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УДК 341.78:316.776(004.738.5)

Оригиналан научни рад

Примљен: 01.09.2020

Одобрено: 23.09.2020

Страна: 239-258

INTERNET ADDICTION DISORDER (IAD) AS A PARADIGM OF LACK OF SECURITY CULTURE

Summary: For about 30 years since its creation, the Internet became an inseparable part of everyday life and reality. The exponential growth of this all-reaching network brought tremendous benefits to human civilization. Still, it spread and diversified so much that it is being used by 4,5 billion people, which is about 60% of the human population. The complexity of the digital world is such that it became satisfactory, or even preferred reality in contrast to the one we live in. In extreme cases, people form a pathological connection to that digital reality, whose attributes are similar to the referent ones for traditional addictions disorders. Although there is no scientific consensus about whether excessive use of the Internet is a psychological disorder that can be categorized as an addiction disease, the problem of excessive use of digital content exists. It leaves consequences both on the individual suffering from the problem and the social systems. Diversification of the Internet generated numerous subcategories of pathological relationship to Internet content, different in the object of pathological relationship and the age group, out of which the authors in this paper analyzed three – online video games, social media, and Internet pornography. By the end, the authors stress the significance of Internet security culture awareness as a preventative factor for the development of an addictive relationship to online digital content.

Key words: Internet, digital addiction, video games, social media, Internet pornography, security culture

Introduction

For more than twenty years, many researchers are analyzing various aspects of the influence of the Internet on human life and society, which means the Internet was academized in the first years of its existence. That can mean that since its inception, it was recognized as a phenomenon so powerful it can become defining for many spheres of life, and by that, fundamental for scientific research. On the other side, the exponential growth of the Internet in the sense of content, number of con-

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nected devices, and number of users made the Internet an additional space for living, and for many people, the virtual reality of online content became an inseparable part of reality they live in. The problem occurs when the relationship of some persons to digital content progresses in such a way it gets attributes of dysfunctional behavior, which by its volume and manifestations relatable to addiction diseases¹. There are discussions in the scientific community whether Internet addiction is a psychological disorder or not, as well as whether it is a separate disorder, or whether the use of the Internet or, in the broader meaning, digital content, is a catalyst for existing psychological morbidity. Still, the fact that there are many people for which it can be said that they show attributes of digital content and Internet addiction in a measure it affects their everyday functioning, similar to nicotine, alcohol, or gambling addiction, as well as a loss of impulse control, particularly in situations when they are suddenly deprived of digital contents.

The Internet is more diverse every minute in the sense of content, and consequently the possibilities in gives its users. That complicates the problem, as it significantly widens the focus necessary to envelop all the relevant factors in research. Therefore, we shall talk about the Internet addiction disorder as an umbrella term for various forms of that disorders, diverse as is the content on the Internet, instead of talking about that disorder as a singular addiction disorder. Pathological relationship to the Internet and digital contents are manifested to social media, video games, news contents, pornographic contents, and no matter how hard we try, we could not mention them all. We will instead talk about common attributes shared by individual forms, as well as several significant separate forms of this phenomenon.

The development of the Internet in number and demographic attributes of its users moved this phenomenon from being tied exclusively to young people. Children and adolescents are the most vulnerable category, mostly because of insufficient psychophysical development in the moment of addiction development, and the prevalence of excessive use of digital content is the largest in that age group. Nonetheless, with the availability of the Internet and permanent connection to it, we can notice the problem of excessive or even pathological use of the Internet in all age groups. The term "notice "shall be taken with some reserve, as, for example, the conclusion that there is excessive use of pornographic content on the Internet we draw for the number of pornographic sites visits. The three largest and most visited pornographic websites – Xvideos, PornHub, and YouPorn have nearly 10 billion monthly visits², while just the first two have almost 25 million video clips. Naturally, we talk about only a couple of the largest websites, which are merely a tip of the iceberg of total Internet pornography, which would not exist in that measure if not for corresponding demand.

In this paper, we will focus on three categories of digital online contents to which users most often develop the pathological relationship: online video games,

¹ Željko Bjelajac (2017) *Bezbednosna kultura – umeće življenja*, Pravni fakultet za privredu i pravosuđe, Novi Sad, p. 533

² Željko Đ. Bjelajac, Aleksandar M. Filipović (2020) „The Internet and social networks as unlimited space for concentration and multiplied presence of pedophiles“, *The Culture of Polis*, year XVII (2020), special issue 1, pp. 29-40

whose excessive use is attributable to the younger population; social media, whose excessive use and unrealistically large significance to life are common for various age groups, but most prevalent in young adolescents; and the Internet pornography, whose excessive use is also common for multiple age groups, but which is generally mostly related to the adults. Besides of predisposition to forming a pathological relationship to digital online content, the lack of awareness of possible consequences of excessive use of digital online content and ignoring early symptoms also has an important role. In a broader sense, it is also the lack of the Internet security culture, which has multiple meanings – it points to potential dangers from the others. Still, at the same time, it also covers the potential risks we pose to ourselves. The increase in the level of awareness of the significance of Internet security culture is inversely proportional to the number of problems that occur with the irrational and unsafe use of the Internet. As such, it represents an essential first step in the decrease in the number of persons who had developed a pathological and addictive relationship to digital online content.

Escalation of digital addiction

To say that the Internet is useful is practically an oxymoron – since the Internet, as a global computer network, was created to be useful. Even before Tim Berners-Lee developed the World Wide Web (www) technology in 1989, there were online networks on a smaller scale, like Arpanet, the project of the American Department of Defense and its agency ARPA (Advanced Research Projects Agency, now DARPA, Defense Advanced Projects Agency), initiated in 1966 to allow access to remote computers. Arpanet was the first to use specific technical protocols, which are the foundation of online communication even today. Establishment and development of the global computer network for the general public coincided with the era of fast technological advancement, particularly in information technologies, so today the majority of people have a device so powerful it can perform an enormous number of computations per second while being connected to the Internet at all times in their pockets – which, logically, brought diversification of available content as well as enabling certain things impossible in previous stages of the technological development. The foundation of the Industrial Revolution 4.0 is the Internet of Things (IoT), which is a system of interconnected computers and machines where interaction between people or between a human and a computer is not necessary, which is only to illustrate how far the development of Internet reached and to give a hint how will the Internet of the future look like.

Naturally, the Manichean nature of all the things and phenomena on Earth gives the Internet its negative aspects, and in addition to immeasurable usefulness, it can create enormous damage. Potential negative aspects of the Internet are intensified by the fact that it is still a young technology, despite generations that came of age with the Internet as an integral part of their lives since they were born. Previous technological inventions that changed the way the society works arrived relatively slowly to users who weren't prepared or ready for it, but in this case, with the com-

bined fast improvement of nanotechnology and, consequentially, other branches of information and communication hardware and software, the possibility of unlimited use of the Internet reached the palms of the people to whom the use of the Internet was not an intention when they were purchasing, for instance, a mobile phone. The newness and innovation of the Internet brought the spread of cybercrime, which is on the very fertile ground on the Internet, which is brimming with users who approach the Internet and all of its parts surprisingly naively. Cybercrime poses a big problem for countries and commercial subjects; therefore the European Commission in 2001 adopted the European convention on cybercrime, which recognizes four basic forms of crimes categorized as cybercrime: acts against confidentiality, integrity and availability of computer data and systems, acts related to hardware – where forgery and theft are the most common, acts related to content – chiefly child pornography and acts related to copyright and intellectual property breaches³. A question that can be interesting both to researchers of the human psyche and researchers of security culture is why the people have much more trust in people and contents they meet on the Internet compared to the same situations in the physical world. In a broader sense, the elements that are factors of the genesis of digital addiction lie precisely in that specific relationship to digital online content.

Although there is no scientific consensus on whether Internet addiction is a psychological disorder, there are serious researches that argue both positions. Professor Kimberly Young of the University of Pittsburgh at Bradford worked in Internet addiction disorder⁴. By using the criteria of DSM-IV, she had developed a test for the detection of Internet addiction (IAT, Internet Addiction Test). According to the test, in order for a person to be classified as an Internet addict, they shall meet at least five out of eight criteria in the period of at least six months⁵: preoccupation with the Internet, development of tolerance, inability to control the Internet use, staying online longer than intended, problems in social relationships due to Internet use, lying about the time spent online, and perception of the Internet as a way of escaping from problems. The gambling addiction is considered the closest disorder to the Internet addiction, due to common fundamental dissimilarity to classical addiction disorders (drugs, alcoholism, smoking) in the fact that no substances are introduced into the organism, but a certain degree of satisfaction and excitement is reached by use of technical means⁶. We shall stress that compared to 2004, when professor Young published her research, there are significant differences today when everyone is permanently connected to the Internet, so the criterium about lying about the time spend online becomes a bit obsolete. The other significant difference is that in 2004 there were no social media with billions of users which are online communities where the largest share of communication and contacts are being made, and in the situation where many people practically live in the virtual world, it is difficult to

³ Željko Bjelajac, Aleksandar Filipović (2019) “Misuse of the Internet as a part of security challenges, risks and threats”, *SETI 2019, Book of Proceedings*, pp. 483-495

⁴ Željko Bjelajac (2017), op. cit., p. 534

⁵ Kimberly Young (2004) “Internet Addiction: A New Clinical Phenomenon and its consequences”, *American Behavioral Scientist*, Vol. 48, No. 4, pp. 402-415

⁶ Željko Bjelajac (2017), op. cit., p. 533

present that addictive nature as something negative or to separate it from that behavior pattern as a whole. It is practically a social consensus that online social life is not only a substitute or supplement to social life but an accepted form of social life itself. Therefore, we will focus only on extreme forms that lead to psychological or social dysfunctions and asocial and antisocial behavior.

Video games are the most elaborate and imaginative digital worlds and environments. As such, they contain the most considerable potential for immersion and sojourn into a digital world. The combination of such nature and the competitive online component gives purpose and function to that digital world, as well as an additional reason to spend more time there. It is also important that in the majority of online video games, a session cannot be paused, since one plays with other people whether as cooperators or competitors, so it additionally creates a tendency of excessive gaming, which is harmful mostly in the sense of physical health. For it to be harmful to mental health, generally, previous psychological morbidity shall exist, which can be innate or learned, mostly by parental misgivings in raising the child. Unfortunately, such cases exist, and these are the ones we most often hear about, which ended with a violent crime caused by the excessive playing of violent video games. But we shall have in mind that violent video games are intended for mature audiences and not for children, and children could not obtain such games or play them excessively and develop an addiction or learn behavior models from video games if their parents actively took care what their children do. That creates a harmful generalization that often leads to the untrue conclusion that all video games are bad and harmful, particularly for children. On the contrary, video games can be beneficial for the intellectual and social development of children, but their parents have to be the ones to choose and control the content their children use. Still, the academic approach to the phenomenon implies we envelop both the typical and the outlier cases in our study, and we will approach them in the later sections of this paper, as well as to other two forms of pathological relationship to digital online content we selected for this study.

A profile of an Internet addict and typical subcategories of the addiction

Due to extensive diversification of the Internet and the great number of different content to which a pathological relationship with attributes of the Internet addiction can be developed, it is complicated to define a typical profile of an Internet addict, in contrast to traditional addiction disorders where it is easier to identify common traits in a large number of affected, so it is easier to define a profile as uniform as possible, with logical reserves that follow any effort of generalization (here we think about the fact that in every addiction disorder we have affected persons who do not fit general categorization and profile). Before we move to subtypes of the Internet addiction, we shall say that all the age groups are susceptible to developing the addictive relationship to the Internet, but most attention is given to children and adolescents as a category at risk, because of the susceptibility of developing an addictive connection to the Internet and because of dramatic consequences any ad-

diction disorder leaves on young, undeveloped persons in both physical and mental sense. And while this phenomenon is not exclusively tied to children and adolescents, there is an opinion that the profile of an Internet addict is typically a teenager to young adolescent, who predominantly use the Internet as the source of entertainment and who spend all of their free time using Internet contents, including the time that should be dedicated to school and extracurricular activities, and that because of that their success and results in real life suffer. Also, a certain dissatisfaction with themselves or their surrounding is often added to that general profile, which intensifies the affinity to escapism offered by online digital content. Many factors can influence the susceptibility to Internet addiction, but it seems that individuals who suffer from anxiety and depressive disorder have more visible predispositions for developing an addiction to the Internet. It is estimated that 50-60% of people with an anxiety disorder simultaneously suffer from a depressive disorder, and vice versa. These disorders can hardly be overcome by the power of will, so these individuals can turn to the Internet as a support mechanism to fill in "the life blanks". Similarly, shy persons and persons who are not enough socially adapted can be a high-risk category in relation to developing an Internet addiction disorder. Constant thinking about what other people will tell or perceive in their behavior is a dominant attribute of shy persons⁷. On the other side, the Internet offers anonymity and alternate identities more than any other social system or technology, so from the aspect of fears of shy or not enough socialized persons, what will other people see in their appearance, behavior, reactions, the Internet is the safest place. In the sense of anonymity and alternate identities, video games are perhaps even safer and more immersive space, but video games by their nature demand the activity from their users, which is not related to introversion, because the necessary action is not an activity in communication, but only the activity the gameplay of a video game demands. In that sense, the Internet is a more preferred digital space for passive psychological types compared to video games, although these two spaces often overlap.

Benjamin Sadock and Virginia Sadock⁸, some of the greatest authorities and most influential authors in modern psychiatry, recognized five subtypes of the Internet addiction⁹: *cybersexual addiction*, which is a subtype which implies the presence of the intensive need for sexual stimulation on the Internet; *cyber relationship addiction*, which relates to the intensive need of users for making contacts on the Internet; *net compulsion*, which relates to the intensive need for purchasing on the Internet, where persons who have a propensity for constant gambling, buying and selling on the Internet are included; *information overload*, which relates to excessive need for having information; and *computer addiction*, which is more general and is not

⁷ Željko Bjelajac (2017), op. cit., pp. 536-537

⁸ Benjamin J. Sadock, MD (1936-) is a professor of psychiatry at The New York University School of Medicine and NYU Langone Medical Center. He has authored/edited over 140 academic books and papers including Kaplan & Sadock's Comprehensive Textbook Of Psychiatry, which is widely considered to be one of the most important and influential works in modern psychiatry. Virginia Sadock is a clinical professor at the Department of Psychiatry at The New York University School of Medicine.

⁹ Benjamin J. Sadock, Virginia Sadock, (2007) *Kaplan and Sadock's Synopsis of Psychiatry: Behavioral Sciences/Clinical Psychiatry, Tenth Edition*, Lippincot Williams and Wilkins, Philadelphia

closely tied to the Internet use but more to computer use¹⁰. We shall stress that due to technological advances, the category that relates to computer addiction shall be expanded to mobile phones and tablets, which indeed are computational hardware. Their use decreased the share of use of computers in the classical sense – desktop and laptop computers. Additionally, computational hardware today can be, and often is, permanently connected to the Internet, so in a certain way, this subtype becomes equally tied to the use of the Internet and to use of the computer. And if we define that subtype as *handheld devices and computer addiction*, we can notice that it envelops two subcategories that are subject of this paper – dependence on playing violent video games and dependence on the use of social media, while the Internet pornography dependence, the third subcategory of this paper, belongs to the *cybersexual addiction* subtype.

Dependence on Internet video games, social media, and pornography

We said that there is no consensus among researchers whether Internet addiction is a separate psychological disorder. Even among scholars who believe internet addiction exists, there have been debates in the field about whether researchers should study generalized internet addiction (i.e., the totality of all online activities) and/or specific addictions on the Internet such as internet gambling, internet gaming and internet sex¹¹. In other words, do the persons who excessively gamble on the Internet suffers from gambling addiction or Internet addiction? This additionally supports the claim from the introductory segment of this paper that Internet addiction shall be considered as an umbrella term for various forms of these disorders. Still, by logic, we cannot speak about subcategories if there is no preceding category, regardless of the degree of scientific research or consensus.

And while the Internet Addiction Disorder (IAD) is not included in the latest edition of Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) of the American Psychiatric Association from 2013, Internet Gaming Disorder (IGD) is included in the section that lists conditions for further study. According to the DSM-5, the essential feature of Internet gaming disorder is persistent and recurrent participation in computer gaming, typically group games, for many hours. These games involve competition between groups of players (often in different global regions, so that duration of play is encouraged by the time-zone independence) participating in complex structured activities that include a significant aspect of social interactions during play. Team aspects appear to be a key motivation. Attempts to direct the individual toward schoolwork or interpersonal activities are strongly resisted. Thus personal, family, or vocational pursuits are neglected. When individuals are asked, the major reasons given for using the computer are more likely to be "avoiding boredom" rather than communicating or searching for infor-

¹⁰ Željko Bjelajac (2017), op. cit., p. 536

¹¹ Mark D. Griffiths, Halley M. Pontes (2014) "Internet Addiction Disorder and Internet Gaming Disorder are Not the Same", *Journal of Addiction Research and Therapy*, vol. 5, no.4. doi:10.4172/2155-6105.1000e124

mation¹². The suggested criteria for the definition of the case are given as persistent and recurrent use of the Internet to engage in games, often with other players, leading to clinically significant impairment or distress as indicated by five (or more) of the following in a 12-month period¹³: Preoccupation with Internet games. (The individual thinks about previous gaming activity or anticipates playing the next game; Internet gaming becomes the dominant activity in daily life); Withdrawal symptoms when Internet gaming is taken away. (These symptoms are typically described as irritability, anxiety, or sadness, but there are no physical signs of pharmacological withdrawal.); Tolerance - the need to spend increasing amounts of time engaged in Internet games; Unsuccessful attempts to control the participation in Internet games; Loss of interests in previous hobbies and entertainment as a result of, and with the exception of, Internet games; Continued excessive use of Internet games despite knowledge of psychosocial problems; Has deceived family members, therapists, or others regarding the amount of Internet gaming; Use of Internet games to escape or relieve a negative mood (e.g., feelings of helplessness, guilt, anxiety); Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of participation in Internet games¹⁴.

The foundation for the introduction of the Internet gaming disorder in DSM-5 was set by the reclassification of the gambling disorder into an addiction disorder rather than a disorder of impulse control as it was in the past. The most significant implication is that if an activity that does not involve the consumption of intoxicants (i.e., gambling) can be a genuine addiction accepted by the psychiatric and medical community, there is no theoretical reason as to why other problematic and habitual behaviors (e.g., shopping, work, exercise, sex, video gaming, etc.) cannot be classed as a bona fide addiction¹⁵. This relates both to Internet addiction disorder (IAD) and Internet gaming disorder (IGD). In a comprehensive study of problematic Internet use (PIE) and problematic online gaming (POG), the results have shown that the Internet use was a common activity among adolescents, while online gaming was engaged in by a considerably smaller group. Similarly, more adolescents met the criteria for PIU than for POG, and a small group of adolescents showed symptoms of both problem behaviors. The most notable difference between the two problem behaviors was in terms of sex. POG was much more strongly associated with being male. Self-esteem had low effect sizes on both behaviors, while depressive symptoms were associated with both PIU and POG, affecting PIU slightly more. In terms of preferred online activities, PIU was positively associated with online gaming, online chatting, and social networking, while POG was only associated with online gaming. After their findings from the study, the researchers concluded that the POG appears to be a conceptually different behavior from PIU, and therefore the data

¹² *Diagnostic and Statistical Manual of Mental Disorders: DSM-5* (2013) American Psychiatric Association, Arlington, p.797

¹³ *Ibid*, p. 795

¹⁴ *Ibid*

¹⁵ Mark D. Griffiths, Halley M. Pontes (2014) "Internet Addiction Disorder and Internet Gaming Disorder are Not the Same", *Journal of Addiction Research and Therapy*, vol. 5, no. 4, DOI:10.4172/2155-6105.1000e124

support the notion that Internet Addiction Disorder and Internet Gaming Disorder are separate nosological entities¹⁶. The necessity of researching the scientific distinction between the two disorders was created by colloquial equalization of these two disorders that are significantly different, and they are being equaled because of the dilemma whether the Internet addiction should be studied in general, or it should be studied by various concrete forms of pathological connection to Internet contents. Also, such classification in the DSM-5, which terminologically positions Internet gaming addiction equally as the Internet addiction and video game addiction, but as neither of them is recognized as a disorder, it makes the IGD practically represent a subset of two different sets that are not recognized, and further research will indeed be pointed to answering the questions about differences between the IAD and the IGD, as well as about similarities between the IGD and traditional disorder of excessive gaming, including the offline gaming that does not require Internet. The persons suffering the IGD make up only a minor share of the total number of gamers, but the total number of gamers is enormous, so that fraction is also large. Only in the US, more than 65% of adults play video games, and 63% of that percentage plays the games together with other players¹⁷, mainly using the Internet. The data from that research shows that the parents are generally aware of what video games their children play, while nearly half of the parents claim that they limit playing time for their children. Still, there are cases that someone commits a violent crime as a reaction conditioned by gaming addiction, so this problem shall be viewed both from the position of an addiction disorder and the position of video game content, as desensitization of violence is achieved by playing violent video games. Video games are such an efficient tool for that that they are professionally used in defense and security systems in psychological preparation for expected stress and desensitization of soldiers and security officers for stressful situations such as killing of enemy combatant¹⁸. In comparison to violence desensitization that appears in television, films, and other content, video games are more suitable for that, and because of that and their interactive nature, potentially more harmful, since while watching the consumer is passive. In contrast, with video games, a consumer must move the narrative by their activity, which makes the experience more intensive.

We can look at social media addiction both as a subcategory of the IAD and as a manifestation of personality disorder. To understand the mechanisms of social media influence on their users, we will identify the possibilities that particular social media give to their users, meaning which psychological mechanisms they activate in individuals. Facebook is a complex substitute for social interactions in the real world, with networking possibilities through the system of "friendship "and interac-

¹⁶ Király, Orsolya et al (2014) "Problematic Internet Use and Problematic Online Gaming are not the Same", *Cyberpsychology, Behavior, and Social Networking*, Vol. 17, No. 12, pp. 749-754, <http://doi.org/10.1089/cyber.2014.0475>

¹⁷ Essential Facts About Computer and Video Game Industry 2019, Entertainment Software Association, https://www.thesa.com/wp-content/uploads/2019/05/ESA_Essential_facts_2019_final.pdf, 21/06/20

¹⁸ Željko Bjelajac, Aleksandar Filipović (2019) „Gamification as an Innovative Approach in Security Systems“, *PaKSom 2019 - 1st Virtual International Conference: Path to a Knowledge Society- Managing Risks and Innovation Proceedings*, pp. 137-143

tions with the posted content, and with the possibility of sharing text, visual, audio, and video content, as well as links to other Internet pages. Instagram is a platform for sharing pictures and short video clips which has a much more significant commercial component compared to other social media, and it practically created a new profession – influencer – by the migration of a significant portion of marketing budgets from the print to online, majority of which ended up on Instagram. In addition to that new profession, numerous existing jobs also migrated to Instagram, from models to chefs. A picture tells a thousand words, but not every picture. There are dozens of billions of images on Instagram. If a social media is based on photo and video content only, it is not a satisfactory substitute to real social interactions, and because of that fact, juxtaposed to the popularity of this platform, which influences the amount of time spent using it, it is potentially the most problematic social media in the sense of addiction development potential. Twitter, on the other side, overtook the news functions from traditional media, as it made it possible for its users to announce whatever they want at any time, most often in the form of short text, while their number of followers represents their audience. As such, it is suitable both for personal use and account control for the people whose social media presentations are maintained by professionals. American president Donald Trump is an illustrative example of the migration of traditional communication to social media, as well as excessive use of social media, since on June 5th, 2020, he published 200 tweets and retweets in a single day, breaking his record of 142 tweets in a day he made during his Senate impeachment trial¹⁹. Trump's relationship with social media shows us that even probably the most powerful person in the world is not immune to the excessive use of social media. There are numerous other social media and online social platforms, but the common denominator is the fact they represent a substitute for real-world social interactions and communication for their users. On the other side, one research showed that the negative associations of Facebook use were comparable to or greater in magnitude than the positive impact of offline interactions, which suggests a possible tradeoff between offline and online relationships²⁰. As social media are a relatively new phenomenon, meaning that not enough time has passed so we can have at least one generation that was entirely virtually socialized for research, we cannot talk about the consequences of the primacy of online relationships with certainty. If we apply the criteria for the IGD from DSM-5 to social media addiction, and we replace the term "gaming "with "social media ", we will notice that enough people potentially meet the criteria, so the social media addiction could also be considered as an addiction disorder.

And while online gaming and social media appeared after the invention of the Internet, pornography exists for thousands of years, but with the Internet, it had a drastic transformation and expansion, both in the amount of content and the number of consumers. Research by Daspe and colleagues, which encompassed 1,036 partici-

¹⁹ Connor Perret (2020) „Trump broke his all-time tweeting record amid nationwide protests“, *Insider*, www.insider.com/trump-breaks-record-most-tweets-in-a-single-day-2020-6, 21/06/20

²⁰ Holly B. Shakya, Nicholas A. Christakis (2017) “Association of Facebook Use With Compromised Well-Being: A Longitudinal Study”, *American Journal of Epidemiology*, Vol. 185, Issue 3, pp.203–211, <https://doi.org/10.1093/aje/kww189>

pants, showed that a total of 84.5% of participants in the study reported having used Internet pornography in the past six months (98.1% of men and 73.1% of women). Results showed that among those who reported having used online sexual material, 80.3% of men and 25.5% of women have done so at least once a week. For both men and women, pre-recorded videos were the most commonly used type of online sexual material²¹. Additionally, modern communications media provide a range of alternative modes for expression of psychopathology. The Internet, in particular, is likely to become an important location for expressing different symptoms, including "pathological sexuality."²² Pathological sexuality is defined as persistent and intense sexual interests lasting at least six months, where sexual arousal is in response to atypical fantasies, behaviors, objects, situations, or partners. These behaviors, fantasies, or urges can cause distress, interpersonal difficulties, or functional disorders and usually involve non-consenting persons, nonhuman objects, juveniles, or the infliction of humiliation and suffering²³. Therefore, the availability and diversification of Internet pornography first influenced the increase of the number of people who access pornographic content on the Internet and then widened the specter of its supply even for the cybersexual pleasure of the people with certain psychosexual disorders and paraphilias. Some of these paraphilias are universally punishable by law, such as pedophilia, but some other paraphilias, like zoophilia, are not, so the corresponding branches of the Internet pornography grow unhindered. If we have a vast number of pedophiles and child pornography on the Internet, even with pedophilia and child pornography being universally punishable, what is the situation with other paraphilias and related content which are not incriminated and therefore does not have to be hidden? Still, in that case, we talk about existing paraphilias and other psychological disorders that use the Internet as a new and practically unlimited space for satisfying their needs. A much bigger number of Internet pornography users are not affected by a paraphiliac personality disorder, but the degree of use of Internet pornography points to elements of Internet pornography addiction, which, like gambling, is defined as behavioral addictions. Behavioral addictions form a largely unexplored field of study and usually exhibit a problematic consumption model: loss of control, impairment, and risky use. Hypersexual disorder fits this model and may be composed of several sexual behaviors, like the problematic use of online pornography²⁴. There are conflicting opinions about this disorder as well – is it an addiction model or an impulse control model? In any case, this form of problematic Internet use demands additional extensive studies, because aside from meeting the criteria for the definition of an addiction disorder, this subcategory poses a greater security and safety risk because it practically represents an unlimited space

²¹ Marie-Ève Daspe et al. (2018) "When Pornography Use Feels Out of Control: The Moderation Effect of Relationship and Sexual Satisfaction", *Journal of Sex & Marital Therapy*, 44:4, pp. 343-353, DOI: 10.1080/0092623X.2017.1405301

²² Dan Stein, et al. (2001) "Hypersexual Disorder and Preoccupation With Internet Pornography", *The American journal of psychiatry*. Vol. 158, issue 10, pp. 1590-1594. DOI: 10.1176/appi.ajp.158.10.1590.

²³ Kateřina Klapilová, Klára Bártová (2017) "Sexual Pathology", In: Shackelford T., Weekes-Shackelford V. (eds) *Encyclopedia of Evolutionary Psychological Science*. Springer, Cham

²⁴ Rubén de Alarcón, et al. (2019) "Online Porn Addiction: What We Know and What We Don't-A Systematic Review." *Journal of clinical medicine*, vol. 8 (1) 91, doi:10.3390/jcm8010091

for feeding and acting on deviant sexual fantasies, and as one of the criteria for the definition of addiction disorder is tolerance development, in cases of existing morbidity that cannot be satisfied with pornographic content on the Internet, there is a real possibility that the additional satisfaction demanded by increased tolerance move to the real world and create criminal damage to other people and living beings. Naturally, one can say that that would be the case of existing morbidity that exists independently of the Internet, but that would neglect the role of the Internet in the escalation or metamorphosis of said morbidity.

Importance of affirmation of the Internet security culture

The importance or even necessity of security culture, in general, can be visible from the following causality: states and societies cannot, or not want to eradicate the objects to which individuals develop addictions. Reasons are numerous – in the case of some narcotics, medicinal use of other ingredients extracted from the same plant overcomes the risks from misuse of street drugs extracted from said plant, enormous money in state budgets from taxes and excises paid by casinos, betting stores, tobacco and alcoholic drink manufacturers, and other phenomena whose importance vastly surpasses the potential damage. Intervention to restrict the freedom of the Internet to control it better would give the opposite result – incriminated content would only move deeper into the Internet, which is impossible to control even at the surface level because of the amount of raw data exchanged every second. Exactly that limitation of states and societies additionally stresses the importance of Internet security culture. Developed and strong security culture shall become not only a way of thought but the way of living and work as well. An individual who understands its place in the hierarchy of human needs simultaneously builds mechanisms of personal and collective protection. On the other side, an "absent" security culture that is not integrated into our lives will ease uncertainties and eventually bring numerous security mistakes, incidents, or accidents²⁵. Still, despite the awareness about security culture is a task for each individual, state and international organizations and society should take an obligation to raise that level to a necessary level, which would make individuals and societies to suffer fewer consequences by application of security culture principles in everyday life. Simply, as states and societies do not leave education and socialization to individuals, and instead, there are kindergartens and mandatory elementary schools, so states and societies shall introduce security culture to education systems. With the introduction of security culture to the education system a position that schools are socially fitted institutions primarily formed by their social surroundings, which they in turn form crucially. A security culture would prepare the young for the roles of adults, and adults for new roles in an efficient way²⁶. If incorporated in the educational corps in such manner, online security culture shall be adopted to at least mitigate the damage from cybercrime or prevent-

²⁵ Željko Bjelajac (2019) „Relevantnost introdukcije bezbednosne kulture u obrazovni sistem Republike Srbije“, *Kultura Polisa*, br. 40, god. XVI, 2019, pp. 231-244

²⁶ Ibid

ing becoming a victim in the first place. Such culture shall be adopted at an early age since the children are not only not exempt from cybercrime; they are often victims of the most heinous cybercrimes. But the fact that nearly all of us learned how to be safe in the real world encourages that all that people can learn how to be safe in the digital online world²⁷. Here we will once again stress that the Internet security culture is oriented on two sides, and is specific compared to other subcategories of security culture, because at the same time it teaches an individual how to protect themselves from others, and how to protect themselves from themselves, precisely because of the addictive nature of the Internet as a whole, and the contents distributed over the Internet.

Results and discussion

Regardless of the lack of consensus about the justification of medical classification of the Internet addiction disorder, or its consisting parts, there is a certain movement. We have mentioned that the American Psychiatric Association included Internet gaming disorder under "conditions for further study" in their respectable DSM-5, although it is one step less from full recognition of that disorder. WHO initiated a four-year consultation process to explore public health implications of gaming and establish clear boundaries for "gaming disorder". The classification derived from that consultation was published in the 11th edition of the *International statistical classification of diseases and related health problems* (ICD-11) the diagnostic classification standard used by health professionals ranging from hospital administrators to clinicians and researchers. According to ICD-11, a diagnosis of gaming disorder is appropriate for a person who, over a period of at least 12 months, lacks control over their gaming habits, prioritizes gaming over other interests and activities, and continues gaming despite its negative consequences²⁸. As we can see, the WHO went a step further and included the gaming disorder in their statistical classification of diseases and related health problems, which allows and encourages further research of this modern problem, and gives a clinical framework to medical practice. Still, there is a question of why the Internet addiction phenomenon is not recognized either as a disease or a disorder, and its subset, Internet gaming, is? The prevalence of the gaming disorder, according to existing researches, varies significantly and is between 1% and 10% in Europe and North America²⁹. Some countries, like Switzerland, have a broader approach, so a report commissioned by the Federal Office of Public Health published in 2018 found that around 1% of the population (approximately 70 000 people) is "problematic" internet users³⁰. If we accept that the percentages found in Switzerland are globally representative, and if we take the es-

²⁷ Željko Bjelajac, Aleksandar Filipović (2019) "Misuse of the Internet as a part of security challenges, risks and threats", *SETI 2019, Book of Proceedings*, pp. 483-495

²⁸ Gary Humphreys (2019) "Sharpening the focus on gaming disorder", *Bulletin of the World Health Organization*, 97, 382-383, <http://dx.doi.org/10.2471/BLT.19.020619>

²⁹ *ibid*

³⁰ *ibid*

timation that there are 4,5 billion Internet users in the world, that would mean that about 45 million people in the world can be considered as problematic Internet users, which is an alarming number, even more, because there is no unified scientific attitude about the Internet usage disorder in general which would be applied in medical practice so the mitigation of consequences of this widespread problem could begin.

When discussing video games, problematic use of them, and the number of active players and hours spent, we shall say that there are many different gaming platforms, systems, and services. Some of the platforms are on social media, and some games with the largest number of users are precisely mobile games promoted by social media. When we talk about the traditional form of gaming, in this paper, we analyzed the gaming service Steam, the most popular PC gaming service. Steam has about 90 million active monthly users³¹, and this platform offers about 30,000 games³². During the data interpretation, we shall have in mind that this is only one service for PC gaming, so to each statistical data, additional data about other PC gaming services, consoles, handheld devices, and mobile phones shall be added.

Fig.1 Steam Top Games by Current Players, July 27th, 2020³³

Game	Current players	Peak players	Hours played
Counter-Strike: Global Offensive	679,616	862,850	459,617,942
Dota 2	452,802	712,610	333,866,558
PlayerUnknown's Battlegrounds	279,754	469,568	156,841,833
Grand Theft Auto V	92,161	134,093	62,314,196
Tom Clancy's Rainbow Six Siege	71,505	122,438	56,792,991
Football Manager 2020	62,576	91,382	43,309,478
Team Fortress 2	60,187	89,648	51,158,066
ARK: Survival Evolved	51,745	92,431	43,752,856
Rust	48,053	97,741	42,467,444
Monster Hunter: World	45,516	144,000	33,998,413

The data from Steam tells that more than 1,3 billion hours were spent on playing of the ten currently most popular games on that service, which is something less than 149,000 years. This is data from only one service and ten games, and some of the most popular and massively played games are not even offered on that service. Nonetheless, the number is big enough that it looks troublesome even without the context and shows a great prevalence of problematic gaming. The consequences of excessive gaming can be both physical and psychological, and vary from mild to severe, sometimes even lethal for a player or persons from their surroundings. In addition to consequences on physical development from excessive sitting and inactivity, there is a whole specter of other consequences that affect persons with gaming

³¹ <https://www.gamesindustry.biz/articles/2018-10-24-steam-reaches-90m-monthly-active-users>, 27/07/20

³² <https://www.pcgamer.com/steam-now-has-30000-games/>, 27/07/20

³³ Top Games by Current Players, Steam, <https://steamcharts.com/top> , 27/07/20

addiction, as it is a composite of physical inactivity and mental activity in a virtual world. That leads to occasional news that a gamer killed someone, died from exhaustion, committed suicide, all because of excessive gaming³⁴. Naturally, only a small percent of total gamers have problematic gaming habits, and we shall stress that video games are not the problem, but people are. Video games are a beneficial phenomenon of modern time, a new medium and a new art form, with critical social functions. At the same time, they have great addictive potential, so it is essential to reach scientific consensus about the excessive gaming disorder (GD), so we could support those affected by it.

Another important subgroup of excessive use of the Internet is social media. Their excessive use brings psychological consequences rooted in sociological, as social media represent a substitute for traditional institutions and elements of society. Their distribution and specialization that answers the tendencies and desires of people are vast. More than half of total Internet users use Facebook monthly, and aside from the three social media we analyzed, there are many more exceptionally visited social media, communication services, content exchange platforms, etc.

Figure 2. *Social media user statistics*

Social media	Number of users (monthly/daily)	Average session length (in minutes)	Monthly sessions per user	Average monthly time (minutes/h)
Facebook	2,600,000,000/1,730,000,000 ³⁵	4.82 ³⁶	159.55 ³⁷	769.03/32.04
Twitter	330,000,000/150,000,000 ³⁸	3.53 ³⁹	44.77 ⁴⁰	158.03/6.58
Instagram	1,000,000,000/500,000,000 ⁴¹	2.95 ⁴²	68.8 ⁴³	202.96/8.46

These three social media are most often accessed via mobile apps, and nearly two whole days per month are spent on average, only on these three networks. Nonetheless, if we observe the general usage of mobile phones, we can notice that an average user spends much time using messaging services, like Viber, Whatsapp, Google Messenger, Facebook Messenger, etc. That being said, it speaks about the

³⁴ See: Željko Bjelajac (2017). *Bezbednosna kultura – umeće življenja*, Pravni fakultet za privredu i pravosuđe, Novi Sad, 2017, p. 539

³⁵ <https://www.oberlo.com/blog/facebook-statistics>, 28/07/20

³⁶ <https://www.statista.com/statistics/579411/top-us-social-networking-apps-ranked-by-session-length/>, 28/07/20

³⁷ <https://www.statista.com/statistics/579443/top-us-social-networking-apps-ranked-by-monthly-sessions/>, 28/07/20

³⁸ <https://www.oberlo.com/blog/twitter-statistics>, 28/07/20

³⁹ <https://www.statista.com/statistics/579411/top-us-social-networking-apps-ranked-by-session-length/>, 28/07/20

⁴⁰ <https://www.statista.com/statistics/579443/top-us-social-networking-apps-ranked-by-monthly-sessions/>, 28/07/20

⁴¹ <https://www.statista.com/topics/1882/instagram/>, 28/07/20

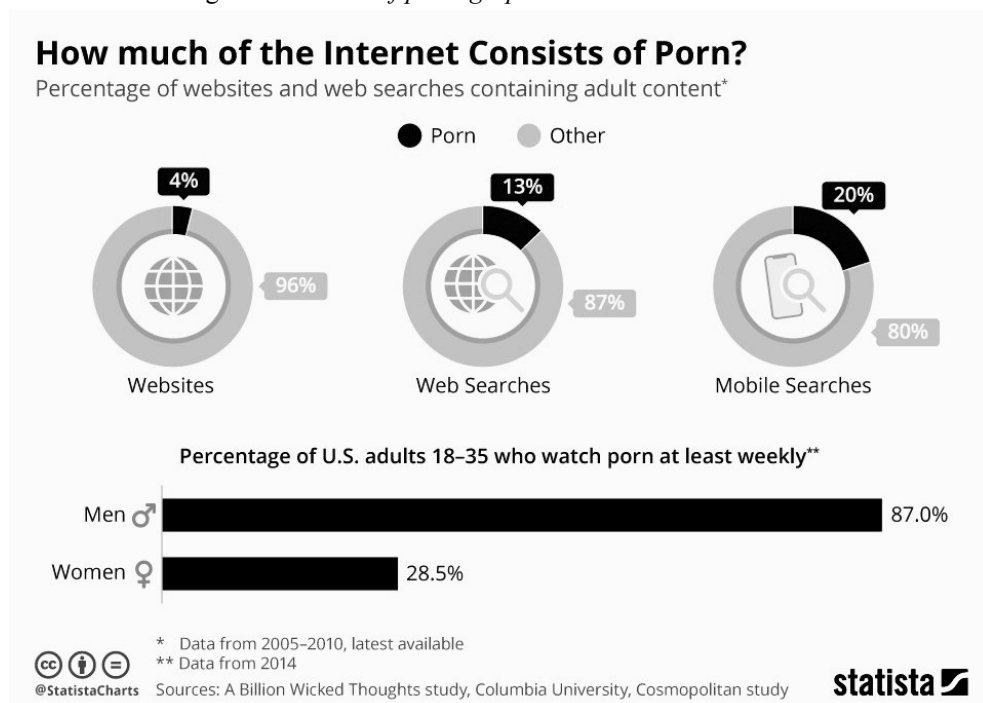
⁴² <https://www.statista.com/statistics/579411/top-us-social-networking-apps-ranked-by-session-length/>, 28/07/20

⁴³ <https://www.statista.com/statistics/579443/top-us-social-networking-apps-ranked-by-monthly-sessions/>, 28/07/20

migration of the social life to the Internet and tells more about a trend than the problematic use of social media and communication platforms. Still, problematic use of social media exists, and all social classes, age groups, and professions are equally susceptible to it, which makes it essential for further study.

Internet pornography changed its dominant form of use with the development of the Internet, which is vital for the interpretation of data from the following figure.

Fig.3. Prevalence of pornographic content on the Internet⁴⁴



According to estimates, there are about 1,8 billion web sites⁴⁵, which would mean there are about 72 million pornographic web sites. The most popular Internet search engine, Google, processes over 40,000 search queries every second on average, which translates to over 3.5 billion searches per day, and 1.2 trillion searches per year worldwide⁴⁶. If we compare data from Fig. 3 with this, we conclude that each second there are 5,200 queries about pornography, which is 455 million daily, or 166 billion porn queries annually. This relates only to Google searches, and many other search engines are very popular in exceptionally densely populated regions and countries. The problem is multiplied if we know that the transformation of porn sites and platforms happened, which consequentially changed the way of accessing Internet pornography. Traditional pornographic websites with explicit photos and videos were replaced by so-called "tube "websites, video hosting and distribution platforms,

⁴⁴ <https://www.statista.com/chart/16959/share-of-the-internet-that-is-porn/>, 28/07/20

⁴⁵ <https://www.internetlivestats.com/total-number-of-websites/>, 29/07/20

⁴⁶ <https://www.internetlivestats.com/google-search-statistics/>, 29/07/20

inspired by the most popular video exchange service that changed the face of the Internet, YouTube. These sites offer millions of pornographic videos, and the number of queries sent over porn hosting sites, such as PornHub or Xvideos should be added to the number of porn queries on search engines. As the prevalence of Internet pornography users in the total number of Internet users is high, an important question arises – what is the percentage of problematic use of Internet pornography in the total number of Internet pornography users, and how many people would need professional counseling or treatment so the problem would not spread uncontrollably.

A different problem that is not researched enough is the Internet sites specialized for paraphilias and other forms of deviant sexual behavior. And while the most popular porn sites do not offer content more problematic than mild sexual fetishes, there are sites dedicated to paraphilias. And while some paraphilias like pedophilia are universally criminalized, many others are not, including zoophilia. There are countries where bestiality is either legal or not regulated by laws, so it is not illegal. It's interesting that among the nations where bestiality is legal in Japan, where possession and distribution of zoophilia pornographic content are legal as well. Russia, Finland, Iceland, Romania, Hungary, Argentina are countries where bestiality is legal. Although the satisfying this paraphilia in any way is illegal in most of the world, it is troubling that bestiality is legal in some of the very developed countries. This sexual affinity disorder must be placed in the same legal status as pedophilia because although the consequences of such acts are not as dire as in cases of pedophilia, they are still numerous and potentially dangerous. In addition to blatant animal abuse by the sexual act that involves them, there are risks of transmitting zoonotic diseases, and even the risk of transmigration of certain viruses from animals to humans, which is a great threat for public health.

Conclusion

The concerns about problematic and excessive use of the Internet is as old as the Internet itself. Scientific researches of this phenomenon did not bring the scientific consensus whether the problematic Internet use shall be classified as a psychological disorder, impulse disorder, or addiction disease, despite researches being conducted for more than 20 years. In the meantime, the Internet spread and diversified. The focus was moved to problematic use of certain aspects of the Internet, like video games, pornography, social media, etc., where the Internet is only a platform or a communication tool to reach what indeed is an object of addiction. Numbers discovered by various researches are astounding – whether they are about the number of users or the hours spent. But it still speaks more about a trend than about a problem. Migration of life to networked, digital and virtual, aspect by aspect, is inevitable. It has only just started, but since we talk about huge numbers, Internet addiction disorder, no matter the low prevalence, can affect tens of millions of people. That is in range with the most significant challenges for public health the humankind has seen. Because of that, the answer from both the global community and its institutions, and individual countries and societies, must be proportional to the possible

problem. We shall also always have in mind the transformative nature of the problem and the fact that the cause *per se* cannot be removed, but the only thing that is generally possible – is to treat the consequences.

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ПОРЕМЕЋАЈ ЗАВИСНОСТИ ОД ИНТЕРНЕТА (ИИД) КАО ПАРАДИГМА НЕДОСТАТКА БЕЗБЕДНОСНЕ КУЛТУРЕ

Сажетак: За нешто више од тридесет година од свог настанка, интернет је постао неодољиви део људске свакодневице и реалности. Експоненцијални раст ове свепрожимајуће мреже донео је немерљиве бенефите људској цивилизацији, али се и проширио и диверсификовао до те мере да га користи преко 4,5 милијарди људи, што је скоро 60% људске популације. Комплексност тог дигиталног света је таква да је за пуно људи постала довољна, па чак и преферирана реалност насупротив оној у којој живимо. У екстремним случајевима, према тој дигиталној реалности формира се патолошка везаност чије су карактеристике сличне онима референтним за традиционалне болести зависности. Иако не постоји научни консензус о томе да ли је прекомерно коришћење интернета, или интернетоманија, психолошки поремећај који се може категоризовати као болест зависности, проблем прекомерног коришћења дигиталних

онлајн садржаја је присутан, и оставља последице како на појединца погођеног проблемом, тако и на друштвене системе. Диверсификација интернета је генерисала бројне поткатогије патолошких односа према интернет садржајима, различитих по објекту патолошке везаности и старосној доби, од којих су аутори за потребе овог рада анализирали три – онлајн видео игре, друштвене мреже и интернет порнографију. На крају рада аутори истичу значај свести о безбедносној култури на интернету као превентивном фактору за развијање адиктивног односа према онлајн дигиталним садржајима.

Кључне речи: интернет, дигитална зависност, видео игре, друштвене мреже, интернет порнографија, безбедносна култура