

Learning to deal with Problematic Usage of the Internet

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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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INTRODUCTION

Ever since its development in the early 1990's, the Internet has become highly pervasive across most of the civilised 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 which are thought to represent the consequences of severe forms of PUI, especially when it comes to youth. People affected by PUI and their family members often do not know about the signs and symptoms of this condition. 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 have. Some researchers are starting to consider particular forms of PUI as a serious and disabling form 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 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 project "European Network for Problematic Usage of the Internet" CA16207, funded by the Horizon 2020 Framework Programme of the European Union, which began in October 2017 and whose Principle Investigator, Prof. Naomi Fineberg, aimed to bring 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 working, communication, listening to music, acquiring information, shopping, playing video games, learning online and for social media. **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. However, in the past two decades, the "digital revolution" has led to support for mankind's mental activities.

Indeed, in the recent 2020 coronavirus pandemic, the Internet has provided a vital communication lifeline for many people living in relative social isolation and a crucial tool for delivering important medical information and news.



However, this improvement has suddenly exposed people to an unprecedented quantity of stimuli and to new and original ways of relating, seeing and presenting oneself.

The Internet has changed how we process information, read, write, learn and remember. Online avatars and social network profiles have even, for some people, become an extension of their identity, with the consequential risk of creating an overlap between the real and virtual world. Several sociologists, psychologists, and anthropologists have gone as far as calling the new generation of people raised in the Internet age "*Homo technodigitalicus*".

These social and cultural changes the Internet has created have involved psychiatry as well. It comes as no surprise; researchers have cautioned the public regarding the potentially addictive properties of some online activities since the early 1990's. These are often reinforced by the Internet's easy accessibility, anonymity and privacy which have been its principal characteristics since its creation. Subsequently, the massive diffusion and development of the Internet through the production of digital content in daily life, the diffusion of smartphones/portable devices and wireless connections, the affordability of technology with faster connectivity at lower cost, has generated a collateral effect in creating and reinforcing pathological online behaviors.

In 1995, Ivan Goldberg coined the term "Internet Addiction Disorder" (IAD). He formulated a list of symptoms drawn from the characteristics of pathological gambling. The following year, American psychologist Kimberly Young conducted an extensive empirical investigation of the phenomenon. The term IAD remains widely used nowadays to indicate Internet-related psychopathology.

The pioneering work of several researchers in the mid 1990's resulted in a set of proposed diagnostic criteria for IAD that resembled those formulated by the American Psychiatric Association for Pathological Gambling.

During the same years (1995-1999), Mark Griffiths proposed a conceptual distinction between addictions on the Internet (those affecting individuals who simply use the Internet as a medium to engage in a specific behavior that could be conducted offline) versus addictions to the Internet (where individuals are primarily addicted to content solely generated inside the world wide web). Indeed, different expressions of PUI can be seen to represent variants of conditions already recognised as problematic and/or classified as mental disorders in the major international diagnostic systems used in psychiatry such as the World Health Organization's International Classification of Diseases (ICD).



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 characterised by impaired control (unsuccessful attempts to reduce or stop the repetitive behavior), preoccupation with and craving for the Internet, functional impairment (neglect in other areas of life), persistence of problematic Internet use despite damaging effects and 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 characterised by a tendency to excessively collect, store or hoard digital material including photos, music videos and/or YouTube videos, and persistent reassurance seeking (list-making and diarising).

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 FORM OF EXPRESSION

From the first reports on the abnormal use of the Internet, a distinction has been made between so-called “generalised” and “specific” pathological 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 (which we will refer to as **IGD**) is a condition characterised 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, prioritisation of gaming over other important everyday activities (socialising, working, studying, eating, self-care) resulting in significant and substantial impairment in multiple areas of psychosocial or physical functioning. Different factors contribute to determining 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 recognised Gaming Disorder as a mental health disorder in the recent International Classification of Diseases, 11th Revision.

Internet-Related Gambling Disorder

Gambling disorder is characterized by a pattern of persistent or recurrent gambling behaviour, 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) making Internet-related Gambling Disorder feed 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 the real world. The high accessibility of Internet gambling likely increases the risk for Internet-related Gambling Disorder, particularly among technology-savvy youth.



Internet-Related Buying-Shopping Disorder

Internet-Related Buying-Shopping Disorder (which we will refer to as **ISD**) is increasingly recognised as a candidate mental disorder that 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 shortlived 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 ISD 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 ISD.

Cyberchondria

Cyberchondria (which we will refer to as **CYB**) 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. CYB resembles an urge driven compulsive or repetitive behavior, and is excessively time-consuming for patients.



Descriptions of CYB 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 CYB is still lacking, but the link between CYB and other psychiatric disorders has been established in research. In short, CYB 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.

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 (which we will refer to as **CPA**).

Around 12% of cyberpornography users develop recurring and uncontrollable patterns of pornography use, that can be associated with other sexual concerns, and that cause distress and affect wellbeing in a variety of social or even physical domains. Males tend to be affected more than females. People with CPA 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 as a consequence.



Cyberbullying

The term “cyberbullying” (which we will refer to as **CYBB**) was coined to describe the use of digital technology to seek to harm, intimidate, or coerce other people online. A strong association between CYBB and mental health problems (for example, 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 CYBB both on the bully and the victims.

Internet Social-Media/Forum Addiction and others

To date, the definition of Internet Social-Media/Forum Addiction and others (which we will refer to as **ISFA**) is not the only term used to describe this subtype of PUI. Several synonyms of ISFA 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 ISFA can dismiss one specific social-media type and become addicted to another. ISFA Involves 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 the classification of ISFA, 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 that ISFA is associated with symptoms of depression and negative self-esteem.

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 measured. 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.



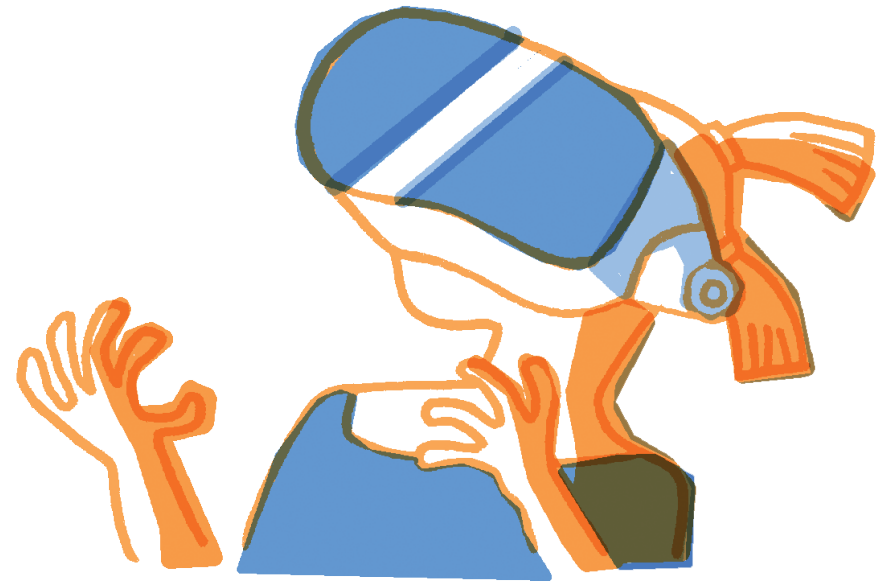
Internet use is a big part of everyday life for many people. This is why it is essential to be able to distinguish between what is considered normal behavior from a problematic or pathological use of the Internet. For this purpose, the application of psychological instruments and the diagnostic process represent key tools for clinicians. Published in 2013, the fifth and latest edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) provided an important contribution to the research due to two significant innovations which paved the way for an additional evidence-based investigation of PUI. For the first time ever, the DSM acknowledged the existence of behavioral addictions and classified them alongside substance addictions in the "Substance-Related and Addictive Disorders" category.

BEHAVIOURAL ADDICTIONS

Although classical addictive disorders are related to psychotropic substance use, in recent years, a new group of psychopathological entities, including behavioural addictions or non-substance addictions, has been identified and researched as modern clinical forms of addiction. Similar to psychoactive substances, several pleasurable activities such as eating, working, shopping, sports, Internet and other technology usage, gambling, and/or gaming may represent a primary drive capable of activating the brain reward system and therefore lead to addiction. As a consequence, researchers have often defined and diagnosed behavioural addictions within a substance addiction model because both traditional psychoactive substance addictions and behavioural addictions clearly show aspects of craving, tolerance and withdrawal. Moreover, every subtype of behavioural addiction is strongly characterized by a repetitive and persistent habit, which is progressively dysfunctional and able to induce significant impairment in several areas of every day life. Behavioural addictions 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. This is why behavioural addictions have been defined as repetitive urge-driven behaviours that lead to significant distress with consequent functional impairment. In fact, 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 addiction and those with substance addiction, suggesting that a relationship exists between these different forms of addiction and emphasising the importance of taking behavioural addiction seriously.

This decision was based on research that demonstrated clinical, genetic, neurobiological and other similarities between gambling and substance-use disorders. Gambling Disorder has been therefore classified in this category, acknowledging the addictive nature of problematic gambling and providing a conceptual framework for the next inclusion of other PUI-related disorders into the same category as well. The inclusion of Internet Gaming Disorder (IGD) in the DSM-5 Section III as a new condition worthy for further study represented another important and unprecedented change. Because of the inclusion of IGD into the DSM-5, the existence of a PUI-related condition as a potential mental disorder was acknowledged for the first time. Specific diagnostic criteria as a basis for further investigation in the field were proposed as a basis for the future definition of other PUI-related conditions. For IGD, 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 [American Psychiatric Association (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Arlington, VA: Author].

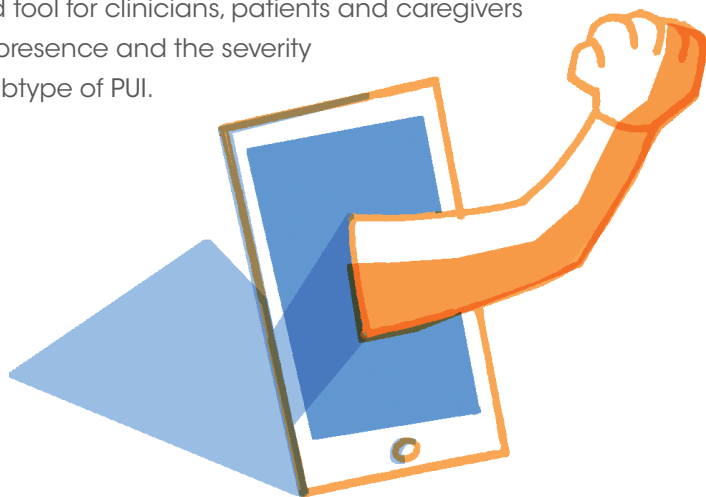


In June 2019, the WHO included Gaming Disorder in the 11th revision of the International Classification of Diseases (ICD-11). Gaming Disorder was classified in the substance and behavioural addiction section. Gaming Disorder (GD) is defined in the ICD-11 as a pattern of gaming behavior (online or offline) 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 (GD) and the DSM-5 (IGD) diagnostic criteria endorse loss of control over gaming behaviour as a core symptom of the disorder. The ICD-11 diagnosis particularly emphasizes serious symptoms, such as functional impairment caused by excessive gaming, but does not consider “deception” as a relevant 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 in order to measure PUI as a general phenomenon. However, a distinction between the various types of PUI was not specified.

More recently, several new instruments have also been developed in order to help define specific PUI forms. The use of questionnaires can be a good tool for clinicians, patients and caregivers to unravel the presence and the severity of a specific subtype of PUI.



To assess IGD, several major tools have been identified, emerging after the DSM-5's introduction of the IGD diagnosis. These are the:

- ✓ Internet Gaming Disorder Test (IGD-20),
- ✓ Ten-Item Internet Gaming Disorder Test (IGD-10),
- ✓ Internet Gaming Disorder Scale – Short Form (IGDS9-SF),
- ✓ Problematic Online Gaming Questionnaire (POGQ),
- ✓ Problematic Online Gaming Questionnaire – Short Form (POGQ-SF),
- ✓ Video Game Addiction Test (VAT),
- ✓ Clinical Video Game Addiction Test (C-VAT 2.0),
- ✓ Internet Gaming Disorder Scale (IGDS).

These instruments can be downloaded and used for screening purposes as well. Overall, the IGDS9-SF is the most used assessment tool worldwide, with numerous validations and translations into different languages. This tool is also worthy of note for its ability to examine different gaming profiles.

Internet Gambling Disorder can be assessed with a 3-item screening test called the National Opinion Research Centre DSM Screen for Gambling Problems (NODS-CLIP) which investigates three main areas of malfunctioning in an individual: loss of control, lying, 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 thus classifying patients as "problem gamblers".

For the assessment of the Internet Shopping Disorder, an 18-item scale called the Online Shopping Addiction Scale has been developed to empirically measure the severity of the condition. Specifically, 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 scores predicted the self-perceived online shopping addiction to a relatively high degree.





A 33-item self-administered questionnaire by the name of "Cyberchondria Severity Scale" is available to take Cyberchondria (CYB) into account. This scale is a continuous severity assessment tool to measure CYB while 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 CYB.

As for Cyber Pornography Addiction, a 31-item questionnaire, the Cyber Pornography Use Inventory (CPUI), is among the most widely used instruments to assess the three dimensions of pornography use that are compulsivity, intensity of efforts to access pornography and emotional distress associated with pornography use. Another 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 for abnormal Internet sex behaviours.

Despite the impact of Cyberbullying (CYBB) on youth, only limited assessment instruments exist. The Cyberbullying Questionnaire is an 88-item test, whose purpose is to analyze the incidence of cyberbullying in and out of schools. Recently, novel assessment instruments have been developed as well: on the one hand the Cyberbullying Test which has confirmed reliability and validity, and on the other hand the Cyber Victimization Emotional Impact Scale which assesses the emotions experienced by victims as well as bullies.

Finally, there is a lack of validated psychometric instruments to assess Internet Social Forum Addiction (ISFA). Some existing tools 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 the aforementioned condition it is important to investigate the presence of specific symptoms in order to define the subtypes of PUI, while exploring the main psychological (obsessive-compulsive, impulsive and addictive) features.

4

OVERLAPS WITH OTHER DISORDERS



It is unusual for PUI to occur in isolation from other problems. It often co-occurs with other psychiatric disorders such as anxiety disorders, mood disorders, obsessive-compulsive and related disorders, substance-related and addictive disorders, disruptive impulse-control and conduct disorders, personality disorders and sleep-wake disorders.

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

Alongside mood and anxiety problems, PUI or poor control of Internet use frequently co-occurs with substances/alcohol misuse and addiction. Research shows that all substance use, early alcohol use and smoking strongly indicate a high risk for developing PUI. Abuse of multiple substances is even more strongly associated with PUI. This “overlap” in the occurrence of disorders may be explained by shared biological factors and/or personality traits such as “impulsivity” and “sensation/novelty seeking” that render individuals vulnerable to both chemical and behavioral addictions. Similar to illicit drug use, people may choose the Internet instead of a substance to find an escape from themselves and from the world they inhabit. PUI may become a sort of treatment for negative emotions such as misery, unhappiness, boredom or anger. People with PUI accompanied by a “chemical addiction” show more severe psychological problems.

It has also been demonstrated that there is a high rate of PUI in people suffering from Attention Deficit Hyperactivity Disorder (ADHD). In such cases, the Internet may be used as a solution to escape monotony. For the same reason, temperamental variables such as “escape from self”, “novelty-seeking” and “impulsivity” are also well-known risk factors for PUI.

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



Furthermore, PUI is known to occur alongside several medical/surgical conditions such as carpal tunnel syndrome, back and neck ache, reduced bone density, dry eyes with impaired vision, eating irregularities, sleep disorders, and poor personal hygiene. It is well known, for example, that an increased use of technology is associated with increased rates of obesity due to a decline in physical activity, a sedentary lifestyle. Indeed, studies among adolescents affected by PUI found increased rates of obesity to be linked with diminished physical activity or exercise, poor sleep quality, an irregular diet, eating snacks instead of regular meals, and inadequate or insufficient sleep. Importantly, obesity itself adversely affects self-esteem further contributing to anxious and depressive symptoms.

5

COURSE AND EVOLUTION

As PUI is a relatively newly recognised set of conditions and our understanding of PUI 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 has been termed “Short Addiction”, referring 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 addiction.

Short addictions start as individuals familiarise themselves with the Internet for the first time. They discover the potential value of entering a virtual world and sacrificing real world activities, becoming instead increasingly engaged in online experiences. 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 addiction 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 even 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 even be more severe if we consider the adolescent age population.

Altered sleep patterns represent another critical and common manifestation of PUI. Frequently, PUI results in 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.



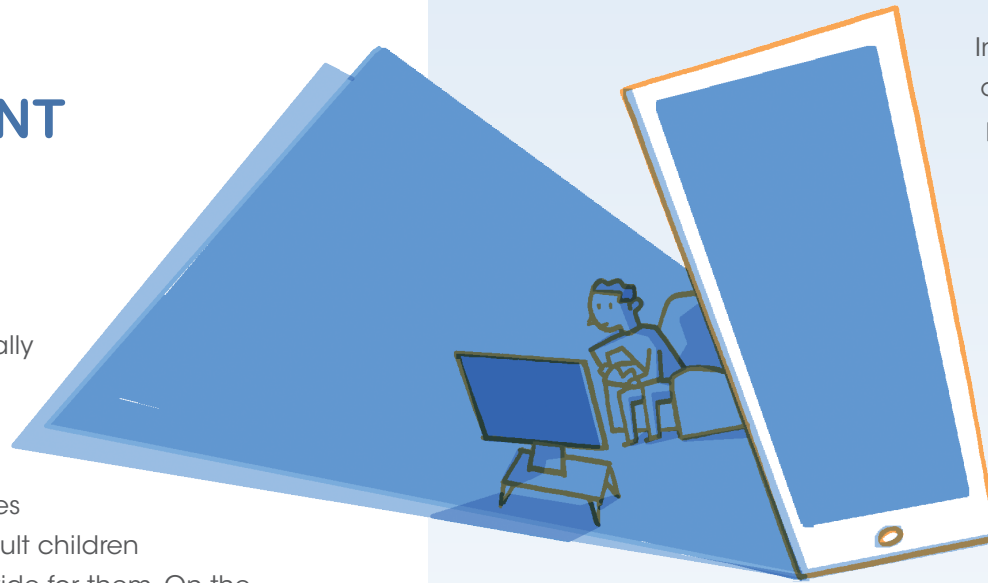
6

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 on their loved one and with the burden it places on themselves e.g. in the case of parents with unemployed 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.

Some studies have shown there is a link between certain aspects of the 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 should not be underestimated.

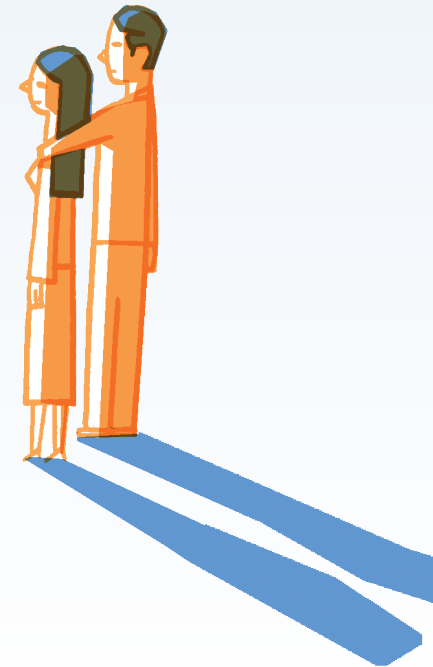
Some authors suggest a family centered approach as a way of reducing the risk of developing PUI among adolescents and young adults, even before they develop real problems. This approach is essentially focused on improving communication between parents and their children.



Interventions such as these, carried out when both offspring with PUI and parents or other relatives are present, have 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 preventative 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 section we provide more specific suggestions for how these strategies could be successfully implemented by parents, family members or carers.



7

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 elsewhere¹. It should be noted that advice may change in future as these areas become more widely studied:

- ✓ 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).

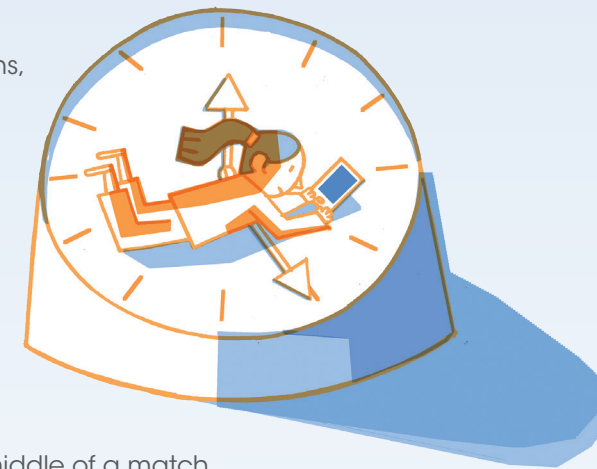
¹ Recommendations of the American Academy of Pediatrics (AAP) for children's media use, as well as the guide of the Vodafone Foundation for digital parenting were particularly considered.

- ✓ 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.
- ✓ 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.
- ✓ Keeping a healthy balance between different hobbies and spare time activities (e.g., sports, social programs, video games) is key. Parents should provide opportunities for small children and support older children in having 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.

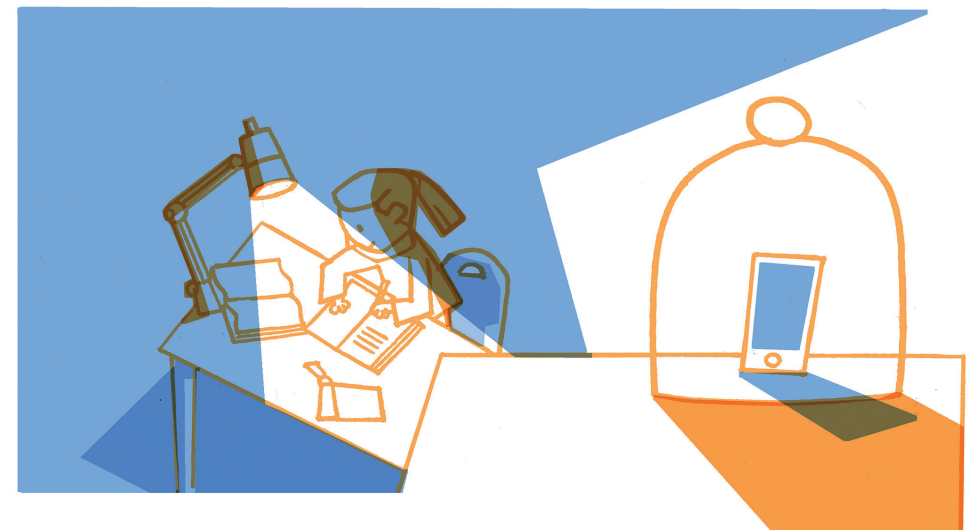


- ✓ When asking kids to stop playing on particular occasions, the “exit point” should be carefully chosen. A lot of games today are match-based, and people play together with others online. In such cases, forcing the children to stop playing strictly after 1 or 2 hours, almost certainly means that they have to stand up in the middle of a match, which also means that their team is going to lose because they left before the match ended. Consequently, the child will become highly frustrated and their 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 with whom their children are playing.
- ✓ 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 not 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, they are always in a state of alert and feeling an urge to check their devices and reply instantly. When notifications or their sounds are muted, they can take back control: it can be decided when the person wants to check their 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.



8

MANAGEMENT AND THERAPEUTIC INTERVENTIONS

Currently, professionals' levels of knowledge in preventing and screening of PUI is preliminary. ***The most common form of primary prevention consists 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 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.

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. obsessive-compulsive disorder, anxiety disorders, depression, substance use disorders), as well as often overlooked impulsive/compulsive conditions (e.g. gambling disorder, attention-deficit hyperactivity disorder, compulsive shopping).



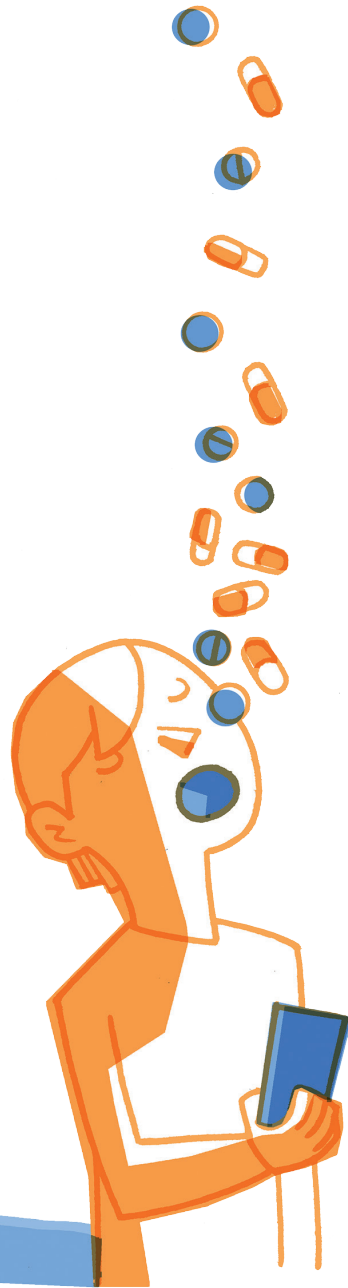
In turn, the clinician should think carefully about the inter-relationships between such symptoms and maladaptive use of the Internet, in formulating any treatment recommendations. In tertiary prevention, some potentially useful treatment approaches include: self-help groups, psycho-educational interventions, social-skills rehabilitation, specific in- and out-patient services for individuals suffering from IGD. 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 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 problematic use of the Internet that can be 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. Treatment of identified 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.

With respect to psychotherapeutic approaches for PUI, in a meta-analysis study, it was found that counseling programs, cognitive behavioral therapies 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, 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.

IGD 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.



Even though evidence-based treatments for PUI are lacking, as noted earlier, treatment of any identified psychiatric conditions that do have an evidence base should be a priority for clinicians, and may theoretically help reduce PUI for some individuals. Detailed information about treating these other disorders are outside the scope of this chapter, and so are 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 psychotherapy, when used as part of a comprehensive treatment programme. These ADHD medications should only be initiated by specialist ADHD prescribers. PUI also shows high comorbidity with obsessive-compulsive disorder (OCD). OCD has several first-line evidence-based treatment options, including CBT with exposure and response prevention (ERP), and the use of serotonin reuptake inhibitors. Similarly, there are several high quality treatment options for depression and anxiety, including hypochondriasis. As such, there is ample scope for treating many mental disorders that often co-exist with PUI (including IGD), but we stress that it is not yet known whether such treatments for other disorders 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 an important challenge for Internet users of all ages, their family members, researchers, psychiatrists, psychologists and social workers, with multiple repercussions on society as a whole. Previously, abnormal Internet-related behaviors mainly concerned Asian countries, but it is now established that PUI represents a global emerging public health issue, with relevant societal costs. 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 the increasing reports on 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 limited or unavailable. Lack of awareness, in turn, results in poor 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 comprised of 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.

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. Achieving consensus on the definition, clinical course 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. 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 involve schools and local communities is needed.

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. 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

- <https://psychology-tools.com/test/internet-addiction-assessment>
- <https://www.who.int/features/qa/gaming-disorder/en/>
- [https://www.who.int/news-room/detail/16-01-2018-inclusion-of-\"gaming-disorder\"-in-icd-11](https://www.who.int/news-room/detail/16-01-2018-inclusion-of-\)
- <https://onlineinternetgambling.net/>
- <http://netaddiction.com/internet-addiction-test/>
- <http://www.sexhelp.com>
- <https://www.who.int/news-room/detail/25-05-2019-world-health-assembly-update>
- <https://www.gamblingcommission.gov.uk/for-the-public/Safer-gambling/Self-exclusion.aspx>
- <https://www.gamstop.co.uk>
- <https://www.ukat.co.uk/internetaddiction/>
- <https://www.cnwl.nhs.uk/cnwl-national-problem-gambling-clinic/>
- <https://www.halleypontes.com/igd-20>

