather than strict time limits. However, this requires that parents know and understand basic game mechanics, e.g., they need to know, for instance, how long a match can last and whom their children are playing with.
- ✔ Video games satisfy some basic psychological needs (competence, autonomy, social needs) and motivate players in numerous different ways. Therefore, having thorough conversations about video games is a very good way to connect with children. By asking questions about what they like in certain games and what motivates them, and/or by playing together with them, parents can get to know their children better. Sometimes parents find connecting with their children difficult and being open and curious about video games can help in this.

- ✔ Having regular conversations about children's online activities (e.g., video gaming, social media use) without judging them is very important in general too. Creating trust is essential, so when children need help (e.g., because of being bullied) they would turn to their parents and would not feel ashamed and hide their problems.
- ✔ Being aware and warning children and adolescents about the dangers they may encounter online (such as meeting predators, for instance) is essential. Once content is shared online, it will stay there forever. Privacy issues should be discussed regularly, as well as using privacy settings for both children and adults.
- ✔ Asking for help in case of being bullied online (cyberbullying) is very important regardless of age because it may have severe consequences (e.g., depression, anxiety, suicidal thoughts). In most countries, there are several organizations that offer help.
- ✔ Since children are highly skilled and are fast learners of innovative technologies, adults often assume that children are digital experts. However, knowing how to navigate online is not equal to knowing how to behave online: children still need their parents and adults to teach them basic manners, ethical conduct and safety guidelines they should apply in the digital space.
- ✔ Being conscious about ones' own technology-use habits (e.g., monitoring them with digital well-being apps) and trying to change them if necessary, by planning and making rules, may be the first step in effective self-regulation.

- ✔ Being aware that parents are their children's most influential role models, and that deeds matter most than words is essential. For instance, when family rules (e.g., screen-free mealtimes) are established, every family member (including or starting with the adults) should comply with them. It cannot be expected for children to take rules seriously if their parents do not.
- ✔ Notifications can be blocked or muted. When being constantly notified, one is always in a state of alert and feeling an urge to check his/her devices and reply instantly. When notifications or their sounds are muted, one can take back control: it can be decided when the person wants to check his-her devices rather than checking them instantly when hearing a notification.
- ✔ Studies show that turning off the Internet connection or placing their phone farther away while studying or working increases efficacy.

9 MANAGEMENT AND THERAPEUTIC INTERVENTIONS

Currently, professionals' knowledge about preventing and screening for PUI is at a preliminary level. The most common forms of primary prevention consist of psycho-educational interventions, promoting resilience and adaptive coping strategies.

In several East Asian countries, a strong investment in primary prevention in schools has been made. Primary prevention should be complemented with an "ecological perspective", i.e., including the individual's and his or her family environment, social network community and public policies. The implementation of screening procedures in schools could be a valid strategy in respect of secondary prevention and school-based prevention programs have been found effective in reducing Internet addiction.

In clinical settings, psychiatric evaluation should include identifying the presence of factors that might promote a maladaptive use of the Internet. Examples of such factors are personality traits, psychological symptoms/characteristics, Internet-use pattern, and sociodemographic variables. It is important to screen carefully for mainstream mental disorders (e.g., OCD, anxiety disorders, depression, substance use disorders), as well as often overlooked impulsive/compulsive conditions (e.g., gambling disorder, attention-deficit hyperactivity disorder, compulsive shopping-buying and ADHD).

In turn, the clinician should think carefully about the inter-relationships between symptoms of a mental disorder and maladaptive use of the Internet, in formulating any treatment recommendations. In tertiary prevention, some potentially useful treatment approaches include self-help groups, psycho-educational interventions, social-skills rehabilitation, specific in- and out-patient services for individuals suffering from gambling disorder and possibly gaming disorder. Preliminary data suggests that mindfulness techniques may reduce craving and emotional lack of control in some individuals.

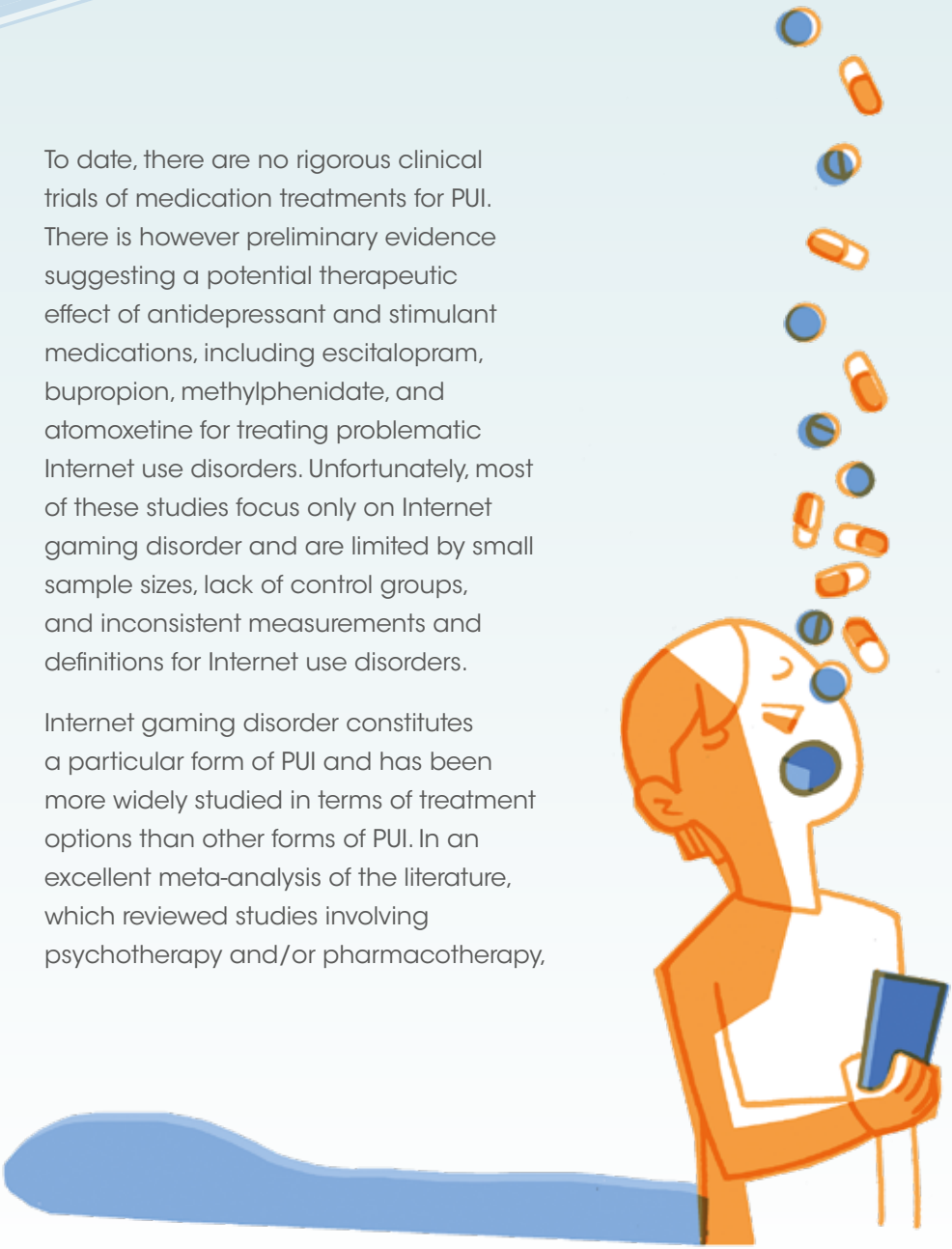
Overall, there are two over-arching approaches to the treatment of any established mental disorder. The first is the use of structured psychotherapy according to the clinical presentation and/or theoretical model of the disease, and the second is the use of pharmacological interventions. There are currently no specific psychological or pharmacological interventions for PUI that can be strongly recommended as first-line treatments, due to an absence of high-quality clinical trial evidence. However, low risk interventions (e.g., psychoeducation developed by experts in the field) may help some individuals and, when administered appropriately by professionals, are unlikely to do harm.

With respect to psychotherapeutic approaches for PUI, a systematic review and meta-analysis has found that counseling programs, cognitive behavioral therapies, behavioural interventions addressing craving,

reality therapy, family therapy, and sport interventions were associated with improvements. However, there were major and pervasive methodological issues affecting much of the literature, including (but not limited to) lack of appropriate control conditions, lack of validated instruments to assess outcomes, absence of long-term follow-up assessments, lack of screening for underlying mental health disorders and high risk of bias. As such, these treatments are considered to have only pilot/tentative evidence to support their use for PUI.

To date, there are no rigorous clinical trials of medication treatments for PUI. There is however preliminary evidence suggesting a potential therapeutic effect of antidepressant and stimulant medications, including escitalopram, bupropion, methylphenidate, and atomoxetine for treating problematic Internet use disorders. Unfortunately, most of these studies focus only on Internet gaming disorder and are limited by small sample sizes, lack of control groups, and inconsistent measurements and definitions for Internet use disorders.

Internet gaming disorder constitutes a particular form of PUI and has been more widely studied in terms of treatment options than other forms of PUI. In an excellent meta-analysis of the literature, which reviewed studies involving psychotherapy and/or pharmacotherapy,



the authors concluded that although cognitive-behavioral therapy had a larger evidence base than other therapies, definitive statements about its benefits were not possible. This was due, again, to major methodological weaknesses in the examined clinical trials, including (but not limited to): lack of appropriate randomization and blinding, lack of use of appropriately validated rating instruments, and lack of appropriate control conditions. The authors of the meta-analysis noted that study design quality had not improved over the previous 10 years. In general, the policies to manage gaming disorder can be classified in those aimed to limit the availability of video games, measures aimed to reduce risk and harm, and measures to provide services to help or support gamers.

Even though evidence-based treatments for PUI are lacking, treatment of other existing mental health disorders in people with PUI may theoretically help the problem. For example, there are evidence-based treatments for gambling disorder: if excessive Internet use relates to gambling, then treatment of the gambling disorder may alleviate the excessive Internet use.

Detailed information about treating these other psychiatric disorders is outside the scope of this chapter, and so is considered only in brief here. For gambling disorder, behavioural interventions (especially CBT and motivational interviewing, and Gamblers Anonymous), have evidence to support their use. While no medications are currently approved formally for the treatment of gambling disorder, several high-quality placebo-controlled trials of opioid receptor antagonists showed benefit over placebo. PUI has high comorbidity with ADHD, and there are several well-established treatments for ADHD itself, including psychostimulant medication and cognitive behavioural psychotherapy, when used as part of a comprehensive treatment programme. These ADHD interventions should usually be initiated by specialist ADHD practitioners. PUI also shows high comorbidity with OCD. OCD has several first-line evidence-based

treatment options, including cognitive behavioural psychotherapy with exposure and response prevention (ERP), and the use of serotonin reuptake inhibitors. Similarly, there are several high-quality treatment options for depression, anxiety and hypochondriasis. As such, there is ample scope for treating many of the mental disorders that commonly co-exist with PUI, but we stress that it is not yet known whether such treatments for other co-occurring psychiatric disorders will alleviate PUI itself.

In conclusion, the evidence base concerning how to treat PUI is limited, with many treatment studies having major methodological issues (e.g., lack of rigorous control conditions, small sample sizes, lack of validated rating scales to assess outcomes). Psychotherapeutic options, administered by trained professionals, can be considered as a first step because, even though high quality efficacy evidence is lacking, such interventions are likely to be relatively low risk. Clinically, the treatment of any identified mental disorders that do have evidence-based treatment options (e.g., gambling disorder, ADHD, OCD) should be a key clinical priority. Such conditions show comorbid overlap with PUI, but we do not yet know that treating them would lead to improvements in PUI. Lastly, we urge researchers to focus on improving the quality of clinical trials to study PUI, by joining international bodies that are striving forward in these areas. PUI research could benefit enormously by incorporating expertise from other more established areas of mental health research.

CONCLUSIONS

Recognizing and managing PUI-related conditions represent important challenges for Internet users of all ages, their family members, researchers, psychiatrists, psychologists and social workers. It is now well established that PUI represents a global emerging public health issue, with multiple repercussions on society as a whole. As consensus on the diagnosis and characterization of the main PUI-related disorders grows, available methods for assessment, treatment and prevention are likely to improve.

In spite of increasing understanding about the cost and burden of PUI, specific clinical services for early detection and management are at

this point limited and present only in some countries, and professional guidance and help is often scarce or unavailable. Lack of awareness, in turn, results in poor prevention or early intervention strategies, potentially contributing to the onset of secondary comorbid disorders and functional impairment (e.g., lower school-work performance). Conditions like insomnia, anxiety, depression, dysphoria, social phobia and social withdrawal, and health risks, especially in the youth (e.g., a diet with excessive junk food, lack of exercise, obesity, postural pain syndromes in cervical or lumbar spine, repetitive stress injury) represent some of the most frequently observed correlates of untreated PUI.

As recently pointed out by participants of the 4-year Cooperation in Science and Technology (COST) Action 16207, "Manifesto for a European Research Network into Problematic Usage of the Internet", research investment is now needed at an international level to achieve a consensus-driven conceptualization of the different forms of PUI, develop reliable assessment tools, define the clinical course and establish with greater certainty the impact of PUI on health and wellbeing, develop early intervention strategies that modify those factors increasing risk as well as strengthening protective factors, especially within the context of the family, clarify the role of genetics, personality features and social factors in the origins of the disorders, and validate clinical effective interventions and services, both to prevent and to treat PUI. Achieving consensus on the definitions, clinical courses and assessment of different expressions of PUI, could be expected to reduce the burden of disease and help to identify the critical factors that are relevant for successful preventive interventions. Ultimately, improved resources and knowledge in the field of PUI will contribute to accurate diagnosis and the development of clinical services delivering evidence-based forms of prevention and treatment.

While, to date, the scientific community and the priorities of mental health policy makers have largely overlooked the field of behavioral addictions and PUI, the time is now right for cultural change, based on the acquisition of reliable epidemiological, clinical and social evidence. This is even more compelling in the COVID-19 and post-COVID-19 time.

In order to reduce the damaging consequences of PUI, the development of a valid and structured prevention program involving public health awareness and family involvement that extends to engage schools and local communities is needed. Public partnership with scientists, clinicians and health and social policy makers represents a key ingredient in the successful accomplishment of this task.

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USEFUL LINKS

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- https://www.who.int/features/qa/gaming-disorder/en/
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https://doi.org/10.5167/uzh-208132
ISBN 978-9955-15-738-0