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Pathological Internet Addiction and Psychopathological Symptoms

Abstract

The Internet has become a widely used communication tool today due to its features such as providing access to information in a short time and enabling rapid communication. In addition to the convenience it brings to human life, the way it is used by some users so as to delay daily life activities or negatively affect them has drawn attention to the negative effects of the Internet on human life. Especially over the last 20 years, we have been confronted with various types of addictions such as internet addiction and online gaming addiction, which particularly affect children and young people and are commonly associated with them. Although steps are being taken to address addictions related to internet, online gaming, and social media use collectively referred to as digital addiction there are almost no holistic and systematic interventions in which the family is actively involved in the process. Although the Internet originally emerged for the purpose of information sharing and communication, it has been identified that adolescents and young adults are particularly at risk due to problematic and excessive use of the internet.

In this article, the pathological aspects of internet addiction are explained. The psychopathological symptoms of internet addiction are presented, and scientific studies are analyzed. We hope that the article will contribute to more effective identification of the onset of internet addiction and to its treatment.

Keywords: *internet addiction, pathological internet addiction, psychopathological symptoms, behavioral disorders, neuropsychological changes, personality psychology*

Introduction

Relevance and aim of the study

The relevance of studying internet addiction in adolescence is determined by the rapid growth of digital technologies and their deep integration into the everyday life of modern society. Adolescence is a critical stage of psychological and personality development, during which basic behavioral patterns, mechanisms of emotional regulation, and social interaction are formed. Under conditions of constant and uncontrolled access to the internet, adolescents face an increased risk of developing maladaptive forms of behavior, including compulsive and pathological internet use, which may negatively affect their psychological well-being, academic performance, and interpersonal relationships.

The aim of this study is to generalize contemporary scientific views on internet addiction among adolescents, to analyze its psychological and psychopathological manifestations, and to identify the main risk factors and consequences of this phenomenon for mental and personal development during adolescence.

Events of the adolescent period have a strong influence on human development and may determine attitudes and behavior later in life. During adolescence, the risk of emotional crises is increased, often accompanied by mood changes and periods of anxiety-depressive behavior, with which some adolescents attempt to cope through withdrawal into themselves, avoidance of extensive social contacts, aggressive reactions, and addictive behavior. Adolescents during this period are extremely vulnerable and sensitive, and the internet may attract them as a form of emotional release. Over time, this can lead to addiction (Shaffer et al., 2000).

Internet addiction is a behavioral problem that has gained increasing scientific recognition over the past decade, and some researchers argue that it is an “epidemic of the 21st century” (Pies, 2009). Internet addiction is a complex area of study, given the lack of consensus regarding its definition, reported symptoms, diagnosis, and etiology. Indeed, it has not been established whether it can properly be called an addiction (Widyanto & Griffiths, 2006).

From the perspective of classical psychology and psychiatry, internet addiction is a relatively new phenomenon (Griffiths, 2000). The literature uses interchangeable terms such as “compulsive internet use,” “problematic internet use,” “pathological internet use” and “internet addiction.”. Psychologist Mark Griffiths, one of the most widely recognized authorities in the field of addictive behavior, is the author of the most frequently cited definition. Internet addiction is a non-chemical behavioral addiction that involves human–machine interaction (computer and internet) (Beard, 2005). At the same time, the World Health Organization (WHO) and the American Psychiatric Association (APA) do not recognize internet addiction as a disorder, with the exception of Internet Gaming Disorder (IGD) in the Diagnostic and Statistical Manual of Mental Disorders (APA, 2022).

Methods

In the study of internet addiction in adolescence, modern research employs comprehensive methodological approaches. The most commonly used methods include clinical-psychological interviews, standardized psychodiagnostic questionnaires (such as K. Young’s Internet Addiction Test and scales of problematic internet use), as well as observation and self-report methods. In a number of studies, neurobiological methods are applied, including functional magnetic resonance imaging (fMRI), which allows researchers to examine the functional characteristics of brain networks. In addition, correlational, comparative, and longitudinal research designs are used to identify relationships between internet-addictive behavior, emotional disturbances, and socio-demographic characteristics of adolescents.

Compulsive internet use, problematic internet use and pathological internet use

Compulsive Internet Use (CIU) refers to an inadequate relationship with the tool, including loss of control over use, use for mood modification, and withdrawal symptoms (Anderson et al., 2017). Problematic Internet Use (PIU) is addictive behavior and may include excessive or poorly controlled preoccupations, urges, or behaviors related to computer use and Internet access that lead to impairment or distress (Aboujaoude, 2010). Some researchers further develop this definition, suggesting that PIU is a behavioral version of a substance use disorder while others suggest that it is either an impulse control disorder or a subtype of obsessive-compulsive disorder? although empirical evidence for these classifications is lacking (Tereshchenko & Kasparov, 2019).

The term “pathological internet use” duplicates the definition of problematic internet use (PIU); however, conceptually it is modeled as an impulse control disorder and classified as a taxonomy of behavioral addiction related in nature to pathological gambling (Block, 2008). Pathological Internet use includes the following criteria of addictive behavior: uncontrolled Internet surfing, online gambling, and dependence on virtual interpersonal relationships.

A study conducted by researchers from the University College London (UCL) shows that brain changes have been identified in adolescents with internet addiction that may lead to additional addictive behaviors and tendencies. In the article published in the journal PLOS Mental Health, the researchers reviewed 12 studies involving 237 young people aged 10–19 who had been diagnosed with internet addiction between 2013 and 2023. Internet addiction is defined as an individual’s inability to resist internet use, resulting in negative effects on psychological health as well as social, academic, and professional life. In the studies, functional magnetic resonance imaging (fMRI) was used to examine how different brain regions interact with each other in participants with internet addiction. Brain activity was examined both during rest and while completing a task. The effects of internet addiction were observed across multiple neural networks. In brain regions that are activated during rest, there was a mixture of increased and decreased activity. In brain regions associated with active thinking, an overall decrease in functional connectivity was observed. The lead author of the

study, master's student Max Chang states: "Adolescence is a critical developmental stage during which individuals undergo significant changes in biology, cognition, and personality. During this period, the brain is highly sensitive to impulses related to internet addiction. The findings of our study indicate that this may lead to negative behavioral and developmental changes in adolescent individuals. For example, they may have difficulty maintaining relationships and social activities, may lie about their online activities, or may experience irregular sleep patterns" (Shaw & Black 2008).

With smartphones and laptops becoming more accessible, internet addiction has become a growing global problem. Previous studies have shown that people in the United Kingdom spend more than 24 hours online each week and that more than half of survey respondents are addicted to the internet. The senior author of the study, Irene Lee from the UCL Great Ormond Street Institute of Child Health, addresses the issue as follows: There is no doubt that the internet has certain advantages. However, it becomes a problem when it starts to affect our daily lives. We advise young people to set reasonable time limits for daily internet use and to be aware of the psychological and social effects of spending excessive time online.

Clinicians may recommend treatments targeting specific brain regions or psychotherapy or family therapy aimed at the core symptoms of internet addiction. More importantly, parental education about internet addiction may be another way to prevent addiction from a public health perspective. Parents who are aware of the early signs and onset of internet addiction will be able to address screen time and impulsivity more effectively and minimize risk factors associated with internet addiction. The use of fMRI scans to investigate internet addiction is currently limited, and studies involve small adolescent samples. In addition, participants were predominantly selected from Asian countries. Future research should also include findings from Western samples in order to provide more comprehensive information about treatment interventions.

Internet addiction, in the view of K. Young, is a multidimensional phenomenon that includes:

- manifestations of escapism — escape into virtual reality by individuals with low self-esteem, anxiety, a tendency toward depression, feelings of insecurity, loneliness, or lack of understanding by close ones, burdened by their work, studies, or social environment;
- novelty seeking; a desire for constant sensory stimulation;
- emotional attachment — the opportunity to express oneself, to be empathically understood and accepted, to relieve acute emotional distress related to real-life difficulties, and to receive support and approval;
- pleasure from feeling like a 'virtuoso' in the use of computers and specialized search or communication programs" (Young, 1998).

Psychopathological symptoms of internet addiction

R. Davis proposed a cognitive-behavioral model of pathological Internet use. He identified two forms of internet addiction, which he designated as specific pathological internet use and generalized pathological internet use (Davis, 2001). Thus, all the analyzed definitions are similar and reveal the concept of internet addiction through generalized features (psychopathological symptoms) (Young, 2000).

Psychopathological symptoms of internet addiction include:

- salience (the respondent is likely to feel preoccupied with the Internet, hide their behavior from others, and may demonstrate a loss of interest in other activities and/or relationships in favor of spending more solitary time online);
- excessive use (the respondent exhibits excessive online behavior and compulsive use and periodically cannot control the amount of time spent online, which they may conceal from others);
- neglect of work (academic or work performance and productivity are likely to be compromised due to the amount of time spent on the Internet);
- anticipation (the respondent is likely to think about being online when not at the computer and feels a need to use the Internet when offline);
- loss of control (the respondent finds it difficult to manage their time online and often remains online longer than intended).

In recent years, many studies have been conducted in different countries on the prevalence of internet addiction and the socio-demographic characteristics of this phenomenon. Some studies are longitudinal or comparative and include multiple samples. Thus, Kibitov A. O., Trusova A. V., and Egorov A. Yu., in the article internet addiction: Clinical, biological, genetic, and psychological aspects, note: “Overall, neurobiological studies of internet addiction show similarities in its neural mechanisms with substance use disorders. Nevertheless, many unclear issues remain related to the description of precise socio-psychological as well as medico-biological patterns of this disorder, which would allow the determination of effective methods for its therapy” (Kibitov et al., 2019).

A consensus of opinions among researchers, both in Russia and abroad, has not yet been identified. In this regard, the following points expressed by Kibitov A. O. et al. appear important- First, internet addiction is detected predominantly among the younger segment of the population - older adolescents and young adults. It is generally accepted that a risk factor for the development of internet addiction is specific features of central nervous system functioning that have a high level of genetic control and manifest as a distinctive psychological pattern. With the possibility of unlimited Internet use, individuals endowed with such features quickly transition to painful and pathological use – forming internet addiction as a disease.

Second, unlike chemical addictions (alcohol or drug dependence), there are no possibilities for legislative regulation or restriction of Internet access for the younger population. The strategy of reducing the supply of psychoactive substances, successfully used in state anti-alcohol and anti-drug policies, is not applicable in the case of internet addiction. This fact gives maximum importance to preventive measures in work with adolescents and young people. It is important to determine which features of the emotional-volitional sphere of adolescents are associated with a tendency toward internet-addictive behavior, as well as to formulate the main directions of preventive and corrective psychological assistance for individuals with identified internet addiction.

Results

The results of numerous national and international studies indicate that internet addiction in adolescence is a multifactorial and heterogeneous phenomenon. Adolescents exhibiting signs of problematic or pathological internet use more frequently demonstrate symptoms of anxiety, depression, emotional instability, social isolation, and low self-esteem. Pronounced impairments in self-control are observed, accompanied by difficulties in regulating the amount of time spent online and a loss of interest in offline activities. Neuropsychological and neuroimaging studies reveal alterations in the functioning of brain networks associated with cognitive control, reward processing, and emotional regulation. Adolescents with internet addiction show reduced functional connectivity in brain regions responsible for executive functions and goal-directed behavior, as well as an imbalance between impulsivity-related systems and control mechanisms.

The social consequences of internet addiction manifest in deteriorating family and interpersonal relationships, decreased academic motivation and performance, and disturbances in sleep–wake patterns. Overall, the findings confirm that internet addiction has a negative impact on adolescents’ psychological, social, and cognitive development and may act as a risk factor for the development of other addictive and psychopathological disorders.

Discussion

The discussion of the obtained data leads to the conclusion that internet addiction in adolescence should not be viewed as an isolated behavioral disorder, but rather as a complex psychosocial phenomenon closely associated with individual personality traits, emotional functioning, and social environmental conditions. The absence of a unified diagnostic approach and the lack of official recognition of internet addiction as an independent disorder complicate both clinical diagnosis and the development of effective prevention and intervention strategies. Early prevention aimed at developing self-regulation skills, fostering a critical attitude toward digital content, and maintaining

a healthy balance between online and offline activities is of particular importance. In this context, family upbringing, parental psychoeducation, and the involvement of educational institutions play a crucial role. Promising directions for future research include the study of cultural and socio-economic factors of internet addiction, as well as the development and empirical validation of psychotherapeutic and preventive programs adapted to the adolescent population.

The first step that should be taken in cases of pathological internet addiction is to consult a psychologist. The psychologist identifies the factors contributing to internet addiction in the individual and helps resolve them. If there is a severe psychiatric condition, pharmacological treatment may also be required. However, approaches targeting unconscious conflicts and impulse control are generally more effective. Taking internet addiction seriously is, of course, the most important attitude, as it can lead to dangerous and permanent problems if it grows and is left without intervention.

Keeping children and adolescents away from the internet and games can be difficult for families; however, restricting this time without punishing the child will be beneficial for them. When imposing limitations, establishing a healthy relationship with the child without engaging in power struggles is very important at this point. For the treatment of internet addiction, the individual's relationship with technology is examined and the behaviors they exhibit are evaluated. A discussion is held to address the possibility that spending time obsessively with devices such as smartphones, tablets, and computers may be harmful to the individual. A person who becomes aware of the situation may, through the information they acquire, develop the motivation to overcome this addiction. Treatment can be implemented by introducing restrictions and regulations that break this cycle of addiction and by applying therapeutic interventions deemed necessary for the individual.

Some parental control applications may be used in treatment, and the family and the child/adolescent may participate in therapy together. During this process, it is the responsibility of families to display behaviors that serve as positive role models for children and adolescents and to observe whether the child's internet use is harmful. Family education is of great importance. Parents should be enabled to act as role models for their children by using the internet and computers effectively and beneficially. If the family lacks sufficient knowledge about the appropriate use of the internet and other technological materials, counseling should be provided to the family and rules should be taught. In educational institutions, alongside media literacy, instruction should be given on how to use the internet effectively and beneficially.

Individuals who use the internet in a healthy manner integrate their face-to-face lives with their virtual lives; they talk to their real-life family members and friends about their online experiences; they participate in the online environment with their real identities, interests, and skills; they also meet in real life with people they communicate with online; and they maintain relationships with people they know in the real world through e-mail or chat platforms as well.

Conclusion

Internet addiction and related disorders develop slowly and insidiously. Since completely removing the Internet from an individual's life is not possible under today's conditions and since treatment is quite difficult, preventive measures are of great importance. Because internet addiction can be concealed or may not be perceived as a significant problem, in all cases brought to child and adolescent psychiatry clinics, patterns of Internet, mobile phone, tablet, and gaming use should be questioned from early childhood onward, and intervention should be carried out if risk factors are identified. In advanced cases, the prognosis is poor. Pathological Internet use is associated with high levels of emotional loneliness and weak romantic and friendship relationships. In addition, some studies have shown that the Internet can increase individuals' levels of shyness and loneliness by keeping them away from social activities, reduce family relationships, and decrease the size of individuals' local social environments.

Although there are studies conducted in Azerbaijan and other countries on prevalence, risk factors, psychosocial characteristics, epidemiology, and partly neurobiology, the number of studies

related to treatment is insufficient. More research is needed on the treatment of technological addictions. If more information can be provided, more sound steps can be taken in determining the etiology and in identifying preventive and therapeutic methods.

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