

# Causes of stress and its impact on women's mental and physical health

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## ABSTRACT

**Aim:** The aim is to investigate the causes of stress and its impact on women's mental and physical health indicators.

**Materials and Methods:** The research was conducted from 2022 to 2024 and involved 157 women from Zhytomyr oblast (Ukraine) of different ages, education, professions, and geographic residence. The research methods included analysis of literary sources, medical and sociological (survey), statistical method.

**Results:** It has been established that during the war, the vast majority of women surveyed experienced very high and high levels of stress (45.2 % and 35.0 %, respectively). The main causes of stress for women include: "full-scale war" – 41.2 %, "financial difficulties" – 12.4 %, and "job loss" – 11.9 %. At the same time, only a fifth of the respondents (21.7 %) said they were able to overcome stress and neutralize the state of anxiety. It was found that stress in women led to insomnia (31.8 %), gastrointestinal disorders (40.1 %), exacerbation of chronic diseases (20.6 %), decreased immunity (8.4 %), and menstrual irregularities (7.2 %).

**Conclusions:** It has been found that the war had a significant impact on women's mental and physical health: the frequency of anxiety and depression, psychosomatic disorders, uncontrollable fear, and the desire to withdraw from people increased. Given this, public health professionals need to intensify awareness-raising activities in this area.

**KEY WORDS:** stress, women, psychosomatic disorders, health

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## INTRODUCTION

Maintaining and improving the health of the population, including mental health, is an important task of Ukraine's state policy. However, since the beginning of the full-scale invasion of Ukraine by the Russian aggressor, the number of various diseases and mental disorders has increased due to the negative impact of stressors. Stress and various stress reactions are an integral part of the existence of living organisms, which ensures the body's adaptation to the effects of adverse factors [1]. Therefore, the relevance of studying and disclosing the essence of the phenomenon of stress, its nature, causes, and prevention of possible consequences still encourages scientists and specialists to study it further.

As scientists note [2], stresses are very similar and diverse simultaneously. Stresses of different natures

can be repetitive and unique but identical. It should be noted that the vast majority of stressors are similar, primarily in terms of the body's reactions to them, behavior, and experiences. For most people, stress causes unpleasant feelings and negative emotions, irritating memories, and unpleasant associations [3]. Stress has long been a part of almost every person's life and accompanies them constantly. Due to their emotional nature, women are the most exposed to daily stresses. Various stimuli affect their bodies on a daily basis [4].

Different functional systems of women's bodies can undergo significant changes due to stress. The intensity and frequency of changes and disorders in the body can range from minor disturbances in the emotional state or just mood to serious illnesses such as myocardial infarction or, stomach ulcers, etc. [5]. Scientists distinguish several types of classification

of stress reactions, but the most optimal is the division of stress signs into the following manifestations: emotional, behavioral, intellectual, and physiological. The latter also includes biochemical and hormonal reactions [6]. According to experts [7], women and men do not react to stress similarly. Men are ready to “fight or flight” when exposed to stressors. Women, on the other hand, are capable of negotiating in stressful situations. This ability of women’s physiology to have a high level of stress resistance has developed historically. It is ensured by the hormonal support of women and is directed by the need to save their children. Therefore, women can simultaneously perform several tasks [8]. Physiologists point out that due to a woman’s constant stressful conditions, certain processes associated with changes in hormonal levels occur in her body. Elevated levels of stress hormones lead to a decrease in immunity and disruptions in hormone production, which in turn leads to accelerated aging and a reduction in the body’s ability to recover, and changes in hormone levels result in a decrease in reproductive functions [9]. In a woman experiencing constant emotional discomfort, the symptoms of nervous reactions and strain become more pronounced, somatic reactions appear, and hormonal levels change, provoking the development of diseases and imbalances in the whole body [10].

## AIM

The aim is to investigate the causes of stress and its impact on women’s mental and physical health indicators.

## MATERIALS AND METHODS

The research was conducted in 2022–2024 at Zhytomyr Ivan Franko State University. The research involved 157 women of different ages, with various education, professions, and residences in various geographic areas. The age of the respondents ranged from 18 to 70 years and more: 18–29 years old – 45 women (28.6 %), 30–39 years old – 53 women (33.7 %), 40–49 years old – 31 women (19.7 %), 50–59 years old – 19 women (12.1 %), 60–69 years old – 7 women (4.4 %), over 70 years old – 2 women (1.2 %). The largest percentage of the women were aged 30 to 39 (33.7 %). The vast majority of the respondents are residents of Zhytomyr and other cities in the Zhytomyr oblast (Ukraine) – 144 women (91.7 %); a small percentage of the respondents are residents of villages and towns in the Zhytomyr oblast – 13 women (8.2 %). The research involved only women who, during the Russian-Ukrainian war in 2022–2024, were forced to be relocated from the temporarily

occupied territories (Kharkiv, Zaporizhzhya, Luhansk, and Donetsk regions) to Zhytomyr region, regardless of their age, profession, education, marital status.

Research methods: analysis of literary sources on the topic of the research (18 literary sources from various world scientometric databases for the period from 2000 to 2024 were processed); medical and sociological (survey) – to determine the causes of stress in women and its impact on the mental and physical health indicators of women during the war; statistical – to process and analyze the results of the research. The survey was conducted using the author’s questionnaire, which contains 4 blocks. Block I. Factors that cause stress in women during the war (studying the most important stress factors, including war and its consequences – death of loved ones, loss of housing, work and property, relocation to other territories, etc.). Block II. The impact of stress on women’s mental health (studying the levels of anxiety, irritability, aggressiveness, emotional exhaustion, restructuring of the emotional sphere, the level of interaction with the immediate environment, etc.). Block III. The impact of stress on women’s physical health (studying the impact of stress on sleep quality, eating behavior, psychosomatic disorders, immunity, menstrual cycle disorders, the possibility of pregnancy). Block IV. Ways to overcome stress in women during the war (studying of appropriate methods effective for women of Ukraine). The questionnaire was anonymous without any references to the authors of the article in the answers. The results were used for scientific purposes only. Questionnaire was assessed by the experts in this field (2 professors and 4 associate professors) and was approved by the Academic Council of Zhytomyr Ivan Franko State University (Protocol No. 7 dated 21.11.2022).

Data collection, processing, and analysis of the research results were performed on a personal computer using MS Excel, a software package that allows statistical data processing methods. Consent to voluntary participation in the survey was obtained from all the respondents involved in the study. This research followed the regulations of the World Medical Association Declaration of Helsinki – ethical principles for medical research involving human subjects.

## RESULTS

The analysis of answers to the question “How would you rate your general health?” showed that the largest number of the respondents – 64 women (40.7 %) – have a satisfactory state of health. There are fewer respondents with good health – 45 women (28.7 %).

Almost a quarter of the respondents assess their health as "poor" – 30 women (19.1 %), and "very poor" – 18 women (11.5 %). The analysis of the next two questions assessing the presence of bad habits of the respondents before the war and during the war shows that the war provoked an increase in bad habits. During the war, women resorted to excessive consumption of salt and spices (29.3 % to 36.3 %), fatty smoked, and fried foods (26.1 % to 33.1 %). Thus, women began to comfort eat. However, the level of alcohol consumption and smoking decreased from 8.9 % and 36.3 % to 7.0 % and 24.2 %, respectively.

The respondents' assessment of the level of financial security of the family before the war shows the following distribution of answers: "very low level" – 24 women (15.3 %), "low level" – 39 women (24.9 %), "average level" – 77 women (49.0 %), "high level" – 17 women (10.8 %). After two years of war, the respondents assessed their financial situation differently: "very low level" – 48 women (30.6 %), "low level" – 67 women (42.7 %), "average level" – 36 women (22.9 %), "high level" – 6 women (3.8 %). We can see that the "high" and "average" categories have significantly decreased – by 7.0 % and 26.0 %, respectively. The "low" and "very low" categories increased by 18.0 % and 15.0 %, respectively. The change in the family's financial situation for the worse could not but cause stress among women.

The comparison of answers to the question about assessing the level of stress in interaction with the immediate environment before the war and during the 2 years of war shows that the largest share of answers was "low" when the respondents were mostly in a state of psycho-emotional balance – 43.9 %, the rest of the answers had the following distribution: "very high (state of constant stress)" – 7.6 %, "high (I get into episodic stressful situations)" – 9.5 %, "sufficient (I feel mostly psycho-emotional stress)" – 15.9 %, "average (sometimes I feel anxious)" – 22.9 %. The distribution of responses to the assessment of the level of psychological stress in the war shows that the "very high" level of stress was 45.2 %, "high" – 35.0 %, "sufficient" – 14.0 %, "average" – 3.8 %, "low" – 1.9 %. It should be noted that the "very high" stress level increased by 37.5 %, and the "high" level increased by 25.4 %. Thus, psychological equilibrium during the 2 years of war remained inherent in only a small part of the surveyed women.

Next, let's consider the analysis results of the respondents' answers regarding assessing their physiological changes, changes in behavior, feelings, environment, etc. Sleep disturbance is one of the signs of stress. 72.6 % of the women surveyed said

they had had problems sleeping over the past year. When asked about changes in sleep quality, the vast majority said they had problems falling asleep and sleep duration. The main reason for sleep disturbances among women is anxiety, which prevents them from falling asleep. Sleep and its quality are very important in the body's recovery processes, as well as in its emotional and physical states. It should be noted that half of the respondents feel tired after sleep – 49.9 %. Doctors note that prolonged insomnia leads to changes in emotional and physical state, which ultimately causes the onset and development of various diseases.

Stress can often be caused by certain situations in which people find themselves. As a result, a person feels irritable and angry. Thus, 77.7 % of women have experienced an outbreak of anger and irritability over the past year. More than a third of the respondents (37.5 %) reported manifestations of self-destructive reckless behavior over the past year.

Impaired ability to memorize or reproduce information and concentrate on the task at hand, and problems with vocabulary and communication, especially during the war, are manifestations of prolonged stress. It was found that 69.4 % of the women surveyed had experienced such problems over the past year. The feeling of "being on the alert" and "excessive anxiety" was experienced by the majority of the respondents over the past year – 63.1 % and 68.2 %, respectively. Such an assessment of the respondents' feelings indicates that women are in a state of prolonged stress provoked by the events of the war.

The distribution of answers to the question "Have you experienced excessive anxiety over the past year" is as follows: "very often" – 54.7 %, "often" – 21.6 %, "sometimes" – 14.6 %, "rarely" – 5.7 %, "never" – 3.2 %. To the question "Have you experienced anxiety that is not rational for the situation, but it was beyond your control," the respondents gave the following answers: "very often" – 57.9 %, "often" – 20.3 %, "sometimes" – 18.4 %, "rarely" – 2.5 %, "never" – 0.6 %. The results suggest that more than half of the respondents suffer from excessive anxiety, which is often irrational and uncontrollable. The following distribution of answers to the question about the causes of anxiety confirms the irrationality and uncontrollability of such anxiety states. The largest proportion of the respondents (61.8 %) confirm that they very often do not understand the causes of anxiety, "often" – 20.4 %, "sometimes" – 13.4 %, "rarely" – 3.8 %, "never" – 0.6 %. The largest share of responses was for difficulty concentrating in everyday life or work and decreased working capability (52.2 %).

**Table 1.** Causes of stress experienced by women before the war (n = 157)

Causes of stress	Number of responses	Share of responses
Work, work issues	41	15,2%
The COVID-19 pandemic	39	14,5%
Personal health status	31	11,5%
Health status of loved ones	29	10,7%
Financial difficulties	27	10,0%
Social and political situation in the country	25	9,2%
Romantic relationships	19	7,0%
High inflation in the country	17	6,3%
Unemployment	16	5,9%
Family affairs and relationships in the family	14	5,2%
Communication with friends and acquaintances	11	4,0%

**Table 2.** Causes of stress experienced by women during the war (n = 157)

Causes of stress	Number of responses	Share of responses
Full-scale war	156	41,2%
Financial difficulties	47	12,4%
Job loss	45	11,9%
Social and political situation in the country	31	8,2%
Problems at work	27	7,1%
High inflation in the country	19	5,0%
Personal health status	13	3,4%
Family affairs and relationships in the family	13	3,4%
Health status of loved ones	11	2,9%
Communication with friends and acquaintances	9	2,3%
Romantic relationships	7	1,8%

**Table 3.** Indicators of health deterioration in women as a result of stress during the war (n = 157)

Health indicators	Number of responses	Share of responses
Insomnia	57	31,8%
Chronic diseases exacerbation	37	20,6%
Inability to get pregnant	29	16,2%
Decreased immunity (diseases worsened)	15	8,4%
Menstrual cycle disorder	13	7,2%
Eating disorder (binge eating)	12	6,7%
Diffuse toxic goiter	7	3,9%
Complicated labor and delivery	5	2,7%
Breast cancer	2	1,1%
Immunodeficiency	1	0,5%
Miscarriages	1	0,5%
Fetal pathology	0	0,0%

Psychosomatic manifestations such as nervousness, unusual tension, chest pain, heart palpitations, or shortness of breath are signs of a nervous and often depressive state. More than half of the women surveyed have experienced these symptoms. When asked the question,

“Have you felt too nervous or unusually tense lately?” the following distribution of answers was obtained: “very often” – 54.8 %, “often” – 32.5 %, “sometimes” – 8.3 %, “rarely” – 3.2 %, “never” – 1.3 %. Such manifestations of stress as chest tightness, shortness of breath, and heart

palpitations were recorded by the respondents: 49.7 % of women experienced them "very often," 27.4 % – "often," 15.3 % – "sometimes," 5.7 % – "rarely," and 1.9 % – "never."

In addition to the above-mentioned psychosomatic manifestations, the respondents noted the following: a feeling of muscle tension, muscle pain in the absence of physical activity, cramps, and digestive problems without significant dietary changes. The analysis of answers to the question "Have you recently experienced persistent muscle tension or muscle pain without excessive physical activity?" showed the following distribution: 36.3 % answered "very often," 26.7 % answered "often," 18.4 % answered "sometimes," 13.3 % answered "rarely," and 5.1 % answered "never." The largest share of the responses regarding gastrointestinal disorders was "often" – 40.1 %. The survey results give grounds to conclude that most respondents are in a state of stress, in response to which the nervous system reacts to changes in the functioning of the digestive system. Tingling sensations and partial or complete numbness of the body are also psychosomatic manifestations of stressful conditions. Such symptoms were experienced "very often" by 18.5 % of women, "often" by 16.6 %, "sometimes" by 21.7 %, "rarely" by 19.8 %, and "never" by 23.6 %.

When studying the range of causes that could have triggered stress before the war, we found that the most common causes were work and work-related issues (15.2 %), the COVID-19 pandemic (14.5 %), personal health (11.5 %), the health of loved ones (10.8 %), and financial difficulties (10.0 %) (Table 1).

When we asked the respondents about the causes of stress during the two years of war, we got the following results (Table 2): "a full-scale war with Russia" – 41.3 %, "financial difficulties" – 12.4 %, "job loss" – 11.9 %, "social and political situation in the country" – 8.2 %. The smallest percentage is "romantic relationships" – 1.9 %.

The analysis of answers to the question "How did stress affect your health status?" showed the following: "insomnia" – 31.8 %, "chronic diseases exacerbation" – 20.6 %, "inability to get pregnant" – 16.2 %, "decreased immunity (acute diseases worsened)" – 8.4 %, "menstrual cycle disorder" – 7.2 % (Table 3).

Thus, it has been found that the war had a significant impact on women's mental and physical health: the frequency of anxiety and depression, digestive system disorders, headaches, sleep disorders and chronic insomnia, uncontrollable anxiety, and the desire to withdraw from people increased.

## DISCUSSION

People understand the concept of stress in different ways. For some people, stress is situations with unbear-

able bosses or unfriendly neighbors, while for others, it is certain physiological reactions, such as chest pressure or other pains, that are the consequences of stressful situations [11]. According to scientists [12], stress is the greatest threat to human mental health. Experts [13] interpret stress as a trigger that leads to pathological abnormalities in the functioning of all human body systems. Stress causes serious illnesses, such as heart attacks or stomach ulcers, resulting from prolonged stress or repeated stressful incidents.

According to Canadian researcher G. Selye, many diseases begin in the same way for most people, manifested by weakness, loss of appetite, headaches, etc. All this becomes the beginning of various chronic diseases. Continuing his research, G. Selye became convinced that harmful factors affecting people or laboratory animals lead to the same physiological reactions that eventually cause pathologies. The researcher called such a general or universal reaction of the body to external factors a general adaptation syndrome, a nonspecific response of the body to the effects of stimuli or stress [14].

According to experts [15], a person in a stressful situation and trying to adapt to the effects of stress goes through three phases: 1. Anxiety phase. As a result of the stimulus, a person's respiratory rate increases, blood pressure rises, and tachycardia occurs – physiological manifestations of this stress phase. Psychological manifestations include increased concentration of attention on the influencing factor and increased personal control of the situation. All reactions of the body contribute to the mobilization of the body's defenses, provoking the body's self-regulatory mechanisms to protect itself from stress. When the human body is mobilized, stress ends. The person becomes capable of "fight or flight." 2. The phase of resistance (resilience, adaptation). If the factor continues to act, the body turns on a "reserve" supply of strength. All body systems begin to work at maximum capacity. If the threat to a person continues and cannot be avoided, the body tries to resist the danger or overcome it. Over time, the body adapts to stress, and physiological processes return to normal. As the body's systems reach a certain stress level, the body adapts to new conditions better and faster. 3. The phase of exhaustion. In the case of long-term exposure to a stressor, the body's ability to cope with stress is significantly reduced. Stress "takes over" the body, which can lead to illness. The exhaustion phase is characterized by vulnerability to physical and emotional fatigue, the so-called "burnout." Physical problems lead to disease and even death. Physiological reactions that occur during short-term stresses and contribute to the mobilization

of the human body (increased blood pressure, lack of pain, significant muscle tension, and suspension of digestion) begin to harm the body. This reveals the failure of the body's defense and recovery mechanisms, ultimately violating vital functions.

According to scientists [5, 6], a woman's constant psychological stress or the experience of stressful events leads to changes in the endocrine and immune systems, which provokes exacerbation of chronic diseases and the development of new ones, which in turn causes additional nervous stress and the further development of new stresses. Doctors and physiologists often note changes in a woman's body due to the negative impact of various stresses. Such changes include menstrual irregularities, which occur due to changes in hormonal levels on nervous grounds. The cycle disorder can cause anovulation and scanty, short, or light menstruation. Menstruation can disappear altogether due to severe long-term stress, the so-called "wartime amenorrhea" develops [7, 8]. Under the influence of prolonged stress, the body shuts down its reproductive function, concentrating its efforts on overcoming the effects of stress. Such reactions of the body often cause such diseases as stress infertility. Scientists say that one in three women cannot get pregnant due to chronic stress [10].

Women are five times more likely to suffer from diffuse toxic goiter than men. Among the factors that provoke the development of the disease, doctors single out mental trauma and prolonged nervous tension [16]. Breast oncopathology ranks first among all types of cancer not only in Ukraine but also worldwide. More than half of the cases of this type of oncology arise and develop under the influence of constant nervous exhaustion. The main reason for this is, again, changes in a woman's hormonal background and the increased sensitivity of the mammary gland to hormones. Excessive synthesis affects the mammary gland's condition, provoking the development of benign changes. However, under the influence of various negative factors, benign changes are transformed into malignant ones, causing oncology development [16].

With constant prolonged nervous stress and exhaustion of the nervous system, ARVI, various candidiasis, cystitis in acute phases, or exacerbation of chronic forms occur more often than normal. This, in turn, provokes the development of immunodeficiency. Doctors state that most often, exacerbation of chronic diseases and their complicated course in women occurs under the influence of constant stress factors and prolonged nervous tension [17]. Women are more likely than men to suffer from eating disorders. Experiencing stress ten times more often than

men, they comfort eat. Again, the reasons for these phenomena are the influence of female hormones, namely, under stress, estrogen production decreases, the level of the "happiness hormone" serotonin drops, and the amount of the "stress hormone" cortisol increases rapidly. Such physiological processes cause a strong feeling of hunger, resulting in uncontrolled consumption of unhealthy foods high in fat and carbohydrates [18].

## CONCLUSIONS

Based on the analysis of scientific literature, it has been found that stress is an emotional, behavioral, intellectual, and physiological response of the body to the action of stressors, which, to some extent, affects the effectiveness of human activity. The nature of the reaction to stressors is not identical for women and men. Various stressors in women's lives, combined with traumatic events related to the war, can provoke the development of stress, which in turn causes disorders in the body and contributes to the development of chronic diseases.

It has been found that during the war, the vast majority of the women surveyed experienced very high and high levels of stress (45.2 % and 35.0 %, respectively). Among the causes of stress that arose during the last two years of the war, the respondents mentioned "full-scale war" – 41.3 %, "financial difficulties" – 12.4 %, "job loss" – 11.9 %, "social and political situation in the country" – 8.2 %, "problems at work" – 7.1 %. At the same time, only a fifth of the respondents (21.7 %) said they were able to overcome stress and neutralize anxiety.

Women's prolonged exposure to stress has had a significant impact not only on their mental but also on their physical health. The respondents have insomnia (31.8 %), gastrointestinal disorders (40.1 %), exacerbation of chronic diseases (20.6 %), decreased immunity (8.4 %), and menstrual irregularities (7.3 %). It has been found that the war had a significant impact on women's mental and physical health: the frequency of anxiety and depression, psychosomatic disorders, uncontrollable fear, and the desire to withdraw from people increased. Given this, public health professionals need to intensify awareness-raising activities in this area.

## PROSPECTS FOR FURTHER RESEARCH

It is planned to investigate the impact of wartime stress on psychosomatic disorders in the male population of Ukraine.

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## CONFLICT OF INTEREST

The Authors declare no conflict of interest

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