

**Mental health of preadolescents in western Ukraine: feasibility and acceptability
of a school-based psychosocial intervention during war.**

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1 **ABSTRACT**

2 **Background:** Children living in conflict zones experience high levels of psychological
3 distress. Schools can provide an accessible setting for support, yet evidence on the
4 effectiveness of school-based interventions in active war contexts remains limited.

5 **Objectives:** To evaluate children's well-being and internal coping resources during the
6 war in Ukraine and to examine the feasibility of a school-based program designed to
7 enhance psychological well-being in preadolescents.

8 **Participants and setting:** The study involved 81 children aged 10–12 years from
9 schools in Lviv, Ukraine.

10 **Methods:** Adverse Childhood Experiences (ACEs), post-traumatic stress disorder
11 (PTSD) symptoms, quality of life, self-compassion, and mindfulness traits were
12 assessed using standard questionnaires and validated psychometric scales. The
13 intervention program, delivered at school, focused on mindfulness, self-compassion,
14 social connection, sense of purpose, and trauma processing. Acceptability and
15 perceived impact were explored post-intervention among children, families, and school
16 staff.

17 **Results:** 42% of children reported four or more ACEs. 39.5% of children exceeded the
18 clinical cutoff for probable PTSD on the Children's Revised Impact of Event Scale
19 CRIES-8, with differences observed between boys and girls. Higher levels of self-
20 compassion and mindfulness were associated with lower PTSD symptoms. Children,
21 families, and school staff reported improvements in children's well-being, emotion
22 regulation, and social functioning after the intervention.

23 **Conclusions:** Our work provides preliminary evidence of the feasibility and
24 acceptability of a school-based intervention designed to promote children's

1 psychological well-being and mental health during ongoing war, with positive perceived
2 impacts reported by children, families, and school staff. Interventions incorporating
3 mindfulness and self-compassion training may represent promising approaches for
4 reducing trauma-related symptoms in children exposed to adversity. Larger controlled
5 studies using standardized measures are needed to assess effectiveness before
6 broader dissemination can be considered.

7
8 **Keywords:** Adverse Childhood Experiences; War; Trauma; Psychological Well-Being;
9 Children; Psychosocial Intervention; Mindfulness; Compassion.

1- BACKGROUND

Ongoing armed conflict and chronic instability place an estimated 473 million children worldwide under sustained and overwhelming stress conditions (Save the Children, 2024). Across conflict-affected regions, children are exposed to repeated experiences of violence, displacement, family separation, bereavement, chronic insecurity, and environmental devastation. These shared realities threaten healthy development and long-term mental health and deprive children of safety, predictability, and emotional security (Layne et al., 2025; A Sourander et al., 2026). The war-related exposome, which includes prolonged displacement, repeated air raid alerts, loss of caregivers, family-level adversity, breakdown of health services, economic hardship, damaged infrastructures and instability of schooling, creates conditions of sustained psychosocial adversity (Devakumar et al., 2014; Ferrara et al., 2025). Exposure to armed conflict during childhood and adolescence has been consistently linked to elevated risks of post-traumatic stress disorder (PTSD), depression, anxiety, self-harm, suicidality, digital media consumption, and substance use (Pfeiffer et al., 2024; Shoshani & Kor, 2026; Andre Sourander et al., 2024).

Although substantial research exists on child and adolescent mental health in non-war and post-conflict settings, these findings cannot be directly generalized to contexts of ongoing armed conflict, which present distinct and intensified stressors (Zhang et al., 2025). With one in six children currently living in war-affected areas and facing serious risks to their mental health, their inclusion in mental health research is essential. Following Russia's invasion of Ukraine in February 2022, the scale and intensity of war-related stressors affecting children and adolescents expanded dramatically. A large cross-sectional study of 8,096 Ukrainian adolescents living both

1 within Ukraine and in exile, documented high levels of depression, anxiety, and trauma-
2 related symptoms, with displaced adolescents showing particularly elevated
3 psychiatric burden (Goto et al., 2024). Similarly, a large cross-sectional study involving
4 2,766 adolescents aged 11-17 years, found markedly higher levels of war-related
5 trauma exposure among youth living in the conflict-affected Donetsk region compared
6 with peers in central Ukraine (Osokina et al., 2023). Over 60% of adolescents reported
7 witnessing armed attacks, nearly 14% experienced direct violence, and more than 25%
8 were forcibly displaced. These exposures were associated with increased prevalence
9 of PTSD, severe anxiety, and moderate-to-severe depressive symptoms, underscoring
10 the profound psychological toll of prolonged conflict on adolescent mental health.
11 Similarly, a national survey of parents conducted one year after the invasion reported
12 clinically significant levels of PTSD, anxiety, depression, attention-deficit/hyperactivity
13 disorder, and conduct problems among children aged 3-17 years (Naeem et al., 2025).

14 Despite the magnitude of mental health needs among war-exposed children,
15 access to specialized psychological services remains limited in conflict-affected
16 settings. This gap highlights the critical importance of integrating psychosocial support
17 into children's everyday environments. Schools represent a unique platform for mental
18 health promotion and trauma-informed prevention. As institutions that reach large
19 numbers of children, schools in emergencies serve as first-line psychosocial support
20 spaces that can facilitate early detection of distress, foster resilience, provide
21 psychosocial support, and help mitigate the long-term consequences of war-related
22 trauma (Betancourt et al., 2013). Integrating evidence-based, school-based mental
23 health interventions may therefore play a pivotal role in protecting the well-being of
24 children exposed to armed conflict and reducing the impact of war-related adversity
(Alzaghoul et al., 2022).

1 A recent study across five Ukrainian regions reported that school administrators,
2 teachers, psychologists, social pedagogues, and students expressed strong support
3 for integrating trauma-informed interventions to promote mental health into school
4 policy, while highlighting major barriers such as limited resources, staff burnout, stigma,
5 and insufficient teacher training (Gorbunova et al., 2025). In this context, this study
6 examines the mental health status of preadolescent children attending public schools
7 in Lviv, a city in western Ukraine that is geographically distant from active frontline
8 combat and has experienced comparatively fewer direct armed attacks than eastern
9 and southern regions of the country. However, children and families in Lviv remain
10 exposed to pervasive war-related stressors, including air raid alerts, missile strikes,
11 frequent power outages, lack of heating during the winter, damaged civilian
12 infrastructure, displacement of loved ones, prolonged uncertainty, and the military
13 deployment of family members. To help address these challenges and provide
14 psychological support, we also explored the feasibility and acceptability of a school-
15 based program to promote psychological well-being and mental health in
16 preadolescents, based on themes such as emotional awareness, understanding
17 mental processes, self-compassion, social connection, and a sense of purpose in life,
18 with a particular focus on strategies for coping with stress and processing trauma.

20 **2. METHODS**

21 **2.1- Participants and Procedure**

22 Eighty-one children aged 10 to 12 years from two public schools in Lviv were
2 recruited between September and November 2024. Schools were selected based on
willingness to participate and logistical feasibility. Prior to data collection, informational

meetings were held with parents or legal guardians to explain the study aims, procedures, and ethical safeguards. During classroom meetings, children received information about the study's purpose in age-appropriate language, with emphasis on the voluntary, non-clinical nature of participation and its lack of connection to academic evaluation. Children were informed that they could withdraw from the study at any time without consequences and were given opportunities to ask questions before and during participation. Written informed consent was obtained from parents or legal guardians and children before participation.

All procedures complied with ethical standards for research involving minors. The study protocol was reviewed and approved by the Ethics Committee of the Ukrainian Catholic University (UCU), approval number 1/24-cp, dated 7 September 2024. Inclusion criteria required children to be aged 10 to 12 years, provide verbal or written assent, have parental or guardian consent, and possess the ability to read and understand Ukrainian, the language of the questionnaires. Children were excluded if they withdrew assent at any stage, had severe cognitive or neurodevelopmental impairments that precluded independent completion of questionnaires, or were experiencing an acute psychiatric crisis or other clinical condition that could be exacerbated by discussing trauma-related experiences. All assessments were administered with the support of psychologists trained in trauma-informed care and working with children exposed to adverse experiences.

2.2- Measures

Adverse childhood experiences (ACEs)

ACEs were assessed using the Pediatric Adverse Childhood Experiences and Related Life Events Screener (PEARLS) (Koita et al., 2018), a 19-item instrument

evaluating exposure to traumatic, unsafe, or developmentally adverse experiences across family, community, and social-environmental contexts, including the original ten ACE categories of abuse, neglect, and household dysfunction.

Trauma-related symptoms.

We used two validated instruments to evaluate trauma-related symptoms. The Children's Revised Impact of Event Scale (CRIES-8) (Perrin et al., 2005) assessed intrusion and avoidance symptoms, with the Ukrainian adaptation demonstrating high internal consistency (Cronbach's $\alpha = 0.881$) and reliability (ICC = 0.870) (adapted Ukrainian translation from the Institute of Mental Health of the Ukrainian University of Kyiv in cooperation with the Institute of Child and Family Development and The Children and War Foundation (<https://www.childrenandwar.org/measures>). A double translation of the Child PTSD Symptom Scale – Version 5 (CPSS-5) (Foa et al., 2018) was carried out by the Department of Clinical Psychology of Ukrainian Catholic University, showing good reliability in the Ukrainian version (Cronbach's $\alpha = 0.711$; ICC = 0.919).

Health-related quality of life.

We used the KIDSCREEN-27 questionnaire (Ravens-Sieberer et al., 2014), which measures physical well-being, psychological well-being, parent relations and home life, peer relationships and social support, and school environment. The Ukrainian version demonstrated high internal consistency (Cronbach's $\alpha = 0.897$; ICC = 0.890) (adapted translation provided by the official website: <https://www.kidscreen.org/>). Physical Well-being subscale evaluates the child's perceived physical health and the extent to which physical limitations interfere with daily activities. The Psychological Well-being subscale captures emotions, life

satisfaction, emotional balance, self-perception and psychological discomfort. The Parent Relations and Home Life subscale measures the quality of the relationship with parents, perceived emotional support, family cohesion, and the child's sense of autonomy. The Social Support and Peers subscale assesses the quality of interactions with peers, perceived acceptance, the child's ability to establish and maintain friendships, availability of social support and involvement in social activities. The School Environment subscale examines the child's perception of the school setting, including feelings of safety, academic engagement, and support from teachers.

Self-compassion

We used the Self-Compassion Scale Short Form for Children (SCS-SF) (Sutton E., Schonert-Reichl K.A., Wu A.D., 2018). The original six subscales (self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification) were retained to preserve conceptual consistency. Reliability of the Ukrainian adaptation was strong (Cronbach's $\alpha = 0.893$; ICC = 0.850). The adapted translation was carried out by the Department of Clinical Psychology of Ukrainian Catholic University (Kuzikova et al., 2024). The Self-Kindness subscale assesses the ability to extend warmth, understanding, and nonjudgmental support toward oneself during times of difficulty, failure, or emotional pain. The Common Humanity subscale reflects the recognition that suffering and personal shortcomings are universal aspects of human experience, promoting a sense of connectedness. The Mindfulness subscale evaluates the ability to maintain balanced, non-reactive awareness of complex thoughts and emotions, without over-identifying with them or suppressing them. The Self-Judgment subscale measures harsh self-criticism, self-blame, and tendencies to evaluate oneself negatively in response to setbacks or perceived inadequacies. The Isolation subscale captures feelings of being alone or disconnected from others when

experiencing suffering, emphasizing perceived separation rather than shared human experience. The Over-Identification subscale assesses the extent to which individuals become overwhelmed by negative thoughts and emotions, amplifying distress through rumination and emotional fusion.

Mindfulness.

Mindfulness trait was measured using the Mindful Attention Awareness Scale for Adolescents (MAAS-A) (Brown et al., 2011), with the Ukrainian version demonstrating good internal consistency and reliability (Cronbach's $\alpha = 0.827$; ICC = 0.818). This adapted translation was carried out by the Department of Clinical Psychology of Ukrainian Catholic University.

2.3- Feasibility of school program to promote mental health in pre-adolescents.

We explored the feasibility of a program incorporating age-appropriate activities designed to enhance children's psychological well-being. The program consisted of 12 sessions to be carried out over 2 months, starting with 2 sessions per week the first month, and one session per week during the second month. Each session had a duration of 2 hours. The program was delivered to two groups of students (Group 1: $n = 17$ / 5 girls and 12 boys / April–June 2025; Group 2: $n = 15$ / 7 girls and 10 boys / January–March 2026). Participants were preadolescent children aged 10-12 years, corresponding to grades 5 and 6 in the Ukrainian school system.

Building upon our previous work (Kaliman et al., 2022; Roque-Lopez et al., 2021), the content of the program was structured around four interrelated pillars of well-being identified as beneficial for psychological well-being (Dahl et al., 2020): (i) *mindful awareness* (sessions 1 and 2), defined as the development of focused and flexible attention to both external environments and internal signals such as bodily

1 sensations, thoughts, and emotions; (ii) *insight* (sessions 3 and 4), aimed at
2 understanding how thoughts elicit emotional and behavioral responses, identifying
3 maladaptive beliefs and cultivating perspective taking; (iii) *connection* (sessions 5 and
4 6), aimed at strengthening feelings of gratitude, interconnection, and compassion
5 toward oneself and others; and (iv) *sense of purpose* (sessions 7 and 8), involving the
6 cultivation of meaning, personal values, self-confidence and engagement in purposeful
7 actions. The themes of each session were developed through playful interactive
8 activities, artistic expression and yoga-inspired exercises. During sessions 9 through
9 12, previously introduced practices were further reinforced and integrated, and
10 additional activities specifically designed to support the processing and regulation of
11 difficult emotions were introduced, including Emotional Freedom Techniques (EFT)
12 (Blacher, 2023; Lambert et al., 2022), the Butterfly Hug (Artigas & Jarero, 2008), guided
13 imagery exercises (Zehetmair et al., 2019). Each session included several moments
14 of structured sharing circles, which provided children with opportunities to reflect on
15 their experiences and to identify concrete ways to integrate newly acquired skills into
16 their daily lives. Every session concluded with a brief, playful challenge designed to
17 encourage children to practice the skills just learned, referred to as “superpowers”, in
18 their daily lives until the next session.

19 The group program was delivered jointly by a team composed of three licensed
20 psychologists with extensive experience in trauma-informed and mindfulness-based
21 interventions for children. Prior to program implementation, all instructors completed a
22 two-month teacher training covering the theoretical foundations, objectives, and
23 practical content of the 12 program sessions, ensuring standardized delivery and
24 fidelity to the intervention protocol.

25 **2.4- Statistical Analysis**

Descriptive statistics were computed to characterize the sample, including means and standard deviations for continuous variables and frequencies and percentages for categorical variables, covering demographic characteristics, ACE prevalence, and scores on all psychometric measures. Normality assumptions were assessed, and when variables deviated from normal distributions, nonparametric Mann–Whitney U tests were used. Associations between trauma-related symptoms (CRIES-8, CPSS-5), health-related quality of life (KIDSCREEN-27), self-compassion (SCS-SF), and mindfulness (MAAS-A) were evaluated using Spearman’s rank-order correlation coefficients. Linear regression analyses were conducted to examine the predictive role of ACE exposure on trauma-related symptoms, well-being outcomes, and internal psychological resources. All statistical analyses were conducted using jamovi (Version 2.6.26; The jamovi project, 2024).

3- RESULTS

3.1- Participants.

The assessment of PTSD symptoms, quality of life, self-compassion, and mindfulness traits included 81 children aged 10–12 years ($M = 10.7$, $SD = 0.6$). The sample comprised 66.7% girls ($n = 54$) and 33.3% boys ($n = 27$). The mean age was 10.7 years ($SD = 0.6$) for girls and 10.7 years ($SD = 0.7$) for boys. Due to the absence of data on participants’ gender identities, our study employs the terms “sex,” “boys,” and “girls” to denote sex assigned at birth. Regarding family composition during the war, 51.9% of children continued to live with both parents, 32.1% lived with their mother only, and 16.0% were cared for by other relatives (e.g., grandparents, older siblings, or extended family). All participants had resided in Ukraine for the past six months at

the time of the study, and eight participants came from families of internally displaced persons. Overall, 64% of children identified as Christians. The demographic data that we could collect are summarized in Supplementary Table 1.

3.2- Adverse Childhood Experience (ACE) screening.

Children completed the Pediatric ACEs and Related Life Events Screener (PEARLS), which assessed exposure to 19 types of adverse childhood experiences, including 10 core ACEs traditionally associated with family dysfunction, abuse, and neglect, as well as nine additional ACEs reflecting broader social and contextual vulnerabilities. Figure 1 presents the cumulative number of ACEs for the total sample and by sex, based on the complete 19-item questionnaire (Fig. 1A) and for the standard 10-category ACE questionnaire derived from the original CDC–Kaiser ACE Study (Felitti et al., 1998) (Fig. 1B), to enable comparison with previous studies. The population examined in the present study showed markedly high levels of adversity, with a prevalence of four or more ACEs of 42 % according to the full PEARLS questionnaire, and 30 %, when only the original 10 ACEs were considered.

Supplementary Figure 1 summarizes the prevalence of the different types of ACEs in the sample. The most frequently reported experiences across the total sample were emotional neglect (ACE-2: “Have you ever felt unsupported, unloved, and/or unprotected?”) and witnessing psychological or physical violence against their parent/caregiver (ACE-7: “Have you ever seen or heard a parent/caregiver being screamed at, insulted, or physically harmed?”), each endorsed by 43% of participants. Among the nine additional ACEs, the most frequently reported experiences in the total

sample were discrimination (ACE-12: 26%) and living with a parent/caregiver with a serious physical illness or disability (ACE-16: 25%),

Notable sex differences were observed for ACE-4 (verbal humiliation or insults from parents/caregivers; 30% girls vs. 19% boys) and ACE-5 (parental substance misuse; 24% girls vs. 7% boys). Certain experiences were reported exclusively by girls, including sexual abuse (ACE-9: 7% vs. 0%), housing problems (ACE-13: 15% vs. 0%), and separation from a parent/guardian due to migration or foster care (ACE-15: 4% vs. 0%).

3.3- Psychometric assessment.

Table 1 summarizes the total scores (mean $\pm$ SD) and sex differences for all psychometric measures, including measures of trauma-related symptoms (CRIES-8, CPSS-5), health-related quality of life (KIDSCREEN-27), self-compassion (SCS-SF), and mindfulness (MAAS-A).

3.3.1 Trauma-Related Symptoms.

On the CRIES-8, the mean score for the total sample was 14.21 (SD = 9.05) (Table 1), below the clinical cutoff of 17 for probable PTSD (Perrin et al., 2005). However, 39.5% of children ($n = 32$) reached or exceeded this threshold. By sex, 33.3% of boys (9/27) and 42.6% of girls (23/54) scored above the cut-off. On the CPSS-5, the mean score was 17.75 (SD = 9.77), with 11.1% of boys (3/27) and 11.1% of girls (6/54) exceeding the reference cut-off of 31 for identifying probable PTSD diagnosis (Foa et al., 2018). No statistically significant sex differences were observed on mean scores for these scales.

3.3.2 Health-Related Quality of Life.

We used the KIDSCREEN-27 to cover five domains: physical well-being, psychological well-being, parent relations and home life, social support and peers, and school environment (Table 1). A significant sex difference emerged for psychological well-being, with boys reporting higher scores than girls. No significant sex differences were observed in the other health-related quality of life domains.

3.3.3 Self-Compassion.

The Self-Compassion Scale-Short Form (SCS-SF) was used to assess children's capacity for self-kindness, mindfulness, and a sense of common humanity, as well as their tendencies toward self-judgment, isolation, and over-identification (Table 1). A significant sex difference was found on the Self-Kindness subscale, with boys scoring higher than girls. No other subscales differed by sex.

3.3.4 Mindfulness.

Mindfulness trait was assessed using the Mindful Attention Awareness Scale for Adolescents (MAAS-A), which measures conscious awareness of the present moment (Table 1). No statistically significant sex differences were observed.

3.4- Scale correlations.

Cross-correlation analyses among scores of all self-report measures show that higher levels of trauma-related symptoms were consistently associated with poorer psychological well-being and diminished internal psychological resources. The CRIES-8 and CPSS-5 PTSD symptom scales were positively correlated with each other, while all dimensions of health-related quality of life (KIDSCREEN), as well as self-compassion (SCS-SF-C) and mindfulness (MAAS-A), showed significant positive correlations with one another (Table 2).

Trauma-related symptoms were inversely related to psychological well-being, with stronger associations observed for CPSS-5 than for CRIES-8. In addition, CRIES-8 was associated with lower perceived quality of the school environment, whereas CPSS-5 demonstrated a specific negative association with parent relations and home life (Table 2).

Self-compassion was inversely associated with trauma-related symptom severity. Higher scores on both PTSD-related scales corresponded to lower overall self-compassion (Table 2).

Mindfulness, as measured by the MAAS-A, showed significant negative associations with both CRIES-8 and CPSS-5, indicating that greater trauma-related symptom severity was linked to lower levels of mindful awareness (Table 2).

Taken together, these findings indicate that PTSD-related symptoms among preadolescents are systematically related to diminished well-being across emotional, relational, and self-regulatory domains.

3.5- ACEs as predictors of trauma symptoms and psychoemotional well-being.

Regression analyses were conducted to examine the extent to which ACEs predicted trauma-related symptoms, health-related quality of life, and internal psychological resources. In these analyses, all 19 ACE types were entered simultaneously as predictors. Only a small number of individual ACEs significantly accounted for variance in the outcomes, suggesting that the overall explanatory power of the models arises from the combined contribution of multiple ACEs (Supplementary Tables 2-8).

The proportion of explained variance was 54% for the CRIES-8 ($R^2 = 0.54$, $F(19, 60) = 3.69$, $p < .01$) and 63% for the CPSS-5 ($R^2 = 0.63$, $F(19, 60) = 5.38$, $p <$

.01) (Supplementary Table 2), indicating that ACEs were strongly associated with trauma-related distress in preadolescent children. For the CRIES-8, the strongest independent predictor was ACE-10 (family structure instability; $p < 0.02$ $\beta = 0.42$). For the CPSS-V, ACE-19 significantly predicted more trauma symptoms (interpersonal violence; $p < 0.01$ $\beta = 0.30$) (Supplementary Tables 3 and 4).

Self-compassion (SCS-SF-c) and mindfulness (MAAS-A) were also significantly associated with ACEs, with models explaining 50% and 47% of the variance, respectively (SCS-SF-c: $R^2 = 0.50$, $F(19, 60) = 3.17$, $p < .01$; MAAS-A: $R^2 = 0.47$, $F(19, 60) = 2.65$, $p < 0.01$) (Table 4). The strongest predictor was ACE-2 for both self-compassion and mindfulness (feeling unsupported, unloved, and/or unprotected; $p < 0.01$ $\beta = -0.43$; $p < 0.04$ $\beta = -0.30$, respectively) (Supplementary Tables 5 and 6).

Similarly, regression models for the KIDSCREEN-27 subscales showed significant overall effects for physical well-being ($R^2 = 0.38$, $F(19, 60) = 1.97$, $p < 0.05$) and psychological well-being ($R^2 = 0.47$, $F(19, 60) = 2.76$, $p < 0.01$) (Table 4). No single ACE category emerged as a uniquely significant predictor in these models (Supplementary Tables 7 and 8).

3.6- Feasibility of school program to promote mental health in pre-adolescents: perceived benefits from children, families and school staff.

A subgroup of thirty-four children (girls, $n = 12$; boys, $n = 22$) participated in the school program. The school where the program was conducted did not have to close or suspend in-person classes due to direct damage from attacks. However, some sessions had to be rescheduled because of war-related disruptions, including power and heating outages. Additionally, during air-raid alarms and other security threats, students and teachers occasionally had to go to shelters instead of classrooms,

1 disrupting the school day and leading to temporary cancellations for safety reasons.
2 Despite these obstacles, all 12 sessions of the program were successfully completed
3 for the two group of students.

4 At the end of the program, 34 children answered a satisfaction questionnaire
5 (Supplementary Table 9). All children (100%) reported enjoying the program “a lot” or
6 “very much” and 97% indicated that it helped them feel better. Similarly, 91% of
7 participants reported a strong interest in participating in future similar programs, 97%
8 indicated that they clearly understood the program’s instructions and activities, 91%
9 felt heard during the sessions, and 91% expressed intentions to apply what they had
10 learned. Most participants also indicated that they would recommend the program to
11 another child (91%). These results suggest a high level of engagement, content
12 comprehension, and perceived benefit among participants.

13 Twenty-three families completed the feedback questionnaire at the end of the
14 program (Supplementary Table 10). Most families (91%) reported observable changes
15 in their children’s emotions and indicated that children shared at home what they
16 learned (96%). Families observed improvements in children’s ability to manage
17 frustration and anger (91%). Regarding social interactions, 78% of families noticed
18 significant improvements in how children engaged with peers or adults. 91% of families
19 found that the program was valuable for their child’s well-being.

20 Twenty-one members of the school staff answered a feedback questionnaire at
21 the end of the program (Supplementary Table 11). They reported positive outcomes
22 regarding the program’s social and emotional impact on students (95%), with 81%
23 noting that students applied strategies learned during the program and 76% observing
24 improved classroom coexistence (24% were unable to determine an effect in this
25 domain). Eighty-one percent of school staff observed that the program facilitated

1 teaching, particularly in group dynamics and conflict management. Ninety percent
2 found the program valuable, and 100% expressed a desire for its continuation at the
3 school. The school principal remarked, “What the children learned in this program will
4 remain in their minds, hearts, and experience.”

6 **4. DISCUSSION**

7 This study contributes to a growing literature documenting children’s
8 psychological well-being during an active full-scale war, under conditions of chronic
9 and uncontrollable exposure to adversity (Aldabbour et al., 2026; Hazer & Gredebäck,
10 2023; Martsenkovskyi et al., 2023; Zasiiekina et al., 2025).

11 Children exposed to war are at heightened risk for trauma (Zasiiekina et al.,
12 2025). In the sample studied here, a substantial proportion of the children fell within
13 ranges indicative of PTSD risk. The discrepancy in PTSD symptom prevalence
14 between the two PTSD symptom scales used in this study may reflect differences in
15 their scope and thresholds for identifying clinically relevant trauma-related symptoms.
16 The CRIES-8 is a brief screening measure designed to assess trauma-related
17 symptoms of intrusion and avoidance in children (Perrin et al., 2005), whereas the
18 CPSS-5 assesses a broader range of PTSD symptoms across the DSM-5 symptom
19 clusters (i.e., intrusion, avoidance, negative alterations in cognition and mood,
20 alterations in arousal and reactivity, and associated functional impairment) (Foa et al.,
21 2018). The two measures therefore capture overlapping but not identical levels of
22 trauma-related distress, which may explain the different prevalence estimates. These
23 findings highlight the importance of interpreting screening results cautiously and
24 recognizing relevant trauma-related symptoms even when children do not reach the

threshold on a more comprehensive PTSD symptom measure (McLaughlin et al., 2015) and suggest that interventions promoting mental health and psychosocial well-being may be relevant for children in conflict settings, even in the absence of a full PTSD diagnosis.

Our findings are consistent with the ecological framework proposed by Miller and Rasmussen, which posits that mental health in the context of armed conflict is shaped not only by conflict exposure but also by daily stressors caused or worsened by the armed conflict and by adverse childhood experiences unrelated or indirectly related to armed conflict (Miller & Rasmussen, 2010, 2024). At a global level, exposure to adverse childhood experiences is highly prevalent, with evidence suggesting that 13% of the adult population has encountered four or more ACEs during their lifetime (Hughes et al., 2017). In comparison, children in the present study exhibited substantially higher rates, with prevalence estimates approximately two- to threefold higher, depending on the questionnaire used (original 10 ACEs vs. full PEARLS). Girls reported a higher prevalence of cumulative ACEs (4 or more) than boys in both questionnaires, a pattern consistent with previous studies in conflict and non-conflict settings (Felitti et al., 1998; Haahr-Pedersen et al., 2020). Consistent with the findings in the FinnBrain Birth Cohort (Kataja et al., 2025), in our study, overall adversity showed more influence than single ACE types in trauma-related symptoms, well-being, and internal psychological resources. Nevertheless, some family-related adversities appeared particularly relevant. Emotional neglect (ACE-2: feeling unsupported, unloved, and/or unprotected) was the strongest predictor of lower self-compassion and mindfulness. Likewise, family structure instability (ACE-10) was the strongest independent predictor of trauma symptoms measured by the CRIES-8. Consistent with these findings, we observed significant inverse correlations between trauma symptoms

1 and family relations, suggesting that positive family relationships may mitigate the
2 psychological impact of chronic adversity. However, our cross-sectional design does
3 not allow causal inferences regarding these potential protective effects. Further
4 longitudinal research and larger samples are needed to clarify the specific mechanisms
5 through which family environments may support children's mental health under
6 conditions of ongoing armed conflict-related adversity.

7 Regarding gender differences, boys reported significantly higher psychological
8 well-being and greater self-kindness than girls. This pattern may be explained by a
9 combination of developmental and sociocultural factors, such as greater emotional
10 awareness, increased societal pressures, and higher levels of self-criticism among
11 girls (Ferrari et al., 2023; Li et al., 2024; Twenge et al., 2022). We found a significant
12 inverse correlation between trauma symptoms and psychological well-being, family
13 relations, and school environment, underscoring that supportive family relationships
14 and positive school environments may buffer chronic stress and enhance emotion
15 regulation, thereby mitigating trauma-related symptoms. Similarly, we observed that
16 self-compassion and mindfulness were inversely associated with trauma-related
17 symptoms, suggesting that these traits, by fostering a sense of safety, common
18 humanity, and nonjudgmental acceptance, may represent a protective mechanism
19 under conditions of chronic adversity. These findings converge with our previous work
20 conducted in Argentina and other studies, where higher levels of mindfulness and
21 compassion similarly emerged as protective factors against PTSD symptoms in
22 children exposed to adversity (Kaliman et al., 2025; Turk & Acet, 2026). These
23 transcultural similarities observed across markedly different sociopolitical contexts are
24 consistent with a potential role for mindfulness and self-compassion in supporting
25 adaptive attentional and emotional regulation and reducing self-criticism in the context

1 of trauma (Liu et al., 2024; Vidal et al., 2024). Future longitudinal studies are needed
2 to determine whether these internal resources predict or promote lower psychological
3 distress over time in the context of ongoing adversity.

4 Without adequate protection and support, prolonged exposure to war-related
5 stressors may lead to enduring consequences for children's emotional regulation,
6 mental health, overall well-being throughout the lifespan as well as intergenerational
7 consequences (Devakumar et al., 2014). Urgent action is required to design, deliver,
8 and evaluate interventions that can address the needs of children exposed to armed
9 conflict, while generating evidence to guide policy initiatives. In this context, here we
10 examined the feasibility and acceptability of a 12-session mental health promoting
11 school program in Lviv, Ukraine. Our initiative aligns with UNICEF's Education in
12 Emergencies framework, which recognizes schools as safe, child-friendly settings that
13 can provide children with safety, stability, basic services, and mental health and
14 psychosocial support, helping them cope with adversity and trauma in crisis settings
15 (UNICEF, <https://www.unicef.org/education/emergencies>). Specifically, our program
16 was intentionally designed to first strengthen emotional regulation and psychosocial
17 protective resources and subsequently introduce trauma-informed strategies to help
18 children process potentially traumatic experiences. This sequential approach is
19 consistent with phase-orientated trauma-informed approaches, which emphasize
20 strengthening stabilization and psychological resources before proceeding to trauma-
21 focused processing (Willis et al., 2023).

22 In our study, the intervention component lacked a control group and prospective
23 psychometric assessments due to the ongoing armed conflict. In this context, we
24 considered that war-related factors that were difficult for us to monitor or control in real
25 time could influence the outcomes independently of the intervention (e.g., repeated air

1 raid alerts, loss of caregivers, family-level adversity, economic hardship, and damaged
2 infrastructure). Indeed, under these circumstances, even if changes in PTSD
3 symptoms or psychological well-being had been observed, it would not have been
4 possible to determine whether such changes were attributable to the intervention or to
5 concurrent war-related stressors. Consequently, we limited the post-intervention
6 assessment to implementation outcomes appropriate for feasibility research, namely
7 acceptability and perceived benefits, explored from the perspectives of children,
8 caregivers, and school staff. Reliance on participant's satisfaction and second-party
9 evaluations offered a pragmatic and ethically sensitive approach to capture indicators
10 of feasibility and acceptability. The perceived benefits in psychological well-being,
11 emotional regulation, social behavior, and classroom coexistence reported by children,
12 family members, and school staff suggest that the intervention may have strengthened
13 adaptive coping capacities not only at the individual level but also within relational and
14 institutional contexts. However, larger controlled studies using standardized measures
15 are needed to assess the effectiveness.

16 Key strengths of this study include the collection of data during an active armed
17 conflict and the use of multiple instruments to characterize children's baseline
18 psychological distress and internal resources. A further strength was the
19 implementation of a structured school-based psychosocial program to explore its
20 feasibility, acceptability, and perceived benefits. The study provides preliminary
21 evidence that such an intervention can be delivered within existing school settings
22 despite the practical challenges of ongoing conflict and that it was viewed positively by
23 children, family members, and school staff.

24 Limitations of this study include the cross-sectional design of the psychometric
25 assessment and the relatively small, sex-imbalanced sample, which limit the

1 generalizability of the findings. A major limitation of our study is that psychometric
2 assessments were not conducted at the end of the intervention. We fully acknowledge
3 that the exploration of subjective perceived benefits presented here is susceptible to
4 social desirability and expectancy biases and cannot substitute for standardized
5 psychometric assessments to establish intervention efficacy. Therefore, the absence
6 of post-intervention and follow-up psychometric assessments precludes any evaluation
7 of changes in mental health outcomes and persistence or evolution of potential effects
8 over time. Future randomized controlled longitudinal studies with larger samples are
9 required to evaluate the efficacy of the program in improving psychosocial well-being
10 and mental health. A further limitation is the use of the Pediatric ACEs and Related Life
11 Events Screener (PEARLS) Teen Self-Report in children aged 10–12 years, although
12 the instrument is primarily recommended for individuals aged 12 years and older. Its
13 use in younger children may have introduced age-related comprehension and
14 reporting biases, particularly for complex or sensitive experiences. Although the local
15 Ethics Committee considered the instrument appropriate for this age group in the
16 context of this study, ACE estimates should nevertheless be interpreted with caution.
17 Future research should use or validate age-appropriate measures of childhood
18 adversity. Regarding the intervention, program sessions occasionally had to be
19 rescheduled because of power outages and air raid alerts; however, these disruptions
20 did not substantially affect intervention delivery, which was completed as planned.

21 In conclusion, this study highlights the psychological burden borne by
22 preadolescent children living under chronic war conditions, even in regions
23 geographically distant from main frontline combat. Our work provides preliminary
24 evidence of the feasibility and acceptability of a school-based intervention designed to
25 promote children's psychological well-being and mental health during ongoing war,

with positive perceived impacts reported by children, families, and school staff. Interventions incorporating mindfulness and self-compassion training may represent promising approaches for reducing trauma-related symptoms in children exposed to adversity. This study provides a basis for progressive implementation of the program in schools, accompanied by rigorous assessment through controlled longitudinal studies to assess its efficacy before broader dissemination can be considered.

5. IMPLICATIONS FOR POLICY AND PRACTICE

Children affected by armed conflict experience high levels of psychological distress with far-reaching health and social implications, making mental health support an urgent priority. Scalable, low-threshold, and non-stigmatizing trauma-informed group interventions are particularly relevant, as access to systematic screening and specialized services is often constrained in conflict-affected settings. At the policy level, this underscores the need to prioritize preventive psychosocial support programmes for children within national education systems and humanitarian response plans.

When accessible, schools may provide a practical platform for delivery, offering structure and continuity. However, implementation is often hindered by damaged infrastructure, population mobility, disruptions to schooling, and the psychological burden on educators. These constraints underscore the need for flexible, adaptable approaches, particularly modular sessions within well-structured programs that can be delivered intermittently or integrated into existing classroom activities, as well as hybrid or remote formats when needed.

From a practice perspective, multimodal group interventions that combine mindfulness, compassion-based and trauma-informed approaches with playful activities, body awareness exercises, and artistic expression may be well suited to

1 children in vulnerable contexts. In our experience in the present feasibility study,
2 children often bring these well-being strategies back into their homes and share them
3 with their families, helping to extend the impact of the intervention beyond the school
4 context. Ideally, the involvement of families should be considered an integral part of
5 these approaches. However, in war-affected settings, this can be challenging, as
6 families are often exposed to multiple ongoing stressors that constrain their availability
7 to participate. To address this challenge, the programme described herein established
8 an online group for parents and caregivers to share updates on its implementation,
9 including information on content as well as photographs and videos of their children
10 participating in activities. This approach was well received and facilitated meaningful
11 engagement with families despite contextual constraints.

12 In our experience to date, the program has been delivered by psychologists
13 external to the school system, with expertise in child trauma and mindfulness-based
14 approaches. However, for broader and more sustainable future implementation, a
15 more realistic model may involve training school staff. This has direct policy
16 implications, suggesting the need for institutionalized training modules for teachers and
17 school psychologists within in-service professional development systems, along with
18 supervision structures to ensure quality and sustainability. Importantly, such training
19 would not only support program delivery but also allow educators to embody the
20 emotional regulation and relational skills, potentially benefiting their own stress
21 management in high-burden contexts.

22 Our experience also suggests that multi-sector collaboration is key to feasibility.
23 Implementing the program in Ukraine has involved partnerships between NGOs
24 (combining program development, funding, and delivery) and collaboration with local
25 academic institutions, such as the Ukrainian Catholic University, to support evaluation.

1 This points to the importance of formal coordination mechanisms between education
2 and health authorities, NGOs, and academic institutions, to avoid fragmented
3 implementation and ensure continuity across funding cycles.

4 Overall, sustainable implementation depends on cross-sector collaboration,
5 context-adapted intervention and evaluation frameworks. Such partnerships can help
6 ensure that children living through protracted conflict have sustained access to
7 coordinated, evidence-informed psychosocial support delivered within trusted
8 community settings. Further research and inclusive stakeholder debate, particularly on
9 long-term institutional embedding and cost-effectiveness, are needed to establish
10 efficacy through well-designed randomized controlled trials and to determine whether
11 and how such approaches can be effectively scaled and integrated in contexts of
12 protracted crisis.

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This research was reviewed and approved by the Institutional Review Board of the Ukrainian Catholic University (IRB number 27/23; protocol number 1/24-cp; 07/09/2024).

Availability of data and materials

The datasets generated and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

Additional authors' information

PK is the founder and director of Generation Alpha Minds (GAM), a non-profit organization which aims to develop and scientific validate psychological well-being programs for children in underserved, vulnerable communities (www.generationalphaminds.org). ML is a member of GAM. YS is the director of the NGO Ukrainian Mindfulness Association (UMA) (<https://ngo-uma.com/>). OM, OG, OI, and OU are members of UMA.

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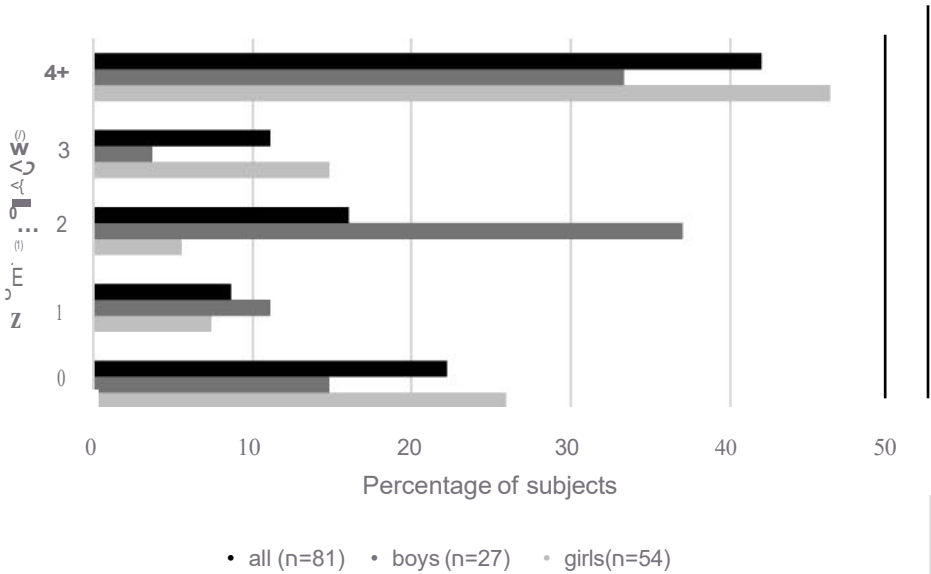
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Figure 1. Pediatric ACEs and Related Life Events Screener (PEARLS) - Teen Self-Report. A. ACE exposure using the 19 item PEARLS self-report B. ACE exposure of the 10 original ACE categories.

A



B

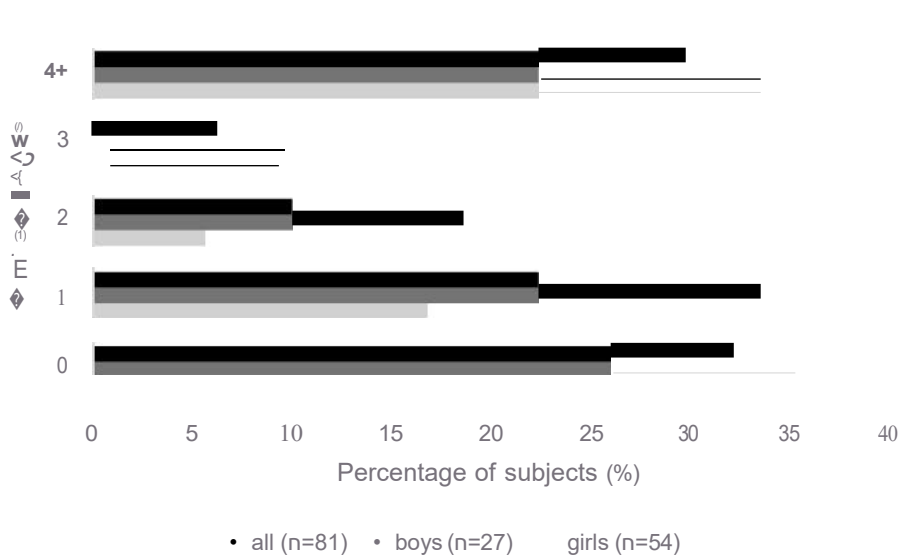


Table 1. Mental health-related and well-being self-report measures in total sample and by gender.

Scale	All participants (n=81)		Girls (n= 54)		Boys (n= 27)		Mann-Whitney U		Effect Size
	Mean	SD	Mean	SD	Mean	SD	Statistic	p	
CRIES-8-Common	14.21	9.05	14.00	9.42	14.63	8.42	691	0.703	
CPSS - V	17.75	9.77	17.52	10.24	18.22	8.92	697	0.748	
KIDSCREEN-27 Physical Well-being	15.36	4.12	14.80	3.76	16.48	4.63	537.00	0.054	
KIDSCREEN-27 Psychol. Well-being	23.58	4.99	22.33	4.73	26.07	4.62	420.00	0.00*	0.42
KIDSCREEN-27 Parent Real. & Home Life	23.12	8.32	22.61	9.13	24.15	6.42	591.00	0.17	
KIDSCREEN-27 Social Support & Peers**	13.83	3.66	13.61	3.61	14.26	3.78	636.00	0.35	
KIDSCREEN-27 School Environment	12.60	2.97	12.72	3.00	12.37	2.96	684.00	0.65	
SCS-SF-c: common	2.83	0.78	2.79	0.83	2.92	0.69	626.00	0.30	
SCS-SF-c: Self-Kindness Items	2.79	1.08	2.56	0.98	3.26	1.13	476.00	0.01*	0.35
SCS-SF-c: Self-Judgment Items	2.57	1.06	2.63	1.10	2.46	1.00	679.00	0.61	
SCS-SF-c: Common Humanity Items	2.77	1.02	2.73	0.96	2.83	1.14	695.00	0.73	
SCS-SF-c: Isolation Items	2.86	1.14	2.76	1.19	3.07	1.02	602.00	0.20	
SCS-SF-c: Mindfulness Items	3.34	0.89	3.36	0.83	3.30	1.02	694.00	0.72	
SCS-SF-c: Over-identification Items	2.67	1.01	2.71	1.05	2.59	0.93	698.00	0.75	
MAAS-A	3.67	0.80	3.72	0.80	3.55	0.81	674.00	0.58	

Children's Revised Impact of Event Scale (CRIES-8) ; Child PTSD Symptom Scale – Version 5 (CPSS-5) ; KIDSCREEN-27, measures physical well-being, psychological well-being, parent relations and home life, peer relationships and social support, and school environment ; Self-Compassion Scale – Short Form (SCS-SF) ; Mindful Attention Awareness Scale for Adolescents (MAAS-A).

Table 2. Cross correlation among scores of self-report measures.

		CRIES-8-	CPSS - 5	KIDSCREE N 27 Physical Well-being	KIDSCRE EN 27 Psychol. Well-being	KIDSCREEN 27 Parent Real. & Home Life	KIDSCREEN 27 Social Support & Peers	KIDSCREEN 27 School Environment	SCS- SF-c	MAAS -A
CRIES-8- Common	Spearman's rho	—								
	df	—								
	p-value	—								
CPSS - V	Spearman's rho	0.696***	—							
	df	79	—							
	p-value	0.001	—							
KIDSCREEN 27 Physical Well-being	Spearman's rho	-0.094	-0.209	—						
	df	79	79	—						
	p-value	0.405	0.061	—						
KIDSCREEN 27 Psychol. Well-being	Spearman's rho	-0.221*	-0.395***	0.683***	—					
	df	79	79	79	—					
	p-value	0.047	0.001	0.001	—					
KIDSCREEN 27 Parent Real. & Home Life	Spearman's rho	-0.15	-0.372***	0.631***	0.749***	—				
	df	79	79	79	79	—				
	p-value	0.182	0.001	0.001	0.001	—				
KIDSCREEN 27 Social	Spearman's rho	-0.114	-0.174	0.578***	0.689***	0.762***	—			
	df	79	79	79	79	79	—			

Support & Peers	p-value	0.31	0.12	0.001	0.001	0.001	—			
KIDSCREEN 27 School Environment	Spearman's rho	-0.301**	-0.209	0.299**	0.442***	0.429***	0.514***	—		
	df	79	79	79	79	79	79	—		
	p-value	0.006	0.061	0.007	0.001	0.001	0.001	—		
SCS-SF-c	Spearman's rho	-0.275*	-0.477***	0.549***	0.794***	0.780***	0.661***	0.323**	—	
	df	79	79	79	79	79	79	79	—	
	p-value	0.013	0.001	0.001	0.001	0.001	0.001	0.003	—	
MAAS-A	Spearman's rho	-0.449***	-0.463***	0.305**	0.382***	0.413***	0.314**	0.354**	0.470***	—
	df	79	79	79	79	79	79	79	79	—
	p-value	0.001	0.001	0.006	0.001	0.001	0.004	0.001	0.001	—

Children's Revised Impact of Event Scale (CRIES-8) ; Child PTSD Symptom Scale – Version 5 (CPSS-5) ; KIDSCREEN-27, measures physical well-being, psychological well-being, parent relations and home life, peer relationships and social support, and school environment ; Self-Compassion Scale – Short Form (SCS-SF) ; Mindful Attention Awareness Scale for Adolescents (MAAS-A).

Highlights

- Children living in Ukraine report high levels of war-related trauma symptoms
- We collected stress and internal resources data in Ukrainian schoolchildren
- Adverse childhood experiences and PTSD symptoms were high.
- Mindfulness and self-compassion training may help prevent child trauma
- A structured psychosocial group school program at school during war was feasible
- Post-program evaluations show high acceptability, engagement, and perceived benefit

Declaration of interests

☒ 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.

☐ The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: