

Academic/Research Article

Let's talk about (problematic) sex

The cycle of sexual addiction, potential causes and treatment approaches

By Kaylene Petersen



magazines; attending strip clubs is a legal source of entertainment; and pornography that was once kept high on top shelves, presumably out of "harm's way," is now available with the click of a few buttons. These cultural changes have not only made sex far more accessible than it ever was before, they have also made sexual rewards far more readily available.

Today, most Western adolescents and adults have access to smartphones and sexually stimulating images at their fingertips. In an age where sexuality and sexual diversity is more socially acceptable than ever before, issues surrounding sexuality are likely to be increasingly present in counselling and psychotherapy. The ways these issues present in the therapeutic space are numerous, including sexual abuse, sexual dysfunction, issues relating to sexual offending and sexual addiction. This article will examine the complex and controversial topic of sexual addiction, including the cycle of sexual addiction, potential causes and an exploration of several treatment approaches.

Defining sexual addiction

If one is to gain an understanding of sexual addiction – a term that is used interchangeably with hypersexuality, compulsive sexual behaviour and excessive sexual desire disorder – it is necessary to first grasp what constitutes addiction in the broader sense. The term sexual addiction will be

The World Health Organisation recently added Compulsive Sexual Behaviour Disorder as a new diagnosis in its International Classification of Diseases (11th Edition) (ICD-11). This groundbreaking move has focused attention on a subject that has long been at the centre of intense debate and, in our digital age, increasingly presenting in the therapeutic space

Introduction

Society and its views on sexuality have changed a great deal in the last half century. We do not need to look too far to see

depictions of sex – it is used in advertising to sell everything from hamburgers to cars; the media jumps on celebrity sex scandals to bolster sales of newspapers and

used throughout this article due to it being the most commonly-used lay term. The word ‘addiction’ has its roots in the Latin *addicere*, which literally means ‘to be bound over by judicial decree,’ (Birchard, 2015, p.1) and can be defined as “... a chronic condition involving a repeated powerful motivation to engage in a rewarding behaviour, acquired as a result of engaging in that behaviour, that has significant potential for unintended harm” (West & Brown, 2013, p.4).

Just as an alcoholic will crave alcohol and a drug addict their drug of choice, a sex addict will crave sexual stimulation and orgasms – and make doing so the primary focus of their life (Abel & O’Brien, 2015).

Although sexual addiction is regarded by many as a relatively recent phenomenon borne out of the creation of the internet, the characteristics of compulsive sexual behaviour were recorded by Austrian-German psychiatrist, Richard von Krafft-Ebing, as far back as 1886. In *Psychopathia Sexualis*, he wrote of subjects whose “... sexual appetite is abnormally increased to such an extent that it permeates all his thoughts and feelings” (p.70). Numerous labels including satyriasis (excessive male sexual desire), nymphomania (excessive female sexual desire), perversion and Don Juanism have historically been applied to individuals that exhibited disordered sexual behaviour (Garcia & Thibaut, 2010).

Sex as an addiction

Modern interest in the notion that sex could be addictive took hold in the 1980s with the publication Patrick Carne’s *The Sexual Addiction* (1983). However, unlike alcohol and illicit drugs, there has been a distinct resistance to labelling sexual behaviour addictive (George et al., 2018).

Sexual addiction affects men and women, although it has historically been studied in men

Trivialising of the disorder, for instance, jokes that “sex addiction is the best addiction to have,” or views that celebrities have labelled themselves sex addicts in the face of public scrutiny for extra-marital affairs, have likely not helped the cause. Unlike addiction to chemicals, which is more likely to result in genuine concern and understanding, mere mention of the term “sex addiction” often results in sniggers and provokes contempt. While addiction to alcohol and drugs is widely accepted, behavioural addictions, where an individual is addicted to the behaviour and/or feeling they experience when acting out the behaviour, is impacted by a significant research gap in literature (Jamieson & Dowrick, 2021).

Karila et al. (2014) state that, in the main, sexual addiction has been ignored by psychiatrists. Hall (2012) supports this, stating that some medical professionals deny the condition exists and many more are unaware how complex and serious it can become. While it is widely accepted that addictive disorders are often associated with severe consequences, most studies examining the link between addiction and suicide risk have focused primarily on substance addiction or gambling disorder (Valenciano-Mendoza et al., 2021). One 15-year study that assessed suicide risk of 4,404 participants that presented with various addiction disorders found that the highest prevalence of suicide attempts were made by those with sexual addiction (9.1%) (Valenciano-Mendoza et al., 2021).

There is no solitary behaviour that indicates sex addiction. Indeed, there are a plethora of sexual behaviours that can become intense, compulsive and, consequently, unmanageable, such as pornography, engagement with (or becoming) sex workers, multiple affairs, attending strip clubs, cybersex, masturbation and exhibitionism, among others. An individual may become addicted to any of these sexual behaviours, however, crucially, it is not necessarily the frequency that an individual engages in these behaviours that determines if they are suffering from sexual addiction, but rather the consequences that arise out of such behaviours (Padwa & Cunningham, 2010).

Indulging in sexual activity several times a day and viewing pornography does not necessarily make someone a sex addict. However, if their sexual behaviour compromises important aspects of their life, such as their health, family, financial situation, work and personal relationships and there are feelings afterwards that affect emotional well-being, such as powerlessness, shame and guilt and the individual cannot stop such destructive behaviours, they may be classified as suffering with sexual addiction (Padwa & Cunningham, 2010).

Sexual addiction affects men and women, although it has historically been studied in men. Specific to women, unplanned pregnancies, irrespective of whether the woman chooses to have the child or have an abortion, can have long-term emotional consequences, such as regret, anxiety and depression (Ferree, 2010).

Comorbidities

One behaviour that is apparent in a substantial number of sex addicts is paraphilic sex, whereby sexual excitement is derived

from fantasising about and/or participating in behaviour that is deemed unusual (de Roos, Longpre & van Dongéen, 2024). In addition to the prevalence of paraphilia, individuals characterised as sex addicts may also present with major mood disorders, for example, schizophrenia. (Sadock & Sadock, 2011). Other disorders that have been linked to sexual addiction include borderline personality disorder and antisocial personality disorder (Sadock & Sadock, 2011).

Research has found that 83% of sex addicts present with multiple addictions, including 42% with chemical addictions; 38% with eating disorders; and 28% with compulsive working (Carnes, 1991). This suggests that for some there may be a genetic predisposition to addictive behaviour, which has been supported in various twin studies (Anholt & Mackay, 2010).

Cycle of sexual addiction

Addictive behaviour, by its very nature, is cyclical and this is outlined in the cycle of addiction. Carnes (1983) developed the first cycle of sexual addiction that is comprised of four sequential stages: preoccupation (fantasy); ritualisation (“the bubble”); compulsive sexual behaviour (acting out); and despair.

In the preoccupation stage, the mind is focused on thoughts of sex. These preoccupations are the result of triggers that act as catalysts and compel an individual to act out sexually. Triggers may include emotional states (boredom, stress), an argument with a partner, a location or smell. This preoccupation often results in a trance-like state where the addict has only one mission – to seek out sexual stimulation.

The ritualisation stage is dependent on the individual's personal routine that leads them to their “acting out” sexually.

As a sex addict uses the pursuit of their high to escape emotional discomfort, when that high ends, a sex addict is propelled back into the real world and back to the initial emotion that caused them to become preoccupied with sex in the first place

This could involve turning on the computer, contacting sex workers, wearing a certain aftershave/perfume or consuming alcohol. These rituals exacerbate preoccupation and increase the level of arousal and excitement. It is this phase that provides sex addicts with their “high” and thus, sex addicts will often try and extend this stage for as long as possible.

The third stage is compulsive sexual behaviour. Crucially, the actual act can be short and unsatisfying, or it may go on for extensive periods of time to the point of causing physical damage to the tissue of the genitalia (Hasting, 1998).

The final stage in Carnes' cycle of sexual addiction is despair. As a sex addict uses the pursuit of their high to escape emotional discomfort, when that high ends, a sex addict is propelled back into the real world and back to the initial emotion that caused them to become preoccupied with sex in the first place. Only now, they not only have that initial unsettling emotion to contend with, but they have a multitude of new emotions such as self-loathing and guilt thrown into the mix because they acted out yet *again*. The level of despair can be so difficult that a sex addict returns to preoccupation with sexual fantasies to help numb the pain, thus invoking the cycle of sex addiction again.

Clinical classification of sexual addiction

Although the term sexual addiction is a universal one and has featured in literature for a significant period of time, the labelling of it as a mental disorder has proved controversial and divisive. The view that excessive sexual behaviour (in varying forms) is a type of behavioural addiction that can become problematic has continued to gain traction, however, controversy abounds regarding operationalisation of the concept (Andreassen et al., 2018). Highlighting this, sexual addiction was proposed for inclusion in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* under the name “hyperousal disorder,” but was excluded due to limited empirical evidence (Campbell and Stein, 2015).

Conversely, the World Health Organisation (WHO) recently elected to include “Compulsive Sexual Behaviour Disorder” (CSBD) as an impulse control disorder in the *International Statistical Classification of Diseases and Related Health Problems, Eleventh Edition (ICD-11)*, which officially came into effect on January 1, 2022.

Compulsive Sexual Behaviour Disorder

Similar to the numerous overlapping names that preceded it, CSBD in the *ICD-11*, is “... characterized by a persistent pattern of failure to control intense, repetitive sexual impulses or urges resulting in repetitive sexual behaviour” (WHO, 2022). See Table 1 for the diagnostic criteria for CSBD.

The prevalence of CSBD is thought to be between 3% - 6% in the general population (Dickenson, et al., 2018). However, this can only be considered a rough estimate since the condition is likely significantly under-

Diagnostic criteria of Compulsive Sexual Behaviour Disorder (CSBD) in the ICD-11

A persistent pattern of failure to control intense, repetitive sexual impulses or urges resulting in repetitive sexual behaviour, manifested in one or more of the following:

- Engaging in repetitive sexual behaviour has become a central focus of the individual's life to the point of neglecting health and personal care or other interests, activities and responsibilities.
- The individual has made numerous unsuccessful efforts to control or significantly reduce repetitive sexual behaviour.
- The individual continues to engage in repetitive sexual behaviour despite adverse consequences (e.g., marital conflict due to sexual behaviour, financial or legal consequences, negative impact on health).
- The person continues to engage in repetitive sexual behaviour even when the individual derives little or no satisfaction from it.
- The pattern of failure to control intense, repetitive sexual impulses or urges and resulting repetitive sexual behaviour is manifested over an extended period of time (e.g., six months or more).
- The pattern of failure to control intense, repetitive sexual impulses or urges and resulting repetitive sexual behaviour is not better accounted for by another mental disorder (e.g., Manic Episode) or other medical condition and is not due to the effects of a substance or medication.
- The pattern of repetitive sexual behaviour results in marked distress or significant impairment in personal, family, social, educational, occupational, or other important areas of functioning. Distress that is entirely related to moral judgements and disapproval about sexual impulses, urges, or behaviours is not sufficient to meet this requirement.

have noted that childhood trauma, including child sexual abuse and neglect, is a significant factor in adults presenting as sex addicts (Fong, 2006). Many people with sexual addiction admit their problem began before they were 16 (40%) and some under the age of 10 (6%) (www.sexaddictionhelp.com, 2014, as cited in Hall, 2015).

Early-onset sexualisation has also been linked to sex addiction (Feuerborn, 2015). This could include sexual abuse, but also exposure to pornography. Such exposure can have an impact on a child's sexual attitudes – in particular, it can lead to an increased awareness of sex and early sexual experimentation and activity (Feuerborn, 2015).

According to George et al. (2020), pathologically pursuing reward and/or relief either through a substance or behaviour suggests a dysfunction in brain reward circuitry. Sexual activity results in the release of neurotransmitters (such as dopamine and endorphins) that give rise to pleasure, and it is argued that those individuals that indulge in sexual activity to excess may end up needing higher levels of neurotransmitters in their systems (Padwa & Cunningham, 2010). As with alcohol or other chemical use, sexual arousal initially produces a state of euphoria that helps reduce stress. Sex addicts note a neurochemical high when they think about and prepare for a sexual act. However, once this euphoric feeling subsides, it can result in craving, relapse and further distress.

Other factors that may contribute to sex addiction include low serotonin levels, having a pre-existing mental health condition such as anxiety and/or depression, having an impulse control disorder or bipolar disorder, and having one or more parents addicted to sex or substances (Schreiber, Odlaug & Grant, 2011, Fong, 2006).

Table 1: Diagnostic criteria of Compulsive Sexual Behaviour Disorder (CSBD) in the ICD-11 (WHO, 2022)

reported as a result of shame and/or embarrassment and the stigma surrounding sexual behaviours (Dickenson, et al., 2018). Additionally, studies on the prevalence of compulsive behaviour within the general population remains scarce (Brikin, 2022). Of note, women are less likely to seek out support as a result of shame (Dhuffar and Griffiths, 2016).

The increasing use of digital media for sexual stimulation

through consumption of porn and masturbation is also likely to significantly increase the risk of developing CSBD (Caponnetto et al., 2018).

Causes of sex addiction

As with all types of addiction, controversy abounds as to the underlying causes. Part of the problem is that no single biological cause has been found that can explain its origins (Fong, 2006). However, numerous researchers

Therapeutic intervention for sexual addiction

Therapy for sexual addiction is a long journey. It must examine the underlying reasons that cause an individual to form their addiction in the first place (for instance, trauma) and, further, provide effective strategies that will help prevent relapse (Hall, 2012).

The main difference between treating sexual addiction and substance addiction is that total abstinence is not the ultimate long-term goal with sexual addiction. Rather, individuals work closely with their therapist to change behaviour by examining those behaviours that are troublesome and those that are not, and only abstaining from those that are problematic (Fong, 2006).

Goals of sexual addiction therapy are numerous, including: reduce and eliminate the sexual behaviour that is compulsive and shame-inducing; equipping the individual with the ability to manage cravings and urges; raising awareness of triggers and identifying behavioural strategies to address them; help the client establish a support system that includes specific contacts if relapse looks likely; and help the client reduce distorted thoughts/beliefs and address denial (Hayden, 2013).

While the therapeutic alliance is important in therapy for any presenting issue, it is especially the case with sexual addiction (Fong, 2006). Clients presenting with sexual addiction often enter therapy paralysed by shame and the need for therapists to be aware of this cannot be overstated. The therapeutic space may be the first time an individual has felt able to speak openly about the behaviour that has caused them so much emotional turmoil.

In the words of Stephen (aged 61) in Barnett (2012): “The addiction is incredibly isolating. Deep down, you feel terribly ashamed of what you’re doing, your self-esteem hits

Shame and feelings of not being worthy human beings are central in sex addiction

the ground, and you think you’re not worthy of being loved at all ... the addiction really is a very bleak place to be.”

Cognitive Behavioural Therapy

Cognitive Behavioural Therapy (CBT) is a highly-directive talk therapy that helps individuals change the way they think (cognitive) and what they do (behaviour). Of note, it is one of the main therapies for treating substance and behavioural addiction (Fong, 2006).

CBT for sex addiction centres on identifying a client’s triggers, brainstorming how to cope when they arise, and examining and redefining cognitive distortions (Hall, 2012). Therapists can help clients manage stress better (emotion regulation) and improve their coping skills, particularly with regards to anxiety and depression, thus reducing their susceptibility to their compulsive sexual behaviour. CBT also focuses on altering the client’s maladaptive core beliefs (Sadock & Sadock, 2008). These negative beliefs are central to dysfunctional patterns of living and only serve to drive the dependency on compulsive sexual behaviour. Therapists can introduce positive core beliefs that change the way an individual sees themselves, others and the world around them. Crucially, relapse prevention should be explored to help clients anticipate and manage situations that may potentially cause relapse.

Motivational interviewing

Motivational interviewing (MI) is “a directive, client-centred counselling style for eliciting behaviour change by helping clients to explore and

resolve ambivalence” (Miller & Rollnick, 1995, p. 326). MI helps individuals to recognise their current problems and do something about them and has been shown to be particularly useful when clients are unsure or reluctant to change their behaviour (Miller & Rollnick, 1995).

The therapist’s role in MI is not to force change on a client, rather, emphasis is placed on helping the client find their inner desire to change and to actively encourage them to make better, informed life choices based on such internal desire. The motivation comes from informing clients that they are able to control their behaviour(s) and make choices that are healthy for themselves and those around them (Miller & Rollnick, 1995).

Shame and feelings of not being worthy human beings are central in sex addiction. MI helps clients to overcome such feelings and helps promote self-efficacy. This is done through reflective listening whereby the therapist echoes statements that the client has made from a neutral perspective. Central here is the therapeutic relationship and its provision in helping clients see beyond their perceived failings and help reinforce their positive qualities.

Group therapy

Therapists have long championed group therapy as a treatment modality for sex addiction (Carnes, 1991). While this may seem an unlikely approach, given the shame-based profile of the condition, the approach is effective for this very reason. Group therapy allows individuals to hear personal accounts of others who are struggling with the same addiction. These ‘others’ can be seen as loving, encouraging and worthwhile, thereby dispelling the myth that sex addicts are defined by their addiction and are inherently bad or flawed (Hall, 2012). Further, group

therapy allows for the sharing of techniques to help prevent relapse. The formation of friendships, based on solidarity, compassion and understanding are another benefit of group therapy (Hall, 2012). One criticism of this therapy is that not everyone is comfortable discussing their stories as this may prove a deterrent to some.

Conclusion

Society has never been more sexualised and access to sexually stimulating material has never been more available, which is likely to see a rise in the incidence of sexual addiction in the future. Individuals presenting with an insatiable sexual appetite that can become compulsive and have serious detrimental consequences has been documented in literature throughout history under various names.

While there is no definitive cause of sexual addiction, researchers have noted links with childhood exposure to trauma, neglect and early-onset sexualisation. Growing up with a parent who is addicted to either sex or substances also has been posited.

Therapy for sexual addiction aims to reduce and eliminate those sexual behaviours that are compulsive and invoke shame, assist clients with the skills to manage cravings and make them aware of personal triggers.

Given that we live in a digital age and are constantly bombarded with sexual stimuli, developing a sex addiction has become too easy. The WHO's recent decision to include compulsive sexual behaviour disorder in the *ICD-11* has shone a much-needed spotlight on compulsive sexual behaviours and will hopefully lead to further investigation and research that will translate into effective and accessible treatment options. ☺

Kaylene Petersen

Kaylene Petersen worked as a sub-editor in Australia, the UK and Ireland before obtaining a BSc (Hons) in Counselling & Psychotherapy. An accredited

counsellor and psychotherapist in private practice in Kilkenny city, her areas of specialty include relationship issues, self esteem, working with adult survivors of narcissistic abuse and childhood emotional neglect. Kaylene can be contacted at kaylene.petersen@gmail.com

REFERENCES

- Abel, N. & O'Brien, J. (2015). *Treating addictions with EMDR therapy and the stages of change*. Springer Publishing Company.
- Anholt, R.H. & Mackay, T.F.C. (2010). *Principles of behavioral genetics*. Elsevier.
- Andreassen, C.S., Pallesen, S., Griffiths, M.D., Torsheim, T., Sinha, R. (2018). The development and validation of the Bergen-Yale Sex Addiction Scale with a large national sample. *Frontiers in psychology*, 9, Article 144. <http://doi:10.3389/fpsyg.2018.00144>
- Barnett, L. (2012, January 10). Shame: Sex addicts reveal all. *The Guardian*. <http://www.theguardian.com/lifeandstyle/2012/jan/10/sex-addicts-talk>
- Briken, P., Wiessner, C., Stulhofer, A., Klein, V., Fuß, J., Reed, G.M., & Dekker M. (2022). 'Who feels affected by out of control' sexual behaviour? Prevalence and correlates of indicators for ICD-11 compulsive sexual behaviour disorder in the German Health and Sexuality Survey (GeSiD). *Journal of Behavioural Addiction*, 11(3), 900-911. <http://doi:10.1556/2006.2022.00060>
- Birchard, T. (2015). *CBT for compulsive sexual behaviour: A guide for professionals*. Routledge.
- Campbell, M. M., & Stein, D.J. (2015). *Behavioural addiction: DSM 5 and beyond*. Oxford University Press. <https://doi.org/10.1093/med/9780199391547.003.0005>
- Caponnetto, P., Maglia, M., Prezzavento, G. C., & Pirrone, C. (2022). Sexual addiction, hypersexual behaviour and relative psychological dynamics during the period of social distancing and stay-at-home policies due to COVID-19. *International Journal of Environmental Research and Public Health*, 19(5), 2704. <http://doi:10.3390/ijerph19052704>
- Carnes, P. (1983). *The sexual addiction*. CompCare.
- Carnes, P. (1991). *Don't call it love: Recovery from sexual addiction*. Bantam.
- de Roos, M. S., Longpré, N., & van Dongen, J. D. M. (2024). When Kinks Come to Life: An Exploration of Paraphilic Behaviors and Underlying Predictors. *The Journal of Sex Research*, 1-13. <https://doi.org/10.1080/00224499.2024.2319242>
- Dhuffar, M. K.; Griffiths, M.D. (2016). Barriers to female sex addiction treatment in the UK. *Journal of Behavioural Addiction*, 5(4), 562-567. <http://doi:10.1556/2006.5.2016.072>
- Dickenson, J. A., Gleason, N., Coleman, E., & Miner, M. H. (2018). Prevalence of distress associated with difficulty controlling sexual urges, feelings, and behaviours in the United States. *JAMA network open*, 1(7). <http://doi:10.1001/jamanetworkopen.2018.4468>
- Ferree, M.C. (2010). *Stones: women redeemed from sexual addiction* (2nd ed.) InterVarsity Press.
- Feuerborn, W. (2015). Hypersexual behaviour: Helping clients through diagnosis and treatment. In E.M.P. Schott, E.L. Weiss (Eds). *Transformative social work practice*. Sage.
- Fong, T.W. (2006). Understanding and Managing Compulsive Sexual Behaviours. *Psychiatry*, 3(11), 51-58.
- Garcia, F.D. & Thibaut, F. (2010). Sexual addictions. *American Journal of Drug and Alcohol Abuse*, 36(5), 254-60.
- George, M., Maheshwari, S., Chandran, S., Rao, S.S., Shivanand, M. J., & Sathyanarayana Rao, T.S. (2018). Psychosocial intervention for sexual addiction. *Indian Journal of Psychiatry*, 60(4), S510-S513. https://doi:10.4103/psychiatry.IndianJPsychiatry_38_18
- Hall, P. (2012). *Understanding and treating sex addiction: A comprehensive guide for people who struggle with sex addiction and those who want to help them*. Routledge.
- Hall, P. (2015). *Sex addiction: The partner's perspective: A comprehensive guide to understanding and surviving addiction for partners and those who want to help them*. Routledge.
- Hayden, D. (2013). *Total sex recovery - A guide to therapy*. Xlibris Corporation.
- Jamieson, S., & Dowrick, C. (2021). Comparing public perceptions of substance addictions and behavioural addictions. *Drug and Alcohol Dependence*. <https://doi.org/10.1016/j.drugalcdep.2020.108472>
- Karila, L., Wéry, A., Weinstein, A., Cottencin, O., Petit, A., Reynaud, M., Billieux, J. (2014). Sexual addiction or hypersexual disorder: Different terms for the same problem? A review of the literature. *Current Pharmaceutical Design*. 20(25), 4012-20. <https://doi:10.2174/13816128113199990619>
- Krafft-Ebing, R.F. (1886). *Psychopathia Sexualis*, reprinted by Bloat Books, 1999.
- Miller, W.R. & Rollnick, S. (1995). What is motivational interviewing? *Behavioural and Cognitive Psychotherapy*, 23(4), 325-334.
- Padwa, H. & Cunningham, J. (2010). *Addiction: A reference encyclopedia*. ABC Clío
- Sadock, B. J. & Sadock, V.A. (2008). *Kaplan & Sadock's concise textbook of clinical psychiatry* (3rd ed.). Lippincott, Williams & Wilkins.
- Sadock, B.J. & Sadock, V.A. (2011). *Kaplan and Sadock's synopsis of psychiatry: Behavioural sciences/clinical psychiatry* (10th ed.). Lippincott Williams & Wilkins.
- Schreiber, L., Odlaug, B. L. & Grant, J. E. (2011). Impulse Control Disorders: Updated Review of Clinical Characteristics and Pharmacological Management. *Frontiers in Psychiatry*, 2,(1). <http://10.3389/fpsy.2011.00001>
- Valenciano-Mendoza, E., Fernández-Aranda, F., Granero, R., Gómez-Peña, M., Moragas, L., Mora-Maltas, B., Håkansson, A., Menchón, J. M., & Jiménez-Murcia, S. (2021). Prevalence of suicidal behaviour and associated clinical correlates in patients with behavioural addictions. *International Journal of Environmental Research and Public Health*. 18(21). <http://doi:10.3390/ijerph182111085>
- West, R. & Brown, J. (2013). *Theory of addiction* (2nd ed.). Wiley-Blackwell.
- World Health Organization. (2022). *ICD-11: International classification of diseases (11th revision)*. <https://doi:icd.who.int/>