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Stress Factors Involved in Triggering Psychosomatic Disorders

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Abstract. This work aims to identify how people experience stress, how it influences them, the coping mechanisms they develop, and how it triggers and fuels the development of psychosomatic disorders. The main objective of the paper is to identify if there is a relationship between perceived stress levels and psychosomatic manifestations, as well as developed coping mechanisms. The work theorizes the concepts of stress/stressors, psychosomatic disorders, coping mechanisms and the connection between them, and in the practical part it presents a research focused on the effects of stressors on people's physical health. The research was carried out on a sample consisting of 66 people from the urban environment, with secondary and higher education, mostly of mature age. As a result of this research, it was found that there is a positive correlation between the level of stress perceived in professional activity as well as interpersonal relationships and psychosomatic disorders, between the level of perceived stress and coping mechanisms. It was also found that there are no gender differences in terms of psychosomatic disorders as well as coping mechanisms.

Keywords: stressors, somatic disorders, coping mechanisms.

1. Theories and definitions about stress

The term stress refers to both the offending agent and the body's reaction to it. According to Hans Hugo Bruno Selye, the body's response to the stressor is closely related to neuroendocrine mechanisms. As shown by numerous scientific observations, emotional shocks cause the alteration or even collapse of the body's immune system, thus increasing the risk of contracting various serious and very serious conditions, including cancer (Norbert Sillamy, 1998, p.301). Selye defines stress as "the set of reactions of the human body to the external action of some causal agents (physical, chemical, biological and psychological) consisting of morpho-functional changes, most often endocrine" (Selye, H., 1974). Another definition of stress is given by Lazarus, R. S., & Folkman, S. (1984) who, from a psychological perspective, considers stress as "a particular relationship between the person and the environment, in which the person evaluates the



environment as imposing demands that exceed personal resources and threaten the state of well-being, assessment that determines the triggering of coping processes, respectively cognitive, affective and behavioral processes to the feedback received" (p.19).

Within the transactional theory of stress, Lazarus emphasizes, in addition to using the entire palette of emotions experienced by the individual, the interdependence between stress and the environment, the way in which they influence each other. This theory takes into account both the stressor (stimulus) and the psychological or physiological response, as well as the relationship between the individual and the environment, achieved through coping and cognitive evaluation (Ionescu & Blanchet, 2013).

This theory is completed by Moss and Schaefer (Ionescu & Blanchet, 2013) whose approach also takes into account the influences of the social context, biological characteristics, lifestyle and last but not least, the personality profile. Eustress represents adaptive stress and is desirable, even indispensable in the evolutionary process. Distress represents the expression of failure, the unsuccessful confrontation between the individual and the pathogenic factors, in other words, the substrate of exogenous pathology.

It was Hans Selye who first defined emotional distress, in the book "Stress without Distress" (1974), making a very clear difference between negative stress and positive stress. This distinction was the foundation of the unitary model of distress developed by Cramer and colleagues beginning in 1985 (David, D. & Cramer, D. 2010). This model is a quantitative one and considers irrational beliefs to be made up of both functional and dysfunctional negative emotions, specifying that "The functionality/dysfunctionality of emotions is given by subjective experience, associated cognitions and their consequences" (David, 2006, p. 97).

Starting from the same foundation, psychologist Albert Ellis, the originator of Rational Emotive Behavioral Therapy, formulates the binary model of stress. This is a qualitative one emphasizing the fact that there are emotions of different intensity but also quality, for example, worry versus anxiety (David, D. & Cramer, D., 2010).

But it is very important that stress should not be confused either with anxiety, which represents an emotion of stress, or with activation, which is a state of overexcitement, of excitement linked to an emotion. A complex psychosocial phenomenon, stress arises from the individual's confrontation with situations, tasks and requirements that he/she perceives as very difficult, perhaps even painful or very important (Băban, 1998).

Stress Mode of action. According to Selye's physiological model, the human body reacts to stress through a specific biological response, which is composed of three distinct phases:

The alarm phase This is the first phase of the stress response and is characterized by rapid physiological reactions that are triggered shortly after exposure to a stressful factor. These reactions include increased levels of cortisol and adrenaline, which prepare the body for action and help it cope with the stressful situation.

Resistance phase If the stressor persists, the body goes into a resistance phase, in which it tries to adapt to the stressful situation and maintain its high levels of cortisol and adrenaline. This phase can last from a few days to a few weeks and may include physiological changes such as increased blood pressure and heart rate.

Exhaustion phase If the stress persists and the body cannot cope, it goes into the exhaustion phase. During this phase, stress hormone levels drop and the body becomes vulnerable to disease



and other health problems. This phase can lead to physical and mental exhaustion and may require an extended recovery period. He made a very clear distinction between stressors with short-term action, to which the organism responds with an active, motivating reaction, and those with long-term action, when the energy resources involved during the first two stages are exhausted and there is the state of wear and tear, conducive to the installation of diseases and unwanted behaviors (Selye, 1974). In order to better understand the psychological reactions in stressful or traumatic situations, it is necessary to understand the neurophysiological processes developed by the human body. Under the action of stressful factors, the human body develops a series of neurophysiological processes to deal with the stressful situation. These processes are coordinated by the nervous system and the endocrine system, which work together to adapt the body to stressful factors. One of the main actors in the response to stress is the sympathetic nervous system. It is activated in case of a stressful event and determines the release of adrenaline and noradrenaline from the adrenal glands. These hormones trigger a series of physiological reactions, such as increased heart rate, increased blood pressure and increased blood flow to the muscles and brain. This response prepares the body for fight or flight.

Another important component of the stress response is the hypothalamic-pituitary-adrenal (HPA) axis. When the body is exposed to stress, the hypothalamus releases corticotropin (CRH), which causes the release of cortisol from the adrenal glands. Cortisol has a number of effects on the body, such as increasing blood glucose levels, reducing inflammation and suppressing the immune system. These effects help the body to cope with the stressful situation. In addition, stress can also affect the level of neurotransmitters in the brain, such as serotonin and dopamine. Serotonin plays an important role in regulating emotions and social behavior, and dopamine is involved in regulating mood, motivation and the reward system. When the level of neurotransmitters is affected by stress, it can contribute to depression, anxiety and other mental health problems. Disturbances in this neurophysiological process can lead to disruption of homeostasis, in other words, the ability of the human body to restore balance as a result of a stressful action. These disturbances can occur at the level of the amygdala during the identification stage of potentially dangerous situations, but also at the level of neurotransmitters, which can generate exaggerated or too blurred reactions. Also, dysfunctions of the HPA axis can lead to chronic stress and hinder homeostasis.

A study by John Cacioppo in 1994 analyzed the effects of stress on gene expression and catecholamine biosynthetic enzymes. Cacioppo and his colleagues assessed the response to psychological stress in a group of university students by measuring the level of cortisol, the stress hormone, and the activity of catecholamine biosynthetic enzymes, such as dopamine and noradrenaline. The results of the study showed that psychological stress increased the expression of genes and the activity of catecholamine biosynthetic enzymes in nerve cells as well as in other tissues. These results suggest that stress can trigger genetic and biochemical changes that can have long-lasting consequences, such as increasing the risk of developing stress-related conditions such as cardiovascular disease or anxiety disorders. Cacioppo's study highlighted the importance of understanding the neurophysiological processes involved in the stress response and revealed that stress can have profound effects on an individual's mental and physical health.



In conclusion, under the action of stressful factors, the human body develops a series of neurophysiological processes to deal with the stressful situation. These processes are coordinated by the nervous system and the endocrine system and aim to adapt the body to stressful factors.

Seyle's physiological model emphasizes the importance of the balance between stress and the body's ability to cope with it. He also suggests that stress can be beneficial or harmful depending on its intensity and duration.

2. Stressors in the manifestation of psychosomatic disorders

In order to identify and delimit deviations from mental health, the specialized literature defines the concept of mental health by means of several features and criteria. In general, mental health is associated with emotional balance, inner well-being, absence of conflicts affecting the individual, coherence, stability, flexibility and appropriate behavior in relation to the external environment. The five-factor theory of personality developed by Fiske in 1949 is one of the most well-known and accepted theories in the field of psychology.

From the perspective of this theory, a healthy psyche is characterized by a series of traits that reflect a harmonious adaptation to the demands and challenges of everyday life.

The first personality factor is extraversion, which refers to the level of energy and enthusiasm a person invests in relationships with those around them. Thus, a healthy psyche is characterized by the desire to interact with others, establish contacts, communicate and participate in social activities.

The second factor is agreeableness, which refers to the level of empathy and cooperation with others. Thus, a healthy psyche is respectful of the opinions and rights of others, shows a positive attitude towards them and is willing to collaborate and help.

The third factor is responsibility, which refers to the level of organization, discipline and compliance with social norms and rules. A mentally healthy person is responsible in the sense that he/she assumes his responsibilities and honors his commitments, behaves in accordance with social norms and rules, and strives to perform his/her tasks effectively.

The fourth factor is emotional stability, which refers to the level of emotional control and adaptability to life's changes and challenges. A healthy psyche is characterized by the ability to manage emotions properly and successfully cope with stressful and difficult situations.

The fifth factor is openness to experience, which refers to the level of curiosity, creativity and availability for new experiences and the diversity of cultures and ideas. A healthy psyche is open to new things, curious and interested in discovering and exploring the world around them.

In conclusion, from the perspective of the Theory of the five personality factors, a healthy psyche is characterized by a harmonious balance between the dimensions of extraversion, kindness, responsibility, emotional stability and openness to experiences. These personality traits reflect an appropriate adaptation to the demands and challenges of life, but also an ability to develop positive interpersonal relationships, to behave in accordance with social norms and rules, and to cope successfully with stressful and difficult situations. In conclusion, we can say that mental health is a state of emotional, mental and social well-being that allows the individual to adapt to the challenges of everyday life, reach their maximum potential and contribute to society.

A person with optimal mental health can manage emotions and stress, maintain healthy interpersonal relationships, and cope with challenges and changes in their life. Mental health is also



related to an individual's ability to learn, to achieve their own aspirations and to have positive self-confidence. Psychosomatic disorders are physiological dysfunctions of the body that have no obvious organic cause. These disorders are not associated with neurological or infectious injuries or diseases, but produce a disturbance in the health of the body. In such cases, unconscious psychological factors underlie physiological dysfunctions (Dolto, 2005). Although psychosocial factors have been known to be important in pathogenesis since ancient times, it was only in our century that their role in psychopathology was recognized due to the difficulties encountered in their experimental reproduction. In the specialized literature, these factors include the general aspect of society, cultural heritage, values, norms, traditional ways of resolving conflicts, beliefs and other relevant psychological and social factors (Mironțov et al, 1986). In conclusion, psychosomatic symptoms and diseases are the result of a multifactorial chain with specific and non-specific elements, which involve multiple reactions, in which the mind-body relationship is mediated by sociocultural factors. These contributions were important for understanding the relationship between mind and body, and have had a significant influence on the development of psychosomatics in recent decades. According to researchers D'Souza and Hooten (2021), psychosomatic disorder can be classified as a diagnosis when the following situations are present: physiological disorders that are affected by psychological distress, pseudoneurological symptoms that have no related organic explanations, stress and its effects on systems and organ behavior and psychiatric disorders with strong physiological correlates. These are the criteria that must be met to establish a diagnosis of psychosomatic disorder.

According to the research of Fernando (2019), the immune system can react to certain stimuli perceived as threatening to the individual under the conditions in which immunosuppression occurs. In the context of psychosomatic disorder, stress can precipitate a specific learned immunosuppressive reaction. A relevant example is represented by chronic anxiety that can trigger the appearance of cancer. This theory suggests that certain emotions and psychological states can influence the immune system through psychoneuroimmunological processes and can have a negative impact on the individual's physical health.

According to Rubinstein (2015), most psychosomatic patients experience difficulties in obtaining a correct diagnosis, going through multiple consultations with various medical specialties, during which the symptoms specific to the psychosomatic disorder may appear and worsen.

Also, researchers Fava, Cosci and Sonino (2016) point out that the treatment used to treat psychosomatic diseases can be beneficial compared to inappropriate prescriptions of psychotropic drugs, which are often used in medical practice to treat depression (Fava, Cosci and Sonino, 2016). From a psychiatric perspective, psychosomatic disorders can be classified, according to ICD-10 (Classification of Mental and Behavioral Disorders), based on the existence of a dysfunction in the affected tissue or organ (World Health Organization, 2021). These psychosomatic conditions are the result of the interaction between mental and psychological factors and the evolution of the disease.

Thus, the approach to psychosomatic disorders involves taking into account psychological and emotional aspects, because they exert an indisputable influence on the evolution of diseases of a physiopathological nature (Sarno, 2006). When the negative potential exceeds the limits of human capacity, psychosomatic disorders can occur. Examples of such psychosomatic conditions



include peptic ulcer as a result of the internal projection of negative feelings, heart disease as a result of anxiety and worries, hypothyroidism as a consequence of pain and sadness, and ulcerative colitis as a result of inner conflicts (Taheri and Bayyazi, 2013). Psychosomatic conditions are understood as manifestations caused or aggravated by mental or emotional problems. Psychosomatic disorders can affect various parts of the body, although they are often found in systems that are not under the individual's voluntary control. According to psychiatrist Franz Alexander and his colleagues at the Institute of Psychoanalysis in Chicago, certain personality traits as well as specific conflicts can trigger certain psychosomatic illnesses, but it is generally believed that the form of manifestation of a disorder is influenced by individual vulnerabilities (Alexander , 1965).

At the same time, emotional stress can accelerate the evolution of pre-existing conditions and precipitate the appearance of diseases such as cancer, diabetes, etc., in the case of predisposed individuals (Alexander, 1965).

1.1. The purpose, objectives and hypotheses of the research

The purpose of this paper is to identify how people feel stress, how it impacts them, the coping mechanisms they develop, how they give rise to and fuel the development of psychosomatic disorders, as well as the importance of analyzing these aspects in order to apply a correct diagnosis.

The present study represents a quantitative research carried out through the psychological survey method, based on a questionnaire. Three valid instruments were identified and used to identify psychosomatic disorders, measure the level of stress, as well as coping mechanisms (ABRAHAM Stress Level Assessment Questionnaire, FPI-R® Freiburger Personality Inventory – ANXIETY scale, Coping Strategies Inventory COPE inventory). They were applied to a sample of 66 adults, 42 women and 24 men and were administered both online and in person, using the paper-pencil interviewing.

The main objective of the paper is to identify if there is a relationship between perceived stress levels and psychosomatic manifestations, as well as developed coping mechanisms.

The secondary objectives of the study are as follows:

- Identifying differences in psychosomatic manifestations according to perceived stressors;
- Identification of gender differences in the manifestations of psychosomatic disorders;
- Identifying differences in coping mechanisms depending on the level of perceived stress;

Hypothesis 1: It is assumed that there is a positive correlation between the level of perceived stress and the manifestations of psychosomatic disorders; It is assumed that there is a positive correlation between the level of stress perceived in **professional activity** and the manifestations of psychosomatic disorders;

Hypothesis 2: It is assumed that there is a significant difference between females and males in terms of the manifestations of psychosomatic disorders;

Hypothesis 3: It is assumed that there is a positive correlation between the level of perceived stress and the development of coping mechanisms;



3. Tables and figures

Table 1. Correlation between psychosomatic manifestations and perceived stress in professional activity

Spearman's rho	M.P.		S.A.P.			
	<i>Correlations</i>					
Psychosomatic manifestations	Correlation				Sig. (2-tailed)	.000
	Coefficient	1.000	.705**			
	N	66	66			
Perceived stress in professional activity	Correlation				Sig. (2-tailed)	.000
	coefficient	.705**	1.000			
	N	66	66			

As one can see in table no.1 following the application of the non-parametric Spearman correlation test, the results indicated that there is a significant positive correlation between the score of psychosomatic manifestations and the perceived level of stress in the professional activity.

There are two types of stress: overstrain stress and understrain stress. The demands themselves do not necessarily lead to stress, as they can stimulate success and, by implication, job satisfaction. Problems arise if the demands are too great, long-term or if they act from several directions. In such situations, some people lose control, leading to stress. In some situations, professional stress can be considered positive, having beneficial effects on performance. This aspect refers to "eustress", which manifests itself through the activation and mobilization of individual resources. It is important to distinguish between "distress" and "eustress", in the sense that the former has negative effects on health, while the latter represents a state of stress that has beneficial effects. The stress perceived in professional activity includes both occupational/professional stress, which refers to the impact of the conditions and content of work on the person, and organizational stress, which refers to the affective resonance of relationships established at the workplace.

For the second hypothesis, namely whether there is a significant difference between female and male individuals, in terms of the manifestations of psychosomatic disorders, following the application of the non-parametric comparison test, U Mann-Whitney, for the two independent samples, we obtained the fact that there are no significant differences between the two samples (sig 2-tailed > 0.05), as one can see in the table no.2 below.



Table 2. Independent Samples Test

	M.P.	
	<i>Correlations</i>	
Psychosomatic manifestations	Mann-Whitney U	392.000
	Wilcoxon W	692.000
	Z	-1.502
	Asymp. Sig. (2-tailed)	.133
a. Grouping Variable: Gen		

Following the statistical analysis of the obtained data, we can conclude that the hypothesis according to which there is a significant difference between female and male persons, in terms of the manifestations of psychosomatic disorders, is not confirmed. The result of our research in terms of regarding the gender difference in psychosomatic disorders was not surprising because the specialized literature confirms this both through research studies and through the works developed by specialists in the field. Specialized literature offers a wide range of factors involved in the emergence and development of psychosomatic disorders, starting from the individual's psychological traits, behavioral style, social environment, up to biological factors, both in general and specific to each disorder. The result is also highlighted in the following figure:

Regarding the third hypothesis according to which there would be a positive correlation between the level of perceived stress and the development of coping mechanisms, by applying the Pearson parametric correlation test, the results indicated that there is a significant positive correlation between the level of perceived stress and coping mechanisms defense (Sig. (2-tailed)<0.05).



Table 3. Correlation between perceived stress and coping manifestations

Pearson	Stress		Coping	
	<i>Correlations</i>			
Stress	Pearson Correlation	1		.470**
	Sig. (2-tailed)			.000
	N	66		66
Coping	Pearson Correlation	.470**	1	
	Sig. (2-tailed)	.000		
	N	66		66

As can be seen in table 3, following the application of the Pearson parametric correlation test, the results indicated that there is a significant positive correlation between the level of perceived stress and defense mechanisms (Sig. (2-tailed) <0.05). This is confirmed and can also be seen in the graphic representation below.

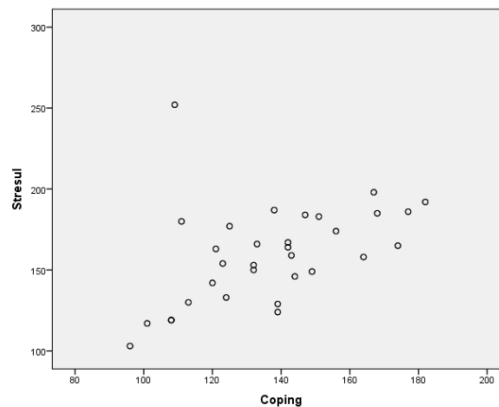


Figure 1. Point cloud of the correlation between perceived stress level and coping mechanisms

Following the statistical analysis of the obtained data, we can conclude that the hypothesis according to which there is a positive correlation between the level of perceived stress and the manifestations of coping mechanisms is confirmed. This result is justified by the very term *coping*, which represents a series of mechanisms by which human being copes with stress. Although the study of coping processes has produced a significant change in the approach of the concept of stress, the interest has shifted towards how individuals manage these situations, considered more important than trying to describe and understand stress reactions based on the situations that individuals face (stress factors), there are authors who claim that coping processes are not intrinsic traits of the individual's personality, but are



adaptation strategies that we adopt depending on the stress factor (Legeron, 2003, p.148-149). Thus, the emotions and physiological reactivity generated by stressful situations are often uncomfortable, and this discomfort motivates the individual to act in order to reduce stress. The individual can direct these actions either to reduce the stress reaction or to control the stressful situation (Atkinson, R. L., Atkinson, R. C., Smith, E.E., Bem, D.J., 2002, pp.702-707). Regardless of the form, coping mechanisms present both advantages and disadvantages, and can be more or less adaptive depending on the stressors, the time of their occurrence and the duration of their evolution.

Conclusions

The present research started with the main objective of identifying the existence of a relationship between perceived stress levels and psychosomatic manifestations, as well as developed coping mechanisms. As shown by the studies in Alameda (USA), presented above, where it was found that the most socially isolated people were the most susceptible to diseases of various types, and that the more social connections a person had, the lower the risk of death was, thus we also obtained a strong positive correlation between stressors perceived in professional activity and psychosomatic disorders. Also, at a general level, it has been shown that there are no significant differences in terms of coping mechanisms between female and male persons, an aspect confirmed by numerous research studies (Mahalik et al., 1998; Petraglia et al. , 2009).

We have also shown that although the study of coping processes has produced a significant change in the approach of the concept of stress, with interest shifting towards how individuals manage these situations, coping processes are not intrinsic features of the individual's personality, but are coping strategies we adopt depending on the perceived stressor.

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