



Research Paper

Psychology of stress and adaptation during complex crises: Practical aspects of assisting people in difficult circumstances



Oksana Oliinyk ^{a,*}, Dilzatbek Zholdoshbaev ^b, Saltanat Koshonova ^b, Yuriy Kravtsov ^c, Vitalii Bocheliuk ^d

^a Department of Psychology, National University of Life and Environmental Sciences of Ukraine, 03041, 15 Heroiv Oborony Str., Kyiv, Ukraine

^b Department of General Psychology, Osh State University, 723500, 331 Lenin Str., Osh, Kyrgyz Republic

^c Department of Sociology, Dniprovsky State Technical University, 51900, 2 Dniprobuskva Str., Kamianske, Ukraine

^d Department of Psychology and Social Work, Khortytsia National Academy, 69017, 59 Naukove Mistechko Str., Zaporizhzhia, Ukraine

ARTICLE INFO

Keywords:

Military conflict
Civilian population
Living conditions
Aftermath experience
Mental health

ABSTRACT

Background: The difficult living conditions caused by the hostilities have a significant impact on the destruction of people's mental health. The research relevance is determined by the aforementioned impact and the necessity for a scientific basis for designing effective assistance programmes.

Objective: The study aims to address the impact of military operations on the mental health of the civilian population in Ukraine.

Methods: To achieve this goal, theoretical research methods (analysis and synthesis, classification, generalisation) and empirical research methods (surveys, statistical analysis of data) were used.

Results: The main results of the study: Many civilians in Ukraine are facing complex crises due to the hostilities and need assistance. Individual resilience to stress is determined by their characteristics and how these characteristics can interact with the factors of influence (four levels: individual, family, community, and societal levels). The impact of hostilities on the mental health of civilians is significant and negative. People who have been exposed to war or its aftermath experience high levels of stress symptoms, leading to post-traumatic stress disorder, depression, anxiety and other mental health problems. The level of mental health problems is higher among people who have experienced more traumatic events, such as loss of loved ones, violence, and loss of home. There are several key areas in which practical assistance can be provided, including psychosocial support, which can be provided through information support, emotional support, psychological counselling, trauma therapy, and medication.

Conclusion: The practical significance of the study is determined by the contribution to understanding the impact of war on people's mental health. The results of the study can be used to improve the lives of people affected by the war. Namely, to develop and implement effective assistance programmes.

1. Introduction

The world is rife with complex crises that generate extreme living conditions for people. Wars, natural disasters, pandemics, economic crises – all these challenge people's psychological resilience, requiring new knowledge and practices of assistance. Research into the psychology of stress and adaptation in such conditions becomes not only a humanitarian but also a social and economic necessity. Military operations cause significant destruction and human suffering, including the psychological health of the civilian population. Psychological research is

becoming relevant, as understanding the consequences and developing effective methods of assistance can significantly improve the lives of people who have experienced the horrors of war. The study of psychological trauma provides a deeper understanding of how war affects people's mental health, what types of traumas they experience, and how these traumas manifest and develop. This provides a basis for developing a high-quality system of psychological assistance and makes it possible to improve the quality of people's lives. Effective psychological assistance can improve the quality of life of people affected by war, help them adapt to new conditions and return to normal life. It is also worth

* Corresponding author.

E-mail address: [coliinyykk@ukr.net](mailto:oliinyykk@ukr.net) (O. Oliinyk).

noting that psychological problems arising from war can have significant economic consequences. Researching and implementing effective methods of care can significantly reduce these effects. All of the above determines the relevance of this study.

To guarantee that the psychological effects of war on civilians are understood, it is crucial to define important psychological concepts in the context of this study. The immediate psychological reaction to a perceived threat or traumatic incident is known as acute stress, and it frequently shows up as elevated worry, fear, and physical symptoms like trouble sleeping or an elevated heart rate (Rab et al., 2024). It usually happens soon after a traumatic event and may go away once the person gets used to or leaves the stressful circumstance. However, if they last longer or if the person experiences more stressors, it can develop into more chronic psychiatric disorders, such as post-traumatic stress disorder (PTSD). Symptoms of PTSD include intrusive thoughts, nightmares, flashbacks, emotional numbness, and hyperarousal (Fischer et al., 2024). PTSD can seriously impair a person's capacity to interact with people, sustain relationships, and go about their everyday lives (Brooks & Greenberg, 2024).

The term trauma describes the physical or psychological damage brought on by being exposed to upsetting or potentially fatal situations (Willcott-Benoit & Cummings, 2024). When it comes to war, trauma frequently results from events like seeing violence, losing loved ones, or being displaced. Trauma can cause severe mental discomfort and impair a person's capacity to carry out daily tasks. Two common psychological disorders that can have a major effect on people exposed to conflict are depression and anxiety (Ebrahimjee et al., 2024). People who are depressed may have physical symptoms such exhaustion, disturbed sleep, and changes in appetite. In the context of war, depression can be brought on by seeing violence, losing loved ones, or forced to move. In contrast, anxiety is characterised by excessive concern, fear, or apprehension and can show up as physical symptoms as light-headedness, shortness of breath, or a fast heartbeat. People who have had traumatic experiences frequently suffer from anxiety disorders, and the ongoing exposure to risk, uncertainty, and loss in conflict areas can make these symptoms worse. People who suffer from anxiety may feel more threatened and have panic attacks. In the short term, acute stress may cause anxiety symptoms, but if a person experiences continual fear or worry, chronic anxiety may turn into a disorder.

Conversely, resilience describes a person's ability to bounce back from or adjust to stress and misfortune. It is a dynamic process that is impacted by a number of variables, including coping mechanisms, social support, and individual qualities, rather than a set trait (Margetts et al., 2024). People who are resilient may be better equipped to handle the psychological effects of trauma, exhibiting emotional adaptability and the capacity to preserve or restore psychological health even in the face of severe stress or loss.

The problem of the study is the difficulty of quantifying psychological trauma and its consequences, as well as ethical issues since the study of trauma survivors requires compliance with ethical principles in order not to cause additional harm to them. The relevance of the topic is determined by the number of scientific studies in this area. Chudakova (2023) described psychotraumatic events and types of psychological assistance and developed a psychological technology that includes neuro-linguistic programming methods to overcome the effects of stressful situations. However, it does not specify how to employ individual-centred aid and provide them with psychological assistance. Krasnoselskyi et al. (2023) reveal the significance of war as a risk factor for psychological trauma and describe the mechanisms of adaptation. However, the issues of studying the long-term consequences of psychological trauma in terms of adaptation and recovery are not covered.

Lahutina and Frankova (2023) reveal various formats of digital psychological assistance and their effectiveness, but the issue of personal data protection during this type of psychological assistance remains unresolved. Sometimes scientists describe the psychology of stress in terms of an age crisis. Tarasova (2023) described the psychological

problems of adolescents and methods of overcoming them. However, the study of the influence of various factors on the effectiveness of psychological correction programmes for adolescents is not yet disclosed. Zhara (2023) describes a method of projective desensitisation that helps to reduce the emotional response to traumatic memories. While pointing out that this method can be used both in psychotherapy and in prevention programmes, it is not disclosed how this method affects other aspects of a person's life: relationships, and professional activities. Stasyuk and Ukrainets (2023) defined the terminology of stress psychology and the historical path of research in this area, although the evolution of psychological assistance methods remains unexplored.

This study fills a significant gap in the literature by investigating the long-term effects of war on civilians' mental health, with a particular emphasis on aspects like displacement, the death of loved ones, and direct battle exposure. In contrast to other research, which frequently focusses on short-term effects or certain groups, this study offers a thorough framework that takes into account influences from the person, family, community, and society. Additionally, it provides a fresh perspective on psychosocial support by highlighting customised, culturally aware methods to enhance mental health outcomes in post-conflict environments.

The study aims to assess the impact of extreme wartime conditions on the mental health of the civilian population of Ukraine. To achieve the goal, the following tasks were set: to identify factors that influence the level of mental health problems; and to develop recommendations on practical aspects of helping people in difficult conditions caused by military operations. The research question is how do individual, familial, community, and societal-level factors influence the severity of psychological trauma and the effectiveness of psychosocial adaptation among civilians affected by military conflict in Ukraine. The hypotheses that were put forward for this study are as follows: people who have experienced war or its aftermath are expected to have high levels of symptoms of PTSD, depression, anxiety and other mental health problems. It is also expected that the level of mental health problems will be higher for people who have experienced more traumatic events, such as loss of loved ones or displacement.

2. Materials and methods

2.1. Participants

A prospective cohort study was conducted. Participants: the study included 900 adults living in Ukraine. To guarantee that a variety of demographic groups across Ukraine were included, the sampling process for this study used a stratified method. The study focused on civilians living in Ukraine amid the ongoing war. The study's eligibility requirements were as follows: (1) living in a hostilities-affected area at the time of the study, (2) giving informed consent to participate, and (3) not having a history of serious mental illness unrelated to war trauma. To guarantee representativeness and lessen sampling bias, stratification was done according to age, gender, geographic region (Eastern, Central, Western Ukraine), and displacement status. The group of respondents included people aged 15 to 65 living in Ukraine, both male and female, with no restrictions on educational level or income. Respondents with this experience of war were involved in the survey: survivors of hostilities, survivors of the loss of loved ones, survivors of the loss of their homes, displaced persons, and those who did not experience the direct consequences of the war.

2.2. Data collection

The data was collected 18 months after the start of the invasion (till September 2023) through an online survey. The survey included several blocks. The structure of the questionnaire has several blocks: questions about demographic data, the impact of the war (trauma, loss of loved ones, displacement, symptom scales): PTSD, depression, anxiety, and

other mental health problems). To determine the level of PTSD, the PTSD Checklist was used, which is a short questionnaire used to screen and diagnose PTSD. The Beck Depression Inventory was used to determine the level of depression, which includes a questionnaire used to assess the severity of depression. To determine the level of anxiety, the Beck Anxiety Inventory was used, which is a questionnaire used to assess the severity of anxiety. The General Health Questionnaire, which is used to screen for mental health problems, was employed to identify other mental health problems. The data was analysed using descriptive statistics and regression analysis. Statistical analysis of the study data was conducted using R, version 2022.07.1, and Jamovi, version 2.3.18. The overall level of injuries and the prevalence of different types of injuries were described using descriptive statistics: mean, standard deviation, frequencies, *t*-test and one-way analysis of variance.

Several steps were taken during the data collecting and analysis stages to account for potential confounding variables. Through enquiries on income level, employment status, and educational achievement, the participants' socioeconomic status was evaluated. Using structured categories that captured both direct (such as losing a loved one, getting hurt, or being displaced) and indirect (such as seeing violence) exposure to war-related events, trauma history was thoroughly documented. To determine their impact on psychological outcomes including PTSD, depression, and anxiety, these variables were included as covariates in the regression models along with age, gender, and place of residence. To improve the internal validity of the study's conclusions, variance analyses were also carried out to uncover significant differences between subgroups.

2.3. Instruments

The questionnaire's specific features included ethical and optimality issues. Ethical considerations include the fact that the study was conducted in compliance with the ethical principles of the Helsinki Declaration; the study participants gave their informed consent to participate in the study (the survey was conducted voluntarily); and the confidentiality of the study participants' data was ensured. The survey was conducted based on anonymity (respondents did not provide their data). The time required to complete the questionnaire was 15–20 min. The questionnaire was available in hard copy for people who do not have access to the Internet. Data collection methods for this study included online surveys and paper surveys.

All of the assessment tools used in this study were translated and culturally adjusted in accordance with globally accepted practices to guarantee the scales' semantic, conceptual, and technical equivalency in the Ukrainian context. The process started with forward translation, in which two qualified bilingual translators with knowledge of psychological terminology independently translated each of the instruments from English into Ukrainian. The two drafts were contrasted and combined into one. Two separate translators then translated the Ukrainian versions back into English using a back-translation technique, without being aware of the original instruments to find inconsistencies or changes in meaning brought about by the forward translation. The expert group next verified conceptual fidelity by comparing the back-translated versions with the original instruments. When inconsistencies or semantic deviations were found, translators and psychologists modified specific things in order to restore equivalency and remove any potential misunderstandings.

A cognitive debriefing was carried out with a small pilot group of 20 participants who were representative of the study population (diverse in age, education, and region) in order to improve cultural relevance and clarity. After completing the questionnaires, participants took part in structured interviews to gauge their understanding, acceptance, and relevance of the items. Minor lexical and grammatical changes were made in response to feedback in order to increase clarity and guarantee that every item was relevant to the context and appropriate for the culture. Lastly, pretesting was done on the modified instruments to

evaluate their reliability and internal consistency in the intended audience. The acceptable psychometric features of each scale were confirmed by the calculation of Cronbach's alpha coefficients to make sure that the instruments were both linguistically and culturally valid.

The ecological model of trauma, on which the study is based, highlights how societal, familial, community, and individual elements interact to shape the trauma experience and its psychological effects. The ecological model in this study enables the investigation of the ways in which societal conditions (such as political instability and economic hardship), family dynamics, community resources, and personal traits (such as resilience, age, and gender) contribute to the psychological effects of war. The study examines how these levels are interconnected and how they all work together to affect mental health issues including anxiety, sadness, and PTSD by using this model. Thus, the ecological framework guides the research design by assisting in the identification of important elements at every level that can be taken into consideration when creating focused psychological support techniques.

2.4. Reliability of the tools and biases

Table 1 provides a comprehensive overview of the psychometric properties of the tools used in the study to assess various psychological outcomes in civilians affected by war. It illustrates each tool's reliability, particularly the Cronbach's alpha coefficient, which shows how frequently the scales used to evaluate various psychological dimensions are internally consistent. Higher Cronbach's alpha indicates that each tool's subscales are reliably assessing the desired psychological construct, boosting trust in the instrument's capacity to measure symptoms like anxiety, despair, and PTSD. The chart also identifies other crucial psychometric characteristics, like each instrument's validity, which guarantees that the instruments accurately assess the desired psychological processes. These characteristics attest to the instruments' established status in psychological research and offer solid, trustworthy evaluations of the effects of conflict on mental health.

This study recognises the possibility of response biases, such as social desirability bias, in which individuals give responses they think are acceptable in society, particularly when discussing delicate subjects like PTSD and trauma. The survey guaranteed confidentiality and anonymity to reduce this. Furthermore, the sample can be skewed by self-selection bias, since those who are more impacted by the conflict might be more inclined to take part. This was lessened by making sure there was a large and varied participant pool from different areas and conflict experiences.

2.5. Conceptual framework

Fig. 1 presents a conceptual framework that graphically depicts the interdependent links between the major variables affecting the mental health outcomes of war-affected civilians. It illustrates how different exposure levels (from personal, family, social, and communal settings) interact to influence how people react psychologically to trauma. The diagram's representation of these influences highlights the complexity of the trauma experience by demonstrating that mental health conditions like PTSD, depression, and anxiety are caused by a person's wider social and environmental circumstances in addition to their direct exposure to traumatic events. This method highlights the necessity for extensive, multi-level support networks in resolving the psychological effects of conflict and helps to elucidate the multi-layered nature of trauma.

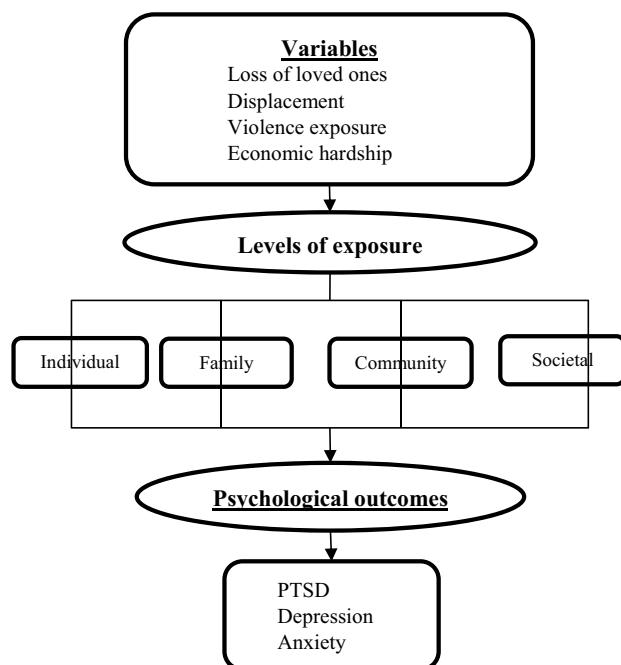
The study of the approaches of scientists to the theory of stress psychology was made using the methods of theoretical science, namely analysis and synthesis. The classification method is used to identify and group the factors influencing resilience to stressful situations. In concluding the study, the method of generalisation and comparison was used. These methods were used in a different sequence that does not reflect the above description. The limitations of this study are that the

Table 1

Psychometric properties of assessment tools.

Psychological tool	Purpose	Subscales	Reliability (Cronbach's alpha)	Other psychometric properties
PTST Checklist	Assessing PTSD symptoms in war-affected individuals	Intrusive thoughts, avoidance, hyperarousal	0.85 (overall), 0.81 (avoidance), 0.83 (hyperarousal)	Validity: Strong construct validity, predictive ability for PTSD diagnosis
Beck Depression Inventory	Assessing the severity of depression	Mood, cognitive, somatic symptoms	0.90 (overall)	Validity: High concurrent validity with clinical depression diagnoses
Beck Anxiety Inventory	Assessing the severity of anxiety	Somatic and cognitive symptoms	0.91 (overall)	Validity: Strong correlation with other anxiety scales
General Health Questionnaire	Screening for general mental health problems	Social dysfunction, somatic symptoms, anxiety, depression	0.88 (overall)	Validity: Strong construct validity in identifying general mental health issues

Source: compiled by the authors.

**Fig. 1.** Conceptual map of the variables, exposure levels, and psychological outcomes.

survey was used, which may have limitations related to self-report and social desirability. Other data collection methods, such as interviews or focus groups, could provide a deeper understanding of people's experiences. The study also does not address the impact of other factors that may affect people's mental health, such as socioeconomic status, access to resources and experience before the war. Although this study has certain limitations, it nevertheless provides valuable information about the impact of the war on the mental health of people in Ukraine. It is important to continue research in this area to better understand the psychological effects of war and develop effective assistance programmes for affected people.

3. Results

Stress - is an integral part of human life, as stress is considered a normal reaction of the body to changes in the situation and challenges faced by a person. The main factors that lead to stress are physical (pain, fatigue, injuries), psychological (anxiety, anger, depression), social (conflicts, pressure at work, relationship problems, war, economic crises), and environmental (natural disasters). Along with the stresses that arise in everyday life, there are stresses caused by complex crises. Complex crises are events that significantly disrupt our lives, causing severe stress and the need for adaptation. These can include wars, natural disasters, pandemics, and personal tragedies.

On 24 February 2022, Russia launched a full-scale illegal invasion of Ukraine, which has resulted in numerous deaths and destruction, forced displacement and suffering, leaving at least 17.6 million people in need of humanitarian assistance in 2023. Damage was reported to 2917 educational institutions, and 659 incidents involving healthcare facilities were identified, accounting for >90 % of all healthcare incidents recorded by the World Health Organization (WHO) ([Ukraine: Humanitarian response plan, 2023](#)). Traumatic events during hostilities affect not only the military but a much wider range of people. Civilians, although not directly involved in military confrontation, often face complex crises and stresses. This is primarily due to the threat to life and health, loss of loved ones, loss of property, forced displacement, fear of being under fire, limited access to resources (food, water, warm clothes, hygiene products), and financial difficulties. Particularly challenging stressors experienced by civilians during hostilities are physical violence, torture, forced labour, sexual violence, mock death, or forced observation of these processes by other civilians or family members ([Hamblen & Schnurr, 2007](#)).

Some studies show that the war in Ukraine has a significant impact on the mental health of people not only in Ukraine but also around the world. This impact can be direct, for example, for people who have experienced trauma, lost loved ones or been forced to leave their homes. It can also be indirect, for example, for people experiencing anxiety, fear or depression due to war ([Vintilă et al., 2023](#)). War and its associated losses, such as loss of loved ones, displacement and lack of resources, constitute severe psychosocial stressors that can lead to a wide range of mental health problems:

1. Acute stress reactions: anxiety, panic, fear, anger, sleep disorders, concentration problems.
2. PTSD: intrusive memories, nightmares, flashbacks, emotional numbness, avoidance of triggers.
3. Depression, anxiety disorders, suicidal thoughts.
4. Risk of psychosomatic diseases.

And traumatic events such as experiencing combat or witnessing violence can lead to PTSD and other trauma-related disorders ([Carpinello, 2023](#)). There are many civilians in Ukraine who have faced complex crises due to the hostilities and may have developed mental health problems ([Fig. 1](#)).

War, displacement and trauma have a significant impact on the lives of all civilians, especially children. Children are a particularly vulnerable category. Children who have survived war may have cognitive developmental disorders. It manifests itself through the risk of delayed development of speech, memory, attention and other cognitive skills. War can lead to the development of anxiety, depression, PTSD and other mental health problems. Children who have experienced war may experience emotional and behavioural problems and therefore are more likely to experience emotional breakdowns, aggression, apathy, sleep and concentration problems. War can create social problems and negatively affect children's relationships with peers and adults, as well as their academic performance. War can also cause physical problems such as malnutrition, chronic diseases and stunted growth ([Hazer &](#)

Gredebäck, 2023). Miller and Rasmussen (2017) in their research divide the factors that affect the mental health of people affected by military operations into levels, which in turn explain the complexity of the impact and cause and effect relationships. There are four levels of factors in this model:

- individual level: age, gender, ethnicity, personal experience of trauma;
- family level: relationships with family members, social support;
- community level: access to resources, security, discrimination;
- social level: political situation, economic conditions, cultural norms.

In each case, these factors can be interrelated in different ways, and thus the intensity of the impact of a particular factor on a person's mental health changes or increases. For example, a person who has experienced trauma (individual level) may have problems trusting others (family level), feel unsafe (community level) and live-in poverty (societal level). All these factors can increase the risk of developing mental health problems. All the above makes the study of the psychology of stress and adaptation in complex crises relevant in the context of military operations. The vulnerability of civilian populations that do not have military training and equipment and, in most cases, are suddenly caught up in armed confrontations (direct military fighting, shelling of civilian settlements, being under occupation) necessitates the study of the impact of hostilities on civilians.

This study was a prospective cohort study. This study assesses the impact of the ongoing Russian-Ukrainian war on the mental health of civilians affected by the war. The results of the study will provide effective programmes to help these categories of people. The research plan included: survey design, ethical review, participant recruitment, data collection, data analysis, and publication of results. The results of the survey should begin with the demographic data of the respondents, which are shown in Table 1. Most respondents are female. Most respondents live in the central regions of Ukraine. Income levels are low and middle.

The experience of the war was diverse (Table 2). The majority of respondents have been directly affected by the hostilities, as a result of which they have lost loved ones or real estate and have become internally displaced. Only a small group of respondents did not experience the direct consequences of the war. The direct experience of combat and the loss of loved ones had a greater impact on the psychological state of respondents (Table 3). These factors cause PTSD and depression (Table 4).

Statistical methods were used to determine the overall level of injuries and the predominant type of injury. The overall level of injuries and the prevalence of different types of injuries were described using descriptive statistics: mean, standard deviation, frequencies, *t*-test and one-way analysis of variance. The sample size for the one-way analysis of variance was calculated considering the desired power of 0.8, alpha level of 0.05, and moderate effect size of 0.5. According to the calculations, a minimum sample of 63 respondents is required for each subgroup of the factor under study (N). Statistically significant differences were identified. A one-way analysis of variance with equal power estimates was used to determine statistically significant differences by gender, age, working conditions, and current exposure to traumatic

Table 2
Demographic data of respondents (%).

No.	Age (years)	Gender		Place of residence		Education		Income level	
1	15–25	20	M	45	Eastern regions	25	Higher education	40	Proficiency
2	26–35	30	F	55	Central regions	40	Average	50	Average
3	36–45	25			Western regions	35	Middle school	10	Low
4	46–55	15							40
5	56–65	10							

Source: compiled by the authors.

Table 3
War experience (%).

No.	Experience	Survey results
1	Survivors of hostilities	20
2	Lost a loved one	15
3	Lost a home	20
4	Displaced persons	25
5	Did not experience the direct consequences of the war	20

Source: compiled by the authors.

Table 4
The psychological impact of war on people (%).

No.	Symptoms of mental disorders	Influence of factors on the level of mental health problems	
1	PTSD	30	Survivors of hostilities 35
2	Depression	20	Lost a loved one 35
3	Anxiety	25	Lost a home 15
4	Other mental health problems	15	Displaced persons 15

Source: compiled by the authors.

experiences (deployment within or outside Ukraine).

Predictors of personality regulation disorders (PRD), PTSD and complex post-traumatic stress disorder (CPTSD), anxiety, depression, stress and resilience were identified: Pearson's correlation analysis; linear regression; generalised linear modelling with effect size estimation (epsilon squared). The sample size for the multiple linear regression with two predictor variables was calculated following the desired power of 0.8, alpha level of 0.05 and a large effect size of $R^2=0.6$. According to the calculations, the minimum sample should be 71 participants. The rationale for the representativeness of the sample is that the resulting sample of 703 respondents is representative of the entire population from which the surveyed respondents were selected, as its size exceeds the minimum required to detect the desired statistical effects. Statistical analysis of the survey data was used to conclude the following: overall level of trauma and the prevalence of different types of traumas; statistically significant differences in the studied factors and predictors of DSO, PTSD and CPTSD.

The regression analysis in Table 5, which focusses on PTSD, sadness, and anxiety, clearly shows how various forms of conflict exposure affect civilians' mental health outcomes in Ukraine. Understanding the psychological effects of the conflict is crucial, particularly in light of the fact

Table 5
Regression model of relationships between types of exposure and outcomes.

Type of exposure	PTSD (β)	Depression (β)	Anxiety (β)
Direct experience of hostilities	0.42		0.31
Loss of a loved one	0.37		
Loss of home		0.33	
Displacement		0.29	0.36
Non-exposure (reference)	reference	reference	reference

Note: for the "Non-exposure" group, the coefficients (β) for PTSD, depression, and anxiety are listed as "Reference" because this group serves as the baseline in the analysis.

Source: compiled by the authors.

that people who may not have been actively participated in combat but nonetheless experience its catastrophic consequences are affected.

The findings show that both PTSD and anxiety are significantly predicted by direct exposure to hostilities. This is consistent with well-established psychological theories that argue that repeated or severe exposure to traumatic events, like war scenarios, can overwhelm a person's coping skills and result in extreme stress reactions. The significant effects that seeing or taking part in violent events can have on mental health are highlighted by the high beta coefficients for PTSD (0.42) and anxiety (0.31) among people who had first-hand knowledge of hostilities. This result is in line with trauma theory, which holds that these kinds of situations set off the fight-or-flight reaction, resulting in psychological anguish that lasts a lifetime.

The emotional and psychological effects of mourning are further highlighted by the fact that the loss of a loved one, another significant traumatic event, also shows up as a prominent predictor of PTSD. The loss of one's house was associated with depression but not quite with PTSD. This shows that although losing one's home may not immediately cause the severe stress reactions associated with PTSD, it has a profound emotional impact and may exacerbate depressive symptoms like hopelessness and despair. There is a complicated association between the displacement factor mental health outcomes. It demonstrated how displacement disturbs everyday life, security, and social ties, leading to increased anxiety and emotional distress. It was a significant predictor for both depression and anxiety.

The model demonstrates that those who are not directly impacted by war-related trauma have relatively lower levels of mental health distress by using non-exposure to such experiences as a reference category. This supports the idea that psychological suffering is correlated with personal exposure to war-related trauma, confirming that the type and degree of exposure can influence the severity of mental health effects. In the end, the evidence indicates that people who have direct trauma, such as being exposed to combat or losing a loved one, face more serious psychological repercussions, whereas other types of trauma, such as displacement, lead to a distinct set of difficulties that are mainly characterised by anxiety and depression. This advanced knowledge can assist in customising psychological treatments, with particular tactics for those who have experienced various types of trauma.

Beyond the primary impacts seen in the regression analysis, it is vital to examine the ways in which combinations of factors, such as gender and exposure type or age and trauma type, affect mental health outcomes in order to investigate interaction effects. Such analysis aids in determining whether the association between a predictor and the result varies because of another factor. Understanding interaction effects is essential to comprehending how various population subgroups may be more or less susceptible to the negative impacts of trauma on mental health.

Determining whether men and women react to similar forms of trauma with the same degree of psychological suffering is crucial when examining the relationship between gender and exposure to traumatic events. For instance, earlier studies have demonstrated that women may be more susceptible to trauma-related conditions like PTSD and depression, particularly when there has been sexual violence or the loss of a loved one. Women may have more severe symptoms of PTSD and depression than men because they are socialised to process emotions more externally. This discrepancy may result from a variety of psychological variables, including women's comparatively larger propensity to internalise emotions or the greater social stigma they experience while dealing with trauma. However, men could react differently to shock, particularly if they have been exposed to direct conflict. There might be greater social pressure on men to repress psychological pain because of traditional gender standards that value men's resiliency and combat. As a result, males who experience direct violence could report less anxiety or PTSD than women who experience the same amount of trauma. This does not imply that they are less impacted, but rather that because of societal norms that demand stoicism, individuals may conceal or

underreport their symptoms.

Given the various life phases of the respondents, the interplay between age and trauma type may exhibit more intricate patterns. Losing loved ones or being directly exposed to conflict may show up differently for older folks. People tend to have a more set life structure as they get older, so such tragic events may seem more upsetting since they upset social, physical, and emotional stability. For instance, because of their longer-term attachment to their surroundings, older people may experience severe emotional distress if they lose their homes. However, because they may have more coping mechanisms, such as larger social support systems or a longer life experience, which may help them better handle trauma, older adults may have lower levels of anxiety or depression than younger people.

On the other hand, because of their relative lack of life experience and emotional support networks, teenagers may have higher levels of anxiety or depression. Furthermore, people who witnessed or experienced significant trauma (such as combat or family loss) in their younger years may report more chronic PTSD symptoms when looking at the interaction between age and trauma type with regard to PTSD. This is because the cumulative impact of these experiences can result in a lifetime struggle with psychological distress. On the other hand, younger people who go through their first significant trauma, such seeing violence or being uprooted, could have acute PTSD symptoms that, with the right help, might go away with time, but the initial effects could be quite severe.

Thus, the hypotheses put forward at the beginning of the study were confirmed. The results of the study show that the war has a significant impact on the mental health of people in Ukraine. PTSD, depression, anxiety and other mental health problems are common among war survivors. Trauma, gender and age are factors that influence the level of mental health problems. The loss of loved ones and direct involvement in hostilities have more severe consequences for a person's mental health. Stress psychology describes how people react to a crisis, how they experience emotions, and how they cope with difficulties. A person facing a difficult crisis goes through certain stages of adaptation to this crisis, which include shock (denial, numbness, intense emotions), acute reaction (anxiety, fear, anger, despair, sleep, appetite, concentration), processing (comprehending the event, searching for new meanings, accepting losses), developing new behavioural patterns (adapting to a new changed life). Most participants are in the acute reaction or processing stage.

4. Discussion

In times of complex crises, such as war, the study of stress and adaptation psychology becomes particularly relevant. A protracted war is not a sudden event, but a long process accompanied by constant uncertainty and threat. The war also has a large-scale impact, destroying people's lives at the personal, family and community levels. War is accompanied by horrific events that can lead to psychological trauma. Therefore, understanding the psychology of stress and the stages of adaptation to the conditions changed by military operations becomes a key factor in maintaining mental health for both people who are at war and those who have experienced war-related trauma. The vulnerability of civilian populations that do not have military training and equipment necessitates the study of the impact of hostilities on the mental health of these groups.

The study shows a significant impact of the war on the mental health of people in Ukraine. PTSD, depression, and anxiety are common among war survivors. Trauma, gender and age are factors that influence the level of mental health problems. A more significant impact on the psychological state of people is the experience of hostilities (being near the line of armed conflict, being under occupation, becoming a victim of torture, violence or witnessing such crimes against other civilians) and the loss of loved ones. Practical recommendations for helping people affected by war should include emotional support, information support,

practical assistance, psychological counselling and trauma therapy.

Nocon et al. (2017) confirmed the negative impact of military operations on people's psychological health and noted that psychosocial interventions can be used to improve the mental health of children and adolescents who have experienced war. The most effective intervention proved to be cognitive behavioural therapy: this method helps children and adolescents change negative thoughts and behaviours related to trauma and interpersonal therapy: which method helps children and adolescents improve their communication and interaction skills with other people. This study also confirms the negative impact of hostilities on civilians and the importance of psychological assistance. The current research, however, goes further by highlighting the fact that psychological discomfort is not just a problem for kids and teenagers but also affects adults, particularly those who have been exposed to traumatic experiences first-hand. Despite the effectiveness of cognitive behavioural therapy, the study indicates that a multifaceted strategy is required, one that takes into account community-based support and cultural sensitivity, which are sometimes disregarded in programs that just concentrate on clinical techniques.

Yigzaw et al. (2023) studied the consequences of the armed conflict in Ethiopia, in particular, the year-long war in the northern region. The report showed an increase in trauma among people who had gone through tragic experiences, witnessed the death of family members, and experienced sexual violence. Displaced persons refuse to return home because of flashbacks of direct contact with traumatic events and their loss, considering it difficult and impossible. To address the issue, it is necessary to mobilise resources, share information and closely cooperate between different sectors and stakeholders. Restoring social networks and gathering systems is crucial for reintegrating daily community life. In addition to financial and material support, psychological and psychosocial support after a traumatic event has a significant positive impact on survivors, which is consistent with the findings of this study. Although this study acknowledges the value of multi-level interventions, it also contradicts earlier research by showing that, although individual psychological support is crucial, community-level needs like rebuilding lost social networks are just as important and can have a significant impact on recovery rates.

A study of the conflict in Israel by Shamir-Stein et al. (2024) shows that regional conflict can have a significant impact on people's mental and physical health. Symptoms of anxiety, depression, PTSD and sleep problems are common among people affected by the conflict. The study also determined that there is a link between psychological and physical problems. Therefore, it is necessary to take measures to support the mental and physical health of people affected by the conflict, which was also confirmed in this study. Similar relationships between mental and physical health outcomes were found in this study, but it goes one step further by measuring the effects of particular trauma experiences (like loss and displacement) on psychological and physical health, thereby bolstering the idea that successful psychosocial interventions need to address both at the same time for full recovery.

Abudayya et al. (2023) conducted a study of the effects of military conflicts on young people living in Palestine, indicating a significant impact of traumatic stress on their mental and physical health. Traumatic stress among Palestinian youth is associated with such issues as PTSD, anxiety, depression, sleep problems, aggression, self-aggression, and substance abuse. Notably, the presence of the last three factors highlights the urgent need for interventions that go beyond traditional mental health support, focusing on coping mechanisms and addressing maladaptive behaviours. The study also found that factors such as proximity to the conflict zone, previous trauma and socio-economic disadvantage increase the risk of mental and physical health problems among young people. The interaction between trauma exposure and socio-economic disadvantage is a critical risk factor, emphasising the importance of addressing both psychological and material needs in post-conflict recovery programs. The study also concluded that there is a need for diverse support for civilians affected by the consequences of

hostilities.

Mottola et al. (2023) found that people who already have mental health problems or who have experienced trauma in the past are more susceptible to the negative impact of war. Some factors can help people cope with the negative impact of war on mental health, such as strong social support, a sense of belonging to a community, and access to quality psychological care, a conclusion that is also supported by the results of this study. According to the clinical interpretation, when exposed to additional traumatic events, people with a history of mental health issues are more likely to acquire chronic PTSD and other stress-related disorders.

The results of the study by Eshel et al. (2023) showed that experiencing trauma, such as shelling, bombing or loss of loved ones, feeling unsafe, losing a home, social isolation, economic hardship, increase the risk of developing PTSD and other symptoms of psychological distress. Women and the elderly are also more prone to PTSD and psychological distress. Strong social support and the ability to cope with stress can help people cope with the negative impact of war on mental health. The results of this study also demonstrate the protective benefits of social support, which are essential for lessening the impacts of trauma associated to conflict. Since women and the elderly are more likely to experience significant psychological discomfort, it is imperative that their needs be met. The Eshel et al. (2023) also concluded that comprehensive assistance should be provided to the entire population affected by the hostilities.

A complex psychological reaction to trauma in war areas is reflected in the recognised symptom patterns, which include PTSD, anxiety, depression, sleep disorders, aggression, and substance misuse. These symptoms imply that those who have experienced war-related trauma are more likely to develop long-term mental health issues, as PTSD frequently co-occurs with anxiety and depression. Aggression may be a maladaptive coping strategy associated with emotional numbness and a loss of control, especially in younger groups. Abuse of substances is a form of self-medication used to deal with extreme discomfort. The significant frequency of PTSD, anxiety, and depression among displaced people is also shown in the study of Melese et al. (2024), where mental health problems were likewise strongly correlated with socioeconomic disadvantage, prior trauma, and displacement. This study highlights the necessity of all-encompassing intervention programs that foster community inclusion and socioeconomic stability, both of which are essential for rehabilitation.

Scientists identify factors that can affect the pace and success of a person's adaptation to a crisis: personal characteristics (resilience, flexibility, optimism, social support), type of crisis (suddenness, scale, duration), and availability of resources (information, assistance, safe environment) (Agaba et al., 2024). There are studies in psychological science that confirm the existence of people who are naturally resistant to stress (Margetts et al., 2024). It is this resilience that helps them cope with trauma. Resilient people can find positive aspects of life, even in difficult circumstances. They can use their strengths to adapt to new living conditions. Understanding how people cope with trauma is important, as knowledge of these methods can help to develop more effective mental health programmes. Furthermore, to make mental health programmes more culturally sensitive, considering the peculiarities of people's coping strategies. Supporting social connections, spirituality and religion can also be an important component of mental health programmes (Hamadeh et al., 2024).

Psychosocial support and quality psychiatric care are important for people affected by war. Reducing the stigma of mental health problems can help people to seek help. Mental health education and improved socio-economic conditions can also help people cope with mental health problems (Chudzicka-Czupala et al., 2023). Thus, psychological assistance is one of the most important in the face of difficult crises. It can be implemented through information support, emotional support, psychological counselling, trauma therapy, and medication (Figs. 2 and 3).

Emotional support helps people to resist and maintain their

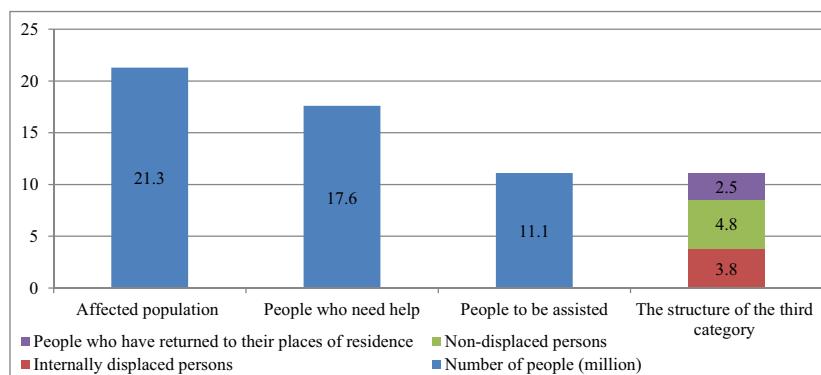


Fig. 2. Number of Ukrainians affected by military operations.
Source: compiled by the authors based on J. Hamblen and P. Schnurr (2007).

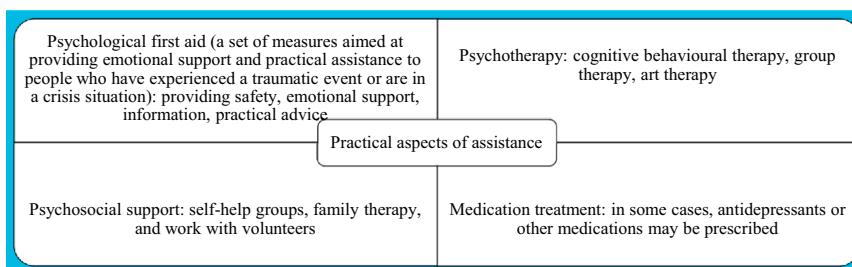


Fig. 3. Practical aspects of helping people in difficult conditions caused by hostilities.
Source: compiled by the authors.

psychological health. It consists of listening, compassion, and acceptance. Listening allows the victim to express their feelings and experiences, thus relieving the nervous system. Compassion and acceptance help to avoid feelings of isolation and help to restore a sense of community and belonging. Information support is also an important component of practical assistance, as it reduces the level of uncertainty in the new environment. Providing information support also increases a sense of control, which can provide an appropriate level of peace of mind, as reliable information makes people feel that they can control the situation, even if it is not entirely within their control. Providing reliable information can also reduce panic, as access to reliable information enables people to make good decisions about their safety and lives. Such information support may include information regarding the situation, available resources, ways to get help, debunking myths, and explaining psychological reactions (Venger et al., 2022).

Practical assistance is a priority, as it addresses the basic needs of people who have faced severe changes in their lives caused by the war. It can be implemented in the following ways: providing basic needs (food, water, shelter, medical care); helping to find resources (psychological assistance, legal assistance, social services); and creating a safe environment (protection from physical and emotional harm). Psychological counselling helps a person make sense of events (what exactly happened and how it affected their life), develops the ability to build effective coping strategies (skills to overcome stress and calm emotions), and encourages effective action (helps plan their life after a crisis). Therapy of traumas that have arisen as a result of facing complex stress. It helps to overcome post-traumatic stress disorder: through cognitive behavioural therapy, and restoration of emotional state (art therapy, group therapy). An important condition for effective psychosocial assistance is that the approach to each person should be individual, it is also important to consider the cultural and personal characteristics of people, and assistance should be accessible and of high quality.

The study's conclusions are meant to provide guidance for various real-world applications. The results of the study can help direct the

planning of interventions by emphasising the unique requirements of people according to their socioeconomic circumstances, coping strategies, and exposure to trauma. Additionally, the study offers insightful information for public policy recommendations, especially with regard to determining mental health tactics and resource distribution in post-conflict environments. The results can guide policies that provide fair access to mental health treatments and foster community resilience in the face of persistent trauma by highlighting the necessity of multi-level support networks and all-encompassing care.

5. Conclusions

The war in Ukraine has a significant negative impact on the mental health of civilians. The study and analysis of scientific literature confirmed that the most common problems of civilian groups who have experienced the impact of hostilities on their lives are PTSD, depression, and anxiety. The study also found that there are factors that have the worst impact on mental health after the impact of military conflict on the lives of civilians, including the loss of loved ones and direct exposure to hostilities, loss of home. Forced displacement has a lesser impact, but also in a negative way.

Stress psychology identifies the following stages of adaptation that every person goes through shock, acute reaction, processing, and development of new behavioural patterns. Some factors speed up or slow down the stages of adaptation to new, changed living conditions. The following factors should be highlighted: personal characteristics, type of crisis, and availability of resources. Therefore, assistance for people in difficult circumstances is essential. This will have a positive impact on the above factors, which in turn will have a positive impact and accelerate human adaptation. Scientific research on the impact of military operations on civilians is being conducted in many countries, as military conflicts are currently taking place in different parts of the world. The study also determined that even citizens of countries without military conflict are negatively affected by news about the consequences

of military conflicts that they receive through the media.

Thus, assistance to people affected by military conflicts should include a wide range of actions that will cover basic needs and improve their psychological health, and the following types of assistance should be highlighted: emotional support, information support, practical assistance, psychological counselling, and trauma therapy. At the same time, it should be noted that access to psychosocial assistance needs to be expanded, and information campaigns on the importance of mental health work should be conducted. Areas for further research may include studying the long-term effects of war on people's mental health, developing new methods of psychosocial support and psychotherapy; and studying factors that contribute to stress resistance.

Ethics statement

Not applicable.

Funding

None.

CRediT authorship contribution statement

Oksana Oliinyk: Data curation, Conceptualization. **Dilzatbek Zholdoshbaev:** Writing – original draft, Methodology, Investigation, Formal analysis. **Saltanat Koshonova:** Writing – review & editing, Resources, Project administration. **Yuriy Kravtsov:** Writing – review & editing, Resources. **Vitalii Bocheliuk:** Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

None.

References

- Abudaya, A., Bruaset, G. T. F., Nyhus, H. B., Aburukba, R., & Tofthagen, R. (2023). Consequences of war-related traumatic stress among Palestinian young people in the Gaza Strip: A scoping review. *Mental Health & Prevention*, 32, Article 200305.
- Agaba, B., Nelly, H. N., Wanyana, M. W., Zalwango, J. F., Simbwa, B., Akunzirwe, R., Zavuga, R., Kawungezi, P. C., Zalwango, M. G., Migamba, S. M., Kadobera, D., & Bulage, L. (2024). Prevalence of and factors associated with anxiety, depression and post-traumatic stress disorder among Sudan ebolavirus disease survivors and family members, Uganda, January 2023: A cross-sectional study. *Discover Psychology*, 4(1), 87.
- Brooks, S. K., & Greenberg, N. (2024). Recurrence of post-traumatic stress disorder: Systematic review of definitions, prevalence and predictors. *BMC Psychiatry*, 24(1), 37.
- Carpinello, B. (2023). The mental health costs of armed conflicts – A review of systematic reviews conducted on refugees, asylum-seekers and people living in war zones. *International Journal of Environmental Research and Public Health*, 20(4), 2840.
- Chudakova, V. (2023). An integrative toolkit for providing psychological assistance and developing competence of stress resistance and ability to quickly adapt in difficult life traumatic situations using diagnostic and corrective, digital and stem-methods. *Education and Development of Gifted Personality*, 88(1), 67–77.
- Chudzicka-Czupala, A., Hapon, N., Chiang, S. K., Źywiolek-Szeja, M., Karamushka, L., Lee, C. T., Grabowski, D., Paliga, M., Rosenblat, J. D., Ho, R., McIntyre, R. S., & Chen, Y. L. (2023). Depression, anxiety and post-traumatic stress during the 2022 russo-ukrainian war, a comparison between populations in Poland, Ukraine, and Taiwan. *Scientific Reports*, 13, 3602.
- Ebrahimjee, A., Hodson, J., Valmaggia, L., Hickling, L., & Riches, S. (2024). Video call-based cognitive behaviour therapy for adults with common mental health conditions: A systematic review and meta-analysis. *Cognitive Behaviour Therapist*, 17, e42.
- Eshel, Y., Kimhi, S., Marciano, H., & Adini, B. (2023). Predictors of PTSD and psychological distress symptoms of Ukraine civilians during war. *Disaster Medicine and Public Health Preparedness*, 17, e429.
- Fischer, I. C., Na, P. J., Harpaz-Rotem, I., Marx, B. P., & Pietrzak, R. H. (2024). Prevalence, correlates, and burden of subthreshold PTSD in US veterans. *Journal of Clinical Psychiatry*, 85(4), Article 24m15465.
- Hamadeh, A., El-Shamy, F., Billings, J., & Alyafei, A. (2024). The experiences of people from Arab countries in coping with trauma resulting from war and conflict in the Middle East: A systematic review and meta-synthesis of qualitative studies. *Trauma, Violence, & Abuse*, 25(2), 1278–1295.
- Hamblen, J., & Schnurr, P. (2007). Mental health aspects of prolonged combat stress in civilians. https://www.ptsd.va.gov/professional/treat/specific/combat_stress_civilian.asp#one.
- Hazer, L., & Gredebäck, G. (2023). The effects of war, displacement, and trauma on child development. *Humanities and Social Sciences Communications*, 10, 909.
- Krasnoselskyi, M. V., Kyrylova, O. O., Dubenko, O. Ye., Rublova, T. V., & Pavlichenko, Yu. V. (2023). Risks of psychological traumatization and stress adaption of medical staff working under war conditions (analytical literature review). *Medicini Perspektivi*, 28(4), 23–30.
- Lahutina, S., & Frankova, I. (2023). Implementation of the digital format of psychological first aid in war stress conditions. *Ukrainskyi Visnyk Psichonevrolohi*, 31(4)(117), 56–64.
- Margetts, J. L., Hazelton, M., Santangelo, P., Yorke, J., & Wilson, R. (2024). Measurement of psychological resilience to support therapy interventions for clients in the clinical mental healthcare setting: A scoping review. *International Journal of Mental Health Nursing*, 33(6), 1921–1940.
- Melese, M., Simegn, W., Esubalew, D., Limen, L. W., Ayenew, W., Chanie, G. S., Seid, A. M., Beyna, A. T., Mitku, M. L., Mengesha, A. K., & Gela, Y. Y. (2024). Symptoms of posttraumatic stress, anxiety, and depression, along with their associated factors, among Eritrean refugees in Dabat town, northwest Ethiopia, 2023. *BMC Psychology*, 12(1), 62.
- Miller, K. E., & Rasmussen, A. (2017). The mental health of civilians displaced by armed conflict: An ecological model of refugee distress. *Epidemiology and Psychiatric Sciences*, 26(2), 129–138.
- Mottola, F., Gnisci, A., Kalaitzaki, A., Vintilă, M., & Sergi, I. (2023). The impact of the Russian-ukrainian war on the mental health of Italian people after 2 years of the pandemic: Risk and protective factors as moderators. *Frontiers in Psychology*, 14, Article 1154502.
- Nocon, A., Eberle-Sejari, R., Unterhitzenberger, J., & Rosner, R. (2017). The effectiveness of psychosocial interventions in war-traumatized refugee and internally displaced minors: Systematic review and meta-analysis. *European Journal of Psychotraumatology*, 8(2), Article 1388709.
- Rab, S., Simon, L., Amit Bar-On, R., Richter-Levin, G., & Admon, R. (2024). Behavioural profiling following acute stress uncovers associations with future stress sensitivity and past childhood abuse. *European Journal of Psychotraumatology*, 15(1), Article 2420554.
- Shamir-Stein, N., Feldblum, I., Rotman, E., Cohen, S., Brand, E., Kivity, S., & Saban, M. (2024). Exploring the self-reported physical and psychological effects in a population exposed to a regional conflict. *Journal of Community Health*, 49, 674–681.
- Stasyuk, V., & Ukrainets, V. (2023). Historical and psychological analysis of the phenomenon of stress. *Bulletin of National Defense University of Ukraine*, 71(1), 126–133.
- Tarasova, V. V. (2023). Program of psychological correction of adolescents' stress resistance. *Prospects and Innovations of Science*, 31(13), 571–585.
- Ukraine: Humanitarian response plan. (2023). <https://reliefweb.int/report/ukraine/ukraine-humanitarian-response-plan-february-2023-enuk>.
- Venger, O. P., Shkrobot, V. V., Ivanitska, T. I., Duve, K. V., & Herasymuk, K. O. (2022). The experience of providing assistance to internally displaced persons treated in the municipal non-profit enterprise ternopil regional clinical psychoneurological hospital of Ternopil regional council. *Bulletin of Medical and Biological Research*, 4(2), 17–23.
- Vintilă, M., Kalaitzaki, A., Turliuc, M. N., Goian, C., & Tudorel, O. I. (2023). Editorial: The war in Ukraine: Impact on mental health on a global level. *Frontiers in Psychology*, 14, Article 1226184.
- Willcott-Benoit, W., & Cummings, J. A. (2024). Vicarious growth, traumatization, and event centrality in loved ones indirectly exposed to interpersonal trauma: A scoping review. *Trauma, Violence, and Abuse*, 25(5), 3643–3661.
- Yigzaw, N., Hailu, T., Melesse, M., Desalegn, A., Ezezew, H., Chanie, T., Nenko, G., Tesfahun, M., Sendek, S., & Tinsae, S. (2023). Comprehensive mental health and psychosocial support for war survivors at Chenna Kebele, Dabat woreda, North Gondar, Ethiopia. *BMC Psychiatry*, 23, 172.
- Zhara, H. (2023). The psychological resilience of students to overcome the stress of war forming: Possibilities of the projection desensitization method. *Bulletin of the T. Shevchenko National University "Chernihiv Colegium"*, 176(20), 121–125.