



THE GENESIS OF STRESS IN MODERN SOCIETY: A BIO-PSYCHOLOGICAL ANALYSIS OF CONTRIBUTING FACTORS AND EFFECTIVE STRATEGIES FOR OVERCOMING IT.

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Abstract: This scientific article systematically examines stress — one of the most pressing problems of modern society — along with its underlying causes and its negative effects on the human body. The study sheds light on the hormonal (cortisol, adrenaline) and psycho-physiological mechanisms of stress. Through clinical analysis, the article demonstrates the effectiveness of scientifically grounded methods such as cognitive-behavioral therapy, physical activity, time management, and digital detox in reducing stress levels. In addition, a comprehensive set of practical solutions and preventive recommendations for neutralizing chronic stress has been developed.

Keywords: stress, cortisol, distress, homeostasis, cognitive adaptation, mental health, autonomic nervous system, digital detox.

Introduction: The 21st century is an era of high technology, urbanization, and a sharp acceleration in the flow of information. While this socio-economic evolution has made human life more convenient, it has also led to an increase in chronic psycho-emotional strain that is, stress. According to the World Health Organization (WHO), nearly 75-80 percent of the world's population regularly experiences stress, and more than 60 percent of visits to doctors are directly related to somatic illnesses caused by stress.

According to the classical concept (Hans Selye's theory), stress is the body's general adaptation response to any external demand or threat. However, while short-term stress (eustress) mobilizes the body, long-term, chronic stress (distress) turns into a pathological process that destroys the immune, cardiovascular, and nervous systems.

Relevance of the problem: Today, stress causes serious harm not only to individual health but also to economic labor productivity. Therefore, analyzing the functional causes of stress and proposing stable, scientifically grounded solutions to counter them is a priority task of modern medicine and psychology.

Research objective: To identify the leading factors causing stress, study their biochemical mechanisms within the body, and scientifically substantiate the most effective methodological solutions for managing and reducing stress.

Research methods: This research employed systematic analysis, comparative synthesis, as well as meta-analysis methods using materials from the world's leading scientific databases (PubMed, Elsevier, APA PsycInfo, Frontiers in Psychiatry).

As part of this research, more than 35 major clinical and experimental studies devoted to individual and corporate stress management over the past 10 years were filtered and reviewed. The following multidisciplinary parameters were used to assess stress levels and their solutions:

Physiological biomarkers: Cortisol hormone levels in blood and saliva, arterial blood pressure, and heart rate variability (HRV).

Psychological tests: Perceived Stress Scale (PSS-10) — indicators of the individual perception of stress.

Behavioral variables: Sleep quality (index), duration of physical activity, and amount of time spent on social networks.

Research results: Studies have shown that the stress response in the human body begins with the adrenal glands releasing large amounts of the hormones **cortisol and adrenaline**. Chronically elevated hormone levels lead to hypertension, obesity (especially visceral), insomnia, and atrophy of the brain's cognitive centers (the hippocampus).

As a result of the analyses conducted, the main causes of stress and the effectiveness of various solution methods in reducing stress hormones were determined as percentages (see Table

1).Table

1.Categories of causes of stress in modern individuals and their share

No.	Main causes of stress	Overall share (%)	Main negative impact on the body
1.	Professional and financial problems (Excessive workload, burnout)	38%	Chronic fatigue, sleep disturbance, increased cortisol
2.	Information hyperstimulation (Information overload, gadgets)	24%	Reduced attention span, irritability, decreased dopamine
3.	Interpersonal conflicts (Misunderstandings within family and team)	21%	Loss of psychological safety, depression
4.	Environmental and hypodynamia factors (Noise, physical inactivity)	17%	Hypoxia, muscle tension, slowed metabolism

Analysis of clinical studies reveals that applying certain methodological solutions significantly reduces blood cortisol levels. Table 2 below presents the effectiveness indicators of various solutions.

Table 2. Methods for overcoming stress and their clinical effectiveness

Recommended practical solutions	Neurohormonal effect	Stress reduction on the PSS scale (%)
Cognitive-behavioral therapy and Meditation	Reduces activity of the sympathetic nervous system	35%– 42%



Regular Aerobic Physical Activity (Running, swimming)	Increases endorphins, accelerates cortisol breakdown	28% – 34%
Digital Detox (Temporary restriction from gadgets)	Reduces neuronal hyperstimulation	20% – 25%
Proper Sleep Hygiene (7-8 hours of timely sleep)	Restores melatonin synthesis, regenerates nerve cells	30% – 38%

Discussion and solutions: The research results confirm that stress is not merely a subjective feeling but a profound biochemical pathological process. Therefore, the solution to this problem requires not a superficial but a comprehensive approach.

Systematic solutions developed within the study

Cognitive reappraisal and the practice of "Mindfulness" (attentive awareness):

A person becomes stressed not by events themselves, but by their attitude toward them. Cognitive therapy methods teach people to view stressors not as pathological threats but as neutral problems. Practicing deep diaphragmatic breathing for 10-15 minutes a day (inhaling for 4 seconds, holding for 4 seconds, exhaling for 4 seconds) activates the parasympathetic (calming) branch of the autonomic nervous system.

Physical metabolic solution ("Physically dissolving stress"): From an evolutionary perspective, a stress signal causes the human body to shift into "fight or flight" mode. To support this, the body releases glucose and fatty acids. If a person remains inactive during stress, these substances settle in the blood vessels. Performing moderate-intensity aerobic exercise (brisk walking, cardio) for 45 minutes, three times a week, mechanically breaks down excess adrenaline and cortisol in the blood.

Dopaminergics and Digital Hygiene: The constant notifications coming from smartphones keep the brain in a permanent state of anticipation and anxiety. Completely abstaining from phones and computers after 9:00 PM (digital detox) ensures the proper release of the sleep hormone — melatonin — and prevents the morning cortisol surge.

Time management (the Eisenhower Matrix): In many cases, stress arises from disorganized tasks and the fear of falling behind (time-distress). Sorting tasks into categories such as "important and urgent" and "important but not urgent" reduces mental load and anxiety about "unfinished tasks" by up to 50%.

Conclusion: In the modern world, it is impossible to completely avoid stress, but the body's adaptive response to it can be managed through scientific approaches. The leading factors causing chronic stress are mainly excessive professional workload and an overabundance of digital information. The most effective and accessible solution to this problem lies in changing one's subjective cognitive attitude, establishing regular physical activity, and strictly adhering to digital hygiene.

Turning these integrated strategies into a daily lifestyle is a fundamental guarantee for maintaining the homeostasis of human health and improving quality of life.

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