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**ASSESSING THE IMPACT OF THE PSYCHOLOGICAL REHABILITATION
PROGRAM «SHELTERED BY LOVE»
ON THE MENTAL WELL-BEING OF UKRAINIAN CHILDREN DURING THE WAR**

Danyiuk, Ivan, Malysheva, Karine, Loshenko, Oleksandra, Kondratieva, Veronika. Assessing the Impact of the Psychological Rehabilitation Program «Sheltered by Love» on the Mental Well-Being of Ukrainian Children During the War.

Introduction. This study's purpose is to deepen the understanding of the impact of psychological trauma on children and adolescents living in Ukraine, particularly those affected by the ongoing Russian invasion. For this purpose, it explores a psychological rehabilitation program for children affected by the war in the country, trying to find out if there are differences in their mental health outcomes, experiences, and physiological measures before and after the intervention.

Aim. The study aims to contribute to developing effective instruments to mitigate the adverse effects of trauma and enhance the resilience of affected children and adolescents.

Methods: The research process utilized various assessment tools and measures to evaluate the impact of the psychological rehabilitation program Sheltered by Love. The assessment tools included the Childhood and Adolescent Trauma Screening (CATS), Children's Impact of Events Scale (CIES), physiological indicators such as pulse and heart rate variability, and the GOODENOUGH DRAW - A - PERSON TEST. Statistical analyses, including descriptive statistics and paired samples T-test, were conducted using R version 4.2.2 and MS Excel tools to assess mental well-being before and after the intervention. The sample consisted of 77 participants aged 8-17, residing in Ukraine's front-line zones, who attended the psychological rehabilitation program.

Results. The study findings provide evidence of the efficacy of the Sheltered by Love psychological rehabilitation program. Post-intervention analyses demonstrated statistically significant reductions in post-traumatic stress symptoms, including intrusive thoughts, emotional distress, and avoidance behaviors. Psychosocial functioning also improved, with fewer disruptions reported in communication and leisure activities. Physiological indicators showed a slight decrease in heart rate and improvements in sleep quality and deep sleep duration, further supporting the program's positive impact on the mental and physical well-being of the participants.

Conclusions. The findings highlight the effectiveness of the Sheltered by Love rehabilitation program for children in mitigating psychological distress, improving psychosocial functioning, and fostering adaptive coping strategies, ultimately enhancing the overall well-being of the participants affected by the war. Further research could delve into the long-term effects of such interventions and explore additional factors influencing children's psychological resilience in war-affected settings.

Keywords: psychological trauma, war-affected children, war-affected adolescents, Ukraine, mental health, psychological rehabilitation program, psychosocial functioning, intervention effectiveness, adaptive coping strategies, mental well-being.

Данилюк Іван, Малишева Каріне, Льошенко Олександра, Кондратьєва Вероніка. Оцінка впливу програми психологічної реабілітації «Захищені любов'ю» на ментальне благополуччя українських дітей під час війни.

Вступ. Метою цього дослідження є поглиблення розуміння впливу психологічної травми на дітей та підлітків, які проживають в Україні, особливо тих, які постраждали від триваючого російського вторгнення. Для цього в ньому розглядається програма психологічної реабілітації дітей, які постраждали від війни в країні, і робиться спроба з'ясувати, чи існують відмінності в результатах їхнього психічного здоров'я, досвіду та фізіологічних показниках до і після втручання.

Мета. Дослідження має на меті зробити внесок у розробку ефективних інструментів для пом'якшення негативних наслідків травми та підвищення життєстійкості постраждалих дітей та підлітків.

Методи: У процесі дослідження були використані різні інструменти та заходи для оцінки впливу програми психологічної реабілітації «Оселя любові». Інструменти оцінки включали:

скринінг дитячої та підліткової травми (CATS), шкалу впливу подій на дітей (CIES), фізіологічні показники, такі як пульс і варіабельність серцевого ритму, а також тест GOODENOUGH DRAW - A - PERSON TEST. Статистичний аналіз, включаючи описову статистику та T-тест парних вибірок, проводився з використанням програми R версії 4.2.2 та інструментів MS Excel для оцінки психічного благополуччя до та після втручання. Вибірка складалася з 77 учасників у віці 8-17 років, які проживають у прифронтових зонах України, які брали участь у програмі психологічної реабілітації.

Результати. Результати дослідження свідчать про ефективність програми психологічної реабілітації «Під покровом любові». Аналіз після втручання продемонстрував статистично значуще зменшення симптомів посттравматичного стресу, включаючи нав'язливі думки, емоційний дистрес та поведінку уникнення. Психосоціальне функціонування також покращилося: зменшилася кількість порушень у спілкуванні та проведенні дозвілля. Фізіологічні показники показали незначне зниження частоти серцевих скорочень, покращення якості та тривалості глибокого сну, що додатково підтверджує позитивний вплив програми на психічне та фізичне здоров'я учасників.

Висновки. Отримані дані свідчать про ефективність реабілітаційної програми для дітей «Обійняті любов'ю» у зменшенні психологічного стресу, покращенні психосоціального функціонування та формуванні адаптивних стратегій подолання труднощів, що в кінцевому підсумку покращує загальне благополуччя учасників, які постраждали від війни. Подальші дослідження можуть заглибитися в довгострокові наслідки таких втручань і вивчити додаткові фактори, що впливають на психологічну стійкість дітей, що постраждали від війни.

Ключові слова. Психологічна травма, постраждали від війни діти, постраждали від війни підлітки, Україна, психічне здоров'я, програма психологічної реабілітації, психосоціальне функціонування, ефективність втручання, адаптивні копінг-стратегії, психічне благополуччя.

Introduction. The negative impact of war on the population's mental well-being is a long-standing problem that attracts the attention of numerous researchers, psychologists, social workers, and healthcare professionals. This issue is also highly relevant for Ukraine, which has been confronting Russian military aggression since February 2022 while experiencing a widespread mental health crisis. The breakdown of social structures, persistent anxiety, violence, loss of loved ones, population displacement, and economic instability have contributed to significant increases in levels of stress, anxiety, depression, and post-traumatic stress disorder (PTSD) in Ukrainian society (Kurapov et al., 2023a; Kurapov et al., 2023b; Kurapov et al., 2023c). Children and adolescents are particularly vulnerable to the harmful effects of war-related trauma. Their developmental stage and limited coping mechanisms make them more susceptible to mental stress and long-term consequences. Existing studies confirm that exposure to war-related trauma in childhood increases the risk of developing mental disorders later in life (El-Khodary & Samara, 2019). In addition, the loss of parents, separation from caregivers, and educational disruptions exacerbate the vulnerability of children and adolescents by violating emotional regulation and causing interpersonal difficulties. Acute stress reactions, such as increased arousal, intrusive memories, nightmares, and avoidance behaviors, often appear soon after exposure to traumatic events. In children, trauma may also manifest itself through regressive behavior, separation anxiety, and somatic and behavioral problems (Sharma et al., 2021). Therefore, early identification of mental health issues among children and adolescents exposed to trauma, and the development of effective interventions to mitigate the adverse effects of psychological trauma and increase the resilience of affected people are especially important. In particular, early identification of at-risk individuals and comprehensive assessment of trauma exposure are essential components of trauma-informed care. In turn, community-based interventions, psychosocial support programs, and rehabilitation activities that stimulate coping mechanisms among the affected population are equally significant. In this regard, this study aims to deepen the understanding of the impact of psychological trauma on children and adolescents living in Ukraine and test the effectiveness of the children's psychological rehabilitation program “Захищені любов'ю” (Sheltered by Love) in its impact on mitigating the consequences of trauma and ensuring mental health well-being of its participants.

Defining and conceptualizing psychological trauma

Psychological trauma is a multifaceted phenomenon widely studied in the psychological literature, which involves a range of distressing experiences that inhibit an individual's ability to cope effectively (Stien & Kendall, 2014). The impact of trauma extends beyond the immediate traumatic event, leaving an imprint on the mental and physiological well-being of an individual. Findings from various studies highlight the importance of understanding trauma as a dynamic and subjective construct influenced by both individual and environmental factors.

The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) generally categorizes trauma-related disorders as trauma-stressor-related disorders, where the important criterion is the experience of actual or threatened death, serious injury, or sexual abuse (Pai et al., 2017). This diagnostic framework covers conditions such as posttraumatic stress disorder (PTSD), acute stress disorder, and adjustment disorders, each characterized by distinctive symptomatology. In turn, the International Classification of Diseases, 11th edition (ICD-11), classifies trauma-related disorders within the broader category of disorders specifically related to stress (Maercker & Eberle, 2022). In this regard, the main components of psychological trauma include a range of emotional, cognitive and physiological reactions. Emotional dysregulation, hyperarousal, and intrusive thoughts are hallmarks that often manifest through symptoms such as flashbacks and nightmares (Jin et al., 2022).

The impact of psychological trauma on children

The effects of psychological trauma on children are the most detrimental because it adversely affects various areas of children's development, their physical, mental and social functioning, interpersonal relationships, and academic performance. According to De Bellis & Zisk (2014), cognitive deficits in childhood trauma are noticeable in areas such as attention, memory, and executive function. The brief by the US Substance Abuse and Mental Health Services Administration (2023) notes that people who have experienced childhood trauma are more likely to have mood disorders, anxiety, and emotional instability. Childhood trauma also impairs social functioning, affecting an individual's ability to form and maintain healthy relationships (Hjelseng et al., 2022). Trauma in childhood, especially attachment disturbances due to neglect or abuse, can interfere with the development of secure attachment patterns, exacerbating difficulties in establishing trusting relationships.

To date, Ukraine has faced a crisis with children's mental health due to Russian military aggression, which has caused enormous damage to the mental well-being of children, especially that category of the population who live in front-line zones. The report prepared by Haddad et al. (2022) shows that 22.1% of people in conflict-affected regions suffer from various mental disorders. Among this affected group, approximately 1,531,864 are in the younger demographic category. Psychological trauma identified in children living in Ukraine is caused by various factors related to military operations. In particular, according to the report by Ukraine CP AoR (2023), a number of gross violations were committed against minors. For example, among the documented cases alone, 14,482 children were subjected to atrocities such as physical harm or sexual abuse. In addition, a staggering 1.5 million children experience symptoms of depression, post-traumatic stress disorder (PTSD), and a range of other mental disorders and illnesses (Ukraine CP AoR, 2023). These results are confirmed by Hresa (2022), who points to the presence of a range of psychological consequences, from anxiety disorders and post-traumatic stress disorder to depression and dissociative disorders, which are interpreted as normative reactions to the aberrant circumstances generated by the war. It is also necessary to note the accompanying behavioral abnormalities in children, including aggression, antisocial tendencies, and an increased tendency to use psychoactive substances. In turn, the reports by Rating Group (2023) and Gradus Research Company (2022) also provide insight into the impact of trauma on the mental health of children and adolescents who live in war, noting these facts highlight the need for urgent and concerted efforts to mitigate the harmful effects of war-related trauma.

Psychosocial support for children during crises

Psychosocial support is a critical component of mitigating the effects of psychological trauma, especially in the context of childhood crises. Psychosocial support, defined as a multidimensional construct, involves interventions targeting both psychological and social aspects of well-being (Eiroa-Orosa, 2020). Components of psychosocial support include mental health interventions, community involvement and social support networks. Findings from programs such as Psychological First Aid (PFA) highlight the importance of immediate, non-intrusive, and supportive care to stabilize and promote the psychosocial well-being of people affected by trauma (Wang et al., 2021).

At the same time, early recognition of signs of trauma in children is particularly important because it is paramount to timely and targeted intervention. Trauma assessment tools, such as the Child and Adolescent Trauma Screen (CATS) questionnaire, help identify trauma exposure and associated symptoms, providing early recognition in various settings (International Society for Traumatic Stress Studies, 2014). In turn, joint public programs are no less important, representing an integral part of providing comprehensive support to children who have suffered from psychological trauma associated with the war in Ukraine. According to Solerdelcoll et al. (2022), coordinated efforts from different systems, including schools, health care, and community organizations, are essential in this case.

Aim. In the context of the situation in Ukraine, one such initiative is «Захищені любов'ю» (Sheltered by Love), a psychological rehabilitation program for children who lost their parents due to war. Therefore, in this study, we aim to answer the following research questions.

Tasks:

1. What is the current mental health status of the children in the program, and how have they been affected by the traumatic events?
2. What is the impact of the psychological rehabilitation program on the mental health of children who have suffered from the war in Ukraine?
3. How does participation in the program affect the subjective experiences of children who have suffered from war?
4. Are there significant differences in children's mental health outcomes, subjective experiences, and physiological measures before and after the intervention?

Methods and research design

Assessment Tools. This study used various assessment tools and measures to assess the impact of the psychological rehabilitation program “Захищені любов'ю” (Sheltered by Love) on the mental health of children who were affected by the war in Ukraine:

- *Childhood and Adolescent Trauma Screening (CATS).* This study used the CATS methodology (Sachser et al., 2017), translated into Ukrainian and adapted for a Ukrainian-speaking audience. The questionnaire included three main scales:
 - Traumatic Events Scale. This scale comprises 15 items designed to assess exposure to potentially traumatic events. The participants were required to respond by indicating either “Yes” or “No” for each item.
 - Post-traumatic stress symptom scale. This scale consists of 20 items that assess PTSD symptoms based on DSM-5 criteria, including re-experiencing, avoidance, negative changes in mood and cognition, and hyperarousal symptom clusters. The children were asked to indicate the frequency or severity of each symptom on a 4-point response scale ranging from “0” (never) to “3” (almost always).
 - Psychosocial Functioning Scale. This scale includes 5 items that assess the impact of trauma on various domains of psychosocial functioning. The children responded by selecting “Yes” or “No” for each item.
- *Children's Impact of Events Scale (CIES).* This scale assessed the subjective experiences of children who were affected by war. It included 8 questions with answers ranging from 0 to 5, where 0 means that the event never happens, and 5 means that it always happens. The resulting scores reflected the presence of intrusion or avoidance symptoms.

• *Physiological Indicators.* In addition to psychological assessment tools, we measured physiological indicators to provide a comprehensive understanding of the participants' mental health:

- Pulse. Pulse was measured as a physiological indicator of arousal and stress.
- HR (heart rate). Heart rate variability was assessed to measure autonomic nervous system activity and stress levels.
- Sleep assessment. Participants' subjective sleep quality was assessed using a rating scale.
- Sleep duration. Participants' total sleep duration was recorded.
- Deep sleep. The amount of time the participants experienced deep sleep was measured to assess sleep quality.

• *GOODENOUGH DRAW – A – PERSON TEST.* Children's drawings were assessed to analyze their psychological state and the impact of the program on cognitive functions.

Statistical analysis. Statistical analyses were conducted using R version 4.2.2 to assess the participants' mental well-being and examine the impact of the program on children's mental health. In particular, descriptive statistics and paired samples T-test were used as analysis tools. In addition, inferential statistical analyses were performed using Excel MS tools to examine changes in mental health outcomes and physiological indicators before and after the intervention.

Data Collection and Sample Characteristics. The sample for the study included children who participated in the psychological rehabilitation program “Захищені любов'ю” (Sheltered by Love), developed by Gen.Ukrainian. A total of 77 participants took part in the study, including children aged 8-9 years (n=11), aged 10 to 11 years (n=26), 12 to 13 years (n=28), 14 to 15 years (n=5), and 16 to 17 years (n=7). All the participants live in Ukraine. The sample also included children who lost their parents due to military action. The goal of the program was to provide psychological support and assistance to children affected by the war who attended the rehabilitation camp.

Results and discussion

The results obtained from the CATS methodology survey have provided valuable information about psychosocial functioning and the presence of various traumatic experiences and PTSD symptoms among the population surveyed. Before participating in the program, approximately 11.7% of the children reported they had experienced serious natural disasters, nearly 30% of the respondents reported serious accidents or injuries, and 16.9% of the participants reported experiencing threats, beatings, or serious bodily harm to their family members. As in the previous category, 26% of the respondents reported that they had been threatened, beaten, or seriously injured. A small percentage (5.2%) of the respondents indicated that they had been victims of violent crime. In addition, nearly one in five children (16.9%) expressed concerns about the safety of their family members, and 36.4% reported concerns about safety issues at school. It is important to note that 6.5% of participants reported that they had experienced sexual coercion. In particular, approximately 9.1% of the respondents indicated that they had experienced pressure or coercion to engage in sexual activity online or on social media. This finding highlights the importance of addressing issues related to sexual consent and the violation of personal boundaries. In turn, 28.6% of the children had been verbally harassed or abused, and 7.8% reported being bullied. An extremely high percentage of children (84.4%) indicated the loss of someone close to them due to violent acts. Finally, 37.7% of the respondents reported stress due to medical procedures, and 44.2% confirmed that they were close to areas where military operations took place.

Table 1

Results for Traumatic Event Measures

| Questions | Number | Percentage |
|--|--------|------------|
| 1. A major natural disaster, such as a flood, tornado, hurricane, earthquake, or fire. | | |
| No | 68 | 88.3 % |
| Yes | 9 | 11.7 % |
| 2. A serious accident or injury, such as a car/bicycle accident, dog bite or sports injury. | | |
| No | 54 | 70.1 % |
| Yes | 23 | 29.9 % |
| 3. Threats, beatings or severe injuries from someone in my family. | | |
| No | 64 | 83.1 % |
| Yes | 13 | 16.9 % |
| 4. Threats, beatings, or serious injury from someone in the school or community. | | |
| No | 57 | 74.0 % |
| Yes | 20 | 26 % |
| 5. Assault, stabbing, gunshot or robbery. | | |
| No | 73 | 94.8 % |
| Yes | 4 | 5.2 % |
| 6. Watching someone in my family being threatened, beaten, or seriously injured. | | |
| No | 64 | 83.1 % |
| Yes | 13 | 16.9 % |
| 7. Watching someone in the school or community being threatened, beaten or seriously injured. | | |
| No | 49 | 63.6 % |
| Yes | 28 | 36.4 % |
| 8. Someone has sex activities with me or forces me to have sex activities with them when I cannot say no. Or cases of coercion or pressure on me. | | |
| No | 72 | 93.5 % |
| Yes | 5 | 6.5 % |
| 9. Someone online or on social media asks or pressures me to engage in sexual activity. For example, take or send photos. | | |
| No | 70 | 90.9 % |
| Yes | 7 | 9.1 % |
| 10. Someone bullies me in person. Says very rude things that scare me. | | |
| No | 55 | 71.4 % |
| Yes | 22 | 28.6 % |
| 11. Someone bullies me personally. Says very rude things that scare me. | | |
| No | 71 | 92.2 % |
| Yes | 6 | 7.8 % |
| 12. Someone close to me dies suddenly or due to violent acts. | | |
| No | 12 | 15.6 % |
| Yes | 65 | 84.4 % |
| 13. A stressful or frightening medical procedure. | | |
| No | 48 | 62.3 % |
| Yes | 29 | 37.7 % |
| 14. Being near the site of military operations. | | |
| No | 43 | 55.8 % |
| Yes | 34 | 44.2 % |

Table 2

Results for Post-Traumatic Stress Disorder Symptoms
Paired Samples T-test

| Item | Before intervention | After intervention | Criteria | Statistics | df (degrees of freedom) | p |
|---|----------------------------|---------------------------|-----------------|-------------------|--------------------------------|----------|
| 1. Disturbing thoughts or memories of what happened appear in my head. | P1_1 | P1_2 | Student t | 4.012 | 76.0 | < .001 |
| 2. Bad dreams remind me of what happened. | P2_1 | P2_2 | Student t | 3.653 | 76.0 | < .001 |
| 3. Images of what happened are in my head. The feeling that it is happening right now. | P3_1 | P3_2 | Student t | 1.777 | 76.0 | 0.083 |
| 4. I feel very upset after being reminded of what happened. | P4_1 | P4_2 | Student t | 4.068 | 76.0 | < .001 |
| 5. Strong physical reactions when I am reminded of what happened (sweating, racing heart, upset stomach). | P5_1 | P5_2 | Student t | 3.956 | 76.0 | < .001 |
| 6. I try not to think about what happened or to feel nothing about it. | P6_1 | P6_2 | Student t | 5.566 | 76.0 | < .001 |
| 7. Avoiding anything that reminds me of what happened (people, places, objects, situations, conversations). | P7_1 | P7_2 | Student t | 2.643 | 76.0 | 0.012 |
| 8. Inability to remember an important part of what happened. | P8_1 | P8_2 | Student t | 3.354 | 76.0 | 0.002 |
| 9. The presence of negative thoughts, such as: [a. I will not be able to live a full life.] | P9_1 | P9_2 | Student t | 2.147 | 76.0 | 0.038 |
| 9. The presence of negative thoughts, such as: [b. I cannot trust other people.] | P10_1 | P10_2 | Student t | 0.162 | 76.0 | 0.872 |
| 9. The presence of negative thoughts, such as: [c. The world has become dangerous.] | P11_1 | P11_2 | Student t | 0.752 | 76.0 | 0.457 |

Continuation of the table 2

| | | | | | | |
|--|-------|-------|-----------|-------|------|--------|
| 9. The presence of negative thoughts, such as: [d. I am not good enough.] | P12_1 | P12_2 | Student t | 2.808 | 76.0 | 0.008 |
| 10. Guilt for what happened [a. Blaming myself for what happened.] | P13_1 | P13_2 | Student t | 2.303 | 76.0 | 0.027 |
| 10. Guilt for what happened [b. Blaming someone else for what happened, even if it is not their fault.] | P14_1 | P14_2 | Student t | 0.850 | 76.0 | 0.400 |
| 11. Feeling upset (fear, anger, guilt, shame) most of the time. | P15_1 | P15_2 | Student t | 4.286 | 76.0 | < .001 |
| 12. Reluctance to do what I did before. | P16_1 | P16_2 | Student t | 3.545 | 76.0 | 0.001 |
| 13. Lack of a sense of intimacy and trust with people. | P17_1 | P17_2 | Student t | 0.000 | 76.0 | 1.000 |
| 14. Inability to detect joyful feelings. | P18_1 | P18_2 | Student t | 1.554 | 76.0 | 0.128 |
| 15. Control of strong feelings [a. It's hard to calm down when I am sad.] | P19_1 | P19_2 | Student t | 2.147 | 76.0 | 0.038 |
| 15. Control of strong feelings [b. A feeling of rage. Outbursts of anger and transferring it onto others.] | P20_1 | P20_2 | Student t | 2.399 | 76.0 | 0.021 |
| 16. Taking dangerous actions. | P21_1 | P21_2 | Student t | 0.530 | 76.0 | 0.599 |
| 17. Excessive caution (I keep an eye on those around me). | P22_1 | P22_2 | Student t | 2.389 | 76.0 | 0.022 |
| 18. It's easy to get scared | P23_1 | P23_2 | Student t | 3.138 | 76.0 | 0.003 |
| 19. Problems with attentiveness. | P24_1 | P24_2 | Student t | 2.446 | 76.0 | 0.019 |
| 20. Problems with falling asleep or staying asleep. | P25_1 | P25_2 | Student t | 2.357 | 76.0 | 0.023 |

Analyzing the paired samples t-test conducted on data before and after the children's participation in the program provides insight into its effectiveness in alleviating various psychological and emotional reactions to traumatic experiences. In this case, the participants show a significant reduction in the frequency of anxious thoughts or memories associated with the traumatic event after the intervention ($t = 4.012, p < 0.001$). After participating in the program, the children also report a significant reduction in bad dreams reminiscent of the traumatic event ($t = 3.653, p < 0.001$). The participants have also shown a significant decrease in feelings of distress due to being reminded of the traumatic event ($t = 4.068, p < 0.001$) and a significant

decrease in strong physical reactions to reminders of the traumatic event ($t = 3.956, p < 0.001$) and are less likely to use avoidance strategies ($t = 5.566, p < 0.001$). After participating in the program, the children have significantly reduced their inability to remember an important part of the traumatic event ($t = 3.354, p = 0.002$). It is important to note that although negative thoughts related to self-esteem have significantly decreased after the intervention ($t = 2.808, p = 0.008$), other types of negative thoughts have not changed significantly. However, the participants report a significant decrease in feelings of guilt associated with the traumatic event ($t = 2.303, p = 0.027$), a significant decrease in overall emotional distress ($t = 4.286, p < 0.001$), a decrease in reluctance to engage in previous activities ($t = 3.545, p = 0.001$), and fewer problems with overcaution ($t = 2.389, p = 0.022$). In addition, after participating in the program, the children report a decrease in feelings of fear ($t = 3.138, p = 0.003$) and a decrease in the number of problems with attention ($t = 2.446, p = 0.019$) and sleep ($t = 2.357, p = 0.023$).

Table 3

Results for Psychosocial Functioning

| Before intervention | Number | Percentage | After intervention | Number | Percentage |
|--|--------|------------|--------------------|--------|------------|
| Indicate YES or NO if the problems you mentioned interfered with: [Communicating with other people] | | | | | |
| No | 57 | 74.0 % | No | 65 | 84.4 % |
| Yes | 20 | 26.0 % | Yes | 12 | 15.6 % |
| Indicate YES or NO if the problems you mentioned interfered with: [Your hobbies/leisure] | | | | | |
| No | 58 | 75.3 % | No | 64 | 83.1 % |
| Yes | 19 | 24.7 % | Yes | 13 | 16.9 % |
| Indicate YES or NO if the problems you mentioned interfered with: [Your studies or work] | | | | | |
| No | 57 | 74.0 % | No | 64 | 83.1 % |
| Yes | 20 | 26.0 % | Yes | 13 | 16.9 % |
| Indicate YES or NO if the problems you mentioned interfered with: [Your family relationships] | | | | | |
| No | 58 | 75.3 % | No | 65 | 84.4 % |
| Yes | 19 | 24.7 % | Yes | 12 | 15.6 % |
| Indicate YES or NO if the problems you mentioned interfered with: [Your general feeling of happiness] | | | | | |
| 0 | 29 | 37.7 % | 0 | 43 | 55.8 % |
| 1 | 48 | 62.3 % | 1 | 34 | 44.2 % |

The analysis of psychosocial functioning using the CATS methodology before and after the children’s participation in the program indicates some improvements in various areas. In particular, some participants report that their problems impact their communication less (pre: 74.0%, post: 84.4%). The proportion of respondents who have regained their interest in leisure and hobbies has also increased (before: 75.3%, after: 83.1%). In addition, a larger percentage of children indicate that they experience fewer problems in school (before: 74.0%, after: 83.1%), and fewer problems in family relationships (before: 24.7%, after: 15.6 %).

Table 4

Results on the Children’s Impact of Events Scale

| Answers | Number | Percentage |
|--|--------|------------|
| 1. Does it happen that you think about this event even when you do not want to? | | |
| 0 | 6 | 14.6 % |
| 1 | 14 | 34.1 % |
| 3 | 13 | 31.7 % |
| 5 | 8 | 19.5 % |
| 2. Do you try to “remove” this event from your memory? | | |
| 0 | 20 | 48.8 % |
| 1 | 10 | 24.4 % |
| 3 | 7 | 17.1 % |
| 5 | 4 | 9.8 % |
| 3. Do you experience surges of strong feelings about this event? | | |
| 0 | 9 | 22.0 % |
| 1 | 8 | 19.5 % |
| 3 | 9 | 22.0 % |
| 5 | 15 | 36.6 % |
| 4. Do you stay away from what happened? | | |
| 0 | 22 | 53.7 % |
| 1 | 10 | 24.4 % |
| 3 | 6 | 14.6 % |
| 5 | 3 | 7.3 % |
| 5. Do you try not to talk about this event? | | |
| 0 | 10 | 24.4 % |
| 1 | 9 | 22.0 % |
| 3 | 13 | 31.7 % |
| 5 | 9 | 22.0 % |
| 6. Do pictures of this event suddenly appear in your head? | | |
| 0 | 15 | 36.6 % |
| 1 | 8 | 19.5 % |
| 3 | 11 | 26.8 % |
| 5 | 7 | 17.1 % |
| 7. Does something make you think about this event? | | |
| 0 | 13 | 31.7 % |
| 1 | 11 | 26.8 % |
| 3 | 12 | 29.3 % |
| 5 | 5 | 12.2 % |
| 8. Do you try not to think about this event? | | |
| 0 | 10 | 24.4 % |
| 1 | 12 | 29.3 % |
| 3 | 10 | 24.4 % |
| 5 | 9 | 22.0 % |

The Children’s Impact of Events Scale (CIES) was administered to the sample group before they participated in the program in order to assess the psychological impact of traumatic events on them. Their responses were statistically analyzed to identify patterns indicating the participants’ stress and use of coping mechanisms. The results have shown that a significant proportion of the respondents had recurring intrusive thoughts related to the traumatic event, with 14.6% indicating persistent involuntary memories despite attempts to suppress such thoughts. Moreover, a significant proportion (48.8%) admitted that they actively tried to suppress or remove the event from their memory. Emotional reactions to the event varied, with a significant number of participants (36.6%) agreeing that they had strong feelings associated with the event. At the same time, avoidance behavior was predominant. A significant proportion of the participants experienced intrusive images (36.6%), and 31.7% of the respondents reported external stimuli triggering memories.

Table 5

Paired Samples T-test Before and After Intervention on the CIES Results

| Question | Criteria | Statistics | df (degree of freedom) | p |
|---|-----------|------------|------------------------|--------|
| 1. Does it happen that you think about this event even when you do not want to? | Student t | 5.81 | 40.0 | < .001 |
| 2. Do you try to “remove” this event from your memory? | Student t | 3.42 | 40.0 | 0.001 |
| 3. Do you experience surges of strong feelings about this event? | Student t | 5.19 | 40.0 | < .001 |
| 4. Do you stay away from what happened? | Student t | 2.36 | 40.0 | 0.023 |
| 5. Do you try not to talk about this event? | Student t | 4.28 | 40.0 | < .001 |
| 6. Do pictures of this event suddenly appear in your head? | Student t | 4.49 | 40.0 | < .001 |
| 7. Does something make you think about this event? | Student t | 3.89 | 40.0 | < .001 |
| 8. Do you try not to think about this event? | Student t | 5.49 | 40.0 | < .001 |
| Intrusion | Student t | 7.13 | 40.0 | < .001 |
| Avoidance | Student t | 6.45 | 40.0 | < .001 |

The paired t test was conducted to assess the effectiveness of the program in mitigating the psychological impact of the traumatic event as measured by the Children’s Impact of Events Scale (CIES). The survey was administered before and after the intervention, allowing for assessing changes in the participants’ responses over time. The results have shown statistically significant improvements in all areas of psychological distress after the children participated in the program. The participants reported a significant decrease in intrusive thoughts about the event ($t(40) = 5.81, p < 0.001$), a decrease in attempts to remove the event from memory ($t(40) = 3.42, p = 0.001$), a decrease in the intensity of emotional reactions to the event ($t(40) = 5.19, p < 0.001$), a decrease in attempts to avoid discussing it ($t(40) = 4.28, p < 0.001$), and a decrease in the frequency of intrusive images ($t(40) = 4, 49, p < 0.001$). In general, the results indicate that the children’s participation in the program was effective in eliminating both intrusive thoughts and avoidant behavior, also improving psychological well-being among those surveyed.

Results for Physiological Indicators

The comparison of the average pulse rate before and after the program showed no significant changes (Figure 1).

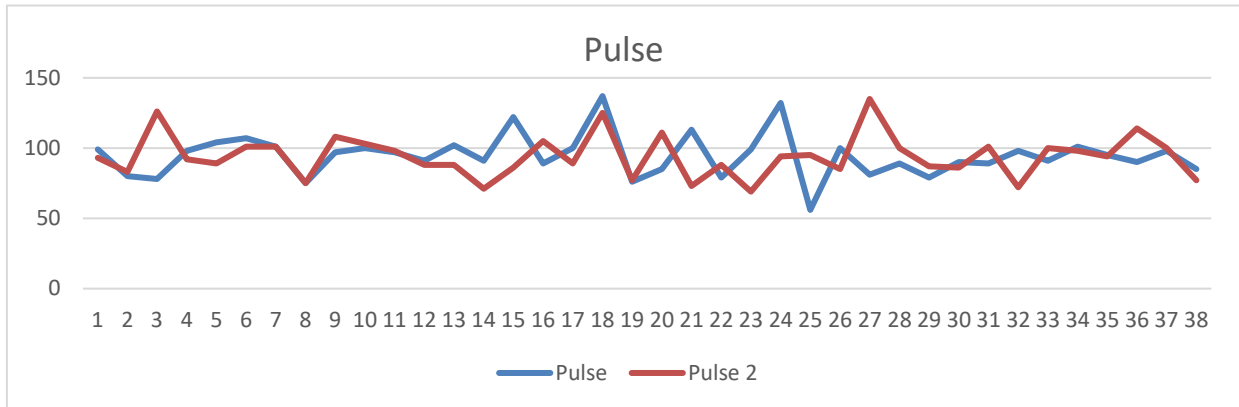


Figure 1. Pulse rate before and after the program

Average heart rate (HR) decreased from 86.1 beats per minute before participation in the program to 80.1 beats per minute after (Figure 2). This fact indicates a slight but statistically significant decrease in heart rate after the intervention.

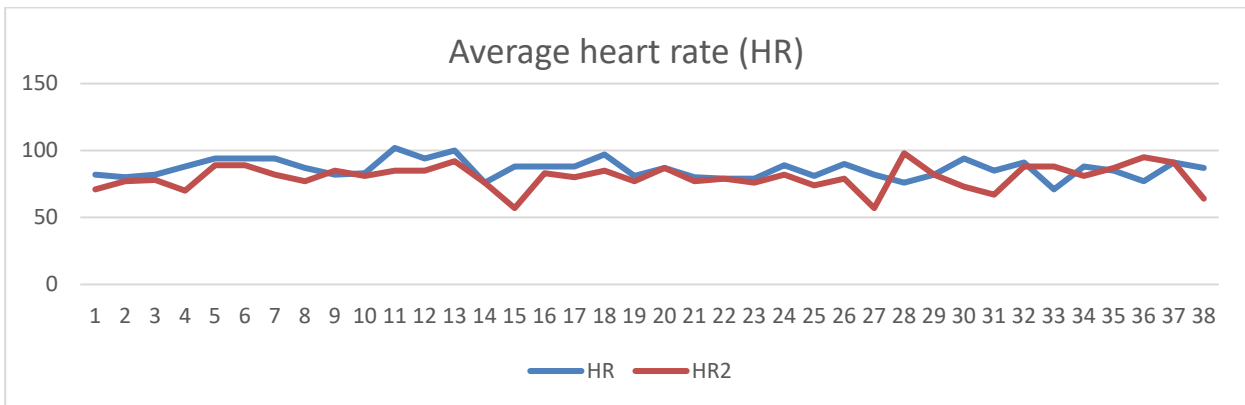


Figure 2. Average heart rate

The mean sleep rating increased from 82.6 pre-intervention to 83.3 post-intervention, indicating a slight improvement in sleep quality after the intervention (Figure 3).

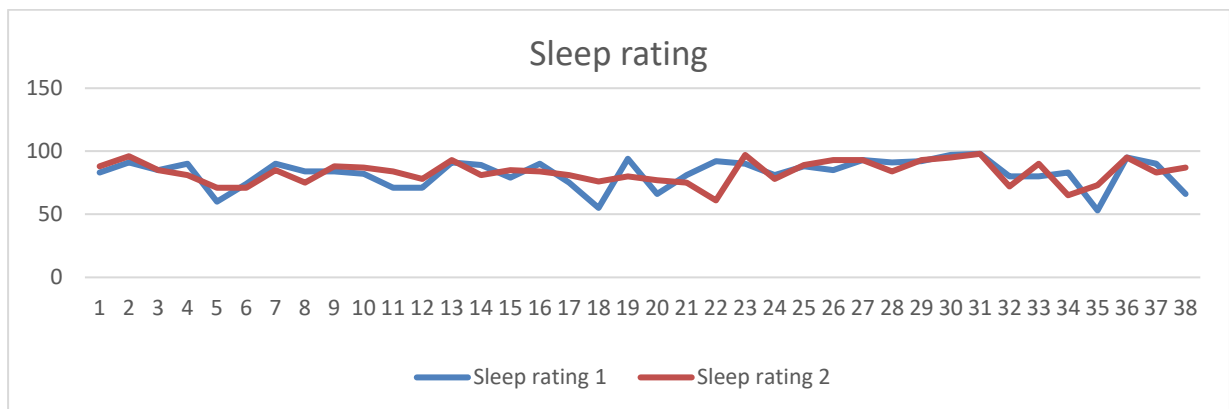


Figure 3. Sleep rating

The average total sleep duration decreased slightly from 7.29 hours before the intervention to 7.23 hours after (Figure 4). However, this change is not statistically significant.

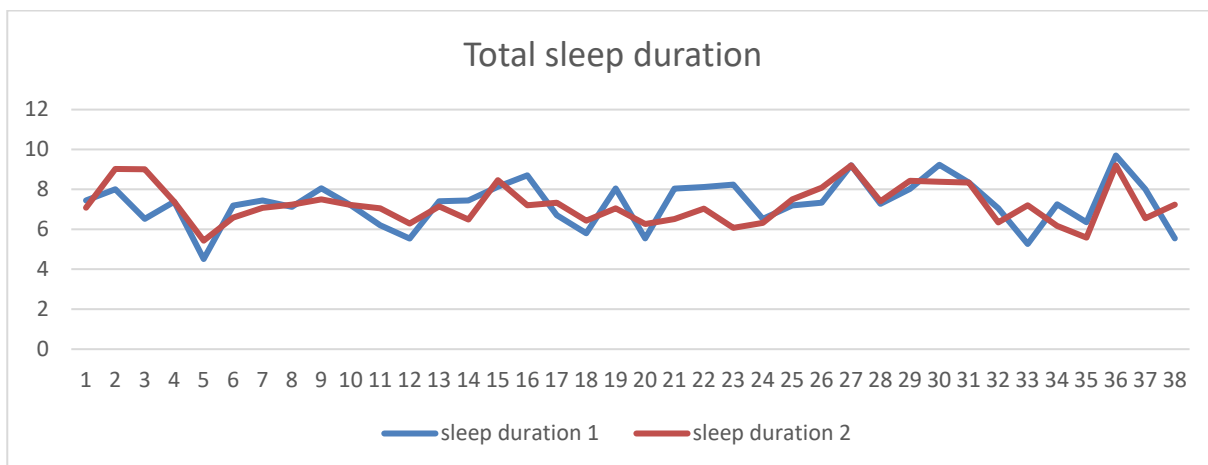


Figure 4. Average total sleep duration

The average duration of deep sleep increased significantly from 1.07 hours before the children participated in the program to 5.8 hours after the program, indicating a significant improvement in deep sleep (Figure 5).

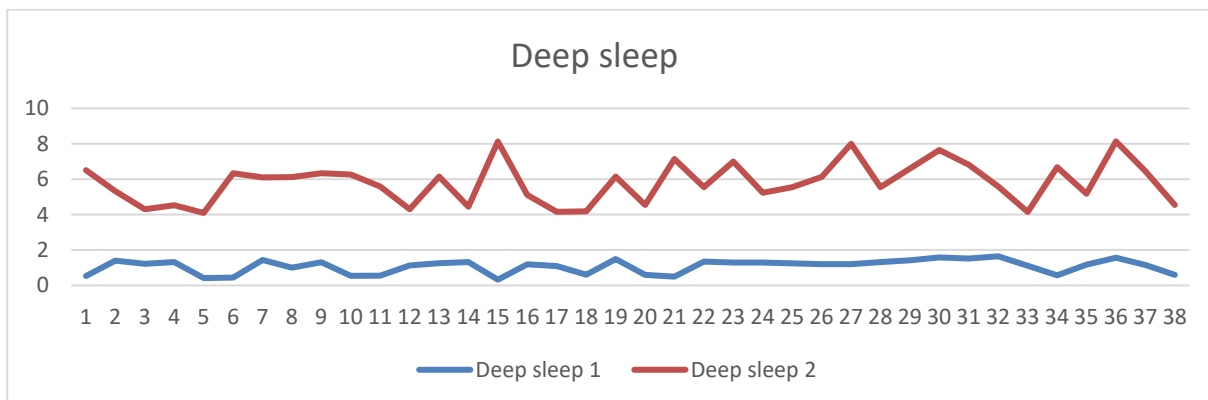


Figure 5. Average duration of deep sleep

Results of Psychological Assessment of Drawings

In order to assess the psychological state of children before and after the intervention, we also conducted a Person Test (Goodenough Draw), in which 68 people took part. Analyzing the test results revealed some trends that demonstrated the peculiarities of the program’s influence on the cognitive and emotional sphere of the participants (Figure 6). In general, the mean mental age (MA) score among all participants was approximately 9.4. In turn, 26 participants showed positive MA dynamics with an average increase of 1.3 years (Figure). In addition, 15 participants maintained their level, judging by minimal changes in MA. On average, the change in MA score for these participants was less than 0.5 years. Finally, 27 participants showed a negative MA trend with an average decrease of 1.9 years.

It is necessary to point out that, in several cases, there were external factors, such as the children’s emotional state or their artistic skills, that could influence or skew the scores. In this regard, the findings demonstrate the diverse developmental trajectories of the participants. However, positive change or lack of change remains prevalent.

Conclusions. Results obtained from the comprehensive assessment of traumatic event indicators, post-traumatic stress disorder (PTSD) symptoms, psychosocial functioning, physiological measures, and psychological assessment of drawings have provided us with

valuable information about the effectiveness of the intervention program in addressing the psychological impact of traumatic experiences in children. However, first of all, it is necessary to note that the analysis of indicators of traumatic events has revealed a significant prevalence of various traumatic experiences among the children surveyed. As some previous studies, such as Hresa (2022), demonstrate, such experiences contribute to developing PTSD symptoms, as evidenced by the high rates of intrusive thoughts, emotional distress, avoidant behaviors, and hyperarousal reported by our participants. These results suggest the widespread prevalence of psychological trauma among children affected by the war in Ukraine and the need to take action in order to address the psychological consequences of such experiences.

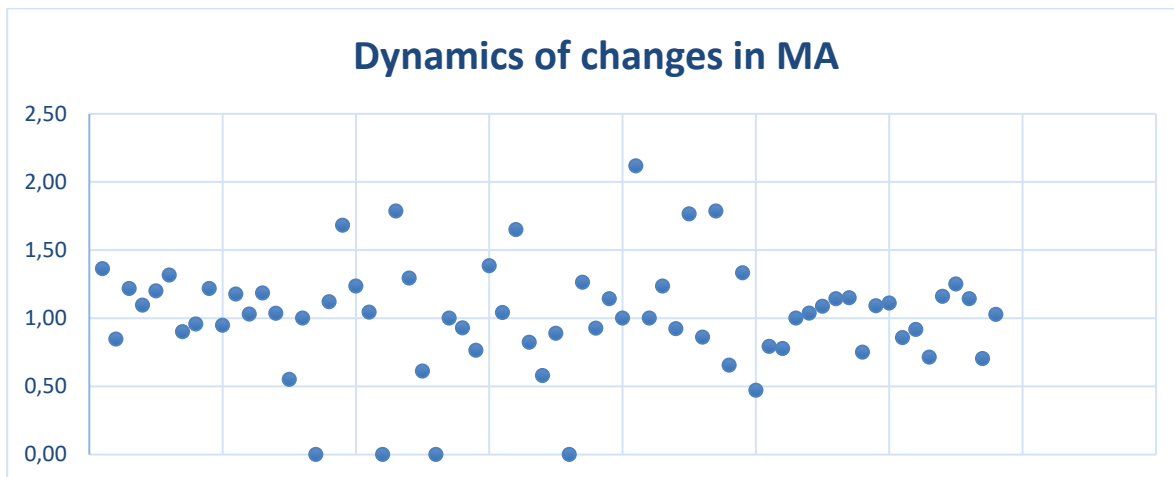


Figure 6. Dynamics of changes in mental age (MA)

We have also obtained important results from evaluating the effectiveness of the rehabilitation program. In particular, a paired samples t-test on pre- and post-intervention PTSD symptom scores has revealed significant improvements across multiple domains, indicating the program was highly effective in alleviating psychological distress among the participants. That is, the rehabilitation program has provided a reduction in intrusive thoughts, attempts to suppress memories, emotional reactions, avoidance behaviors, and sleep disturbances associated with traumatic events. These findings suggest that the program has successfully addressed core symptoms of PTSD and promoted the development of adaptive coping strategies in children, improving their mental well-being. In turn, analysis of psychosocial functioning before and after the intervention has demonstrated positive changes in communication, leisure participation, academic performance, family relationships, and overall happiness of the participants. In this case, we can argue that these improvements reflect the broader impact of the rehabilitation program on children’s social and emotional functioning. It is important to note that although physiological measures did not show significant changes in mean heart rate, small decreases in heart rate and improvements in sleep quality and duration, especially deep sleep, provide evidence of positive trends in the participants’ mental well-being and functioning. Finally, the results of the psychological assessment of the children’s drawings revealed different dynamics in changes in mental state among the participants. Still, we can note that most children showed improvement in their mental age scores after participating in the program.

Prospects for further achievements. In this regard, the findings of this study have several important implications for future interventions aimed at addressing the psychological impact of traumatic experiences among children in war-affected regions. First of all, the effectiveness of the intervention program points to the importance of implementing evidence-based psychosocial support measures that are aimed at alleviating the symptoms of post-traumatic stress disorder and promoting the development of adaptive coping strategies by the affected population. In addition, the integration of a set of assessment tools, including measures of traumatic events, PTSD symptoms, psychosocial functioning, and physiological measures,

provides a comprehensive understanding of the relationship between trauma exposure and mental well-being. Therefore, in the future, it will be important to focus on assessing the long-term effects of rehabilitation programs and identifying factors that promote resilience and recovery in children who have been exposed to trauma. In addition, interventions must be tailored to the unique needs and cultural context of the affected population, with an emphasis on building community resilience and developing social support networks. Collaborative efforts by government agencies, nongovernmental organizations, mental health professionals, educators, and community leaders are essential to addressing the challenges that arise from military aggression and promoting the mental health and well-being of children in crisis.

References

1. De Bellis, M. D., & Zisk, A. (2014). The biological effects of childhood trauma. *Child and Adolescent Psychiatric Clinics of North America*, 23(2), 185–222. <https://doi.org/10.1016/j.chc.2014.01.002>
2. Eiroa-Orosa, F. (2020). Understanding psychosocial wellbeing in the context of complex and multidimensional problems. *International Journal of Environmental Research and Public Health*, 17(16), 5937. <https://doi.org/10.3390/ijerph17165937>
3. El-Khodary, B., & Samara, M. (2019). The relationship between multiple exposures to violence and war trauma, and mental health and behavioural problems among Palestinian children and adolescents. *European Child & Adolescent Psychiatry*, 29(5), 719–731. <https://doi.org/10.1007/s00787-019-01376-8>
4. Gradus Research Company. (2022). (rep.). *Changes in children's lives during the war*. Gradus Research Company. https://gradus.app/documents/211/Children_Report_Gradus_28042022.pdf
5. Haddad, N., Koyiet, P., & Shaw, K. (2022). (rep.). *No Peace of Mind: The looming mental health crisis for the children of Ukraine*. World Vision.
6. Hjelseng, I. V., Vaskinn, A., Ueland, T., Lunding, S. H., Reponen, E. J., Steen, N. E., Andreassen, O. A., & Aas, M. (2022). Childhood trauma is associated with poorer social functioning in severe mental disorders both during an active illness phase and in remission. *Schizophrenia Research*, 243, 241–246. <https://doi.org/10.1016/j.schres.2020.03.015>
7. Hresa, N. (2022). Психологічна допомога дітям під час війни. *Особистість, Суспільство, Війна*, 37–39. <https://dspace.univd.edu.ua/server/api/core/bitstreams/4e2afcf7-804a-4b3f-9685-f545adb55342/content>
8. International Society for Traumatic Stress Studies. (2014). *Child and Adolescent Trauma Screen (CATS)*. International Society for Traumatic Stress Studies (ISTSS). [https://istss.org/clinical-resources/child-trauma-assessments/child-and-adolescent-trauma-screen-\(cats\)](https://istss.org/clinical-resources/child-trauma-assessments/child-and-adolescent-trauma-screen-(cats))
9. Jin, L., Keegan, F. S., Weiss, N. H., Alghraibeh, A. M., Aljoma, S. S., Almuhayshir, A. R., & Contractor, A. A. (2022). Examining indirect effects of emotion dysregulation between PTSD symptom clusters and reckless/self-destructive behaviors. *Psychological Trauma: Theory, Research, Practice, and Policy*, 14(4), 688–695. <https://doi.org/10.1037/tra0001118>
10. Kurapov, A., Danyliuk, I., Loboda, A., Kalaitzaki, A., Kowatsch, T., Klimash, T., & Predko, V. (2023a). Six months into the war: A first-wave study of stress, anxiety, and depression among in Ukraine. *Frontiers in Psychiatry*, 14, 1190465. <https://doi.org/10.3389/fpsy.2023.1190465>
11. Kurapov, A., Kalaitzaki, A., Keller, V., Danyliuk, I., & Kowatsch, T. (2023b). The mental health impact of the ongoing Russian-Ukrainian war 6 months after the Russian invasion of Ukraine. *Frontiers in Psychiatry*, 14, 1134780. <https://doi.org/10.3389/fpsy.2023.1134780>
12. Kurapov, A., Pivorienė, J., Krasilova, Y., Proskurnia, A., Balashevych, O., Dubynskyi, O., & Kalaitzaki, A. (2023c). From trauma to transformation: Predictors of post-traumatic growth in Ukrainians affected by war in an ongoing conflict setting. *Social Inquiry into Well-Being*, 21(1), 62–80. <https://doi.org/10.13165/sd-23-21-1-04>
13. Maercker, A., & Eberle, D. J. (2022). Disorders specifically associated with stress in ICD-11. *Clinical Psychology in Europe*, 4(Special Issue), e9711. <https://doi.org/10.32872/cpe.9711>
14. Pai, A., Suris, A., & North, C. (2017). Posttraumatic stress disorder in the DSM-5: Controversy, change, and conceptual considerations. *Behavioral Sciences*, 7(1), 7. <https://doi.org/10.3390/bs7010007>
15. Rating Group. (2023). (rep.). *Проблеми українських дітей під час війни*. Rating Group. https://ratinggroup.ua/files/ratinggroup/reg_files/rg_ucap_children_012023.pdf
16. Sachser, C., Berliner, L., Holt, T., Jensen, T. K., Jungbluth, N., Risch, E., Rosner, R., & Goldbeck, L. (2017). International development and psychometric properties of the Child and Adolescent Trauma Screen (CATS). *Journal of Affective Disorders*, 210, 189–195. <https://doi.org/10.1016/j.jad.2016.12.040>
17. Sharma, R., Satapathy, S., Choudhary, V., & Sagar, R. (2021). Childhood trauma and clinical correlates of dissociative disorders among adolescents: An exploratory study. *Journal of Indian Association for Child and Adolescent Mental Health*, 17(3), 92–111. <https://doi.org/10.1177/0973134220210306>
18. Solerdelcoll, M., Ougrin, D., & Cortese, S. (2022). Advocacy for a coordinated and safe response for the mental health and psychosocial needs of children affected by the conflict in Ukraine. *European Child & Adolescent Psychiatry*, 32(12), 2671–2673. <https://doi.org/10.1007/s00787-022-02037-z>

19. Stien, P. T., & Kendall, J. C. (2014). *Psychological trauma and the developing brain: Neurologically based interventions for troubled children*. Routledge.
20. Ukraine CP AoR. (2023). (rep.). *Child Protection in Ukraine: Secondary Data Review*. Ukraine CP AoR, UNICEF.
21. US Substance Abuse and Mental Health Services Administration. (2023). *Understanding child trauma*. US Substance Abuse and Mental Health Services Administration (SAMHSA). <https://www.samhsa.gov/child-trauma/understanding-child-trauma>
22. Wang, L., Norman, I., Xiao, T., Li, Y., & Leamy, M. (2021). Psychological first aid training: A scoping review of its application, outcomes and implementation. *International Journal of Environmental Research and Public Health*, 18(9), 4594. <https://doi.org/10.3390/ijerph18094594>

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