

Addictions. Substance addictions vs. behavioural addictions

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Abstract

Addictions in contemporary society present an increasingly significant problem, which can negatively influence the personality, relationships, and general health status of affected individuals.

Current theories regarding the causes of addictions do not provide universally accepted models. Furthermore, the issues of terminology that should be applied to behaviours associated with addictions are still being disputed. The present article discusses the development of classifications of various addiction types.

Key words: addictions, behavioural addictions, history of classification

Addictions in contemporary society present an increasingly significant problem [1,2,3], which can negatively influence the personality [4,5,6], general health status of affected individuals [7,8,9], functioning of families [10,11] and other social groups [12,13].

Current theories regarding the causes of addictions do not provide universally accepted models. Furthermore, the issues of terminology that should be applied to behaviours associated with addictions are still being disputed. Moreover, the issues of terminology that should be applied to addiction-related behaviours are still being disputed. Compulsive use of psychoactive substances was initially defined as a habit; this term had no medical connotations. In 1957, the Committee of Experts of the World Health Organization (WHO) distinguished "habitual substance use" (lack of physical dependence and slight or no tendency to increase the doses of substances) from "substance addiction". In 1964, the Committee of Experts replaced both terms with "psychoactive substance addiction". At the beginning of the 20th century, addiction was commonly used medical terminology for compulsive use of psychoactive substances and replaced the terms of "a habit", "insobriety" and "morphiomania". Initially, the term "addiction" was applied to alcohol and drugs, subsequently to nicotine and became commonly used in publications in the field of public health and psychiatry [14]. In 1964, the WHO in-

roduced the term dependence to the International Classification of Diseases (ICD) and replaced the terms of addiction and habituation; the term encompassed both psychological and physical dimensions of compulsive use of psychoactive substances. Its introduction widened the range of addictive substances including those that cause psychological dependence. This more behavioural concept emphasized the significance of potent craving for substances and increasing difficulties in controlling the use of psychoactive substances [14].

Two of the most widely used systems of classification of mental disorders, i.e. the ICD and the Diagnostic and Statistical Manual (DSM), present the diagnostic criteria of psychoactive substance use disorders.

In the ICD 10, substance dependence syndrome is diagnosed when the following diagnostic criteria are fulfilled: three or more symptoms occur simultaneously over at least a month or over a shorter period yet repeatedly over 12 months [15]. The symptoms are as follows:

- potent craving for or compulsive substance use,
- impaired capacity to control behaviours related to substance use,
- physiological symptoms of withdrawal, when use of substances is reduced or discontinued,
- confirmed tolerance to the effects of substances,
- strong mental absorption with substance use,

- persistent use of substances despite clear evidence regarding their adverse effects [15].

According to the ICD 10, the term “substance” includes narcotics, drugs and toxic substances [15]. Eleven classes of substances have been distinguished: alcohol, amphetamine or similarly acting sympathomimetics, caffeine, cannabis, cocaine, hallucinogens, inhalants, nicotine, opioids, phencyclidine (PCP) or similarly acting arylcyclohexylamines, sedatives, hypnotics and anxiolytics [15].

In the DSM 5, the division into substance abuse and substance addiction has been abandoned; compared to the earlier DSM IVTR, this change was introduced based on the increasing literature data demonstrating that dependence is a continuum with two degrees of intensity- moderate and severe [16].

„ Substance use disorder” is the term used in the DSM 5 to describe a clinically significant functional impairment or difficulties and distress associated with 2 (or more) of the 11 criteria. The difficulties can persist for at least 12 months [16]. The DSM 5 contains the criteria for substance use disorders, intoxication, withdrawal syndrome, substance-induced disorders and undefined substance use-related disturbances [16].

At present, the WHO is developing the ICD 11. The Working Group has recommended that a grouping of impulse control disorders be retained in the ICD 11; these disorders should be defined as repeated failures to resist an impulse to perform an act that is rewarding to the individual (at least in the short-term) despite long-term harm to the individual or others [17]. It has been suggested that impulse control disorders should include pathological gambling, kleptomania, intermittent explosive disorders, and compulsive sexual behaviour disorders. Moreover, the Working Group has recommended that skin picking be added to the grouping of obsessive-compulsive disorders together with a new disorder, i.e. compulsive sexual behaviour.

Experts believe that there are no sufficient data to consider problematic Internet use or compulsive buying as distinct entities [17]. According to the Working group, the Internet “addiction” is heterogeneous (pathological game playing or watching pornography) and there is no enough data to support its inclusion in the classification [17].

Many modern definitions of addiction emphasize strong motivation to engage in activities that are not aimed at survival. Experiencing the above-

mentioned activities enhances motivation to undertake such behaviours despite inevitable adverse consequences.

The available study findings demonstrate that specific experiences are addictive whereas reactions to specific chemical substances are only their subtypes.

The boldest decisions regarding classifications of addiction were taken by the American Society of Addiction Medicine (ASAM). The definition of addiction released by ASAM in 2011 highlights that addiction is a chronic and neurobiological CNS disease; deficits in the function of brain reward, motivation, memory and related circuitry are essential for the pathomechanism of addiction [20].

Dysfunctions of circuitry mentioned above lead to characteristic biological, psychological, social and spiritual manifestations, which are reflected in the pathological pursuit of rewards or relief by the use of substances or behaviours.

The addicted individuals are characterized by the inability to consistently abstain, impairment of behavioural control, inability to control craving for substances, reduced recognition of significant problems with one’s behaviour and interpersonal relationships, and dysfunctional emotional responses. Another feature of addiction is recurrence of remissions and relapses. Due to the lack of engagement in the activities leading to recovery, addiction is progressing and can cause disability as well as premature death of the affected [20]. A significant novelty of the definition suggested by the ASAM is the fact that it includes not only psychoactive substance use but also behaviours whose repetition can lead to addiction.

The newest notion introduced is behavioural addiction, which is defined as repeated patterns of impulsive behaviours and inability to oppose the impulses, drives and urges associated with behaviours that are harmful to affected individuals and/or other people [18] or syndromes analogical to substance-related addictions in which the affected individual focuses on certain types of behaviour and not substance use [19].

The behaviours mentioned above include: pathological gambling, compulsive buying, pathological skin picking, sexual addiction (non-paraphilic hypersexuality), excessive sunbathing, kleptomania, problematic use of computer/video games, addiction to the Internet and its subtypes, trichotillomania, intermittent explosive disorders,

onychophagia, exercise addiction, orthorexia, and compulsive overeating [19].

In the DSM 5 working version, behavioural addictions were included; however, the final version of DSM 5 does not contain them.

In the DSM 5, gambling was the first behavioural addiction included in the chapter regarding addictions. Computer game addictions were placed in the group of disorders requiring further studies.

The mechanisms of behavioural addictions have not been fully elucidated, as compared to the mechanisms of psychoactive substance addictions, which is associated with sparse knowledge concerning animal models of behavioural addictions [21].

Substance-related and behavioural addictions have common features [22]:

- the course of addiction – the onset of psychoactive substance and behavioural addictions is observed during adolescence and early adulthood. Their course is chronic and recurrent; moreover, spontaneous recoveries are observed in both types of addiction.
- symptoms – both types of addiction are characterized by craving associated with emotional dysregulation before undertaking behaviours or before substance use; domination – a substance or behaviour continuously predominate in thinking, inability to resist substance use impulses or behaviour, compulsiveness [22];
- tolerance – urge to increase doses of substances or periods of use to achieve the expected effect, which becomes weaker with time [22], loss of control; abstinence associated with huge suffering when the substance is not supplied or the behaviour is not taken or both are limited;
- consequences – conflict, severe family, professional, social and school-related dysfunction,
- persistent substance use or engagement in behaviours despite obvious harmful effects experienced
- recurrence- a frequent tendency to use the substances or reengage in behaviours after the period of abstinence;
- a frequent tendency to take many substances or to undertake various addictive behaviours, common interrelations between substance and behaviour addiction [22];
- similar risk factors – impulsiveness, search for sensations, cognitive styles, impaired parental relations [22].

In psychoactive substance addictions and behavioural addictions, behaviours and substance use regulate moods - they reduce the severity of anxiety and induce positive mood. This positive mood decreases with the disorder duration and tolerance, which develops in both addictions and manifests itself as increased intensity of behaviours. Moreover, dysphoria during the periods of abstinence is commonly observed, comparable to withdrawal symptoms in psychoactive substance addictions.

Similarly to substance addictions, behavioural addictions lead to professional, family-related and financial problems.

Three types of behavioural addictions have been distinguished associated with new technologies, i.e. addictions to the Internet (on-line games, pornography, Internet gambling, excessive accumulation of information, excessive use of social portals), video games and cell phones. Some researchers highlight that television is a potentially addictive medium, especially among teenagers spending more than 2 hours a day watching television programmes [23]. They also notice some common elements essential for the development of these addictions: 1/ entertainment and feeling of membership provided by games, 2/ interactivity and availability of social interactions on the Internet and 3/ availability of cell phones.

Young has suggested the criteria of Internet addictions, which included:

- preoccupation with the Internet
- increasingly longer periods of Internet use
- failures to limit the periods of Internet use
- mood changes associated with attempts to discontinue Internet use
- staying on-line longer than intended
- negligence of important relations or opportunities due to excessive Internet use
- lies connected with Internet use
- Internet use to escape from problems or to relieve bad emotional states [24].

The term “video game addiction” does not specify whether the addiction regards on-line or off-line games. The DSM 5 classification identifies the Internet gaming disorder, which refers only to on-line games. On-line gaming is one of the most popular leisure time activities; in the United States, 58% of the population plays video games [25]. On-line gaming enables to experience pleasure, achievements and social interactions [25]. The main motivations for Internet gaming include social interactions and exploration [26]. The

massively multiplayer on line role-playing games (MMORPG) are the most complex games, which provide the most intensive experiences of social interactions [27]. Among all types of Internet addiction, on-line game addiction shows the strongest relations with compulsive Internet use; the available study findings demonstrate that even 27.5% of players fulfil the criteria of addiction [28].

Social portals are virtual communities; their users can create their own portals available for other users, communicate with people they know from real life and get to know new individuals [29]. The available studies demonstrate that 55%-82% of adolescents and young adults regularly use Internet websites [30]. Negative consequences resulting from excessive use of social portals include limited involvement in off-line social contacts, worse academic achievements and effectiveness of professional work, problems in relations with the family and friends. Moreover, the individuals using social portals are more exposed to critical comments and verbal aggression from other users, compared to the relations outside the Internet. The study findings reveal that people behave more offensively on the Internet than in face-to-face contacts [29]. According to some other studies, teenagers assessed negatively in social portals have reduced feelings of well-being [30]. Negative effects on social, academic and relation-related functioning as well as a limited use of other forms of leisure time activities and engagement in excessive use of social portals are the same as in psychoactive substance addictions and can be considered the criteria of behavioural addiction [30, 31]. The objective of behavioural addiction treatment is not complete abstinence, which seems difficult or even infeasible in modern social expectations regarding the use of new work-related and educational technologies. The aim is to teach the individuals who use the new media in a problematic manner how to control their behaviours.

Some researchers suggest to include orthorexia in the group of behavioural addictions [32]. Orthorexia is a form of disordered eating. The affected individuals excessively and compulsively concentrate on the quality of food products and proper processing of food [33]. Thinking about buying and preparing food gradually becomes superior to all other everyday activities. Abandonment of diet requirements induces the feeling of guilt and exacerbation of limiting behaviours. This excessive engagement in orthorexic behaviours limits social

contacts and reduces academic as well as professional effectiveness, which can be a criterion of behavioural addiction.

Both the experts deciding about the DSM 5 classification and other researchers emphasize the lack of current knowledge regarding behavioural addictions [25]. There are no standardized guidelines for diagnosis and treatment of behavioural addictions [25]. Moreover, the data regarding the course, frequency of remissions and recurrences are lacking. There are no sufficient data about comorbidities of behavioural addictions [34]. Further neuroimaging studies in suitably large populations are required. Furthermore, cultural factors of susceptibility to behavioural addictions have not been determined; the available studies indicate that Asians are highly likely to be more susceptible to Internet addictions, as compared to European or North American populations. Likewise, sex-related conditions are still not known [25]. Studies on addictions concern predominantly individual types of addictions. Research regarding various types of addictions in the same study population, aiming at creating models of interrelations among various types of addictions, are rare.

References:

1. Sussman S, Lisha N, Griffiths M. Prevalence of the addictions: a problem of the majority or the minority? *Evaluation & the health professions*. 2011; 34: 3-56.
2. Thege BK, Colman I, el-Guebaly N., et al. Social judgments of behavioral versus substance-related addictions: A population-based study. *Addict Behav*. 2015; 42: 24-31.
3. Morasco BJ, Pietrzak RH, Blanco C., et al., Health problems and medical utilization associated with gambling disorders: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Psychosom Med*. 2006; 68: 976-984.
4. Ko CH, Hsiao S, Liu G., et al. The characteristics of decision making, potential to take risks, and personality of college students with Internet addiction. *Psychiatry Res*. 2010; 175: 121-125.
5. Belcher AM, Volkow ND, Moeller FG. Et al. Personality traits and vulnerability or resilience to substance use disorders. *Trends in cognitive sciences*. 2014; 18: 211-217.
6. Konopka A, Pełka-Wysiecka J, Grzywacz A., et al. Psychosocial characteristics of benzodiazepine addicts compared to not addicted benzodiazepine users. *Prog Neuropsychopharmacol Biol Psychiatry*. 2013; 40: 229-235.

7. Croughan JL, Miller JP, Koepke J. et al. The study of personality characteristics and mental health in addicts. *Procedia-Social and Behavioral Sciences*. 2013; 84: 509-513.
8. Metrebian N, Groshkova T, Hellier J. Drug use, health and social outcomes of hard-to-treat heroin addicts receiving supervised injectable opiate treatment: secondary outcomes from the Randomized Injectable Opioid Treatment Trial (RIOTT). *Addiction*. 2015; 110: 479-490.
9. Norouzian H, Gholami M, Shakib P., et al. Prevalence of HCV Infections and Co-Infection With HBV and HIV and Associated Risk Factors Among Addicts in Drug Treatment Centers, Lorestan Province, Iran. *Int J High Risk Beh Add*. 2016; 5 DOI:10.5812/ijhrba.25028.
10. Orford J, Velleman R, Natera G, et al. Addiction in the family is a major but neglected contributor to the global burden of adult ill-health. *Soc Sci Med*. 2013; 78: 70-77.
11. Yan W, Li Y, Sui N, The relationship between recent stressful life events, personality traits, perceived family functioning and internet addiction among college students. *Stress and Health*. 2014; 30: 3-11.
12. Berridge V. History and its contribution to understanding addiction and society. *Addiction*. 2015; 110: 23-26.
13. Sarwar M, Soomro TR, Impact of Smartphone's on Society. *Eur J Sci Res*. 2013; 98: 216-226.
14. Berridge V, Mars S. History of addictions. *J Epidemiol Community Health*. 2004; 58: 747-750.
15. World Health Organization. International statistical classification of diseases and health related problems (The) ICD-10. Diss. World Health Organization, 2004.
16. American Psychiatric Association. Diagnostic and statistical manual of mental disorders (DSM-5®). American Psychiatric Pub, 2013.
17. Grant JE, Atmaca M, Fineberg NA, et al. Impulse control disorders and "behavioural addictions" in the ICD-11. *World Psych*. 2014; 13: 125-127.
18. Grant JE, Schreiber LR, Odlaug BL. Phenomenology and treatment of behavioural addictions. *Can J Psychiatry*. 2013; 58: 252.
19. Grant JE, Potenza MN, Weinstein A., et al. Introduction to behavioral addictions. *Am J Drug Alcohol Abuse*. 2010; 36: 233-241.
20. American Society of Addiction Medicine, Definition of Addictions: [online:] <http://www.asam.org/quality-practice/definition-of-addiction/> dostep: 7.03.2016
21. Potenza MN. The importance of animal models of decision-making, gambling and related behaviors: Implications for translational research in addiction. *Neuropsychopharmacology*. 2009; 34: 2623.
22. Marazziti D, Presta S, Baroni S. et al. Behavioral addictions: a novel challenge for psychopharmacology. *CNS spectrums*. 2014; 19: 486-495.
23. Odriozola EE, Labrador FJ, Iglesias EB. Adicción a las nuevas tecnologías en adolescentes y jóvenes. 2009.
24. Widianto L, McMurran M. The psychometric properties of the internet addiction test. *CyberPsychology & Behavior*. 2004; 7: 443-450.
25. Chih-Hung K, Internet gaming disorder. *Current Addiction Reports*. 2014; 3: 177-185.
26. Granic I, Lobel A, Engels R. The benefits of playing video games. *American Psychologist*. 2014; 69: 66.
27. Achab S, Nicolier M, Mauny F. et al. Massively multiplayer online role-playing games: comparing characteristics of addict vs non-addict online recruited gamers in a French adult population. *BMC psychiatry*. 2011; 11: 1.
28. Fuster H, Carbonell X, Chamarro A., et al. Interaction with the game and motivation among players of massively multiplayer online role-playing games. *Span J Psychology*. 2013; 16: E43.
29. Kuss DJ, Griffiths MD. Online social networking and addiction—a review of the psychological literature. *Inter J Env Res Public Health*. 2011; 8: 3528-3552.
30. Valkenburg PM, Peter J, Schouten AP. Friend networking sites and their relationship to adolescents' well-being and social self-esteem. *Cyber Psych Beh*. 2006; 9: 584-590.
31. Pawłowska B, Dziurzyńska E, Gromadzka K., et al. Objawy uzależnienia od telefonu komórkowego a korzystanie z internetowych portali społecznościowych przez młodzież. *Curr Probl Psychiatry*. 2012; 13: 103-108.
32. Aguglia E0, Arcidiacono ER, Pollicino C., et al. Stili di vita e dipendenze non farmacologiche. *Quaderni Italiani di Psichiatria*. 2010; 29: 9-16.
33. Janas-Kozik M, Zejda J, Stochel M., et al. Ortoreksyjne rozpoznanie. *Psychiatr. Pol*. 2012; 46: 441-450.
34. Masiak J. Współwystępowanie zachowań zagrożonych uzależnieniami od substancji psychoaktywnych i uzależnieniami behawioralnymi u studentów a czynniki osobowościowe i kliniczne. *Lublin: Czelej*; 2013.