



Theoretical article

DIMENSIONS OF STRESS IN DIFFERENT CONTEXTS OF UNDERSTANDING

Petros Michoglou, PhD student

***Department of Psychology, SWU "Neofit Rilski", Blagoevgrad, Bulgaria.**

Email: michogloup@gmail.com

Abstract:

The article aims to present the historically emerging concepts of stress. From the perspective of various scientific fields, the multifaceted nature of stress as a phenomenon is identified. Its theoretical understanding is important in the modern world, given its integrative nature. On this basis, the dimensions of stress are interpreted as a state that unites cognitive, affective and behavioral aspects of understanding.

Key words: stress, stress models, homeostasis, general adaptation syndrome, cognitive-evaluative model.

Introduction

Understanding the physiological roots of stress is fundamental to all of modern psychology and medicine, as it is these biological mechanisms that underlie the way the body responds to challenges, threats, and changes in the environment.

As a complex phenomenon, stress has both adaptive and maladaptive dimensions. On the one hand, it provides for the mobilization of the body's resources, preparing it to cope with critical situations; on the other hand, when these mechanisms are activated for a long time or excessively, stress can lead to exhaustion and long-term negative consequences, including leading to a state of distress in which adaptation processes are disrupted and physical, emotional, and cognitive disorders occur.

Genesis and evolution of stress theories

The study of stress as a phenomenon accompanying the functioning and survival of individuals and communities is associated with specifying the characteristics of its manifestation. The emergence of the idea of stress is determined by scientific research in the field of biological and physiological sciences, but gradually this phenomenon acquires citizenship and becomes a subject of study by social and psychological sciences. In a historical aspect, the following theories are differentiated, in whose contribution the evolutionary understanding of stress is reflected.

"The Internal Environment" - Claude Bernard.

In the second half of the 19th century, the French physiologist Claude Bernard formulated the concept of the internal environment – the idea that the organism maintains a relative stability of its internal conditions despite changes in the external environment (Hoenig & Ferguson, 2014). This idea, although it does not use the term "stress", sets the framework for the later introduction of the concept of "homeostasis". Bernard viewed the organism as an open system with self-

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regulating mechanisms, which in the context of stress prepares the ground for the understanding that adaptation is a dynamic, continuous process of balancing and compensation.

“Fight or Flight” - Walter Cannon (early 20th century).

Cannon was the first scientist to describe physiological changes in the body as a coordinated response designed to prepare the individual for two basic behavioral strategies: confrontation (fight) or withdrawal (flight) in the presence of a threat. He studied how the sympathetic part of the autonomic nervous system activates a number of processes: acceleration of the heart rate (tachycardia) to increase blood flow to the muscles; expansion of the bronchi for optimal oxygen supply; release of glucose from the liver for quick energy; redirection of blood flow from the digestive system to large muscle groups; dilation of the pupils for improved visual perception.

Among Cannon's most significant works are "Bodily Changes in Pain, Hunger, Fear, and Rage" (1915), a classic monograph that presents empirical data on the body's physiological responses to emotional states, and "The Wisdom of the Body" (1932), where he formulated and developed the concept of homeostasis, closely related to the "fight or flight" theory.

General Adaptation Syndrome (GAS) - Hans Selye

Hans Selye (1907–1982) is considered one of the "fathers" of modern stress theory. At the time when Cannon was studying the body's acute reactions, Selye was turning his attention to the long-term physiological and pathological effects of stress. As early as 1936, he published a short but revolutionary article in the journal *Nature*, in which he introduced the concept of the "General Adaptation Syndrome" (GAS). Later, in the monograph "The Stress of Life" (1956), Selye systematized his ideas, distinguishing stress (a nonspecific response of the body to any demand) from distress (a harmful stress that exceeds the body's adaptive capabilities).

Selye describes the three phases of the General Adaptation Syndrome (GAS) as a universal biological response that occurs in the following sequence:

1. Alarm response - this phase is analogous to the "fight or flight" response described by Cannon, but Selye considers it only as an initial step in a broader process.
2. Resistance phase - the body seeks to adapt to the prolonged impact of the stressor; physiological systems remain activated, but at a more moderate level, in order to maintain a balance between needs and available resources; if adaptation is successful, homeostasis is restored; if not, the next phase occurs.
3. Exhaustion phase - long-term activation of stress mechanisms leads to depletion of resources, weakening of immunity, increased risk of diseases (cardiovascular, gastrointestinal, mental); symptoms of distress are observed at the mental level (anxiety, depression, emotional exhaustion, feeling of helplessness).

The Person-Environment Transaction - Richard Lazarus and Susan Folkman.

Lazarus and Folkman shifted the focus from the stimulus-response to the person-environment transaction, in which situational appraisal and coping are central processes (Lazarus, 1966; Lazarus & Folkman, 1984) and offered a radically new perspective. Their cognitive theory of stress appraisal focuses on the way an individual interprets and evaluates a situation, rather than just the situation itself or the body's physiological response. Their theory is based on the idea that

stress is not an automatic result of the stressor, but rather arises as a result of the interaction between the person and the environment, mediated by cognitive and emotional processes. The key definition is emblematic: stress is "a specific type of relationship between a person and the environment that is perceived to exceed his or her resources and threaten his or her well-being" (Lazarus & Folkman, 1984, p. 19). Lazarus introduced the term "transactional model" to emphasize that stress is the result of a two-way dynamic – the environment influences the individual, but the individual also actively processes and evaluates information about the environment. This lays the foundation for integrating psychological defense mechanisms, motivational factors, and individual differences in coping with stressors. The main principles of the cognitive-appraisal model of stress are:

1. Transactionalism – stress is not simply an external stimulus or internal reaction, but a dynamic interaction. The individual interprets and reevaluates events; the environment changes as a result of his actions.
2. Processualism – stress develops over time: appraisals and coping strategies are updated in response to new information.
3. Individual differences – personal goals, values, experiences, beliefs about control, and efficacy influence appraisal and coping.
4. Emotions and meaning – emotions are not an epiphenomenon; they arise from the significance and valence of the situation in relation to the individual's goals (Smith & Lazarus, 1990).

Lazarus develops the thesis that psychological appraisal is a continuous process in which the individual interprets the meaning of what is happening in the context of his own goals, resources and vulnerabilities. In this sense, he views stress not as an automatic, inevitable result of the impact of a given stimulus, but as a function of the personal interpretation and the meaning that a person gives to this stimulus. The basis of this concept is the idea that every stressful situation first goes through a primary appraisal, in which a person assesses whether the event represents a threat, a challenge or is irrelevant to his well-being. If the situation is perceived as a threat or a loss, emotional and physiological reactions are activated that prepare the body for coping. Immediately after this, a secondary appraisal occurs, in which the individual analyzes the available resources for coping - personal skills, social support, material and time opportunities. It is the combination of these two levels of appraisal that determines the intensity of the stressful experience and its emotional tone. However, appraisals are not static. New information (success/failure of coping, change of context) leads to updating of the primary/secondary appraisal and, accordingly, through the mechanism of the so-called reappraisal of emotions and strategies. Lazarus and Folkman define coping as "cognitive and behavioral efforts to manage specific external and/or internal demands assessed as exceeding the individual's resources" (Lazarus & Folkman, 1984, p. 141). The authors emphasize the two main directions of their model: (1) problem-focused coping - goal: change of the situation (planning, information search, negotiation, temporary structural protection of resources), occurs with high perceived controllability and (2) emotion-focused coping - goal: regulation of emotions (cognitive reformulation, acceptance, relaxation, seeking emotional support); it is more likely with low controllability or acute, unavoidable stressors. Later, they also identified the role of meaning-focused coping: maintaining

positive emotions and subjective meaning in the face of chronic stress (Folkman, 1997; Folkman & Moskowitz, 2000).

Analytical interpretation of stress models and its multi-layered nature

In his theory of the organism as an open system with self-regulating mechanisms, Claude Bernard prepared the ground for the understanding that adaptation is a dynamic, continuous process of balancing and compensation. This perspective is fundamental to the understanding of stress responses as regulatory processes. On this basis, Walter B. Cannon, at the beginning of the 20th century, developed the concept of homeostasis and described one of the most emblematic models in the physiology of emotions – the “fight or flight” response. Cannon marked the beginning of the interdisciplinary analysis of stress and showed that the response to a threat is not simply instinctive, but a biologically programmed survival strategy. Although his model was initially criticized for its binary nature (fight or flight), later research expanded it with additional options, such as “freeze or submit”. Today, Cannon's theory is used to explain a number of reactions to acute stress situations, and its integration into medicine and psychology is the basis for further developments by H. Selye and other researchers who studied the chronic effect of stress on the body. Hans Selye's contribution was to expand W. Cannon's idea by shifting the focus from acute to chronic reactions of the body. His model is important because: (1) it emphasizes the role of the endocrine system and hormonal mechanisms in maintaining or disrupting adaptation; (2) it provides a universal "biological language" for describing reactions to different types of stressors; (3) it introduces the key distinction between eustress (positive, mobilizing stress) and distress (harmful stress), which is of fundamental importance in workplace psychology, educational psychology, and medicine. Despite his great contributions, Selye's model has been criticized for its relative simplicity and for not taking into account individual psychological factors (personality, cognitive appraisal of the situation, social support). Later models - such as the transactional model of Lazarus and Folkman - integrate these psychological aspects.

In the late 1970s and early 1980s, stress research began to move away from a purely biomedical paradigm, as the need for an explanatory model that also included psychological processes became increasingly clear. The reason is simple but conceptually significant: not all people react in the same way to the same situation. This directed the attention of psychological science to the subjective perception and appraisal of stressors. The cognitive-appraisal model of Richard Lazarus and Susan Folkman is based on Cannon's concept of "fight or flight" and Selye's general adaptation syndrome, introducing psychological mechanisms of interpretation and appraisal as central to the understanding of stress.

Modern Integration of Stress Models

The concept of “Fight or Flight” by Walter Cannon (1914–1932) and the theory of the General Adaptation Syndrome by Hans Selye (1936–1974) represent two fundamental stages in the development of the science of stress. Cannon emphasized the acute, short-term reaction of the body to a threat, while Selye developed the idea of the long-term process of adaptation and its consequences. Cannon's contribution is in clarifying the physiological changes during intense emotions. In the case of acute threat, the body mobilizes energy, redirects blood flow to skeletal muscles, and increases heart rate and respiration—an adaptive model for flight or aggression.

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Cannon interpreted this as the unity of the sympathoadrenal system. The author systematizes the principles of internal stability and describes self-regulating mechanisms (e.g. glucose balance, thermoregulation) that are activated when deviations from set ranges occur, thus describing the mechanism of homeostasis (Cannon, 1932). In turn, Selye describes the famous “stress triad”: (1) hypertrophy of the adrenal cortex; (2) atrophy of the thymus/lymphatic structures; (3) gastric/intestinal ulcers – as a non-specific morphological sign of chronic biological stress. Selye systematizes the three phases: anxiety → resistance → exhaustion and later distinguishes between eustress (adaptive, stimulating) and distress (damaging), thus introducing a valuable valence differentiation of experience.

Both theories arose in different historical and scientific settings: Cannon worked at a time when physiology sought to describe the immediate mechanisms of survival, while Selye - when interest was directed at the chronic effects of stress and its relationship to disease. Cannon's model is characterized by a limited focus on acute stress and a lack of analysis of long-term effects and psychosocial factors. Although it introduces the distinction between eustress and distress, Selye's model is primarily biomedical and underestimates the role of cognitive appraisal and social support (later expanded by Lazarus and Folkman, 1984). In today's biopsychosocial models of stress, Cannon's and Selye's approaches are seen as different temporal and functional levels of the same adaptive system: Level 1 (Cannon): Immediate mobilization to cope with danger and Level 2 (Selye): Long-term regulation and consequences of prolonged exposure to stress. This integration is the basis for understanding stress in professions with high emotional and cognitive demands

Conclusion

The presented models of stress reveal the evolution in its development. As a subject of research in different scientific fields, these models do not overlap, but - on the contrary - complement the clarification of this phenomenon by:

- creating a response model that is essential for understanding the body's primary defense against danger;
- adding a process model that describes how prolonged exposure to stressors alters physiological and psychological functioning;
- identifying the role of cognitive appraisal and social support in coping with stress.

This historical and theoretical legacy is crucial for understanding the phenomenon, as it shows that stress is not just a momentary reaction, but a process that can have long-term consequences for physical and mental health.

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