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PSYCHO-NEUROTIC DISORDERS PREDETERMINANTS FROM THE PERSPECTIVE OF CLINICAL PATHOPHYSIOLOGY AND DIFFERENTIAL PSYCHOPHYSIOLOGY

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The purpose of the study was to highlight recent ideas regarding the predeterminants of the development of psychoneurotic disorders from an interdisciplinary perspective in integrative anthropology. This review highlights the leading determinants of the development of psycho-neurotic disorders from the perspectives of clinical pathophysiology and differential psychophysiology. A systematic analysis of studies from 2020 to 2025, taken from the medical databases PubMed, Google Scholar, Web of Science and SCOPUS, outlines four principal predeterminants associated with a high risk of psycho-neurotic disorders, especially, individual personality characteristics (premorbid distinctive character traits), genetic determination of the nervous system fundamental properties, environmental factors and dysregulation of nervous, endocrine and immune systems. The authors focus attention on the necessity of a systemic and integrative approach to identifying interindividual variability in psychological characteristics from the standpoints of clinical pathophysiology, psychogenetics, and differential psychophysiology. In their conclusion, the authors emphasize that pre-nosological diagnostics of borderline mental states and determination of the degree of risk of possible transition of psycho-neurotic disorders into neuroses should be based on taking into account the determinants of such disorders, which are a promising preventive direction for health preservation of broad segments of the Ukrainian population.

Key words: psycho-neurotic disorders, predeterminants, dysregulatory pathology, clinical pathophysiology, differential psychophysiology.

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ПРЕДЕТЕРМІНАНТИ ПСИХО-НЕВРОТИЧНИХ РОЗЛАДІВ З ПОЗИЦІЙ КЛІНІЧНОЇ ПАТОФІЗІОЛОГІЇ ТА ДИФЕРЕНЦІАЛЬНОЇ ПСИХОФІЗІОЛОГІЇ

Метою дослідження було з'ясування провідних предетермінант розвитку психоневротичних розладів з позицій клінічної патофізіології та диференціальної психофізіології. Систематичний аналіз досліджень з 2020 по 2025 роки, взятих з медичних баз даних PubMed, Google Scholar, Web of Science and SCOPUS, висвітлює основні чотири предетермінанти високого ризику розвитку психоневротичних розладів – особистісні особливості індивіда (преморбідні своєрідні риси характеру), генетичну детермінацію основних властивостей нервової системи, середовищні фактори та дизрегуляцію нервової, ендокринної та імунної систем. Автори акцентують увагу на необхідності системного та інтегративного підходу для визначення міжіндивідуальної варіативності психологічних ознак з позицій клінічної патофізіології, психогенетики та диференціальної психофізіології. Автори висловлюють, що донозологічна діагностика пограничних психічних станів та визначення ступеня ризику можливого переходу психоневротичних розладів у неврози повинні базуватися на врахуванні детермінант таких розладів, що є перспективним профілактичним напрямком для збереження здоров'я широких верств населення України.

Ключові слова: психоневротичні розлади, предетермінанти, дизрегуляторна патологія, клінічна патофізіологія, диференціальна психофізіологія.

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A significant increase in people with psycho-neurotic disorders and psychosomatic diseases with an acute or chronic course was registered in recent years in Ukraine, as well as various pre-nosologic conditions with neurosis-like symptoms [10, 16]. One could observe the neuroses' clinical structure, evident pathomorphosis: the increase of hidden, subclinical manifestations and incomplete psychopathological syndromes [1, 5]. This concerns the increase of the syndromic background “somatization” and the vegetative-visceral manifestations' inclusion into the leading neurotic syndromes together with the emergence of “new” syndromes of a neurotic nature in the form of information neurosis and socio-stress disorders [18, 48]. The abovementioned complicates an appropriate detection of psycho-neurotic disorders, their

preclinical diagnosis, which in turn hinders the development of adequate medical and psychological approaches aimed at performing the etiological and pathogenetic therapy.

The problem of neurotic disorders is longstanding, and this scientific branch has long united the research interests of psychologists, neurophysiologists, pathophysiology, and clinicians of various profiles; it is now studied at the interdisciplinary level of integrative anthropology. The pathogenetic essence of neurosis-like disorders cannot be revealed now without taking into account the achievements of modern pathophysiology, differential psychophysiology, and psychogenetics, since these sciences allowed us to systematize the idea of neurotic disorders as a simultaneous suffering of the soul and body [7, 22, 32].

It is extremely important now to consider the etiology and pathogenesis of psycho-neurotic disorders from the standpoint of evaluating personal psychophysiological characteristics and the nature of interindividual variability in psychological traits. Only the understanding of common neurophysiological and psychoanalytic approaches allows us to reveal the determinants of stress resistance and persons' adaptability in modern conditions of turbulence [16, 17]. Such investigations are extremely important in the current military conditions with the presence of physical and mental overload signs in the majority of the population of Ukraine, and therefore, further psychophysiological studies will allow us to determine, using objective parameters, the specificity of an individual's personal response to trigger stimuli of various nature and intensity [22, 27, 39].

Psycho-neurotic disorders are considered to be psychogenically arising vague disorders in individuals with certain individual typological characteristics, and such disorders are manifested mainly in pathological changes in the emotional-volitional and vegetative tone of the individual, which can manifest itself in inadequate forms of behaviour [3, 32]. The person not only maintains criticality and an adequate assessment of the surrounding reality, but in most cases, there is an awareness of their personal problems, a desire to get rid of them, which can intensify subjective anxiety-depressive states, change the behavioural reactions of the individual, and narrow their social adaptation [41, 49].

Further studies concerning the pathogenetic importance of cerebral mechanisms (vegetative dystonia syndrome, chronic fatigue syndrome, etc.) in psycho-neurological and vegetative disorders determination, the neurochemical memory mechanisms identification, certain neurotransmitters and neuropeptides changes investigation inside the structures of the emotional brain should be considered promising pathophysiological mechanisms of neurological pathology and psychosomatic disorders [18, 28]. The interest in the etiology, pathogenesis, and valid diagnostics of psycho-neurological disorders, as well as in their individualized, pathogenetically oriented medical and psychological approaches to prophylaxis, remains high. Hence, the review of problematic questions concerning the determinants of the development of neurological pathology in modern conditions is highly relevant.

The purpose of the study was to highlight recent ideas regarding the determinants of the development of psychoneurotic disorders from an interdisciplinary perspective in integrative anthropology.

Materials and methods. To achieve the goal of the review, three main literature searches were conducted in the databases PubMed, Google Scholar, Web of Science, and SCOPUS, covering English-language scientific articles from 01.01.2020 to 01.01.2025. The last search query was performed on February 4, 2025.

A meticulous and strategic search process was employed within each database, utilizing a broad range of keywords relevant to the field of pathological physiology, clinical pathological physiology, neurology, and psychology of neuronal disorders such as neuroses and their relevant preclinical (so-called hidden) forms with an appropriate Boolean operator (i.e., AND, OR).

For explanation. Searching within the PubMed database the following verbatim search query was used: “neuroses”, “brain pathology”, “psycho-neurotic disorders”, “neuromodulators pathogenetic role in neuroses”, “neurotransmitters pathogenetic role in neuroses”, “informative neuroses”, “social stress disorders”, “neuronal dysregulation”, “psycho-neurotic disorders”, “pathogenesis”, “treatment”, “mental health”, “environmental factors”, “neuro-immune-endocrine interaction”, “limbic structures”, “serotonin neurotransmission disorders”, “dopamine neurotransmission disorders”, “individual reactivity”, and “pre-nosological diagnostics”.

Similar search strategies were subsequently used in other databases – Google Scholar, Web of Science, and SCOPUS. This extensive collection of keywords ensured a broad and exhaustive search that captured recent experimental trials, neuropsychological clinical discoveries, advances, and the latest fundamental data regarding the etiology, pathogenesis, diagnosis, and prophylaxis of neuroses, informative neuroses, and psycho-neurotic disorders.

The inclusion criteria for the review were strictly defined to ensure that only high-quality, relevant studies were included. Only original research articles, systematic reviews, and meta-analyses published in peer-reviewed journals were considered for inclusion. Emphasis was placed on studies published in English, which were prioritized for their broader accessibility and relevance to the international scientific community. Studies published in Ukrainian were also included to reflect regional contributions to the field.

Exclusion criteria were also considered important. Conference abstracts, editorials, preprints, and non-peer-reviewed articles were excluded because they did not align with the review objectives. Only studies that provided substantive information concerning theoretical explanation and clinical realization of the problem of neuroses, psycho-neurotic disorders, and their latent forms, diagnosis, treatment, and possible prevention were selected for inclusion.

As this is a review article based on the analysis of publicly available literature, ethical approvals were not required for this study. The study protocol was performed in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. Hence, a total of 382 articles were selected. After removing duplicates and records that did not meet the inclusion criteria, a portion was selected for full-text review. Therefore, 50 manuscripts were determined to meet the inclusion criteria (Table 1).

Simplified PRISMA Flow

Stage	Description	Number of Records/Studies
1. Identified	Total number of records identified through database searching and other sources	382
2. Duplicates Removed	Number of records removed before screening (e.g., duplicates)	69
3. Screened (Title/Abstract)	Number of records screened after duplicates were removed	313
4. Assessed for Eligibility (Full-text)	Number of full-text articles assessed for eligibility against the inclusion/exclusion criteria	108
5. Included in Review	Total number of primary studies finally included in the systematic review	50

Results of the study and their discussion. To date, the issues of clinical delimitation and terminological clarification of such nosological categories as psycho-neurotic disorders, neuroses, and various types of psychopathologies of the non-psychotic level remain debatable in accordance with the classifications of mental and post-traumatic stress disorders provided for in the International Classification of Diseases, 11th revision [46]. It is known that psycho-neurotic disorders and neuroses belong to the group of diseases characterized by vague disorders in various areas of a person's mental activity. The risk of their occurrence, the nature of the clinical course, and the likelihood of compensation and decompensation are not only determined by psychogenic and environmental factors, but are also closely related to the individual reactivity of the organism, especially with the properties of a person's specific, peculiar response to internal and external triggers [44, 50].

The psychophysiological basis of psycho-neurological disorders and neuroses was elucidated at the end of the 19th century by prominent domestic neurophysiologists. According to their view, the leading mechanism in the pathogenesis of psycho-neurological pathology is the disruption of the organization of individual higher nervous activity [16]. Such a disruption occurs psychogenically, with both emotional and somato-vegetative disorders predominating in clinical manifestation. At the same time, the person usually experiences mental fatigue, irritability, weakness, increased fatigue, diminished attentional qualities, and a decline in working capacity.

Psycho-neurotic disorders and neuroses, according to modern general psychopathology, belong to the non-psychotic level of psychopathological disorders. When clinically distinguishing neuroses and psychopathies, the fact that personality disorders in neuroses are partial with the preservation of the criticality and adaptive resources of the individual, and in psychopathies of the psychotic level, the structure of the personality suffers, there is a lack of awareness by the person of his illness and there is a significant violation of social adaptation, is taken into account.

Psychogenetic studies showed that, starting from the 9th month of life, genetically programmed individuality manifests in the dynamic characteristics of a child's behaviour, that is, in his individual temperamental characteristics [16, 20, 35]. A syndrome of "difficult temperament" was identified

based on data from the New York Longitudinal Study (which began in 1957 and continues to this day). Its signs are as follows: low rhythmicity, negative mood predominance, weak reactions "to" and "from", poor adaptability, and high reaction intensity. High correlations of the above-mentioned temperamental signs in children with their temperamental characteristics are revealed already in the period of adulthood (17-27 years), and the "difficult temperament" of childhood has a projection in the adaptation of an adult to various spheres of mental activity – educational, social, family, professional, and others [30].

It was established that adults' existing difficulties reliably correlate with a child's "difficult temperament" at age 4; that is, the higher the "difficult temperament" scores in childhood, the lower the degree of adaptability in adulthood. According to the data of the twin study by Joseph HM et al., out of the five components of the "difficult temperament" syndrome at the age of 6, three have the most significant genetic component: with a weak reaction "to", high intensity of reactions and low regularity, the heritability coefficient is high and is equal to 0.94, 0.82 and 0.68, respectively. At the same time, it has been shown that a person's low level of adaptability is determined mainly by the general family environment. The individual environment primarily influences negative mood, although signs of hereditary influence are also evident (heritability coefficients of 0.26 and 0.37, respectively) [23].

The most popular were attempts at differential psychology aimed to reduce the descriptors of individuality to five main factors (the Big Five). Hence, the first factor – extraversion - and the fourth factor – neuroticism, a tendency toward negative emotions and a characteristic of emotional stability-instability - turned out to be the closest to the concept of temperament in the personality structure [8, 47]. Generalized heritability estimates obtained by combining data from various twin studies indicate about 40 % of the genetic variance for extraversion and 30 % for neuroticism.

Modern genetic and mathematical models have established that the first and fourth factors account for 27–36 % of the variance; if both traits show moderate heritability, extraversion's influence is somewhat stronger than neuroticism's [47].

Therefore, the dynamic characteristics of mental states are significantly determined by hereditary factors from the first years of life; these factors will affect the features of psychophysiological

development at all stages of ontogenesis and determine a person's individual characteristics of stress resistance and adaptability. There is ontogenetic stability of an individual's temperamental characteristics, which are manifested in the organization of all forms of a person's mental activity throughout his life, are reflected in various spheres of human existence, and subsequently affect the individual's stress resistance, adaptability, and working capacity.

Leading experts in neuroscience, pathophysiology, medical psychology, and clinical neuropathologists concluded that after 5-6 years, the non-psychotic level of psycho-neurological disorders can reach a qualitatively different type of psychopathology – persistent neurosis, which is almost not amenable to effective treatment. Specialists are only trying somewhat to alleviate its clinical manifestations [6, 18].

We believe it's reasonable to draw attention to psycho-neurological disorders, their latest manifestations induced by social factors, and the increasing intensity of information flows entering modern people's consciousness. The difficulties of psycho-neurotic disorders and neuroses, individual nosological forms' manifestation, have been significantly increased recently due to a decrease in the frequency of classical forms and an increase in the number of neurotic disorders with complex vegetative-visceral syndromes. These syndromes are the following: psychomotor disorders, cardiovascular activity and breathing, gastrointestinal disorders, nervous anorexia syndrome, professional dyskinesias, psychogenic sexual disorders, senestopathy, cephalalgias, and painful pain sensations of other localizations [36]. Moreover, one could see the separation of such “modern” forms of psychopathology as information neurosis and social stress disorders [14, 37].

Information neurosis from a pathogenetic point of view should be considered from the standpoint of negative psychogenic stress, and this type of neurosis can act as an adequate model of neurological pathology. Information-induced neurosis encompasses various disorders of higher mental functions, mediated by dysfunctions in other body systems (primarily the nervous, cardiovascular, and respiratory systems). Information neurosis arises as a result of long-term stress of the functioning of brain structures under the influence of the following triad of adverse factors: 1) excessive volume of information that must be processed to make an important decision; 2) short period of time allocated for making such a decision (time deficit); 3) high level of motivation and responsibility of the person, which determines the importance of this information and the need for its accurate interpretation [38].

At present, the initiating factors of informational neurosis can be the terrible news that comes from the media and the testimonies that relatives receive about the catastrophic state of life in the occupied territories, as well as information about financial and property losses as a result of hostilities. The mechanisms of awareness of tragic events and their interpretation depend on a person's emotional

intelligence and on their individual stress reactivity to specific information stimuli, which must be processed and interpreted within the structures of psychofunctional brain systems, primarily the limbic system and neocortex.

It is worth emphasizing the presence in each person of an individual peculiarity of functional asymmetry of the brain, intersystem interactions between the main functional blocks of the brain, as well as between individual sensory systems of the brain (the second functional block, according to O. Luria) and non-specific modulating activating influences from the brain reticular formation and the emotional brain structures [16]. The lack of objective, diagnostic psychophysiological criteria that assess a person's ability to perceive certain sensory and verbal signals, as well as the individual characteristics of the brain's integrative activity, does not allow, both terminologically and nosologically, today, to distinguish between information neurosis and other types of stress-induced psychopathology [45].

Therefore, if the clinical picture of psychoneurotic disorders primarily corresponds to neurosis, then we believe we have manifestations of information neurosis. If psychosomatic symptoms correspond clinically to other somatic diseases, then it is possible to conclude about “information pathology with the corresponding nosology”.

In our opinion, not only the vagueness in the diagnosis and the vagueness of the terminological concept of “information pathology of the corresponding nosology” are obvious, but also the problematic nature of the legitimate nosological definition under such an interpretation. We must state the absence of objective criteria for determining the determinants of the development of information neurosis in a particular individual.

In general, it is necessary to emphasize the psychogenic origin of information neurosis and not to reject the possibility that overload in short- and long-term memory, under the influence of the precursors of this stress-induced pathology of higher nervous activity, may have a different neurophysiological basis, involving distinct pathogenetic mechanisms. It is worth noting that the diversity of clinical manifestations of information neurosis, along with the intensity of the real-time information load on a modern person, is due precisely to the individual-typological features of a person's stress-reactivity [41].

Pathogenetic aspects of psycho-neurotic disorders induced by information overload, and the given nosological definition of “information neurosis,” have yet to be investigated in the context of classical neurophysiological and pathogenetic ideas from the conceptual positions of modern pathophysiology, differential and psychophysiology. This concerns primarily the uniqueness of a person's basic properties of the nervous system (NSBP) and their genetic determination, especially the peculiarities of the state of perceptual-cognitive functions and the psychomotor organization of the subject of operational mental activity [16, 26, 41].

Personal NCBP are supposed to be in an equalized state between two basic nervous processes

– excitation and inhibition. Still, this balance of genetically determined neuronal properties (strength, mobility, dynamism, and lability) can shift in each person in response to mental and physical stress.

It was established that non-pathological reactions after acute social-stress disorders (SSD) lasted several days, psychogenic adaptive reactions lasted 3-6 months, and neurotic states with different clinical variants of manifestations were observed after 3-5 years. Stable clinical forms of neurosis are determined on average after 5 years by the presence of certain psycho-neurological disorders in a person; they lead to almost irreversible pathocharacterological changes in the structure of the personality and cause significant deviations in behaviour [25, 31, 34, 40].

In case of certain vague psycho-neurotic manifestations present throughout the SSD, one can only speak about the personal mental maladaptation in the initial stages. An increase in the risk of purely psychopathological states development since only the psychopathological syndromes stabilization and their clinically completed variants formation are a strong background for a transition from a pre-morbid state to a stable neurosis.

It is important to note the necessity for further detailed development of SSD pathogenetic and diagnostic aspects. Thus, the individualized diagnosis of persons' psycho-emotional state during natural disasters, catastrophes, and military operations, as well as in the presence of microsocial and macrosocial conflicts, has acquired enormous medical and social significance [4, 15, 21, 34].

Neuropsychiatric disorders developed during and after emergencies are not “new” and “unusual” diseases of civilization. In phenomenological terms, these disorders, generated by shortcomings and conflicts between modern civilization and social life, had not been described before. Still, today it's important to legitimately generalize and outline them since society is already ready to accept the list of social causes that worsen the mental health of the Ukrainian population in different segments. Modern people must realize the necessity for adequate preventive and rehabilitation measures, and their timely implementation. Thus, pre-nosological diagnostics of psycho-neurotic disorders and the need to introduce the person's pre-morbid neurotic manifestations and inadequate mental reactions (acute and chronic stress), pathogenetically oriented adequate psychotherapy become socially important.

Dysregulatory pathology is the pathogenetic basis of neurological pathology and the development of psychopathic disorders. In recent years, the relationship between individual characteristics of brain neurotransmitters and neuromodulatory systems metabolism and the psychophysiological state of a person has been discussed, and convincing evidence was obtained in favour of the direct prerequisite influence of certain neurochemical factors' levels and metabolism disturbances in neuronal disorders, maladaptive forms of behaviour formation [19, 43]. The pathogenetic significance of serotonergic and dopaminergic neurotransmission in the formation of aggressiveness and various forms of asocial behaviour was confirmed [13]. At the same

time, the possibility of the inheritance of variations in genes encoding enzymes involved in the synthesis of relevant neurotransmitters or in the regulation of their activity was established [33].

The children suffering from hyperactivity and showing aggression were proven to have a decreased serotonergic transmission, and now clinical evidence has been received about the efficacy of both antidepressants and tranquilizers (in particular lithium salts) used in such children [29].

Attention-deficit hyperactivity disorder is well known to be a genetically determined manifestation of mental dysontogenesis. It causes a decrease in learning abilities, increased aggressiveness, and it is precisely such children who form the contingent from which adolescents and adults are recruited who will be prone to the development of various forms of neurosis, neurosis-like disorders, and psychopathies. Neuropeptides (endozepins, peptide YY, and cholecystokinin small fragments, CCK-4, 8, and 33) are revealed to be potent stimulators of pathological forms of behaviour [42]. We suppose this question of the possible impact on the person's mental state should be the subject of detailed investigation from the standpoint of clinical pathophysiology.

Interindividual variability in a person's psychophysiological features, in particular intellectual abilities and various forms of behavior, is determined by 50 % by individual genotype. The pathogenetic contribution of inherited neurochemical factors to the genesis of predisposition to psycho-neurotic disorders is undoubtedly significant. Still, today it is considered legitimate to attribute such disorders to diseases with hereditary predisposition, and this does not exclude the initiating role of environmental factors, namely, the influence of the individual environment on their formation.

There is positive experience in the use of antidepressants and beta-blockers for pathological anxiety, aggressiveness, hyperactivity, and attention deficit syndrome correction in children and adults; however, it is considered unpromising in terms of long-term psychotherapy in groups of patients with a high level of neurosis. It is absolutely unacceptable in terms of prophylactic use at the preclinical stage of neurotic disorders in children and adolescents. It's necessary to point out the potential importance of such a scientific approach as inversion immunoregulation (targeted, pathogenetically oriented immunization with covalent conjugates of endogenous regulators with antigens – carriers or heterologous enzymes that determine the nature of endogenous regulators metabolism). The forthcoming development in this direction, supported by validated individualized diagnostics and targeted, differentiated pathogenetic therapy, will allow us to offer adequate prophylactic and therapeutic methods for the long-term correction of pathological manifestations of the personal psycho-emotional state.

An analysis of the state of mental health indicates an increase in non-psychotic, primarily neurotic and somatoform disorders, as well as such maladaptive reactions that are directly related to negative changes in the socio-economic situation and in the spiritual life of broad segments of the population [1]. The posttraumatic stress-induced non-psychotic

disorders occur in only 25–30 % of victims [2, 9, 11] while psycho-neurotic reactions are observed in almost 70 % of people who have experienced psychotraumatic events. The conceptual position of modern clinical pathophysiology, differential psychophysiology, and psychology is that individual typological characteristics are valid prognostic determinants of the potential consequences of stressors for a person's mental state [12].

Neuroticism and anxiety should be considered personal determinants of the development of psycho-neurotic disorders, which ontogenetically stably reflect individual-typological characteristics of the personality [16].

Neuroticism and anxiety, as signs of an organism's stress state, are well known to correlate strongly with each other ($r=0.6-0.8$); individuals with high neuroticism scores are characterized by emotional lability, hyperactivity, and a slow return to the initial psychological state following emotional experiences. Stress resistance can be considered an integral psychological feature of the subject, and the following personality properties are recognized as determinants of low stress resistance: personal and situational anxiety; introversion and neuroticism; a tendency toward impulsive reactions; lack of self-confidence and low self-esteem [16].

Neuroticism, as a stable property in the structure of personality, is most influenced by the genotypic component, and the psychophysiological basis of this personal property is the low threshold of activity of limbic structures, which regulate the functioning of the autonomic nervous system, immunogenesis, and hormonal homeostasis [24]. In recent years, the complex relationships between personal factors in the structure of personality and the mechanisms of individuals' stress resistance and adaptability have been intensively investigated from the standpoint of determining genotypic characteristics and of both internal and external environmental factors [24].

Summarizing the pathogenetic factors that determine the formation of psycho-neurotic disorders as predeterminants, it is worth pointing out the following sequence of their activation.

1. Personal characteristics (premorbid uniqueness of character traits). Premorbid uniqueness of character traits, on the one side, is determined by the individual genotype and, at the same time, is modulated under the influence of environmental factors, including the individual environment and society. According to the modern psychogenetic conceptual position, the unique personal genotype is the designer of his individual environment, a role that increases with age.

2. Genetic determination of the nervous system's main properties. The main property of the nervous system, genetic determinism, underlies interindividual

variability in personal psychophysiological status. This factor determines the person's psychomotor organization, which mediates all forms of psychological reflection on reality, that is, all types of individual mental activity [16, 45].

3. Environmental factors, especially the social ones. Each individual, under the adverse influence of environmental and societal factors, constantly engages a complex of adaptive mechanisms (psychological and neuro-immune-endocrine homeokinesis) to ensure adequate reactivity to various stimuli, thereby providing the individual with the necessary resistance to neurotic disorders. Complex molecular-genetic mechanisms mediate genotype-environment interactions; they modulate gene expression and determine the organism's specific reactivity pattern.

4. Dysregulation of nervous, endocrine, and immune systems. Alternative splicing mechanisms are responsible for the synthesis of new neurospecific proteins with adaptogenic orientation and for the synthesis of nuclear proteins that determine the features of a person's mental ontogenesis and dysontogenesis. The impact of environmental factors is mediated by neuro-immune-endocrine regulatory mechanisms (endogenous regulators), which actively modulate an individual's psychological adaptation in the present and ensure that the best adaptive capabilities are transmitted to subsequent generations. Dysregulation of the functional state of the nervous, immune, and endocrine systems manifests at all hierarchical levels of an organism's vital activity.

Therefore, the above indicates the reasonableness of an interdisciplinary approach as a theoretical and methodological basis for dysregulatory changes revealed in organisms' psychoneuroimmunoendocrine regulation, even at the preclinical stages of psycho-neurological disorders. Such an approach allows the identification of the pathophysiological and psychopathological signs and their relationship with immunopathological processes, neuronal neurotransmitter and neuropeptide metabolism disorders.

Limitations. The following limitations were used while working with the selected sources of literature: russian-language sources of literature and those works published in journals of Russian Federation and Belarus were excluded; those sources of literature that were not published in Ukrainian, English and Italian were also excluded; when analyzing selected sources of literature, cases of mental disorders with a significant (over 5 years) history of manifestation, cases of neurological disorders in children due to ischemic and/or traumatic brain injury, as well as cases of neurological disorders due to the formation of foci of epileptic impulse generation in brain structures were excluded.

Conclusions

1. The existence of persons' so-called transient mental states is recognized, which do not yet fall into the category of psychopathology but can no longer be characterized as normative. Therefore, the introduction of a comprehensive approach to assessing persons' different psychophysiological states and their dynamic changes during the implementation of various forms of operational activity was updated.

2. There are difficulties in developing adequate and suitable computerized methods for psychophysiological and psychological screening, which should be implemented with diagnostic tasks.

3. Despite the principle of preventive orientation, the priority is given today to medical treatment. At the same time, it is necessary to point out the reasonableness of individually oriented psychotherapeutic techniques, timely application, and adaptive correction of pre-neurotic states to prevent persistent neuroses.

4. Objective psychophysiological parameters for a valid distinction between the above-mentioned pre-nosological categories for different Ukrainian population segments are not fully developed. However, the social need for the introduction of such objective expert assessment is quite high in the modern realities of military aggression, uncertainty, and turbulence.

5. A current approach to pre-nosological diagnostics of psycho-neurological disorders is the interdisciplinary systemic approach implementation within the framework of psychophysiological examination and valid monitoring of personal mental state with the involvement of a complex of adequate screening methods allowing to identify the patterns of individual-specific reactivity to various stressors and information stimuli.

6. Pre-nosological diagnostics of borderline mental states and determination of the degree of risk of possible transition of psycho-neurotic disorders into neuroses should be based on taking into account the determinants of such disorders, which we consider a promising preventive direction for health preservation of broad segments of the Ukrainian population.

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