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Psychological and Psychobiological Approaches to the Study of Adolescent Behavior in the Digital Environment

Valentina G. Kamenskaya

Bunin State University, Yelets, Russian Federation

kamenskaya-v@mail.ru

Abstract

Introduction. The volume of the Internet audience is rapidly growing, which encourages psychologists and medicals to study Internet addiction, psychology and psychobiology of overly Internet-addicted individuals. Internet addiction has a number of specific properties, but it has common features with chemical addictions. The question of the differential diagnosis of Internet addiction and the validity of its inclusion in the glossary of neuropsychiatric diseases remains open. **The aim of the study** is a theoretical analysis of the similarities and differences of dependence on digital media in comparison with chemical forms of addiction, the development of methods for differential diagnosis of Internet addiction. **Theoretical justification**. Neuroplasticity and interactions of genes with the environment, identified in patients with mental and neuropsychiatric disorders of an affective nature, are considered as mechanisms for the transition of excessive Internet involvement into Internet addiction. Neuroplasticity and genetic control of dopamine synthesis and metabolism in cyber-gaming have been founded to be important. Dopamine regulates emotional experiences and cognitive functions characteristic of Internet addicts. In previous studies, we experimentally confirmeda high correlation the R-R-intervals fluctuations as a marks of the autonomic nervous system (ANS) function, which is involved in the formation of negative emotions and reactions to stress, and the behavior of adolescents on the Internet. **Discussion.** The main directions of the development of differential diagnosis of Internet addiction are psychodiagnostics of adolescents' behavior on the Internet and their individual and personal characteristics, psychophysiological study of the characteristics of ANS in relation with the behavior of adolescents on the Internet.

Keywords

Internet addiction, alcohol dependence, chemical dependence, gene-environment interaction, neuroplasticity, adaptation, differential diagnosis of Internet addiction

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Introduction

In recent decades, new phenomena related to the technological revolution of the 21st century have entered public life. New forms of deviations in the form of over-involvementat Internet or dependence on gadgets, online games and communications have joined the various and already studied forms of developmental deviations and maladaptation of behavior of adolescents and young people. Typical forms of developmental and behavioral deviations in adolescence are character and personal accentuations, as well as more difficult to correct and prevent variants of deviations in the form of chemical addictions. Technological advances in the late twentieth and early twenty-first centuries led to the emergence and sharp growth of new types of entertainment and leisure (Kamenskaya, Tomanov, 2022). Immersion in the digital environment for the purpose of intensive communication on social media and fascination with cyber games leads to the formation of new types of addictions. Activity in the blogosphere began to bring teenagers and young people incommensurable financial incomes compared to their parents; participation in cyber games also became profitable. Another factor that has increased interest in digital devices is the emergence and rapid technical improvement of various mobile phone models that ensure freedom of use in any place where network providers operate(Baert, Amez, Claeskens,Daman&de Marez, 2020). All these circumstances have significantly increased the Internet audience in different countries, including Russia (Veraksa, Kornienko & Chursina, 2021).

For a relatively long time, the professional community did not attach importance to the cyber hobbies of young people, however, the rapid growth of consumers of Internet service providers, commercialization, and a sharp increase in the number of the Internet audience growth was reflected in the public consciousness as the idea of the

danger for young people of uncontrolled immersion in the virtual world (Tereshchenko & Smolnikova, 2020). First of all, concerns about the health of adolescents were based on a study of the impact of intensive Internet use on neuropsychiatric health (Li, Zhang, Cao & Zhang, 2023), on the characteristics of perceptual and cognitive processes (Ortiz de Gortary & Panagiotidi, 2023), the risk of Internet addiction as a special form of technological dependence in adolescents and young people. The authors point to the significant negative impact of using smartphones during school lessons (Sunday, Adesope & Maarhuis, 2021), as children and adolescents solve many learning tasks in smartphones, rather than using their cognitive abilities without resorting to the prompts of digital devices. Baert et al. (2020) found a decrease in academic success at universities and colleges due to the use of smartphones in the classroom. It has been established (Lin, Liu, Fan, Tuunainen & Deng, 2021) that games, social media communication, watching movies and entertainment programs really worsen learning, whereas specially designed applications, on the contrary, contribute to improving cognitive processes and relieve the fear of being "out of touch".

These circumstances and the accumulating database on the deterioration of the physical and mental health of young people determine the high relevance of theoretical and experimental developments regarding the psychological characteristics of teenagers who are passionate about digital gadgets. Studies of psychophysiological changes in the brain and autonomic nervous system of subjects involved in the virtual world are relevant.

This form of addiction – Internet addiction – is caused by technical innovations and has a number of specific properties:

- the possibility of using modern digital tools depends on the socio–economic conditions of the development of children and adolescents, and therefore the involvement of young people in the Internet has a certain degree of regional specificity;
- the risk of Internet addiction is determined by the family climate, the type of child-parent relationship, the system of relationships in the school team and academic success;
- The risk of over-involvement with the Internet is determined by the type of accentuation of a teenager's character, the frequency and intensity of stress, including those related to learning problems (Bong Mun, 2023).

At the same time, Internet addiction is characterized by common features with the main previously emerged and relatively well-studied forms of addiction, primarily chemical ones: alcoholism and drug addiction (Zalmunin & Mendelevich, 2014; Nikolaeva & Kamenskaya, 2020; Ershova & Semenyak, 2021). Internet addiction manifests itself in compulsive attraction to social networks or games to reduce feelings of anxiety, obsessive thoughts and actions. Internet dependence as the chemical addictions is characterized by reduced control of both his behavior on the Internet, and time for entertainment and recreation, an increase in irritation and aggression in the case of forcing a teenager to end his activity with digital devices.

Similar features of Internet addiction, recorded in an experiment with other forms of addiction, do not have statistically high significance, which is also not always taken into account by researchers. The question of the validity of including Internet addiction in the glossary of neuropsychiatric diseases remains open (Egorov, 2015, Sunday, Adesope & Maarhuis, 2021).

There is an idea in the literature that high immersion in a virtual environment can be a special form of deviation of personal development (Rooijetal, 2014; Egorov, 2015), which is reflected in a large number of synonyms associated with this field of study of deviations: over-involvement, Internet addiction, cyber addiction, information and technological dependence. The uncertainty of the concept of "over-involvement" with the Internet and gadgets, the complexity of its qualification as a certain form of addiction allow us to determine the purpose of our work.

The purpose of the study is a theoretical analysis of the similarities and differences ofdependence on digital devices and virtual environments in comparison with chemical forms of addiction (alcoholism and drug addiction) in order to develop methods for differential diagnosis of Internet addictions.

The practical significance of the study lies in the development of objective methods for assessing the transition of over-involvement with the Internet and gadgets into addiction with all the main signs of its manifestation.

The article uses a method of collecting and analyzing literature covering the socio-psychological conditions of the emergence and development of dependence on digitalenvironment. The main attention is paid to the study of psychophysiological and neurobiological manifestations in the morphofunctional structure of the brain (with the constant use of the Internet and gadgets by adolescents), as well as its neuroplasticity as manifestations of genetically determined mechanisms of human adaptation to changing environmental conditions.

Theoretical justification

Socio-psychological aspects of the phenomenon of excessive Internet use

The study of socio-psychological conditions, the peculiarities of the formation of teenagers' involvement in the virtual environment, the commonality and differences of this new form of developmental deviation, dependence on digital means, with already known forms of deviations was the beginning.There have been works studying the psychological and social causes of the formation of Internet addiction (Perezhogin, 2020; Veraksa, Kornienko & Chursina, 2021), as well as individual typological features of fans of the virtual world (Nikolaeva & Kamenskaya, 2020). Objective methods for determining the risk of accelerated development of Internet addiction in adolescents and young people

are becoming increasingly important in research (Hong et al., 2013; Tereshchenko & Smolnikova, 2020; Zainuddin, Chu, Shujahat & Perera, 2020).

It is assumed that Internet addiction is the result of a complex system dynamics of mental processes in adverse and/or stressful conditions of the developmental environment, which can partly be genetically determined (Uncapher & Wagner, 2018; Marín-López, Zych, Ortega-Ruiz, Hunter &Llorent, 2020; Schønning, Hjetland, Aarø & Skogen, 2020). Individual and personal reactions when diving into the Internet and mastering its resources differ. The reaction to immersion in the virtual world is individual, as is the reaction to the first use of a drug or alcohol. The further history of a teenager's development in connection with his behavior in a virtual environment is determined by both premorbid socio-psychological characteristics and the degree of normativity of his physical and cognitive development (Bogacheva, 2017; Nikolaeva, Kamenskaya, 2020).

In any case, loneliness or alienation, which occur with a high degree of probability in adolescence, is directly associated with the risk of low self-esteem, and, as a result, exposure to external influence, which can be a convenient ground for the development of over-involvement with the Internet and further Internet addiction.

A possible assumption regarding the formation of addiction is the well-known mechanism of gene-environment interaction in psychogenetics. Reduced stress tolerance, determined genetically at the biological level, increases with frequent experiences of negative feelings in the family, at school (about school failure, for example) and among peers (in the case of social rejection), forming the first manifestations of social maladaptation. The behavior as a loser or neurotic reduces self-esteem, giving rise to further deterioration of stress tolerance and activity in the search for opportunities to reduce negative experiences. It is likely that the central trigger element of the transition of over-involvement in leisure activities on the Internet into Internet addiction is the spectrum of dominant negative emotions and a way to alleviate negative experiences.

Neuroplasticity and gene-environment interaction as endogenous determinants of addiction

Addictions are complex biosocial phenomena by origin. Chemical forms of addiction, as the more famous, may differ in the mechanisms of determination from Internet addiction and cyber addictions (Kibitov, 2013). The emergence of Internet addiction became possible only at a certain stage of technological development, when the means of interacting with information became individual and financially accessible to many members of consumer society, including adolescents, not only in the field of education, but also in leisure activities (Kamenskaya & Tatyana, 2023). Due to the "youth" of Internet addictions and cyber addictions, the etiology and pathogenesis of these maladaptive behaviors have not been studied to the extent that would allow us to make assumptions about the neurophysiological and psychogenetic mechanisms of their formation, methods of accurate diagnosis and further correction measures.

It is known that genetic factors, including the expression of certain genes, are important in the pathogenesis of chemical forms of addiction (Kibitov, 2013). Clinical studies emphasize that the main forms of neuropsychiatric disorders and maladaptations as a mandatory component include psychoemotional disorders and pathological reactions to stress. According to a number of researchers (Czeh et al., 2007; Lu et al., 2003; Bremner, 2006, Bong Mun, 2023, Zhou, Xin, Wang & Ga, 2023), chronic stress, depression and other affective circle diseases are accompanied by neuroatrophic lesions in various areas of the frontal cortex, hippocampus and striatum. It is worth noting that the above–mentioned brain structures, which suffer the most from depression and stress, are areas responsible for the formation of emotions, learning and memory processes.

Subtle neurophysiological processes can influence the occurrence of psychoemotional deviations. The features of human reactions of individual neurons and neural networks were not previously available for experimental research. Technological progress has provided the development of instrumental approaches that contribute to the study of not only the dynamics of individual neuron discharges, but also their destruction and the appearance of new neurons in place of the previous ones that died due to various circumstances. The prevailing view of the 1906 Nobel Laureate Santiago Ramon y Cajal regarding the inability of the nervous system to recover was experimentally refuted in neurophysiological studies (Maltsev, Podgorny, 2020; Pavlov, Mukhin, 2021). According to various data, the number of new neurons formed per day during neurogenesis reaches from 1400 to 9000 (Maltsev, Podgorny, 2020; Cameron & McKay, 2001). Newly emerging young neurons are integrated into existing neural networks, providing their morphofunctional rearrangements, forms permanent neuroplasticity.

Neuroplasticity is a way of adapting the nervous system to changes in homeostasis and the external environment. Neuroplasticity is defined as the ability of nervous tissue (neural networks and systems) to change its structure and function in response to external and internal factors, including reactions to the death of nerve and glial cells due to organic lesions of the central nervous system, injuries, strokes or neurodegenerative diseases (Galanin et al., 2015; Pavlov & Mukhin, 2021). Neurogenesis is regulated by endogenous molecular genetic mechanisms and environmental conditions. Molecular genetic control of postnatal neurogenesis is realized with the help of various growth factors of neurons and their parts, the formation of synapses, neurotransmitters and hormones (Leslie & Nedivi, 2011; Henley & Wilkinson, 2016), as well as changes in the structure of the nucleus chromosomes that control all processes in the body and brain (Pavlov, Mukhin, Klimenko & Anisimov, 2017). External factors affecting neurogenesis and neuroplasticity include: an enriched environment and social environment; the nature of relationships between members of a social group; cognitive and physical activity; learning new forms of behavior; the level of education. An enriched environment means an environment containing a variety of social and non-social stimuli that affect various aspects of brain development and function (Pavlov & Mukhin, 2021).

A review of the presented neurophysiological studies and genetics works suggests that neuroplasticity and gene-environmental phenomena typical for the formation of known mental and neuropsychic disorders with an affective content may be the causes of the formation of addictive behavior. It has been established that chronic alcoholism in humans is associated with a 20-fold increase in dopamine beta-hydroxylase, which disrupts catecholamine metabolism and affects the cognitive and adaptive functions of patients (Galanin et al., 2015). This process leads to rearrangements of gene control at dopamine synthesis, the crucial role of which in neurochemical adaptation to drugs and alcohol was previously confirmed in studies (Noble, 1993).

The genetic basis in humans has been studied for alcohol and caffeine dependences, the relationship between depression and alcoholism, alcoholism and smoking, alcoholism and other pharmacological drugs. In the work of Kibitova (2013), the leading role of the dopaminergic system and dopamine in the mechanisms of the emergence and development of two different addictions was confirmed at the molecular genetic level: from alcohol and heroin. Universal genetic markers of high risk of severe drug addiction and alcoholism are polymorphic loci of genes that control dopamine metabolism. In general, the study of the genome and gene expression in humans confirms the polygenic nature of drug and alcohol addictions. At the same time, individual characteristics such as impulsivity and loss of volitional control over drug consumption and, significantly, the difference in neurobiological and behavioral responses to stress are superimposed on the polygenic nature of human dependencies. Attempts to find certain genetic foundations of an "addictive" personality have failed.

The existence of genetic models of addiction formation indicates that the multilevel effects of their pathogenesis are largely predetermined by gene-environment interaction. The behavior of a person with a certain genotype always occurs in a certain environment, and behavior depends on this environment. The effect of genes on addictive behavior, however, should not be oversimplified. The gene for, in example, alcoholism, now seems outdated in the system of addiction and genome communication. It is suggested that genes contribute approximately 50% of the variations in human emotional behavior (Kurchanov, 2009), including pathological and deviant ones. Everything else in real behavior is determined by the social and psychological conditions of life and development.

For example, it was previously believed that addictive behavior can be conditioned by habits, that is, reflex mechanisms, and automatically triggered by situational environmental conditions that act as peculiar keys that trigger motivational arousal (Siegel, 1978; Gentile, Swing, Lim & Khoo, 2012). This automatic arousal takes place because of the strong connection between the key and the behavior, which arises from the constant repetition of certain stages of behavior in a certain environmental context. In narcology, there is an idea that not everyone who experiments with alcohol and drugs becomes chemical addicts (Zalmunin & Mendelevich, 2014; Ershova & Semenyak, 2021). Approximately 60% of adults have tried drugs at least once in their lives. If alcohol is included in the list of such samples, it turns out that the percentage of young people and adults who have tried

potentially addictive drugs in a situation of social stress (for example, during Covid-19) will increase to 90% (Mental Health Foundation, 2020). In other words, based on this infectious factor, the risk of developing addiction should be indicated as 90% in adults. In general, such a conclusion is incorrect and does not correspond to empirical facts, since not all those who try even strong drugs become addicted to them, that is, chemical addicts (Galanin et al., 2015).

The specific effect of drugs on the nervous system plays an important role in the formation of chemical dependencies. It is shown that drugs and alcohol are more or less involved in the activation of neural networks of the reinforcement system, which are normally responsible for pleasure, motivation, and learning. In particular, the activation of neural networks of the reinforcement system passes through the dopaminergic system (Buckholtz et al., 2010; Tereshchenko & Smolnikova, 2020). The reinforcement system receives dopamine projections from the subcortical parts of the brain: from the ventral region of the bridge, fibers go to the nucleus accumbens, striatum, and glutamate inputs – from the prefrontal cortex, amygdala, hippocampus. Neural networks of the nucleus acumbens mediate the effects of drugs, in addition, they are also responsible for survival: nutrition, water absorption, sexual behavior, safety, emotional reinforcement (Nikolaeva & Kamenskaya, 2020). Thus, these neural networks are critical for natural reinforcement and emotional control of behavior and are sensitive to the effects of alcohol and drugs.

At the same time, addictive drugs are not only involved in the activity of this brain reinforcement system, but also chemically change it. The constancy of drug-induced pathological adaptation in it manifests itself at the molecular, cellular, nervous and systemic levels. Drug-induced pathological neurochemical adaptation is crucial for the formation of neuropsychiatric pathology and addiction, including through common systemic mechanisms of the genesis of emotional reactions in normal and pathological conditions (Pavlov & Mukhin, 2021). It is clear, however, that the psychological functions of the individual as a consequence of the adaptations of the nervous system caused by these drugs can directly and directly manifest themselves in a pathological form of behavior far from all drug and alcohol users.

Addictive behavior in the case of interaction with digital devices has not been studied to the necessary extent in order to determine the neurophysiological and genetic processes that determine the risk of Internet addiction. However, the use of visualization techniques for studying the human brain allowed us to record certain structural changes in the central nervous system in adolescents with signs of Internet addiction: they showed a decrease in gray matter density in various parts of the cortex, including the prefrontal, orbitofrontal cortex and the cortex of the additional motor area (Yuan et al., 2013, Tereshchenko & Smolnikova, 2020). These regression organic changes in the brain are typical for patients with alcoholism and drug addiction, which emphasizes the commonality of neurophysiological mechanisms for the formation of chemical and information addictions.

It's known that a sense of control over a situation arises due to the activation of subcortical dopaminergic neural networks that activate large areas of the brain, including the fields of the frontal lobes (Declerck, Boone & DeBrabander, 2007). The role of dopaminergic metabolism has also been established in the occurrence of the risk of Internet addiction, which is insufficient for the necessary activation the dorsal part of the frontomedial cortex (Buckholtz et al., 2010), in order to organize socially adaptive behavior.

A particular effect on the rate of addiction development is exerted by increased activity in the reward-reward neural system (Kuss & Lopez-Fernandez, 2016; Hong et al., 2013), which revealed an increase in glucose consumption associated with impulsivity of behavior and the desire to repeat strong positively colored sensations and experiences (Park et al. al., 2010).The particular influence on the rate of addiction development is exerted by increased activity in the reward-reward neural system (Kuss & Lopez-Fernandez, 2016; Hong et al., 2013), in which the grows glucose consumption is associated with impulsive behavior and a desire to repeat strong positively colored sensations and experiences (Park et al., 2010).

A few studies (Tereshchenko & Smolnikova, 2020; Buckholtz et al., 2010; Yuan et al., 2013) showing changes in functional activity found in Internet-dependent adolescents indicate a certain proximity of information dependencies to chemical forms of addiction in brain activity. The role of emotionally colored behavior in the occurrence of addiction has been experimentally proven in samples of patients with alcoholism and drug addiction.

Currently, neuroplasticity is considered both a progressive and a regressive factor of development. Neuroplasticity has a wide range of adaptive capabilities. It is impossible to deny the possibility of positive changes in the neuronal networks of theaddicts brain responsible for adaptive behavior, in a similar way as it happens in the treatment of depression (Zhivolupov, Samartsev, 2009) under the influence of not only drugs, but also psychotherapeutic procedures. The study of neuroplasticity in the study of addictions, including Internet addictions, gives grounds for optimism in the search for methods of diagnosis and correction of psycho-emotional disorders in adolescents with a strong immersion in the virtual environment.

Discussion

Returning to the designated purpose of the study, it is worth referring once again to the few works (Tereshchenko & Smolnikova, 2020; Buckholtz et al., 2010; Yuan et al., 2013,) that showed changes infunctional brain activity found in Internet-dependent adolescents. These studies have established a certain proximity of information dependencies to chemical forms of addiction at the functional level of brain activity.

The analysis allows us to determine the similarities and differences between the manifestations of Internet addictions and chemical forms of addiction. The similarity of all forms of addiction is related to the dynamics and content of behavior and its emotional

accompaniment: all types of addiction are characterized by compulsive attraction to addictive factors that relieve or weaken anxiety, emotional tension, depression and possible aggression. The decrease these negative emotions after interacting with drugs or the Internet returns to the initial level after a while and the whole cycle starts again. This typical dynamics is formed due to the similarity of the functional activity of the reinforcement system (limbic structures, nuclei of the hypothalamus and prefrontal cortex, nuclei of the brain stem responsible for the synthesis and metabolism of dopamine). A few neurophysiological studies performed on patients with alcoholism, drug addiction and Internet addicts of adolescence confirm the similarity of the functioning of the reinforcement system of emotionally charged behavior in all addicts. An essential element of the similarity of information dependencies with chemical forms is a decrease in the activity of neural networks of the frontal pole that control emotionally charged behavior, which is reduced in all dependent adolescents. The similarity of the reinforcement and behavior control system is reflected in the personality and character of addicts who have obvious signs of accentuation and social maladaptation.

The forms of accentuation and variants of social maladjustment in Internet addicts differ from those typical for alcoholics and drug addicts. The formation of Internet addiction is facilitated in the presence of severe anxiety, depression and neurotic disposition with depressive syndrome and reduced stress tolerance. It is quite rare to detect a dysthymic component with pronounced aggression and impulsivity in the complex of accents in adolescents with Internet addictions. The latter is formed mainly by those gamers who prefer aggressive killing games as the content of games (Abbassi et al., 2022).

The fundamental difference between adolescents with risk of Internet addiction and severe Internet addiction is the lack of evidence of genetic control of the formation of accentuations and social maladaptations, which may be a determining factor in patients with alcoholism and drug addiction.The role of the gene-environmental interaction that determines the psycho-emotional status with preserved neuroplasticity of the adolescent brain at risk of developing dependence on the Internet and digital devices, should be experimentally proven. The results of this study can be used as a strategy for preventing Internet addiction.

The study of the links between the state of the autonomic nervous system (ANS) of adolescents who are excessively fond of the Internet and their behavior on the Internet may provide certain opportunities to assess the role of neuroplasticity of the nervous system in the prevention of addiction. The activity of the ANS varies significantly depending not only on health, but also on current psycho-emotional experiences, which is reflected in the pulse rate directly. Stress directly alters the functions of the ANS, primarily affecting the heart rate, which is characterized by high temporal variability (Fu, 2022), which indicates the high possibilities of adaptive rearrangements of the ANS.

Numerical estimation of fluctuations in the R-R interval (heart rate variability -HR) as the most important marker of normal or deviant activity ANS was performed on a group of high school students with varying degrees engagement in the digital environment

(Kamenskaya & Tatyanina, 2023). The study was carried out in the post-pandemic period with the students' health not fully restored. It has been established that the own choice of activities and with a positive attitude towards leisure on the Internet, as well as the time spent on leisure, have certain links with the characteristics of heart rate with a predominance of activity of the parasympathetic and sympathetic links of the ANS. Therefore, the study of the features of the ANS may be useful for the development of methods for psychodiagnostics of the transition of Internet over-involvement into Internet addiction.

Conclusion

Neuroplasticity and gene-environmental reactions found in patients with mental and neuropsychic disorders with an affective status may participate in the formation of the transition of over-involvement with the Internet into Internet addiction. It has been established that drugs and alcohol are involved in the activation of the neural circles of the reinforcement system, which are responsible for pleasure, motivation, and learning, through the dopaminergic system, which emphasizes the role of emotional experiences in the genesis of addictive behavior.

In adolescents and young people with Internet addiction, certain signs of neuron's rearrangements were recorded in experiments using visualization techniques, which showed structural changes in the brain in the form of a decrease in gray matter density in the prefrontal and orbitofrontal cortex responsible for emotional behavior, learning and cognitive functions. It is not necessary to exclude the participation of neuroplasticity and genetic control over the synthesis and exchange of neurotransmitters, primarily dopamine, in cyber-addicts, which requires further experimental study.

This assumption has indirect experimental confirmation in the form of the discovered connectivity of the highly variable activity of the autonomic nervous system with the peculiarities of adolescent behavior on the Internet.

The main directions of the development of differential diagnosis of Internet addiction can be:

1. The characteristics assessment teenagers' behavior on the Internet using the questionnaire "Psychological characteristics of the behavior of modern adolescents in the digital environment";
2. Psychodiagnostics assessment of personality structure in order to identify character accentuations; determination of dominant motivations and their accompanying emotions;
3. Psychophysiological examination using ECG recording of the autonomic nervous system functions and the determination the dominant control link, as well as the

plasticity of cognitive processes using a computer software package developed by the author.

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Author Details

Kamenskaya Valentina Georgievna – Doctor of Psychological Sciences, Professor, Corresponding Member of the Russian Academy of Sciences, Head of the Research Laboratory "Psychophysiology of Health and Health Formation", Professor of the Department of Psychology and Psychophysiology of the Institute of Psychology and Pedagogy, Bunin State University, Yelets, RussianFederation;WoSResearcher ID: Q-8999-2016; Scopus Author ID: 6701876138, RSCI Author ID: 77240, RSCI SPIN code: 6742-8943; ORCID ID: https://orcid.org/0000-0002-1654-8041 ; e-mail: kamenskaya-v@mail.ru

Conflict of Interest Information

The authors have no conflicts of interest to declare.