

Neuropsychological Approach to the Problem of Aggressive Manifestations of Personality

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Abstract: *The article presents a neuropsychological analysis of aggressive manifestations of normal personality and aggression of persons with brain dysfunction. Theoretical analysis of foreign and domestic works on neuropsychological correction of aggressive behavior is carried out. The neuropsychological program on correctional and prophylactic work for persons with affective-personal disorders is offered, considering the peculiarities of determination of aggressive manifestations of personality. The essence of the concept of "aggression" is specified. The types and functions of aggression of personality of different nature are considered: positive, ambivalent, negative. The neuropsychological causes of aggression in connection with the conditionality of aggression by situational and individual and psychological personal factors according to the scheme "personality - aggressive reaction - situation - neuropsychological factor" are clarified. The multifactorial (combination of neuropsychological and social conditions of a formation of aggression) genesis of aggressive behavior in personality disorders, the basis of which is the destructive level of anxiety, which originates from childhood, is analyzed. The integration of neuropsychological and socio-psychological approaches to the study of the problem of aggression is presented.*

Keywords: *neuropsychological correction, neuropsychological prophylaxis, brain dysfunction, aggressive behavior, biological and social factors, personality disorders, neuropsychological features of aggression.*

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Introduction

Manifestations of aggression of personality are among the most important components in its structure, a natural manifestation of human life, an adequate psychological property of the subject-creator of his border living space provided a high level of his psychological culture, motivation and ability to turn aggression (and not only his own but also other people's) into an optimal personal resource or successful solution of a psychological or social problem. However, not everyone, unfortunately, manages to use the energy of human aggression in a positive way with useful, above all, peaceful goals. One of the reasons - in the ratio of social and biological - neurobiological factors are dominant for the manifestation of aggressive behavior. Undoubtedly, lack of psychological knowledge of conflictology, increased personal predisposition to conflict or proactive aggression as a personality trait, desire for power, chronic stress on the background of psychosomatic disorders, reactive aggression under the influence of frustrational situations, lack of psychological culture in general and many other internal psychological factors can cause manifestations of uncontrolled aggression.

Regardless of the phenomenology of aggression as a property of normal personality or with a tendency to deviant behavior, neuropsychological prophylaxis of aggression in children or adults will always be highly effective, because neuropsychological methods, taking into account the identified psychophysiological factors and neural circuits of the brain, are usually used to restore functionality and stabilization of the nervous system as the most important factor for human social, physical, mental and psychological health. It is known that psychological methods of self-regulation are not able to effectively affect the exhausted nervous system; a comprehensive approach will always be more effective, and the leading approach is neuropsychological.

Neuropsychological approach to aggressiveness of personality: domestic and foreign experience

In neuropsychology, aggression is studied mainly in two aspects: as a neuropsychological resource (constructive aggression associated with the self-actualization of personality, moreover, without taking into account the dominant role of the cerebral hemispheres, because for left-handed creative strategies of self-actualization positively correlate with optimally adequate manifestation of aggression) and caused by neural complexity, with brain dysfunctionality, destructive personal aggressiveness. The ambivalent

function of aggression can be neutral for other people and internally conflictive for the individual. Neuropsychological study of aggressive manifestations of personality is possible through the integration of neuropsychological, mental, socio-psychological and socio-cultural approaches to the problem of aggression.

Consideration of the relationship between the concepts of "aggression" and "aggressiveness" by domestic and foreign researchers reveals the specifics of their objective understanding: aggression as a psychological phenomenon, form of behavior, biological mechanism of self-preservation, mental state, emotional reaction to a critical situation, innate human reaction to "protect the occupied territory" or to the hostile surrounding reality, the process of interaction with certain functions and organization, the fact of causing violence or psychological discomfort to others and aggressiveness as an innate instinctive or acquired mental personality trait, personal feature of a perception and understanding of the world, system of stable emotional, motivational and semantic, instrumental and stylistic characteristics. Neuropsychology takes into account the conditioning of aggressive manifestations of personality by the simultaneous interaction of biological (genes) and social (environment) factors. Aggressiveness is a personality trait associated with a tendency to rapidly develop an affective state of aggression with a low threshold of its occurrence, which leads to its incomprehension, breach of self-control, maladaptive mental manifestations, and destructive behavior.

Biological, social and psychological causes of aggressive manifestations of personality as a complex factor have been studied by many foreign and domestic scientists (Baron & Richardson, 2003; Berkowitz, 2001; Nerubasska et al., 2020; Rudenko, 2012; Tkach, 2017). Neuropsychological and socio-psychological prophylaxis and correction of aggression of persons with affective and personal disorders are considered by foreign and domestic researchers (Beley, 2019; Chapin & Russell-Chapin, 2013; Dyachuk, 2008; Nerubasska & Maksymchuk, 2020; Tkach, 2018; Tomchuk, 2013).

In the neurobiological approach, each act of aggressive behavior is a complex manifestation of the neuroanatomical structure and a special neurophysiological process. According to many researchers, aggressiveness, as a personal disposition, is a system of interrelated neurophysiological and psychological variables. Neurotransmitters (serotonin, **noradrenaline**, dopamine, and acetylcholine) are increasingly associated with aggressive behavior, depending on the effects of the hormonal system and genetic differences. In addition, the level of testosterone in the blood is correlated

with individual differences in aggressiveness and low frustration resistance, and seasonal fluctuations in serotonin concentration - with changes in emotional lability, manifestations of protective aggressive reactions, suicide rates. Along with this, the frequency of aggressive behavior depends on culture (Heckhausen, 2003).

Genetic predisposition to aggressive behavior and its neurobiological factors are successfully studied by modern foreign experts (Bortolato et al., 2011; Delprato et al., 2018). Like most biological factors, hormones do not act independently of the social context, which has a significant impact on the manifestation of aggressiveness. Most likely, to cause aggression hormones must interact with social factors (Baron & Richardson, 2001). Thus, the peculiarities of social interaction are often the causes of aggressive behavior of a child raised in a family without punishment, so he or she has no personal boundaries of normative behavior in adulthood, and tends to be cruel and unempathetic to others (Bandura, 1973).

We believe that aggression can be considered as a protective psychological mechanism formed in childhood and mainly in adolescence. The emergence of aggressive manifestations of the individual as self-protection is possible against the background of hormonal rearrangement in the body, and requires the strengthening of hormonal levels in relation to subjectively significant trigger situations, people and their relationships, which, of course, in adulthood requires long-term psychotherapy and neuropsychological correction.

B. Tkach (2017) argues that in the system of subject-object relations aggression can be: territorial, of defense, of attack and of competition. In the context of the individual-society relationship, aggression is divided into protoaggression, congenital dissocial behavior disorder, pathological aggression/autoaggression, reflexive aggression, instrumental aggression (acquired actively and passively), unsocialized aggressive behavior, addiction of aggressive behavior, psychopathological aggression, non-impulsive aggression. According to the scientist, it is important to take into account the genetic vulnerability to the aggressiveness of carriers of the 7R variant of the DRD4 gene and with the allele of the 3R MAO-A gene, which fall into the destructive environment. When we take as a basis disorders in the prefrontal cortex, anterior cingulate cortex, hippocampus, tonsil, aggression occurs in personality disorders of organic origin, dissocial personality disorder, narcissistic personality disorder, hypobulia, acquired psychopathological personality type, ataraxia, ease of processing of emotionally negative information and hostile attribution (Tkach, 2017, p. 127). Violation of higher mental functions leads to the experience of

hostility and the assessment of situations and events as hostile, which leads to manifestations of aggression (Foster et al., 1993).

L. Berkowitz believed that aggression can have different origins, under the influence of biological and psychological mechanisms, and biological factors should not be ignored. It is necessary to differentiate instrumental and affective, or emotional aggression. Frustration leads to aggression only to the extent that it generates negative feelings. Discomfort may or may not lead to aggression, as determined by a number of psychological and situational factors. Each of these factors, considered as a separate one, will not have much power in causing aggression, they should be considered in a complex (Berkowitz, 2001).

M. Zilman in the "excitation-transfer theory" noted that physiological excitation does not disappear instantly, but fades gradually, so the combination of previous excitation and anger can increase the likelihood of aggressive behavior with greater force. The transfer of excitation from one situation to another is most likely when a person does not realize that he or she retains some excitation from a previous situation in a new situation unrelated to the first (Zilman, 1979).

Aggressiveness is associated with cognitive, emotional, volitional qualities of the individual, the features of his or her unconscious sphere, which are formed in the process of socialization at the level of the separate individual. Cognitive factors include, first of all, a certain way of thinking that mediates aggressive behavior, inadequately inflated self-esteem. In clinical cases, cognitive factors include mental retardation of a shallow severity caused by morbid process of reduce of intelligence. Among the emotional factors are considered the tendency to anger and rage, which motivate aggressive actions; increased affective excitability in a situation of frustration, anxiety, affective disorders (mania, depression, and dysphoria), emotional instability. Aggression can be a function of the pharmacological state caused by alcohol and situational factors that disrupt complex cognitive processes: there happens a lack of memory, occurs a slowdown of central brain processes etc. Recognition of the determinism of aggression by external stimuli, by conditions and upbringing should not lead to the denial of biological factors in the emergence and development of this phenomenon (Rudenko, 2012).

In the modern literature, the origin of aggression in personality disorders is considered in two ways: the search for biological predictors of aggressive behavior and disorders of adaptation in psychopathic individuals and the social origin of psychopathic aggression. One of the modern is the model of psychology of motivation of aggressive behavior, therefore

interesting, in our opinion, is a complex study of biological, social and psychological characteristics exactly in the motivation of aggressive manifestations of personality.

Aggressive behavior in personality disorders has a complex multifactorial genesis, which is based on a destructive level of anxiety, which originates in childhood and is fixed in the family and then in the social life of a disharmonious personality. Instability of positions, motives, personality orientation, incorrect legal and moral assessments of one's own behavior are the result of personality immaturity, disharmony of emotional and volitional qualities of personality, mood instability, increased irritability and low threshold of frustration resistance. Researchers are pointing to the predominant role of disorders of the volitional process, without denying that this process is also due to the motivational sphere. Thus, A. Dyachuk empirically confirmed that convicts with personality disorders and the maximum level of aggression are characterized by psychopathic self-actualization, dominant affectogenic and selfish motives, anxiety symptoms, systematic alcohol consumption and suicide attempts, mostly demonstrative in nature (Dyachuk, 2008). In foreign works, the influence of a low level of volitional regulation and control of mental activity at the level of personal disorders in offenders is also noted (Becerra-García, 2015).

In A. Raine's biosocial theory (2002), numerous facts confirm that greater manifestations of violent behavior cause a simultaneous combination of biological and social factors, especially neuropsychological factors of aggression and adverse family influence on the upbringing of children, future offenders. A.V. Morgan and S. O. Lilienfeld (2000) empirically researched the relationship of antisocial behavior with brain dysfunction, personality disorders and substantiated the beneficial effect of neuropsychological methods on its correction.

Recently, the idea of the connection of depressive disorder with various manifestations of aggression has been repeatedly expressed. Aggression, which includes: irritability, dysphoria, anger, hostility, consisting of a triad of emotions (contempt, disgust and anger), and anger as an independent emotion - can be directed by a person to the outside world as well as to himself (guilt, self-harm, self-torture up to suicidal thoughts and actions - the risk of suicide in depression is approximately 15%). In reactive depression, aggressive manifestations are closer to normal than in endogenous depression. Endogenous depression is associated with a more pronounced tendency to suppress the need for warm, emotional contacts, while reactive depression, on the contrary, is associated with a predominance of emotions, focus on people, which may indicate a pronounced need for

emotional attachment (Abramova et al., 2004). It is clear that neuropsychological correction, along with cognitive behavioral psychotherapy, is more needed by people with a genetic predisposition to depression. To develop a program for the psychocorrection of destructive manifestations of anger and aggression in the norm, it is also appropriate to consider a three-dimensional model of anger and aggression management, which includes and combines neuropsychological, cognitive and behavioral components.

The systemic structure of higher mental functions is that there are three components of the symptom complex: primary defect - dysfunction directly related to the affected part of the brain (manifestations of impulsivity, uncontrolled aggression, difficulties in emotional control); secondary defect - disorders caused by the systemic consequences of the primary defect (inability to adequately assess the complexity of a stressful situation or the ability of one's own personal resource to overcome frustration, here it is more important for a neuropsychologist to identify the cause of aggression than diagnosing mental personality traits); tertiary symptoms - compensatory readjustments - positive and negative (with a positive compensatory neuropsychological mechanism, successful external motivational influences of upbringing or a prosperous environment contribute to effective emotional self-regulation).

There are a huge number of theoretical justifications for the emergence of aggression, its nature and factors influencing its manifestation. However, they all necessarily fall into the following four categories, which reduce (or see), aggression in the following: 1) innate motives and inclinations; 2) needs that are activated by external incentives; 3) cognitive and emotional processes; 4) current social conditions in combination with previous training (Beley, 2019). Aggressive manifestations of personality are the result of virtually simultaneous interaction of individual psychological (temperament, character), socio-psychological (specifics of social, communicative interaction) and biological (genes) characteristics. In our opinion, the neuropsychological specifics of aggression in combination with psychological and social manifestations of aggression, especially in terms of psychopathological ontogenesis, are among the important issues to consider regarding the choice of methods of correction by a competent specialist.

Neuropsychological prophylaxis and correction of aggressiveness in people with affective personality disorders

Neuropsychological approach to the prevention and correction of aggressiveness of normal personality and of a psychological predisposition to aggressive behavior of persons with low or high self-esteem, with affective or personality disorders, takes into account the use of such techniques and technologies: training exercises on the formation of a responsible attitude to a healthy lifestyle, solving of psychological problems, in particular, on the formation of behavioral skills, altruism and the development of empathy; psychotherapeutic techniques to actualize the work of the left hemisphere of the brain (which is typical for people who often experience emotions of pleasure, happiness) and to work with situational manifestations of destructive aggressiveness; relaxational - to relieve emotional stress and restore energy; rules of psychohygiene of adequate manifestation of aggression; complex technologies of recovery of an organism - a healthy sleep, a full-fledged nutrition, an optimum ratio of physical activities and rest, etc. From the point of view of neuropsychology, aggression can also be often accompanied by narcissistic, borderline, dissocial, mental disorders of persons with specific anatomical and physiological specifics of the brain, some of them – asymmetric hippocampus and reduced tonsils, volume of the anterior singular cortex and gray matter in the prefrontal cortex.

A complex neuropsychocorrective program for working with aggressive behavior in children and adults with brain dysfunctions was developed by B. Tkach (2018). Thus, for people with dysfunction of the orbitofrontal part of the prefrontal cortex (dissocial personality disorder; attention deficit hyperactivity disorder) it is recommended to learn to keep attention on the course of own mental processes and to actualize self-limitation (yoga, oriental martial arts, tennis, throwing of objects; tasks "find the differences in the pictures", mazes, puzzles; the introduction of the rule "count to 10 before you act"). Individuals with dysfunction of the ventromedial part of the prefrontal cortex (narcissistic personal disorder) need to return the ego and conscience, to form awareness of their own emotions and feelings of others, to develop empathy (meditative practices and role-playing games with reflection of frustrational situations - "aggressor" and "victim", writing of works about emotions, drawing and sculpting of emotional faces, normalization of self-esteem). Dysfunction of dorsolateral prefrontal cortex (hypobulia; bigotry; attention deficit syndrome). Individuals with this disorder need to increase self-esteem, self-

awareness, self-confidence and a positive perception of their own image of "I". Exercises to strengthen the positive in the self-concept are best suited for this: "success card" (pie chart with different areas of personality); "Diary of success", involvement in clubs, practicing of meditation to realize their condition.

For the persons with dysfunction of the lateral (convexital) part of the prefrontal cortex activity to reduce arbitrariness in the motor sphere is indicated (yoga, meditation on proprioception, the formation of a "conscious map of the body", which is presented in the neocortex; transformation of destructive actions into a verbal plane, in particular the rule "stop and think about what you want to do and consider whether it is expedient"). Individuals with normal or slightly increased hippocampal function should be taught to evaluate all manifestations of their own aggression, strengthen guilt in the case of targeted aggression against others, learn to take responsibility for their actions, increase empathy (meditation on "Empathy"), to form skills of social competence (to expand the repertoire of solving of problem situations; to provide knowledge of social roles and their patterns of behavior). Hellinger constellations are very effective. Instead, those with reduced hippocampal function need to reduce their excessive sensitivity to negative attitudes to themselves, to carry out emotional desensitization to the perception of situations as hostile to themselves, to overcome the attitude that others have only hostile intentions, to develop awareness of the full range of their emotions and control over them (relaxation techniques: muscle relaxation, deep breathing, visual images), meditations, work with fears (verbalization of fears), role-playing games and Hellinger constellations (Tkach, 2018).

Based on neuropsychological analysis, it can be assumed that hyperactivation of the right hemisphere inhibits the anterior-associative parts of the left hemisphere, as well as the weakness of the hippocampal disturbance of formation of time perspective and disappearance of feeling of habitual fluidity of time that occurs to veterans. Whereas a good orientation in space allows the formation of a time perspective based on spatial gnosis, and the return of social time becomes the first step towards resocialization. Timing and correction of cognitive distortions are achieved due to the preserved ability to understand complex logical and grammatical constructions. Reduced ability to plan activity in time is secondary and is easily corrected by time management training.

S. Tomchuk's (2013) training program on psychocorrection of aggressiveness of personality takes into account the physiological aspect (relaxation), cognitive aspect (identification and correction of irrational

cognitive interpretations) and behavioral aspect (improvement and formation of new social skills). In the physiological direction of the psychologist's correctional work, by improving self-control and somato-vegetative self-regulation, an aggressive person can realize that he or she has misinterpreted the physical sensations that preceded the attacks of anger and aggression. Gradual training of aggressive individuals of relaxation significantly improves their level of tolerance and stimulates them to realize the difference between anger, automatic processes and processes that can be controlled by relaxation. The most effective turned out to be the method of progressive muscle relaxation (modified version), the technique of abdominal breathing, and visualization techniques for relaxation. The cognitive direction in the psychocorrection of aggressiveness of personality provided for formation of motivation for change using the technique of "search for gain and loss". By focusing on episodes of manifestation of aggression, a person can use this technique to consider the advantages and disadvantages of his or her behavior. In order for an aggressive person to become aware in general of the mechanisms and triggers (modifiers) that lead him to maladaptive behavior, some specific anger attacks need to be analyzed in detail (situations, sequence of provocations, tone, posture, content, consequences) by keeping diaries of anger attacks, role-playing games and Socratic conversation. One of the main approaches in the correction of aggressiveness of personality is the cognitive restructuring of "hot" thoughts, irrational rules and assumptions, formation of the skill of cognitive self-monitoring to the smallest initial deviation towards the appearance of a state of anger and aggression, graduated cognitive rehearsals in the imagination in combination with already formed skills of self-relaxation, creation of cognitive coping cards, etc.

Behavioral direction of psychocorrection of aggressiveness of personality involves the development of social skills and abilities in order to replace aggressive behavior with assertive or to form the skills of constructive aggressive response. Achieving the result of reducing the behavioral manifestations of aggression is possible only when the training conditions will determine a very clear and specific model of the desired, new behavior, considering ways to encourage and to strengthen it. In the implementation of this direction, the methods of role-playing games, planning and implementation of a new model of behavior in significant frustration situations for the individual, consolidation of new skills using the methods of positive reinforcement are used. Demonstration of anger in different situations is recommended. Demonstration of anger can be used in non-interference in social situations: maintaining contact with others, not

participating in the discussion, but with an internal self-analysis of maladaptive thoughts and misinterpretations; as well as demonstration of anger by participating in discussions in which the individual puts into practice his or her already realized new social skills - expresses and listens to criticism, uses active listening, expresses rejection, different opinions, etc. (Tomchuk, 2013).

Foreign researchers are actively using neuropsychological correction, in particular mental trainings with meditative practices. The fields of neurobiology and neuropsychology are growing rapidly, and neurologists now understand that the human brain has the ability to adapt and develop new living neurons, which is facilitated by new tasks (with elements of novelty), essentially allowing the brain to transform itself. Thus, T.J. Chapin and L.A. Russell-Chapin (2013), experts in the field of neurotherapy, confirm in practice that the brain can be taught to self-regulate and become more efficient due to neurofeedback. Richard J. Davidson, Sharon Begley (2012), in particular, proved the healing properties of neuropsychological technologies that are effective for providing a person with a feeling of emotional well-being. In the process of performing their professional functions, a practical psychologists must be able to diagnose indicators of aggressiveness and propensity to it, as well as to distinguish between different forms of its manifestations: from socially acceptable to antisocial; from constructive to destructive; from personally expedient - to personally deforming. Wherein every specialist must remember that aggressive behavior is caused not just by a complex of various external (frustrating or conflict situations) and internal factors (the subject's sensitivity to these situations, the presence of experience - learning, etc.), but their system, which realized in the process of forming a motive (motivation) in the relevant patterns of behavior (Beley, 2019).

Conclusions

Modern neuropsychological theory of aggression and aggressiveness and aggressology tend to be integral, as they apply the methodological principles of analysis of these phenomena in an interdisciplinary approach – from the standpoint of not only medical but also socio-humanitarian sciences, which undoubtedly contributes to the study of factors of effective adaptation of the individual in unstable socio-psychological living conditions. In human aggression and personal aggressiveness there is always a measure of the ratio of mental, social and biological, which causes the complexity of the phenomenological assessment of aggressive

manifestations, in particular the neuropsychological features of aggressiveness of personality.

Individual aggressive manifestations of personality have their etiology and specific features, which explains the use of a complex individual approach by clinical psychologists or neuropsychologists in each case of diagnosis of a high level of aggression. Given the pathological homeostasis associated with complex brain dysfunctions and neuropsychological mechanisms of aggression, it is appropriate to prevent aggressive behavior with a systematic application of neuropsychological approach to create such neuropsychological conditions of correction, when weak characteristics of higher mental functions are compensated by strong ones due to tertiary symptoms, i.e. positive compensatory rearrangements.

On the one hand, the brain with the dominant centers of aggression is very difficult to correct, on the other - its plasticity at a young age, a prosperous socio-psychological atmosphere, professional support of people with inadequate aggressive behavior by competent professionals can be positive factors in reducing aggression or converting its energy in constructive manifestations. Modern social requirements are associated with neuropsychological factors of manifestations of constructive aggressiveness of the individual, in particular emotional intelligence: understanding and acceptance of emotional shades of one's own and another's aggression, emotional self-regulation, management of one's own and another's emotions as cortical mechanisms of assertive behavior.

According to age psychology, genetic psychology and neuropsychology, the mental development of the individual and the formation of brain structures, the development of its functionality are interrelated and depend on the conditions of the social environment. Therefore, it is important to create favorable conditions for the development of neuropsychological mechanisms of assertive behavior of a self-sufficient individual through successful social interaction, meditative practice, a culture of positive thinking.

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