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The war in ukraine: Impact on mental health on a global level

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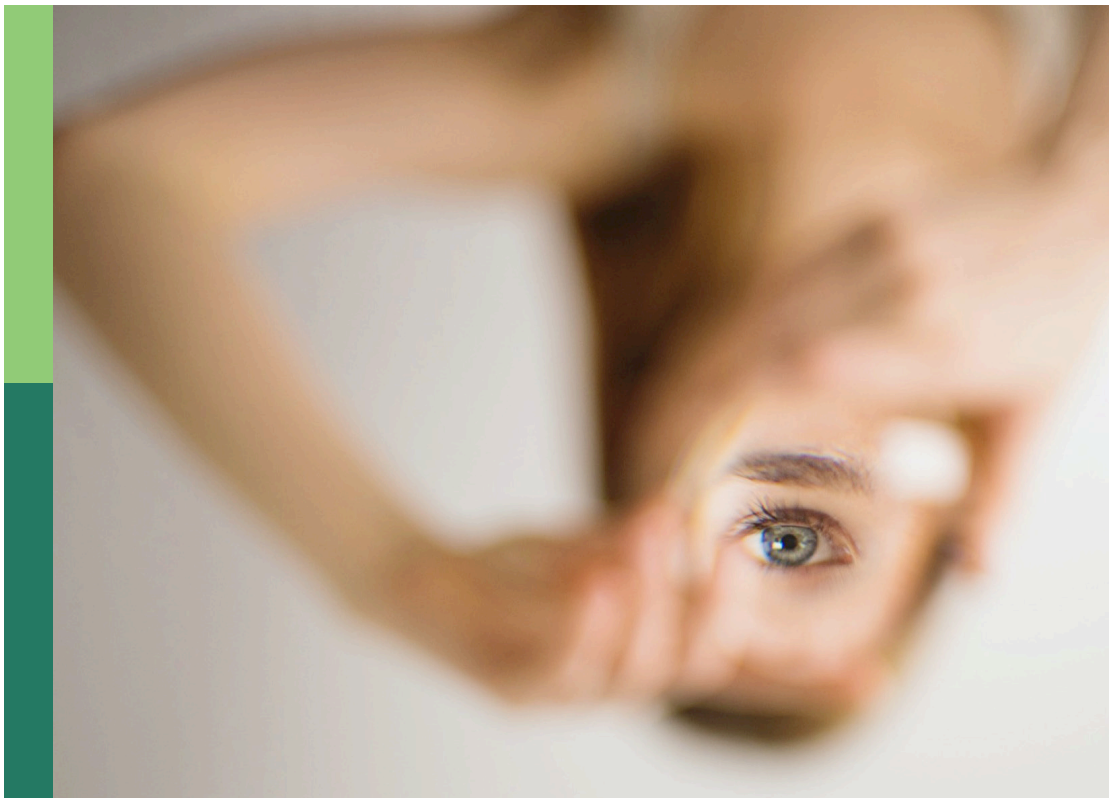

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The war in ukraine: Impact on mental health on a global level

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Editorial: The war in Ukraine: impact on mental health on a global level

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Editorial on the Research Topic
The war in Ukraine: impact on mental health on a global level

Since the start of the war in Ukraine on 24 February 2022, over 8.2 million Ukrainians have become refugees across Europe (Statista Research Department, 2023), in what the WHO (2023) has described as "the largest movement of people in the European Region since the Second World War". One-third of the population has been displaced within Ukraine as internal refugees.

Due to the media coverage, the war rapidly sparked global attention and it affected people all over the world. Needless to say, that this war started while people were still stressed and exhausted from the unprecedented effects of COVID-19 and were struggling to return to a less isolated lifestyle.

As a historical background, Ukraine and Russia share over 1,000 years of history, with Ukraine being integrated into the Soviet Union in 1922 and achieving independence in 1991 (Conant, 2023).

Previous war-related literature has shown that war has multiple negative psychological consequences on people regardless of age, gender, or degree of involvement (Winter et al., 2015). PTSD occurs in one-third to one-half of adult refugees, and separation anxiety in up to 70% of refugee children (Javanbakht et al., 2021). Distress, anxiety, and depression are also common large-scale problems (Xu et al., 2023). The impact of social media and possible disinformation may add to the already existing distress (Rocha et al., 2021). Scant attempts have shown that the current war has already caused many mental health problems (e.g., Osiichuk and Shepotylo, 2020; Singh et al., 2021; Kurapov et al., 2022).

This Research Topic intended to present how this war has affected mental health and wellbeing globally and describes targeted interventions and preventative measures to help those affected. The contributions demonstrated the breadth of interest in this topic. Nine articles, by 46 authors from 12 countries and from two continents were published. The papers focused on the mental health of Ukrainians who remained in their home country, internal and external refugees, different age groups (e.g., children, youth, and adults) and people in different particular circumstances (e.g., pregnant women). Studies referred both to the general population, Ukrainians and civilians in other countries and people, professionals or not, involved in medical aid/psychological/social support.

Both the studies conducted by Anjum et al. and Kurapov et al. explored the mental health impact of the war in Ukrainians. The study by Kurapov et al. revealed a difference

in terms of anxiety and depression between those directly exposed to the war and those indirectly exposed; gender and age were found to play a role. Those who stayed in Ukraine had significantly lower levels of anxiety, depression, stress, and trauma-related symptoms than those who moved abroad. Anjum et al. also examined refugees/asylum seekers and provided resources for those involved in helping refugees. They focused on the mental health and wellbeing of these groups, and provided strategies, action plans, and resources for those, professionals or not (e.g., psychologists, counselors, volunteers, and relief workers), involved in helping refugees.

Maftei et al. investigated the psychological outcomes of Romanian adolescents' involvement in helping Ukrainian refugees. Their main findings suggested that participants involved in helping Ukrainian refugees present higher peri-traumatic dissociative experiences and anxiety symptoms than those who are not actively involved in the helping process.

A number of papers focused on refugees, either examining their mental health or investigating interventions to support them.

Pregnant and postpartum refugee women's mental health was investigated by Rodríguez-Muñoz et al. Protective factors such as personality traits, social support, socio-demographic characteristics, and access to medical/mental health services were assessed. The findings of this study will help policymakers to develop targeted mental health prevention strategies and interventions for these particular categories of refugees.

A school-based brief psychological screening procedure of Ukrainian children and adolescents refugees in Germany was assessed by Catani et al., given that refugee minors are particularly vulnerable to mental health issues. Key elements in preventing and efficient treatment are: early detection of psychological problems, timely referrals and treatment. The results showed a good reaction to the screening process, but at the same time a considerable volume of mental health problems and high levels of distress was found.

The study by Paoletti et al. is about the impact of a neuro-psycho-pedagogical training program on the wellbeing of Ukrainian refugees. The Envisioning the Future (EF) training led to an improvement in coping strategies and increased sense of security, quality of sleep, and more frequent positive thoughts.

Costanza et al. described a meaning-centered therapy for supporting refugees. The positive results are encouraging and led the authors to conclude that this approach could offer a generalized psycho-therapeutic perspective, allowing refugees to find subjective and effective meaning in this critical situation of war.

How the war has impacted the mental health of people in other countries was also presented. Vintilă et al. examined the impact that social media consumption has on the distribution of fake news among Romanians, namely the relationship between information overload and the tendency to spread false information and the relationship between time spent online and the tendency to spread false information. Fear of war and coping strategies highly differ between those who worked with refugees and those who did not.

The mental health of Italian people not directly involved in the war were examined by Mottola et al., who analyzed the moderating roles of both risk (COVID-19) and protective (post-traumatic growth) factors on the relationship between concern about the war and levels of stress and anxiety/depression.

Conclusion

This collection of papers makes a unique contribution to the scarce literature on the war in Ukraine, advancing our understanding of the wide-ranging effects of the war, which have extended far beyond the conflict's epicenter. The focus on the psychological impact on all the diverse groups which were investigated, on screening techniques, on the assessment of protective factors, the analysis of the efficacy of various prevention and intervention measures are the strong point of this collection of papers.

Our hope is that this Research Topic will provide useful guidelines for clinicians and public policies, as it offers preventive and intervention strategies, action plans, training programs and therapeutic alternatives. This could improve globally the refugee management and integration from a psychological point of view, improving the mental health of all those involved: refugees, helpers, general population etc.

This Research Topic presents an encouragement for further studies about this urgent topic through longitudinal studies, qualitative approaches, etc., given that one of the limitations of the present Research Topic is the use of cross-sectional designs.

It is likely that this war, like all previous ones, may have long-term negative mental health repercussions. We are confident that all the papers submitted in this Research Topic highlight the compounded and ripple effects of the Russian-Ukrainian war across the globe.

Author contributions

MV drafted the editorial. AK, MT, CG, and OT revised and edited it. All authors contributed to the article and approved the version submitted.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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The war next-door—A pilot study on Romanian adolescents' psychological reactions to potentially traumatic experiences generated by the Russian invasion of Ukraine

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Introduction: Romania shares the longest UE border with Ukraine, and since the Russian invasion of Ukraine began, many have been involved in helping the refugees. Consequently, children and adolescents might be directly and indirectly exposed to war-related trauma. In the present exploratory research, we investigated Romanian adolescents' potential risk and protective factors related to the psychological outcomes of war exposure. Our cross-sectional study was conducted shortly after February 24th (i.e., the first invasion day).

Methods: The sample included 90 Romanian adolescents aged 11 to 15 (M = 12.90, SD = 1.17), residents in Iași, Romania (i.e., 205,7 km from the Ukrainian border). Participants completed self-reported measures of peritraumatic dissociative experiences, knowledge about the conflict in Ukraine, personal, school, and family implications in volunteering/helping behavior, discussions about the conflict, threat perception (self and perceived parental threat), anxiety, social media engagement, resilience, and moral elevation.

Results: The main findings suggested that participants involved in helping behaviors toward Ukrainian refugees present higher peritraumatic dissociative experiences, anxiety symptoms, and higher moral elevation than boys and participants not involved in these behaviors. Moreover, anxiety symptoms were positively associated with threat perception, peritraumatic dissociation, and social media engagement and negatively related to resilience.

Discussions: Finally, we discuss the implications of our findings concerning their practical utility in managing peritraumatic exposure to war by using interventions designed to increase adolescents' resilience during difficult times.

KEYWORDS

war, Ukraine, adolescents, emotional outcomes, anxiety, resilience

Introduction

February 24th, 2022 marked the beginning of the Russian invasion of Ukraine. Initial findings suggested that this war caused deep physical and psychological trauma to its citizens (Gonçalves Júnior et al., 2022), along with severe damage to the civilian infrastructure, the country's economy, the environment, and finally, to its freedom and democratic values (de Matos Brasil et al., 2022; Gonçalves Júnior et al., 2022; Pereira et al., 2022). Romanians have rapidly mobilized to help Ukrainian refugees since the war started, through various civic actions, in addition to the subsequent governmental measures (Havana, 2022). The large-scale Romanians' mobilization included public protests against the Russian invasion, fundraising actions and calls, the creation of Facebook groups for the coordination of the aid effort, convoys transporting supplies to border crossings, and numerous offers of transportation and shelter (Anghel and Trandafoiu, 2022). According to Jawaid et al. (2022), those who are now participating in humanitarian rescue operations – such as the Romanians - face the risk of secondary trauma due to their constant exposure to others' trauma. Similar previous findings were reported by studies exploring the posttraumatic reactions among rescue personnel (e.g., Hăisan et al., 2022).

The consequences of war trauma have been studied in various studies, highlighting the long-term impact on the victims and their families (e.g., Edward et al., 2020). Previous studies suggested that those who witness violence during the early stages of life (childhood and adolescence included) are at an increased risk of developing posttraumatic stress disorder (PTSD) should they experience another traumatic event while in adulthood (Breslau et al., 1999). The present research focused on the potential emotional consequences and the related risk and resilience factors concerning Romanian adolescents in the context of the Russian invasion of Ukraine. More specifically, we were interested in exploring Romanian adolescents' reactions to the war at their country's border.

Previous research also highlighted a significant link between peritraumatic dissociation (i.e., one of the most critical acute reactions to a traumatic event; Măirean, 2016) and PTSD among people repeatedly exposed to an armed conflict, such as the war in Ukraine (Duagani Masika et al., 2019). Similarly, studies on children and adolescents suggested that war exposure and mortality salience are significantly linked to elevated levels of depression and anxiety (Karam et al., 2014). In addition, in the case of war-related trauma exposure, peritraumatic dissociative experiences are common effects among youth (Peltonen et al., 2017). Depersonalization, a lack of subjective feelings, out-of-body experiences, and altered pain sensations are all symptoms of peritraumatic dissociation, causing a distorted sense of time and place (Schauer and Elbert, 2010; Peltonen et al., 2017).

The link between peritraumatic dissociative experiences and anxiety has been extensively studied in various contexts, from parental stress related to their children's health (e.g., Bronner et al., 2009), natural disasters (Duncan et al., 2013) to the clinicians fighting the COVID-19 pandemic (Azoulay et al., 2020). Given the missing data regarding the war in Ukraine, we aimed to fill this gap by exploring the link between peritraumatic dissociative experiences and anxiety among Romanian teenagers exposed to this conflict.

Threat perception: The role of social media engagement

Collective threats primarily refer to military, economic, and political threats, while individual threats might refer to the perceived potential adverse repercussions for one's physical safety, personal health, or wealth (Rousseau and Garcia-Retamero, 2007). Regardless of age or developmental status, we perceive and react to threatening situations and detect *modern threats*, such as fire weapons (LoBue et al., 2010). When discussing war-related threat perception (i.e., war as a direct traumatic factor), previous studies suggested that adolescents threatened by military conflicts are generally reporting lower levels of well-being (Ronen and Seeman, 2007), decreased life satisfaction (Shamai and Kimhi, 2006), and higher levels of stress (Shamai and Kimhi, 2006). Furthermore, higher levels of perceived parental stress (due to increased threat perception) in military conflict-related contexts seem to be significantly associated with higher stress levels in adolescents (Shamai and Kimhi, 2007). However, gender appears to moderate these relationships, as well as the symptoms of PTSD due to military conflict exposure (with females generally reporting higher means; Armour et al., 2011).

As growing research suggests, social media engagement is essential in modeling threat perception in various contexts. For example, more information related to the threat (e.g., COVID-19) seem to be related to a higher perceived threat (e.g., Yang et al., 2020). The Russian-Ukrainian conflict has been called the world's "First TikTok War" and "The Most Online War of All Time Until the Next One" (Chayka, 2022). Both parties are using social media to share information related to the conflict, and photos of the atrocities committed in the assaulted Ukrainian cities have millions of views on various social media platforms, from Facebook to Twitter and Tik Tok (Chayka, 2022). Investigations have already revealed that TikTok is also feeding war-related disinformation and fake content to new users, even if they do not search for Ukraine-related content (Cadier et al., 2022).

As Jawaid et al. (2022) suggested, billions of people worldwide are despairingly watching this battle theater (through social media and news, we would add) and have expressed emotions of powerlessness regarding the situation. Furthermore, this prolonged exposure to helplessness is a major risk factor for depression and other psychological disturbances, even more at present, after two pandemic years (Plomecka et al., 2021; Jawaid et al., 2022).

War exposure and resilience

Resilience can be described as a process leading to positive adaptation in the face of significant adversity (Kim-Cohen, 2007) and is vital for survival and evolution (Fayyad et al., 2017).

Previous research on children and adolescents exposed to trauma revealed several factors underlying this process. For example, a positive image of self, perceived family and social support, and positive family relations seem to act as protective factors against the development of PTSD and other adverse psychological symptoms (Brajša-Žganec, 2005; Tol et al., 2013).

As Fayyad et al. (2017) suggested, war-exposed teenagers seem more resilient when they use problem-solving skills, participate in leisure activities, have parents who spend time with them and provide academic support. Also, these associations seem to be stronger for males (Fayyad et al., 2017). Furthermore, previous studies suggested that teacher-student communication focused on emotional support during war exposure might contribute to adolescents' resilience (Ophir et al., 2016). Similarly, classroom-based intervention programs delivered by teachers can effectively reduce negative reactions and strengthen student resilience in the face of traumatic events, such as war (e.g., Werner, 2012).

Trauma and moral elevation

Finally, moral elevation describes a positive emotional state triggered by observing an act that one would consider highly virtuous, such as acts of charity, compassion, or perseverance (McGuire and Mignogna, 2021). These witnessed experiences might inspire and uplift the observer (Algoe and Haidt, 2009), being generally followed by the aspirations to imitate the observed virtue and become a better person (Oliver et al., 2012).

Numerous studies have suggested that exposure to elevating stimuli increases prosocial behavior (Van de Vyver and Abrams, 2015), positive affect, social interaction (Erickson et al., 2017), resilience and well-being (Caska and Renshaw, 2013), while lowering anxiety and depression (Erickson and Abelson, 2012). Furthermore, experimental investigations suggested that people with PTSD who were subsequently exposed to moral elevation stimuli might report more positive cognitions about others and the world, feel inspired, and engage in more compassionate goals (McGuire and Mignogna, 2021). Also, individuals exposed to trauma (i.e., mass shootings) who endorsed elevation reported increased compassion toward others and higher posttraumatic growth (Tingey et al., 2017). Thus, elevation is associated with resilience, improved psychological health, and social involvement, even in the case of trauma exposure, by providing the opportunity to directly target the negative effects of PTSD through cognitive, emotional, and behavioral experiences linked to trauma recovery (McGuire et al., 2019).

In the present research, we considered that witnessing the virtuous acts of the Romanians at the border, especially those near the participants in our sample (who were all adolescents from a town very close to the Ukrainian border), reading or discussing them through social media, peer or school groups, might be the moral elevation trigger proposed in McGuire et al. (2019) theoretical framework, further leading to the activation of positive-valence systems and, finally, the strong desire to imitate the witnessed behavior.

The present study

The present study aimed to investigate Romanian adolescents' emotional outcomes concerning the Ukrainian conflict (i.e., peritraumatic dissociative experiences, anxiety symptoms, and threat perception). Given the exploratory nature of our research and the novelty of the war-related context, our approach explored the potential connections between these variables of interest, to shape a comprehensive view of these possible connections. In addition, we explored the potential protective and risk factors in this regard, i.e., adolescents' resilience, personal, family, and school implications in volunteering/helping behavior toward the Ukrainian refugees, social media engagement, information sources, and discussions about the conflict, familiarity/closeness with Ukrainians, and demographic factors. Finally, another aim of this research was to assess whether others' implications in volunteering/helping behavior toward the Ukrainian refugees might lead to moral elevation among adolescents.

Given the previous findings concerning our variables of interest, our exploratory assumptions were the following:

> *H1*: More frequent discussions about the conflict would be associated with higher resilience (through perceived social support; Ophir et al., 2016), especially in the case of male participants (Fayyad et al., 2017);
>
> *H2*: Female teenagers would report higher levels of peritraumatic dissociative experiences, threat perception, and anxiety than male participants (Armour et al., 2011);
>
> *H3*: Higher levels of perceived parental threat perception would be significantly associated with participants' higher perceived threat and anxiety (Shamai and Kimhi, 2007);
>
> *H4*: Personal, family, or school (teachers') implications in volunteering/helping behavior would generate significant differences regarding peritraumatic dissociative experiences and anxiety symptoms (McGuire et al., 2019);
>
> *H5*: Higher knowledge about the military situation in Ukraine would be associated with increased social media engagement, which would further be linked to increased threat perception, peritraumatic dissociative experiences, and anxiety (Jawaid et al., 2022).

Materials and methods

Participants

Our sample included 90 Romanian adolescents aged 11 to 15 ($M = 12.90$, $SD = 1.17$). The sample was relatively balanced regarding gender (male participants = 47.52.2%, and female

participants = 43.47.8%). They were residents in Iași, Romania, a city in the northeastern part of Romania, close to the Ukrainian border (i.e., 205,7 km). They came from two-parent families in the urban area. Their participation was voluntary, following their parents' consent.

Procedures

We started collecting our data 3 weeks following the beginning of the war in Ukraine, following the ethical standards of the Helsinki Declaration. The Ethical Board from the university where the authors are affiliated approved the research. We collected our data in person, using the paper-pencil method, following parental approval. We informed the participants that participation was voluntary, there were no right and wrong answers, their responses would only be used for the present research. And they could withdraw from the study at any time, that the data they would provide would be anonymous, and that all information would remain confidential. The time needed to answer all the items was around 25 min.

The present study

Measures

We used the back-translation procedure (Hambleton and Li, 2005) for some scales (i.e., scales assessing peritraumatic dissociative experiences, anxiety, social media engagement, and resilience). The minimal differences between the original and back-translated versions were reconciled, resulting in the final versions of each instrument.

Peritraumatic dissociative experiences

We used the scale developed by Marmar et al. (1997), i.e., the Peritraumatic Dissociative Experiences Questionnaire (PDEQ), to measure peritraumatic dissociation. The 10-item self-reported questionnaire uses a 5-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. Participants were asked to think about how they felt the past few days and choose the answer that suited them the most. Cronbach's alpha for this scale was.89.

Knowledge about the conflict in Ukraine

We asked participants how well they knew the military conflict situation in Ukraine (i.e., How well do you know the situation in Ukraine?). They answered on a 5-point Likert scale, ranging from 1 = not at all to 5 = very well. Next, we also asked them about the sources of the information related to the situation in Ukraine (open-end question).

Personal and family implications in volunteering/helping behavior

We further asked the participants whether they or their family members were involved in helping behavior toward the Ukrainian refugees since the conflict started – Yes/No answers. Next, we also asked them about the types of helping behavior (e.g., helping with food and hygiene products/offering transportation/offering money/medical assistance).

School implication—volunteering/helping behavior

We asked the participants whether the school they belonged to was implicated in volunteering/helping actions (Yes/No questions).

Discussing the conflict

We asked the participants about the frequency of the talks about the Ukrainian conflict with family, teachers, friends, classmates, and other family members. We used a 5-point Likert scale (from 1 = never to 5 = very often, every day; see Appendix A). Higher scores indicate higher talk frequency.

Threat perception (self)

We used an adapted version of the scale developed by Marciano et al. (2022) to assess the perceived threats related to the war in Ukraine. We used a 5-point Likert scale, ranging from 1 (not at all) to 5 (very much). The four items are detailed in Supplementary Appendix A. Higher scores indicated a higher perceived threat. Cronbach's alpha for this scale was 0.71, and the inter-item correlation mean was.39.

Threat perception (parents)

In the case of the perceived parental threat (i.e., how participants perceived their parents' threat concerning the war in Ukraine), we used the same items for adolescents but adapted them to this parental context. Higher scores indicated a higher perceived parental threat. Cronbach's alpha for this scale was 0.79, and the inter-item correlation mean was.49. Also, we asked adolescents to indicate which parent (or close relative) they report these answers about.

Anxiety

We used the 41-item Screen for Child Anxiety Related Disorders – Child version (SCARED), developed by Birmaher et al.

(1999), the Romanian version (Măirean et al., 2022). The answers were given on a Likert scale ranging from 0 (not true or hardly true) to 2 (very true or often true). We used the overall score in the present study. Cronbach's alpha for the overall scale was 0.87.

Social media engagement

We used an adapted version of the Social Media Engagement Scale for Adolescents (SMEQ-A; Ni et al., 2020), referring to the use of social media to check information regarding the situation in Ukraine. The 11-item scale measures participants' responses on a Likert scale ranging from 1 t (not at all true) to 5 (very true). Higher scores indicated higher social media engagement to check for news related to the war. Cronbach's alpha in the present study was 0.90.

Resilience

We used the Adolescent Psychological Resilience Scale, developed by Bulut et al. (2013). The 29-item scale measures adolescents' resilience using a 4-point Likert scale ranging from 1 (not exactly suitable for me) to 4 (entirely suitable for me). We used the overall score of the scale. Higher scores indicated higher resilience. Cronbach's alpha for the overall scale was 0.81.

Moral elevation

We constructed two items to measure moral elevation in the context of the Ukrainian conflict, using moral scenarios similar to the ones used in previous studies (e.g., Zheng et al., 2019; see the Appendix). The inter-item correlation mean between the two items was 0.40.

We used a demographic scale to assess participants' gender and age. Also, in the first section of the questionnaire, we asked the participants what/which were the primary sources of information regarding the conflict in Ukraine and what volunteering/helping behavior they (or their families) were involved in.

Results

Preliminary steps

Before beginning our data analysis, we screened the data for potential errors. There were no missing responses or modifications discovered in our data. Next, we analyzed the normality of the variables (i.e., Skewness and Kurtosis values ranging from [−2; 2]; George and Mallery, 2010). In our case, the data was normally distributed. Table 1 presents the descriptive statistics for all the primary variables. Table 2 describes the primary sources of information regarding the conflict in Ukraine.

Associations between the main variables

Correlation analyses (see Table 3) suggested that the knowledge about the conflict in Ukraine was positively associated with the discussions about the war ($r = 0.39$, $p < 0.001$), peritraumatic dissociative experiences ($r = 0.25$, $p = 0.01$), and moral elevation ($r = 0.22$, $p = 0.03$). Participants' threat perception was positively associated with the perceived parental threat ($r = 0.56$, $p < 0.001$), peritraumatic dissociative experiences ($r = 0.25$, $p = 0.01$), anxiety ($r = 0.34$, $p = 0.001$), and negatively related to resilience. More frequent discussions about the war were associated with higher peritraumatic dissociative experiences ($r = 0.35$, $p = 0.001$) and social media engagement ($r = 0.44$, $p < 0.001$). Also, participants' resilience was negatively associated with their anxiety ($r = -0.25$, $p = 0.01$). Furthermore, the reported peritraumatic dissociative experiences were significantly related to social media engagement ($r = 0.29$, $p = 0.006$), moral elevation ($r = 0.26$, $p = 0.01$), and anxiety ($r = 0.36$, $p < 0.001$). Finally, age was significantly linked to the discussions about the war ($r = 0.27$, $p = 0.00$) and social media engagement ($r = 0.22$, $p = 0.03$).

Gender differences

We further tested for the potential gender differences concerning the primary variables of our study. Results suggested

TABLE 1 Descriptive statistics for all the primary variables (N=90).

	M	SD	Min	Max	Skewness	Kurtosis
1. Knowledge about the conflict	3.78	0.78	1	5	−0.45	0.79
2. Threat perception (self)	9.25	3.34	4	19	0.48	0.29
3. Threat perception (parents)	10.57	3.97	4	20	0.17	−0.57
4. Discussions about the conflict	14.82	5.51	5	25	0.13	−0.69
5. Resilience	88.15	11.47	53	109	−0.54	0.44
6. Peritraumatic dissociative experiences	27.51	10.36	10	50	0.14	−0.78
7. Social media engagement	32.36	10.87	11	54	−0.21	−0.80
8. Moral elevation	9.22	3.32	3	14	−0.06	−1.11
9. Anxiety	69.88	17.83	46	123	0.92	0.67

TABLE 2 Primary information sources regarding the conflict in Ukraine and volenteering behaviors.

Information source	N	%
Press - TV	40	44.44
Press (TV) and school	2	2.22
Press (TV) and other people	2	2.22
Press (TV) and the Internet	7	7.77
Press (TV) and parents	4	4.44
Youtube	1	1.11
The Internet	5	5.55
Social media (*unspecified)*	1	1.11
Press and Tik Tok	7	7.77
Tik Tok and Youtube	1	1.11
Tik Tok and the Internet	1	1.11
Tik Tok and news (press)	19	
Helping behaviors (volunteering)		
I was not involved in volunteering/helping behaviors (neither was my family).	69	76.7
I/ We offered free housing	1	1.1
I/ We offered food, subsistence products, and hygiene products	7	7.8
I/ We offered free housing, food, and hygiene products	1	1.1
I/ We offered food, hygiene products, and donated money to NGOs	2	2.2
I/ We provided medical assistance	1	1.1
I/ We donated money to NGOs or similar entities in order to help the refugees	1	1.1
I/ We offered food and hygiene products	8	8.9

TABLE 3 Associations between the primary variables (*N*=90).

	1	2	3	4	5	6	7	8	9
1. Knowledge about the conflict	1								
2. Threat perception (self)	0.06	1							
3. Threat perception (parents)	0.11	0.56**	1						
4. Discussions about the conflict	0.39**	0.14	0.03	1					
5. Resilience	−0.14	−0.32*	−0.04	−0.00	1				
6. Peritraumatic Dissociative Experiences	0.25*	0.25*	0.11	0.35**	−0.20	1			
7. Social media engagement	0.34**	−0.03	0.18	0.44**	−0.04	0.29**	1		
8. Moral elevation	0.22*	0.20	0.13	0.19	0.05	0.26*	0.17	1	
9. Anxiety	0.15	0.34**	0.19	0.19	−0.25*	0.36**	0.24*	0.18	1
10. Age	0.01	−0.17	−0.11	0.27*	0.02	0.00	0.22*	−0.04	−0.14

*$p < 0.05$; **$p \leq 0.001$.

that girls in our sample reported significantly higher perceived threat ($M = 10.02$) than boys ($M = 8.55$), $t(88) = -2.12$, $p = 0.03$. A significant difference ($t(88) = -1.96$, $p = 0.05$) was also observed concerning participants' anxiety, with girls ($M = 73.69$) scoring significantly higher than boys ($M = 66.40$). Finally, girls reported higher moral elevation ($M = 10.32$) than boys ($M = 8.21$), $t(88) = -3.16$, $p = 0.002$.

Differences by self or family implication in volunteering/helping behavior

We tested for the potential differences concerning the primary variables of our study depending on participants' implication (or their family's implication) in volunteering/helping behaviors toward the Ukrainian refugees. Results suggested that the only significant differences were related to the peritraumatic dissociative experiences and moral elevation. Participants involved in such actions (or their families' implication; $N = 21$) reported higher peritraumatic dissociative experiences, $t(88) = -2.01$, $p = 0.04$, and higher moral elevation, $t(88) = -2.25$, $p = 0.02$.

Differences by school's implication in volunteering/helping behavior

Next, we tested for the potential differences concerning the primary variables of our study depending on the participants' school's

implication in volunteering/ helping behaviors toward the Ukrainian refugees. Similar to the previous analyses (concerning personal or family implications), the results suggested significant differences related to the peritraumatic dissociative experiences and moral elevation. Participants who studied in schools that were involved in such actions (or their families' implication; $N = 18$) reported higher peritraumatic dissociative experiences, $t(88) = -3.75$, $p < 0.001$, and higher moral elevation, $t(88) = -3.63$, $p < 0.001$. Significant differences ($p = 0.05$) were also found concerning parental threat perception, $t(88) = -1.92$, and anxiety, $t(88) = -1.96$; in both cases, the school's involvement generated higher scores.

Discussion

The present study aimed to investigate Romanian adolescents' psychological outcomes after the Russian – Ukrainian conflict outbreak.

Our results suggested that girls present higher perceived threat, anxiety, and moral elevation than boys, sustaining our assumption. Previous studies documented that female participants are more vulnerable to traumatic reactions (Armour et al., 2011). However, in addition to these previous findings, the current results showed that girls are more vulnerable to negative outcomes (i.e., perceived threat, anxiety) but also present high moral elevation. Therefore, our results suggested that this adverse event generated intense negative reactions, but participants were still able to develop a positive emotional state triggered by witnessing a highly virtuous act of charity, compassion, or perseverance (McGuire and Mignogna, 2021).

Furthermore, our results showed that participants involved in volunteering/helping behaviors toward the Ukrainian refugees reported higher peritraumatic dissociative experiences (sustaining our assumption), and higher moral elevation compared with participants not involved in these types of behaviors. Participants that reported that their schools are implicated in volunteering behaviors reported more threat perception and anxiety than participants that did not report such behaviors. These results also confirmed the limited previous literature about the risk of secondary trauma among persons participating in humanitarian rescue operations (Jawaid et al., 2022) but also extended this literature by documenting the high probability of developing moral elevation, not only negative reactions.

We also assumed that more frequent discussions about the conflict would be associated with higher resilience through perceived social support. Our results suggested that more knowledge about Ukraine's conflict relates to discussions about the war, more peritraumatic dissociative experiences, and more moral elevation. Threat perception was positively related to the perceived parental threat, peritraumatic dissociative experiences, and anxiety. Moreover, as expected, threat perception was negatively related to resilience. Furthermore, the reported peritraumatic dissociative experiences were significantly associated with social media engagement, moral elevation, and anxiety. Some of these relations (i.e., dissociation, anxiety, and resilience) sustain previous literature (e.g., Bronner et al., 2009) and extend it by focusing on a less studied sample, i.e., adolescents. Also, an interesting result is represented by the positive association between social media engagement and anxiety symptoms, partially sustaining our last assumption. Although social media may be a source of information, it could also increase the vulnerability to unwanted emotional states, like anxiety symptoms.

The results of the present study can be targeted in interventions designed to increase adolescents' resilience during difficult times. Paying attention to distressing emotional states in the present could prevent unwanted future long-term consequences for mental health. Addressing and increasing the positive emotions generated by moral elevation could also be a way to improve mental health among persons indirectly exposed to traumatic life events. Moreover, parents could be encouraged to discuss with their children and monitor their media exposure to protect children and adolescents during these times.

When interpreting these results, several limitations should be considered. First, our limited sample size impedes us from generalizing the results to a larger population, but offer us a limited picture of how Romanian teenagers might perceive the current context generated by the Russian – Ukraine conflict and may be expanded in future research. Second, we cannot identify causal relations between variables, given the cross-sectional nature of our study. Thus, prospective longitudinal studies with more time waves would help us to assess how emotional reactions toward the current context evolve in time. Next, our measures were self-reported, increasing the chances of desirability. Finally, we used two constructed items for moral elevation and not a specific scale, an issue that further studies might address using experimental approaches.

In order to further explore the risk and protective factors for adolescents' mental health of exposure to war trauma, future studies should consider how personal factors (e.g., trait resilience, moral elevation) interact with event-specific factors (e.g., discussion about the war, knowledge about the conflict) in predicting states of anxiety and dissociation. Furthermore, it might be possible that, during these rough times, adolescents exposed to acts of goodwill (such as helping the refugees) might strengthen their moral identity, which is crucial considering the high pressure of war-related unpredictability. However, these assumptions need further exploration in subsequent research. Future research could also consider the role of school (i.e., teachers, peers) and family support in shaping adolescents' reactions to difficult situations.

Conclusion

In conclusion, the current results suggested that girls presented a higher perceived threat, anxiety, and moral elevation than boys. Moreover, participants involved in helping behaviors

toward Ukrainian refugees might be more vulnerable to unwanted outcomes, such as higher peritraumatic dissociative experiences, threat perception, and anxiety symptoms. The present study also showed that anxiety is positively related to the discussion about conflict, peritraumatic dissociation, and social media engagement, while the relation with resilience is negative. Future studies are needed to identify moderator variables and to explain additional mechanisms regarding the emotional outcomes of indirect exposure to armed conflicts.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by Faculty of Psychology and Educational Sciences, "Alexandru Ioan Cuza" University (Iasi, Romania). The patients/participants provided their written informed consent to participate in this study.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2022.1051152/full#supplementary-material

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Meaning-centered therapy in Ukraine's war refugees: An attempt to cope with the absurd?

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The current situation in Ukraine and mental health consequences

The Russian invasion of Ukraine started on February 24, 2022, and is still ongoing, causing the largest civilian refugee crisis in Europe since World War II, and the first of its kind since the Yugoslav war in the 1990's. At the time of writing, the United Nations High Commissioner for Refugees (UNHCR) estimated that more than 14 million people had either left the country or been displaced internally [United Nations High Commissioner for Refugees (UNHCR), 2022a,b]. The most vulnerable population segments among refugees are children (more than half of all Ukrainian children have been forced to leave their homes), women, elder persons, and those who are ill and unable to participate in the military response (Dobson, 2022; Hodes, 2022). These individuals are at a very high risk of developing a wide range of mental health disorders, including severe anxiety and depressive symptoms, post-traumatic stress disorder (PTSD), and suicidal ideation/behavior with likely long-term sequelae (Charlson et al., 2019; Javanbakht, 2022; Elvevåg and DeLisi, 2022). Johnson et al. (2022), conducting face-to-face interviews while the war was still confined to the Donbass and Kharkiv regions, found widespread direct exposure to conflict-related traumatic events (65%) among internally displaced people (IDP) leading to an elevated prevalence of PTSD symptoms across all socio-demographic groups. Similar results were found by Roberts et al. (2019) who used a cross-sectional survey on IDP during the early stages of the conflict and found prevalences of PTSD, depression, and anxiety of 32, 22, and 17%, respectively. Cheung et al. (2019) noted that more than half the IDP in Ukraine were at risk of somatic distress (55%). All this must be seen in the context of a public health care system that is under increased pressure due to the ongoing Russian targeting of residential areas and crucial civilian infrastructures. This had already created a considerable treatment gap in 2017 when 74% of individuals who had either screened positive with PTSD, depression, or anxiety or self-reported a problem were unable to receive Mental Health and Psychosocial Support (MHPSS) (Roberts et al., 2019).

Resources available to refugees and health care professionals

The American Psychiatric Association (APA) pointed out that specific attention should be paid to the presence and intensity of signs indicative of psychiatric/psychological suffering in refugee populations, irrespective of whether they pertain to an already established pathology or prodrome [American Psychiatric Association (APA), 2022]. Therefore, comprehensive MHPSS programs for refugees that integrate somatic health concerns, social support, education, and targeted psychiatric/psychological interventions are urgently needed (Murphy et al., 2022). A broad range of resources can be used to address and alleviate the war's impact on mental health from a primarily pragmatic and easy-access point of view, including various types of psychological and psychotherapeutic strategies that can be applied to these populations (Shevlin et al., 2022; Uphoff et al., 2020). In Table 1 we have assembled (according to our team research consensus) a summary of some of the resources available to refugees and healthcare providers, which we found useful and consider pertinent, including guidelines for various emergency care situations and refugees.

War refugees dedicated interventions and their effectiveness

Before any intervention can take place, an initial screening needs to be conducted where the immediate focus should be placed on questions to identify serious mental illness and risk for suicide before proceeding with a more formal mental health assessment once rapport has been established [Hollifield et al., 2013; Centers for Disease Control and Prevention (CDC), 2022]. Women should also be screened for possible sexual abuse to guide interventions (Ekblad et al., 2007).

About conflict settings, in general, there is little guidance on how to deliver mental health interventions that are suitable (Slobodin and de Jong, 2015; Gaffey et al., 2021), especially during the active phase of war (Martsenkovskyi et al., 2022). Acarturk et al. (2022), assessing the effectiveness of a WHO self-help psychological intervention for preventing mental disorders among Syrian refugees in Turkey, found that although the self-help approach was not effective immediately post-intervention participants enrolled in the self-help program were significantly less likely to have any mental disorders and also saw beneficial effects in terms of depression and quality of life at the six-month follow-up compared to those in the enhanced care as usual group. Based on a meta-analysis of interventions designed specifically for traumatized asylum seekers and refugees, Slobodin and de Jong (2015) concluded that cognitive-behavioral therapy (CBT) and narrative exposure therapy (NET) were two evidence-based strategies that proved effective and suitable for refugee populations. They did not find sufficient data to confirm or refute alternative approaches, although there appears to be some preliminary evidence that a combination of eye movement desensitization and reprocessing (EMDR) and stabilization provided positive outcomes. In a similar meta-analysis, Turrini et al. (2019) also found that CBT was effective at reducing PTSD and anxiety while EMDR was effective with depressive symptoms. In contrast, narrative exposure therapy (NET) proved ineffective. They authors further conclude that most studies were conducted in adults or mixed populations of adults and children, which makes the efficacy of these psychosocial interventions in children uncertain.

Concerning refugees, and refugee vulnerable people in particular, data on effective psychotherapeutic interventions are extremely limited (Peltonen and Punamäki, 2010; Pacione et al., 2013). There are some smaller studies that have shown that both Narrative Exposure Therapy (NET) and a version specifically adapted to your (KidNET) have been used successfully to treat refugee youth suffering from symptoms of PTSD (Schaal et al., 2009; Robjant and Fazel, 2010; Ruf et al., 2010) and more detailed studies are underway (Schwartz et al., 2022; Velu et al., 2022).

Clearly, defining a single set of universally valid interventions appropriate in all cultural contexts is an impossibility as interventions are typically only culturally appropriate for those settings in which they have been developed (Elvevåg and DeLisi, 2022; Gaffey et al., 2021). Globally, it seems that there is no a real consensus regarding the efficiency of these interventions, particularly for psychological/psychotherapy strategies.

In this opinion letter, we intend to describe our initial experience in caring for refugees from the war in Ukraine using a meaning-based psychotherapy approach.

Caring for Ukrainian refugees: From demoralization to meaning-centered psychotherapy

At our mental health service we focused on a conceptual model that combines the two psychological constructs of demoralization and meaning in life (MiL), which are closely linked (loss of MiL being a sub-component of demoralization) (Clarke and Kissane, 2002).

Of note, these constructs were conceived specifically for populations who suffered a dramatic fracture that divided their existence into a "before" and "after" in wartime contexts concerning civilian refugees, concentration camp survivors, soldiers, and veterans. Demoralization was first described in American soldiers confronted by an unfamiliar disease (Frank, 1974), and the attribution/preservation of MiL, even if relative and transient, was first studied in concentration camp survivors as a possible key factor for survival while being exposed to unavoidable and incomprehensible atrocities (Frankl, 1959). After these initial conceptualizations, various

TABLE 1 Examples of resources available to refugees and healthcare professionals to provide mental health support (non-exhaustive).

Target audience	
Refugees	Healthcare providers
Help in Ukraine and neighboring countries: UNHCR: https://help.unhcr.org/switzerland/ukraine/help-in-ukraine-and-neighboring-countries/ https://help.unhcr.org/	*"APA statement and resources on the mental health impact of the war in Ukraine," 2022:* https://www.psychiatry.org/news-room/news-releases/apa-statement-and-resources-on-the-mental-health-i
Online and face-to-face psychological support for teenagers and parents: PORUCH: https://poruch.me/	*"Mental health and psychosocial support in the way of a humanitarian response in Ukraine and neighboring countries," 2022:* https://www.pscentre.org/wp-content/uploads/2022/03/resources-ukraine17.pdf
Psychological consultations in Ukrainian via phone: TELL ME: https://tellme.com.ua/	*"Inter-Agency Standing Committee (IASC) guidelines on mental health and psychosocial support in emergency settings," 2007:* https://www.who.int/publications/i/item/iasc-guidelines-for-mental-health-and-psychosocial-support-in-emergency-settings
Online platform to find psychological help and practical information during war time: VIYNA: https://viyna.net/	*"Mental health and psychosocial support for refugees, asylum seekers, and migrants on the move in Europe. A multi-agency guidance note," 2015:* https://www.who.int/publications/i/item/mental-health-and-psychosocial-support-for-refugees-asylum-seekers-andmigrants-on-the-move-in-europe
	Links to mental health and psychological support and mental health assessment materials in several languages: The International Trauma Consortium: https://www.traumameasuresglobal.com/ukraine

models of demoralization and MiL have been proposed for the purpose of being used in clinical practice as risk and resilience factors, respectively, in heterogeneous populations, without or with a psychiatric diagnosis, e.g., in perpective of recovery's encouragement or to refine the assessment of suicidal risk (which represents a common final path for many forms of suffering: psychic, somatic, and psychosomatic; it is particularly in this latter domain where these two constructs have been researched and applied most widely) (Huguelet et al., 2016; Costanza et al., 2020a,b).

As part of our institutional mental health support activities, we organized periodic therapeutic sessions with Ukrainian women, who, along with their children, had arrived in Italy as refugees. The therapeutic sessions were conducted in groups with ten participants on average and accompanied by the same interpreter. A full cycle includes four weekly sessions (we chose this 1-month duration as refugees arriving in Italy typically only stay for one month in their first location before being transferred to another, more long term site). Each session within a cycle was co-led by the same psychiatrist and psychologist.

Although in this population a clear diagnosis of depression according to the Diagnostic and Statistical Manual of Mental Disorders - Fifth Edition (DSM-V) is often difficult to establish, what do emerge prominently are the themes representing the five sub-components of demoralization, namely loss of MiL, hopelessness or disheartenment, helplessness, sense of failure, and dysphoria. Hence, since loss of MiL is a crucial sub-component of demoralization, we conducted these group interventions inspired by meaning-centered therapy.

The theory and rationale underlying the psychotherapeutic model used in our sessions are based on meaning-centered coping strategies. In the late 1990's, Folkman added meaning-centered coping techniques to the original emotion- or problem-based coping strategies of Lazarus by extending the resolution pathway to include the impacts of resources experienced by individuals as they encountered unfavorable outcomes (Folkman, 1997). Meaning-focused coping was defined as "appraisal-based coping in which the person draws on his or her beliefs (e.g., religious, spiritual, or justice-related), values, and existential goals (e.g., purpose in life, guiding principles) to motivate and sustain coping during a difficult time" (Janoff-Bulman, 1992). Severe trauma can represent a kind of ontological assault in which some of the most fundamental assumptions held by the individuals (mentioned above), including that the world is benevolent and meaningful and the self is worthy (Janoff-Bulman, 1992), are shattered, potentially leading to the dissolution of one's personal biography, self-identity, and perceived world. The post-traumatic crisis can imply a challenge to maintaining MiL, with the acquisition of a peculiar depressive disposition (*Befindlichkeit*) well-captured by the dimensions of demoralization (Janoff-Bulman, 1992).

Interventions were transcribed verbatim in medical dossiers to be able to extract the primary themes for subsequent qualitative analysis. These included horrific accounts and images but also particular wording to describe how individuals had attempted to survive those events. Thus far, the MiL-related coping theme that emerged most strongly and most frequently was the "absolute need" to safeguard the physical and mental health of children (even in women who did not have children but who cared for those of others or orphans), according with previous observations (Costanza et al., 2020a,b). Our primary objective – in line with the link between MiL

and demoralization – was a diminution of demoralization by trying to enable refugees to find subjective and effective meaning in situations where the irrational seems to prevail. Indeed, toward the end of a therapeutic session cycle, most participants would express a sense of relief and decreased levels of demoralization. This is in good agreement with a recent review on suicidal patients (community-dwellers or affected by psychiatric illnesses and severe oncological and neurological diseases) in which meaning-centered coping techniques have been postulated as useful strategies to alleviate demoralization (Costanza et al., 2022).

Agreeing with the primary instance of these mothers, we would expect that the beneficial effects this therapeutic approach had on adult refugees could help to mitigate the impact the war has had on their children (Bürgin et al., 2022; Editorial, 2022) who have been exposed to something unexpected, unpredictable, and utterly cruel.

Conclusion and perspectives

In this opinion letter, we have provided a short overview of the available interventions for treating war refugees and their effectiveness. From a psychological/psychotherapeutic point of view, we have chosen a specific model from the extensive arsenal of possible approaches that meet APA and MHPSS recommendations for supporting refugees. We then briefly described our experience with this model, which is based on a conceptua framework that combines the two psychological constructs of demoralization and MiL.

Mental health and psychosocial support interventions are crucial as refugees are at a very high risk of developing a wide range of mental health disorders, including PTSD, severe anxiety/depressive disorders, and suicidal ideation/behavior with likely long-term sequelae. Given the magnitude of the current crisis, this requires international support from policy makers and from the institutions in the various hosting countries. We need to encourage both interpersonal support by facilitating links with compatriots in similar situations to share their concerns and experiences in their own language and host countries need to facilitate their social integration by providing language courses, opening schools to refugee children, and allowing them to take on temporary employment, etc (Kaufman et al., 2022; Schwartz et al., 2022).

Finally, while this opinion letter may be brief and somewhat anecdotal and our psychotherapeutic approach is relatively novel and perhaps even unorthodox, it has show promising results although these should be considered preliminary. We expect it to become more common once we are able to provide a more thorough analysis of the outcomes. We believe that our experience is based on solid foundations and can offer a generalizable therapeutic perspective. With the purpose of searching for and redirecting toward a personal and effective meaning where a meaning is not there and the absurd stands out. This work is necessarily in progress and must be continued.

Author contributions

AC: conception, data collection, and composition of the initial draft. AAm: conception and major contributions to the intermediate revision of the manuscript. AAg and LM: contributions to the intermediate revision of the manuscript. PH, GS, MP, and MA: supervision and final draft revision. All authors read and approved the final manuscript.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Life and mental health in limbo of the Ukraine war: How can helpers assist civilians, asylum seekers and refugees affected by the war?

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The terror spread by the war disrupts lives and severs families, leaving individuals and communities devastated. People are left to fend for themselves on multiple levels, especially psychologically. It is well documented that war adversely affects non-combatant civilians, both physically and psychologically. However, how the war puts civilians' lives in a limbo is an under-researched area. This paper focuses on three aspects: (1) how the mental health and well-being of Ukrainian civilians, asylum seekers, and refugees are affected by the war caused limbo; (2) what factors affect this process of being stuck in the limbo of war; and (3) how psychologists and helpers in the war-ridden and host countries can provide meaningful support. Based on the authors' own practical work with Ukrainian civilians, refugees, and professional helpers during the war, this paper provides an overview of multi-level factors that impact human psyches in a war, and possible ways to help those who are living in the war limbo. In this research and experiential learning-based review, we offer some helpful strategies, action plans, and resources for the helpers including psychologists, counselors, volunteers, and relief workers. We emphasize that the effects of war are neither linear nor equal for all civilians and refugees. Some will recover and return to a routine life while others will experience panic attacks, trauma, depression, and even PTSD, which can also surface much later and can prolong over the years. Hence, we provide experience-based ways of dealing with short-term and prolonged trauma of living with war and post-traumatic stress disorder (PTSD). Mental health professionals and other helpers in Ukraine and in host countries can use these helping strategies and resources to provide effective support for Ukrainians and for war refugees in general.

KEYWORDS

Ukraine war, war refugees and asylum seekers, mental health and psychosocial programs, psychotherapy, helping Ukrainians, life in limbo

Introduction

The war in Ukraine started on 24 February 2022 and has since caused extensive human suffering and destruction. The war in Crimea and Eastern Ukraine goes back to 2014, and had already resulted in many deaths, large groups of internally displaced people, and psychosocial problems. The Russian invasion in 2022 has led to the world's largest war led humanitarian and wmental health crises among Ukrainians. Presently, there has been extensive damage in many Ukrainian regions to people's homes, public buildings, health facilities, and infrastructure. There

are reports about atrocities committed by the Russian army on Ukrainian adults and children alike, including unprovoked killings of civilians, torture, and rape (United Nations High Commissioner for Refugees, 2022a). According to UNHCR's report the number of displaced people around the world exceeded 84 million people in 2021 and 26.6 million of them are refugees and 4.4 million people are asylum-seekers (United Nations High Commissioner for Refugees, 2022a). These numbers were the highest that have been recorded in the last 20 years. The Ukraine war has produced even more alarming numbers and a concerning situation in this respect.

Ukrainian women, children, and elderly have been hiding in basements and underground shelters, with little access to water, food, and daylight. Families have been separated, and family members, friends, and neighbors have been killed or wounded. As of November 29th, 2022, more than 7.8 million people have fled the country (United Nations High Commissioner for Refugees, 2022b) and around 8 million people are internally displaced. Among Ukrainian refugees, many reside in nearby countries, and almost 1.6 million reside in Poland (United Nations High Commissioner for Refugees, 2022b).

The aims of this paper are three-pronged. First, review research regarding the factors that create a life in limbo experience for war victims. The paper highlights how war contributes to the refugees' experience of the state of limbo. Second, we review multi-level factors that affect the mental health and well-being of refugees and asylum seekers in the context of the Ukraine war. Specifically, the risk and protective factors at physical, personal, social, and institutional levels are explored. We provide a model that considers multi-level factors that influence the mental health of refugee claimants and asylum seekers. Third, we provide experience-based suggestions and therapeutic approaches to help those working with war refugees.

War trauma and refugee mental health: Life in limbo

There are many physical and psychological reactions to war trauma that are common human responses to extreme and cumulative stress. Nevertheless, they are highly unpleasant and often a cause of concern to the person experiencing them, and to their family. It may help to know that these reactions are natural responses to having experienced severe threat. It is also the case that the trauma of war and related stressors do not cease once people leave the war situation because stressors of finding a new host country and home can exacerbate some of these concerns.

War trauma and refugee mental health

Civilians from war zones experience multiple traumas and adversities that may contribute to the psychological reactions or health problems that are found in refugee populations. These include adverse and traumatic events during episodes of bombing, highly threatening escape during war or conflict, physical and sexual violence related experiences, human rights violations, and dangerous situations during heavy fighting. In our recent interactions with Ukrainian war-affected persons, we were warned of high levels of psychosocial stress in the place where they found refuge, whether in internally displaced persons' shelters within their country, or as refugees in a foreign country.

People react differently in the face of traumatic situations such as war (Opaas and Hartmann, 2021). They freeze, they cannot move or act, they fight the situation, or they flee. These are instinctive reactions meant for survival, depending on the circumstances. In the aftermath of dangers such as war, people also react differently depending upon their personal characteristics and of the stressful events. Some of the personal factors that may increase the risk of stronger or more prolonged psychological or psychosocial difficulties after trauma of war include being a female, being a child and of older age, poverty and socioeconomic difficulties, previous or current psychological problems, family dysfunction, previous trauma exposure, and genetic predisposition to stress and depression (Opaas, 2022).

Characteristics of the stressful events experienced during the war are related to stronger and more prolonged difficulties such as: intentional acts of violence rather than accidental, life threat, the extent of exposure to combat and injuries in war, witnessing death, loss of a loved one in war, life-threatening situations during bombing, lack of control with uncertainty and unpredictability, and long duration or greater frequency of traumatic events during the war (Opaas, 2022). These adversities accumulate and war-led trauma makes people more vulnerable to developing mental health and psychosocial problems. If one already suffers from a mental health disorder, being exposed to war trauma and adversities might make it even worse (Bhui, 2022). The next threatening experience may just be one too much for the person (Briere and Scott, 2014).

Clinical researchers have indicated a high prevalence of mental health challenges in refugee populations. For instance, Steel et al. (2009) report that 30% of refugee adults experience post-traumatic stress disorder, and more than 30% experience major depression. In addition to the pre- and post-resettlement stressors, which are rightly considered key factors in the refugee population's mental health outcome, other factors that are specific to the process of being a refugee, the asylum-seeking process, and the transition period from trauma to settlement are also major influencers (Khawaja et al., 2008). The asylum and refugee status-seeking process is categorized as "living in a state of limbo and uncertainty" (Posselt et al., 2018) which takes its own toll on mental health. Due to the large-scale refugee population who spend time in life-threatening war situations and waiting, it is imperative to underscore the effect of the limbo state on mental health.

Previous research has shown that historically new waves of refugees from conflict zones have evoked opposition and resistance in host nations and host countries (Arakelyan and Ager, 2020). Stressors related to forced displacement such as separation from family and one's own culture are exacerbated by the new conditions and different culture in the host country. Additionally, the personal and individual experiences add to the complexity of the situation and the overall mental health outcomes of the refugee and asylum seeker population. Thus, refugees and asylum seekers find themselves between the *mortar* and the *pestle* with limited choices while experiencing war and going through asylum processes in transitional or host countries which results in uncertainty and waiting.

The mental state of war victims and refugees is characterized by life with precarious situations, seeking status, and sometimes without any certainty in formal immigration status in the host country. For the purpose of this paper, precarious status refers to the situation when an individual has to decide between living in a risky (war) environment

or dealing with the risk of leaving everything they have ever known behind them. In other cases, precarious conditions can also be the situation where an application for refugee status has been submitted which is still in process, or the application is denied. Thus, the individual is not officially accepted as a refugee in the host country. Both cases create a situation with life in a war limbo.

Living in a state of limbo: Bearing war and becoming refugees

Before we describe the state of limbo, it is important to differentiate between asylum seekers and refugee status of persons who flee conflict and war zones. An asylum seeker is an individual seeking international protection in countries with individualized procedures (Amnesty International, 2022). An asylum seeker is someone whose claim to become a refugee has not yet been decided by the country in which they have submitted their application. Therefore, every refugee is initially an asylum seeker but not every asylum seeker will ultimately be recognized as a refugee and receive legal protection and material assistance. An asylum seeker must demonstrate that his or her fear of persecution or risk to his life in their home country is well-founded.

According to Habitat for Humanity (2022), Refugees are people fleeing armed conflicts or persecution. Their situation is so perilous that they cross national borders to seek safety in other countries and become recognized as refugees with access to assistance from the host states and aid organizations. Being recognized as a refugee is determined through a legal process of Refugee Status Determination (RSD), which is used by the governments or UNHCR to determine whether a person seeking international protection is considered a refugee under national and international law. All refugees are primarily asylum seekers until they are recognized as refugees.

The state of asylum seekers in transition is described as a "state of limbo" (Solberg et al., 2021). At this stage, they lack formal status while awaiting their refugee claim to be finalized. Haas (2017) describes this stage as "citizens-in-waiting and deportees-in-waiting." Asylum seekers describe this stage as life being on hold and waiting for it to resume (Bjertrup et al., 2018). This places a great toll on psychological well-being. In addition to the uncertainty, this stage causes the feeling of regret and guilt due to separation from family, inability to care for family's needs, and children missing out on their childhood and their future (Hoffman, 2011). Furthermore, the lack of control over their circumstances has a great impact on asylum seekers' psychological well-being as life in this state has no direction (Haas, 2017). In other words, the process which is meant to be a temporary state causes trauma that could have a long-term effect on the individual and possibly even after the asylum is granted (also see Uphoff et al., 2020).

In war and other mass conflicts, or individually committed violence, the fear and suffering is caused either directly or indirectly by other human beings' acts and decisions. Usually, the acts are intentional and willed. Examples of intentional acts of violence are armed attacks, torture, rape and other sexual assaults, domestic violence, and child abuse. Research has shown that violence caused intentionally by other human beings brings about the most severe reactions in those affected (Briere and Scott, 2014). The process and the effect of this limbo of being in the war is influenced by multi-pronged factors that are both outcome as well as cause of negative effect on mental health issues for refugees. These factors include physical, personal, social, and institutional factors. The summary of these multilevel factors is presented in Figure 1.

Physical factors

Being in a physically hostile war environment can be stressful and traumatic. Prolonged physical distress caused by sirens and bombing leads to distress and even trauma negatively affecting physical health and well-being. After experiencing severely threatening situations, some immediate physical reactions may be sleeplessness, nightmares, somatization (Balaban et al., 2005) restlessness, jumpiness, physical arousal, high bodily activation, being alarmed and on guard, feeling weak, and physical experience of numbness (World Health Organization, 2015). For children, physical threats lead to sleep disturbances, and bed wetting is also common (Almoshmosh, 2016). Severe or long-lasting stress can also cause physical diseases.

Compared to war-exposed civilians, refugees and internally displaced individuals' experiences may be more traumatic. It is not only because of the situations that led to their displacement and exile but also because of physical stressors experienced in migrant and refugee camps, and during the process of resettlement. They exhibit high rates of stress, depression and PTSD, and other physical and psychiatric problems. This is particularly the case if they were physically tortured (de Jong et al., 2000). In a survey of Bosnians who lived in a refugee camp in Croatia, one-third of those who experienced more than six traumatic events were diagnosed with depression, and one-quarter of them had PTSD. More than 20 % of these refugees met the criteria for both depression and PTSD. Moreover, refugees with both depression and PTSD were five times more likely to report being physically disabled than refugees with no symptoms of psychological disorders (Mollica et al., 1999).

A study conducted by Gerritsen et al. (2006) indicates a higher prevalence rate of poor physical health conditions among Afghan, Iranian, and Somali asylum seekers in the Netherlands compared to refugees. Participants in this study reported suffering from chronic neck and shoulder pain, back pain, and headaches. Along the same lines, Laban et al. (2008) findings suggest positive correlations between the length of the asylum-seeking process and disability as well as chronic physical complaints among Iraqi asylum seekers in the Netherlands. Additionally, the longer the asylum-seeking process was, the lower the quality of life of the participant was.

A study conducted by Fnaskova et al. (2021) with Holocaust survivors showed lifelong changes in the brain. Holocaust survivors experienced significantly higher levels and frequency of depression symptoms, posttraumatic stress symptoms, and lower levels of well-being. Their MRIs showed a lifelong neurobiological effect of extreme stress of the war and trauma of the Holocaust. There was significantly reduced gray matter corresponding to the map of the stressed brain structure. Despite showing good adjustment to post-war life conditions, the reduction of gray matter was significantly expressed. More importantly, these patterns were present in the subgroup of participants who survived the Holocaust during their childhood suggesting that these are lifelong psychological and neurobiological changes. War and survival related extreme stress has an irreversible lifelong impact on the physical composition of gray matter in the brain of war survivors (Fnaskova et al., 2021).

Many civilians after war and asylum seekers express their complaints as physical problems which in many cases cannot

FIGURE 1
Multilevel factor affecting life and wellbeing of war civilians, asylum seekers, and refugees.

be physically diagnosed because these complaints are sometimes associated with heightened stress (Hondius et al., 2000). In such cases, the general practitioner should be consulted and informed by mental health professionals emphasizing how psychological problems are deeply linked with physiological problems (Laban et al., 2007). In many refugee camps and healthcare workers warn about the effects on mental health due to a strict reception policy which should be reported to the policymakers (Reijneveld et al., 2005).

Broken homes disrupted infrastructures and resulting displacement can also lead to loss of sense of place, and disrupted

identity among people who experience war-related disasters. Many war victims, asylum seekers, and refugees will experience cognitive consequences as a result of war-related physical factors. These consequences include problems concentrating, problems remembering things in daily life, problems learning new things, loss of creativity, or loss of interest in activities that were previously joyful. Some will feel rejected, forgotten and let down by God, or may lose faith, temporarily or in the long term. Others will turn to God and feel strengthened.

Reactions to trauma are often presented as emotional, physical, or cognitive. It is often difficult to distinguish between them. We are one organism, and what is happening to us affects our whole body and mind, our feelings, our ability to think, concentrate and learn, our spiritual self, and our relations to others. Emotional reactions include: shock, disbelief, grief, anger, irritability, anxiety, fear, detachment, and insecurity. Women may be more likely to have internalizing symptoms (Hodes, 2022). Already existing mental health and social issues might amplify when exposed to trauma as well (World Health Organization, 2015).

Personal factors

Due to individual differences and unique circumstances during the process of war and displacement, refugee individuals who have not received legal status in a potential host country have a variety of personal risk and protective factors. These factors influence how the transition state is experienced. The individual risk factors are associated with feelings of uncertainty and insecurity due to unresolved legal status. As a result, the asylum seekers live in fear, isolation, and poverty as they spend years of incarceration and are separated from their families (Hoffman, 2011). Additionally, the asylum seekers report feeling of powerlessness and lack of control over their situation as they wait for decisions to be made about their future (Hoffman, 2011; Bjertrup et al., 2018).

Other key factors that contribute to psychological deterioration in asylum seekers and refugees include lack of procedural knowledge, cultural differences, intellectual stimulation, and opportunities for growth (Simich et al., 2010; Bjertrup et al., 2018; Byrow et al., 2020; Pluck et al., 2022). This is due to a lack of access to education and employment. Parents report feeling guilty as their children miss out on their education (Hoffman, 2011) and incompetent as they become unable to fulfill family obligations (Simich et al., 2010). Lack of access to employment has not only economic consequences but also psychological consequences as it is a source of routine, stability, connection, and social network which contributes to feeling safe and secure (Hoffman, 2011). Thus, the process of waiting adds to the psychological deterioration of asylum seekers as it creates a state of uncertainty, insecurity, isolation, and hopelessness. This diminishes the livelihood of individuals as they feel that their lives are on hold.

There are also protective factors that can aid the mental well-being of asylum seekers by increasing resilience when facing uncertainty and hopelessness. For example, asylum seekers try to bank on their faith, spirituality, and religious practices (Kramer and Bala, 2004; Posselt et al., 2018). This provides a sense of normalcy as well as opportunities for social connections. Furthermore, asylum seekers also adopt behavioral strategies such as physical activities, engaging in hobbies, and watching movies as a source of distraction from their current state. Also, they report adopting cognitive strategies such as acceptance, positive thinking, and finding meaning in suffering to normalize and minimize the severity of their situation (Posselt et al., 2018). Thus, while going through the lengthy asylum process, refugee claimants are actively trying to resort to strategies and practices that tap into their mental well-being.

Social factors

There are risk and protective factors at the social level that also influence the mental health of asylum seekers. One of the key social risk factors is the isolation and lack of connection to the host community due to barriers such as stigma, competency in the host country's language, and discrimination (Bernhard et al., 2021; Solberg et al., 2021). Additionally, the host community might be unwelcoming due to the surge in refugee population numbers which could lead to further exclusion and marginalization of the refugee population. Other risk factors that contribute to deteriorated psychological well-being during the asylum-seeking process include the inability to fulfill social roles and social expectations (Simich et al., 2010). Asylum-seeking children also report being bullied, excluded, and marginalized due to their parents' status (Bernhard et al., 2021). Thus, the asylum-seeking process and the uncertainty of living in a state of limbo hinder social integration in the host community.

It is critical to note that the trauma of war can lead to a wide range of emotional and psychological reactions. Among Ukrainian refugees who are living in this limbo, we see higher levels of helplessness, feelings of hopelessness, anxiety, and fear, especially women with children. Additionally, women may also face additional challenges such as sexual violence, exploitation, and discrimination, in the context of the ongoing war in Ukraine.

The ongoing war in Ukraine has had a significant impact on the mental health and well-being of women living in affected areas. Similar to studies done in the previous war contexts, research conducted by Fel et al. (2022) in the war-torn Ukraine has shown that women are at a higher risk of experiencing post-traumatic stress disorder (PTSD), and other mental health issues. This research indicates that while predictors of posttraumatic stress can be multifold including are loss of a loved one and place of residence, the presence of material security lowers PTSD, but only among those who have no children. In the case of Ukrainian women who are living in limbo of the war, higher PTSD is the result of not only the violence and damage caused by war but also of other stressful circumstances associated with the social and financial conditions of living in a war.

These findings of more disproportionate effects on women bearing the brunt of war related anxiety, stress and trauma are also supported by a UNPF report (United Nations Population Fund, 2018). This report found that the women reported higher levels of physical and emotional abuse, as well as negative effects of displacement and loss of social support. Our own recent work with Ukrainian refugees in Norway, Canada, and Poland shows that these negative consequences persist in refugee Ukrainians who have fled their homes and who now live in other countries. Furthermore, discrimination and gender-based violence (GBV) are also reported to exacerbate in the context of war. In research led by Capasso et al. (2022), patterns of GBV were explored in the high conflict-zones of Ukraine. In an in-depth analysis of the internally displaced women who were receiving psychosocial support services, it was found that women living in conflict-affected areas in eastern Ukraine reported high levels of gender-based violence, displaced women were suffering from GBV nearly three times more than non-displaced residents. This study underscores that nearly half

of the displaced women experienced intimate partner violence and psychological abuse. Displaced women living inside Ukraine were more likely to report non-domestic GBV incidents involving sexual violence and were highly vulnerable compared to non-displaced women. It is important to note that sexual violence, exploitation, and discrimination are underreported in conflict-affected areas and that the actual numbers may be higher. It is also important to have specialized services and support for women who have been affected by gender-based violence, and to raise awareness about the issue.

Another study by Roberts et al. (2017), collected evidence on the mental health and psychosocial support needs of internally displaced persons (IDPs) in Ukraine. The purpose of the study was to help inform relevant policies and programs with data on the burden of mental disorders, and to design appropriate trauma-informed mental health and psychosocial support responses for millions of IDPs inside Ukraine. This showed 32% prevalence of PTSD, 22% prevalence of depression, and 17% prevalence of anxiety. All of these psychological stressors were significantly higher among women than in men. These findings recommend that in addition to refugees and asylum seekers, IDPs must be considered as one of the highly vulnerable groups for mental healthcare, and social support provision by the relevant agencies in Ukraine. These additional layers of vulnerabilities can further compound mental health issues for refugee women. Therefore, it is vital to have increased access to mental health services and support for women in host countries, as well as awareness-raising and education about the mental health consequences of the Ukraine war and the displacement of Ukrainians.

In addition to the risk factors, there are some protective factors at the social level that support asylum seekers to cope with the uncertainty that is created by their lack of legal status. Friendships with peers and adults sharing similar ethnic backgrounds and positive host relationships aids in better mental health of refugee seekers (Arakelyan and Ager, 2020). Social connections and engagement in social activities serve as an outlet for distraction and sharing of experiences as well as emotional and practical support (Posselt et al., 2018). Additionally, the re-establishment of social networks also improves refugee children's school experiences (Measham et al., 2014). Thus, the host communities' support and willingness to include refugee individuals improve refugees' psychological outcomes during the period of uncertainty and hopelessness.

Depending on age, personality, and the context, some individuals become more dependent and clinging, some become easily irritated or angry, some become very quiet and keep difficult experiences and feelings to themselves to avoid burdening loved ones, and some isolate themselves to avoid trauma reminders or feelings of social shortcomings. Some cannot bear to be physically intimate after severe experiences, others seek relief through intimacy. Some do a mix of all of these. After traumatic experiences, family members may become closer to one another or may drift apart.

Institutional factors

Many factors at the institutional level contribute to the refugee population's experience of the state of limbo that exacerbates their stress and war trauma. Institutional factors such as policies and procedures around the asylum processes place refugees in extremely difficult situations, for instance, they are put into refugee camps with restricted mobility (Pluck et al., 2022). Asylum seekers are publicly treated with many forced institutional practices, especially perceived as societal threats. Other institutional policies include restricting asylum seekers' access to health care, employment, education, and social services such as subsidized child-care (Bjertrup et al., 2018). These institutional restrictions in the host countries create barriers to affordable and stable housing causing more strain on the physical and mental health of refugees. Furthermore, the process takes years and lacks transparency which further affects mental health (Measham et al., 2014). Hence, the asylum-seeking process creates additional stressors that exacerbate stressors related to integration which impact refugee populations' well-being.

Policies and interventions can utilize institutional protective factors that tap into better mental health of asylum seeker- and refugee populations. These protective factors include fast and transparent asylum processes, practices that promote empowerment, agency, and re-establishment of social networks, and legal assistance (Bjertrup et al., 2018). Refugee populations also benefit from more autonomy in decision-making related to where to move and live, what to buy, and what to eat. Another important institutional-level protective factor is access to employment, training, education, and political advocacy (Solberg et al., 2021). Utilizing protective institutional factors will preserve the lives of asylum seekers and refugees from being stuck in the uncertainty of limbo, and they have the potential to minimize the negative impacts of the war-related trauma and safeguard their well-being.

How to be helpful: Practical guide for working with war civilians and refugees

During our work with Ukrainian civilians in Ukraine and war refugees in various host countries in the EU between May–October 2022, as psychologists, we worked with several trauma therapists, counselors, and helpers in Norway. Based on our reflections about how we could be most helpful, and after discussions with Ukrainian psychologists and psychology students, we were able to prepare a set of effective actions that could count towards providing help and protecting people from war trauma (or at least avert its exacerbation). After prolonged interactions and conversations with several trauma researchers which spanned over 6 months, we concur that there is some practical advice that can be provided to an individual who seems to become anxious and overwhelmed after war trauma. This is also what helpers can do for themselves when they feel overwhelmed. If you are a therapist, a trauma psychologist, a counselor in a war zone or a refugee camp, or another helper who is offering short-time support to people who have suffered war-related traumatic events, here are some of the very actions that can be helpful. In order to provide the needed support, helpers need to differentiate between immediate and long-term support and be open to using different strategies depending upon persons' needs. See Figure 2 for a summary of the short-term and long-term needs of civilians and asylum seekers. It is important to note that these needs may transition from short-term to long-term needs.

Supporting immediate and short-term needs

In most people, the reactions to trauma may be strong in the beginning, and then they slowly diminish. In most cases, low-threshold psychosocial support is sufficient.

FIGURE 2
How to be helpful: Practical guide for working with civilians, asylum seekers and refugees of war zones.

Provide physical support and comfort

Offering a comfortable sitting space, something to drink, and maybe a blanket might seem like small acts but according to our experts, they matter a lot because being in a culturally alien place is a potential cause for insecurity and mistrust (Gartley and Due, 2017). Introduce yourself, your relevance with your role as a helper, and what you know about the person's situation. Tune into the person with the tone of your voice, your attention, facial expression, and bodily posture. Ask fewer questions and focus on listening. Be there physically and mentally and listen to them with full attention, and give empathic feedback (Sripada et al., 2011). Acknowledgments such as "It must have been very scary," "That must be so hard," and "I am so sorry for your loss" could be very helpful. Be reassuring and honest: "It's OK, now you are here," "You are safe now." Do not worry if the person starts to cry or you cry (Blume-Marcovici et al., 2013; Capps et al., 2015). You are there to support and the person is counting on your support.

Sometimes, for persons with repeated traumatic events, i.e., repeated shelling in their cities, and who feel extremely unsafe, physical exercises can help (Dhillon et al., 2019). For instance, we can ask these persons to stand on their feet or sit straight with their feet firmly on the ground. Look at objects around them, or people, anything that looks normal. Breathe deeply and slowly because that can be helpful in reducing stress (Çesko, 2020). Then ask them to move their limbs, shoulders, and body. Follow this by asking them to stretch their arms up and out to the sides, and move around if they have energy. Sometimes it can help to be with someone they know, and they can trust. Physical movement, especially walks, can help people in taking their minds off trauma, and it has been found to be helpful among refugees (Zschucke et al., 2012; Sjögren Forss et al., 2021). Physically writing down recurring memories, thoughts, and dreams that bother them can be helpful for them. Lastly, trying to resume their ordinary activities, if possible, can be helpful.

Provide social support and create a sense of safety

During a crisis or a war, many people experience a total lack of safety. It is therefore important to restore some sort of safety as

much as possible (Hobfoll et al., 2007). Bringing someone away from an acute situation (a war front, a traumatizing scene, etc.) can be helpful (Solomon and Benbenishty, 1986; Solomon et al., 2005). It can also help to provide a voice within the immediate environment that can restrict the narrative within limits. This is to increase the sense of safety and reduce the fear of the threat still being around. However, it is important not to alter the information just to create a sense of safety, as it might backfire. It may be wise to encourage the survivors to stay away from reading and watching the news, particularly children, as media can potentially increase the sense of threat if reported a lot (Hobfoll et al., 2007). If a person seems to feel anxious and depressed when talking about the trauma, do not pressure them to talk about it. In addition to this, it can be helpful to disrupt harmless pictures or items which have through the trauma been linked to danger or stress (Hobfoll et al., 2007). Try to link those pictures/items back with something harmless or good. While doing this, it is important to create a sense of trust in you as an organization in order to further engage in successful interventions (Winer, 2021).

As a helper one can get emotional and it is OK if you get some emotional reactions yourself, like tears in your eyes. It is ok if the person you are helping, sees that what they have suffered makes you feel angry or sad. This honest expression can create a safe space for the refugee. However – stay calm – calmer than the person you want to help. Give relevant information about normal reactions, how to handle stress, and where practical help may be obtained. In the moments you feel helpless, do accept your own feelings of helplessness. Even though you may feel you have nothing to offer, what you do is helpful. After helping others, if possible, do something good for yourself.

Help calming down the person

There are a variety of ways to help people calm down. This is to reduce arousal levels, which at a high level might contribute to the onset of anxiety disorders down the road (Shalev et al., 1998; Bryant et al., 2003; Hobfoll et al., 2007). First and foremost, help people with immediately needed resources. This helps relieve some of the immediate concerns one faces during a crisis (Hobfoll et al., 2007). To help the individual or group to calm themselves down, one can encourage steady breathing. Breathing is a simple technique that is used to get individuals to breathe deeply and avoid hyperventilating or dissociating (Foa and Rothbaum, 1998; World Health Organization, 2016). Reassuring people's stressors and feelings, and letting them know their reactions are normal can also help calming (World Health Organization, 2015). One can also try to involve the individual or group in an uplifting activity, to distract and move the focus. By engaging in an activity where one learns a new skill, one also increases the sense of self-efficacy. This can increase a sense of control and provide opportunities for small wins (Baum et al., 1993).

Make people feel connected

Connecting with others is important to restore normal interaction and well-being (Almoshmosh, 2016; World Health Organization, 2016). This can also help prevent future mental health issues (Hodes and Hussain, 2020). Help the survivors to connect and link with family, friends, and other loved ones. Increase the frequency and quality of their connection, by facilitating to the best of your ability (Hobfoll et al., 2007; World Health Organization, 2016; Hodes and Hussain, 2020). Where family reunion is not possible, other care arrangements should be in the best interest of the person and it should be a priority to provide the option of returning to immediate or extended family (World Health Organization, 2015). If possible, create communal spaces such as playgrounds, church, entertainment places, sports fields, etc.

In addition to connecting with others, mentoring services and community solidarity activities can be helpful areas to engage civilians, asylum seekers, and refugees. Also, creating a welcoming and supportive environment around the survivors in the local communities is important to increase the sense of belonging and making connections (Almoshmosh, 2016; Hodes and Hussain, 2020; Bhui, 2022). This is particularly helpful if one is in a host country or a different community than usual (Almoshmosh, 2016). When designing interventions, be conscious of negative social influences such as in-group/out-group issues, mistrust, and impatience with recovery (Hobfoll et al., 2007). In addition, partnering with community members who are bilingual and/or bicultural speaking Russian or Ukrainian can foster connectedness and more trust while engaging in interventions.

Create a sense of hope and help with resources

By providing hope, one can increase self-efficacy, and well-being (Snyder, 2002). Hopeful people believe that difficult situations can change for the better whereas those with strong efficacy believe they possess specific skills to make changes in those situations. Therefore, in bad situations, individuals with a sense of high self-efficacy and hope show better determination in seeking their goals (Rand, 2018). Research in positive psychology has demonstrated that hope is a protective factor that may positively impact a person's psychosocial and spiritual development, including their perceived level of self-efficacy, effective coping, resilience, and personal growth (Snyder, 2002). It can be helpful to provide services that help them build hope and efficacy for getting their life back on track such as housing, schooling, legal support, employment, help with insurance reimbursement, or other financial obstacles (Hobfoll et al., 2007; World Health Organization, 2015; Hodes and Hussain, 2020). This way, the road to normal life is shorter and progress is seen by the individual/group. Make sure the information is conveyed and understood by everyone, including illiterates, people with disabilities, and children (World Health Organization, 2015).

In addition, the surrounding community like media, universities, churches, schools, managers at workspaces, and other natural community leaders should be able to help with linking resources, setting positive goals, and making meaning to their everyday life. Particularly for children, teachers play an important role in helping identify needs and guiding the children and parents to the appropriate resources (Hodes, 2022). School-based support can also be helpful for children, particularly when learning a new language and adapting to a new culture (Winer, 2021; Hodes, 2022). One can also help the individual identify and define a current problem themselves, and brainstorm together to find a solution. A solution to the entire problem might not occur right away, so it is important to validate and focus on what can be done in order to avoid helplessness (World Health Organization, 2016). Make sure the person also has some sort of autonomy to create a sense of personal control.

Encourage keeping up with daily life

If an individual is lacking motivation or seems to withdraw from daily actions (showering, hanging out with friends, going outside) as a consequence of the trauma, it is important to address this (World Health Organization, 2016). It can be helpful to address this problem with the person and help them understand that "do first and the motivation or positive feelings will follow," rather than waiting to engage in the activity until they feel motivated. An action plan with small steps can be helpful to slowly get the person back on track (World Health Organization, 2016). Following up on the plan to address progress might be helpful as well.

When helping refugees with resources, interventions and potentially diagnosing, it is important to put our own biases aside and try to understand where they are coming from (Winer, 2021). Symptom expression varies between cultures (Bhui, 2022), so it can be helpful to get to know the individual by having a well-structured interview before jumping to interventions. If you are trained in conducting The Cultural Formulation Interview recommended by the DSM-5, it can be very helpful if providing therapy (Lewis-Fernández et al., 2020). The most important aspects are ensuring the patient's specific story and culture is embraced, heard, respected, noted, and built upon (World Health Organization, 2015; Bhui, 2022).

Look for early warning signs: Need for professional and log-term help

In some cases, people coming from war zones may show some warning signals that indicate the need for professional assessment and treatment. The following signs are important to observe extremely hard time sleeping; panic attacks; signs of apathy, longer stays in the bed, resisting food and drink, does not respond to anyone who is trying to make contact; suicidal ideation or attempts; rage towards others and threatening behavior, violent acting out or being a victim to violence in the present; extreme confusion, possibly dementia; pointless and hectic behavior; psychotic symptoms (delusions and hallucinations).

In some cases, people also experience personality changes after adverse events. For instance, post-war people's whole personality changes from how they used to be before the traumatic events: The person may develop chronic changes that can affect their personality including but not limited to developing a chronic feeling of being on guard of imminent and lurking threats; development of mistrust towards other people; social withdrawal; feelings of emptiness and hopelessness; and feelings of being alienated from other people and the world around. Such personality changes may pass within some weeks, or a few months. However, sometimes these changes take hold. Major happy life events and a loving and safe relationship may counteract such distrust, alienation, and feelings of threat. But sometimes, psychotherapy over time is the only remedy.

Look for normal reactions developing into long-term debilitating states

Exposure to severe trauma may not necessarily lead to symptoms of posttraumatic stress disorder (PTSD). When people experience excessive stress, they react in different ways. Other than PTSD, people may develop: Depression, Anxiety, Complex posttraumatic stress disorder (CPTSD), Somatic complaints, Pain problems or physical disorders, Substance abuse, Personality changes, Dissociative disorders, or Psychoses. More often than not, people develop problems in more than one area, such as comorbid PTSD, depression, and somatic problems.

Therapy and other solutions after extreme trauma

Those of us who are in the position to provide psychotherapy over some time to someone affected by traumatic experiences, here are some suggestions from professional trauma therapists about providing support. More specifically, we recommend these actions that can be helpful. First of all, it is important to listen with kindness and be accepting by sharing empathic reactions to what the patient tells you. In a support role, be accepting of crying and other strong reactions, and stay calm and reassuring. The second mechanism of support is to orient reactions and feedback to here-and-now worries. For Instance, attending to the bodily stressors, including physical pain, sleeplessness and nightmares, and any need for medical checks because psychological stressors start expressing as somatic signs. Third, there is a need to make assessments and tend to psychosocial problems, depression, anxiety, or posttraumatic stress symptoms, and the most pressing worries, including for their children and loved ones. While working therapeutically with trauma, choose incidents that invade thoughts or appear in nightmares, and that presently bother the person the most. Especially for mothers with young children, the therapeutic approach can have beneficial effects for the adult refugees, and it could mitigate the impact of war related-trauma on women and their children (Bürgin et al., 2022).

To address trauma, you may use whatever method you are comfortable with or that you feel works with the particular patient: EMDR (eye movement desensitization and reprocessing), TF-CBT (trauma-focused cognitive-behavioral therapy), TST-R (Trauma System Therapy- Refugees), Problem Management Plus intervention (World Health Organization, 2016), Narrative Exposure Therapy (Robjant and Fazel, 2010) or just talk therapeutically with the person about the experience, gradually in more detail. For a start, nightmares may be somewhat easier to talk about and work therapeutically with than what really happened. Most of the time war refugees can get into therapy with multiple incidents. It is alright to start working with one incident at a time. There are also accumulative and sustained effects of working with one traumatic incident that may also be helpful for other incidents that are not dealt with in therapy.

Furthermore, as a therapist, writing down what they tell you, and then reading it out loud to them later in the session or at the next meeting, can be a strong emotional and painful experience, but also a deeply confirming and healing experience. Trauma may also disturb an individual's perception and interpretation of events in daily life. If this seems to be the case, support the person's reality testing and understanding of encounters with other people, events, and aspects of the society. This can be done by discussing current and troublesome experiences and relationships. You can also encourage patients to express their beliefs and impressions of the therapist. Confirm if their perception of the therapist is correct. Keep an open mind about experiences that cannot be easily confirmed or disconfirmed but discuss different alternative understandings. Last but not the least, in order to help, instilling hope can be achieved by mapping the individual's personal strengths and skills.

Therapy in prolonged war led limbo situations

In a prolonged longitudinal study of psychotherapy patients with refugee and trauma backgrounds, Opaas and Hartmann (2021) found that many patients had suffered war-related trauma, persecution, torture, and sexual assault. The amount of war-related trauma that individuals had suffered was significantly related to posttraumatic stress symptoms, especially re-experiencing symptoms. Patients with childhood trauma in addition to war-related trauma, had more symptoms of mental health disorders and lower quality of life at the start of treatment than those without childhood trauma.

Opaas and Hartmann (2021) followed up on the former patients after three to 10 years. At group level, they found that the patients improved significantly over the first years. However, men did not respond to psychotherapy as much as women, and those with a higher number of traumas, those with experiences of torture, and those with childhood experiences of violence within the family had a harder time recovering from their mental health disorders than those with less trauma. This study is special because there are not many studies reported with such long follow-ups.

Trauma-focused personality assessment shows that the patients are characterized by varying levels of, or oscillating between, flooding and constriction, and by varying levels of trauma-related problems with reality testing. Because of traumatic experiences in the past, some may misread events, misinterpret situations, and other people's motives and acts in the present. Opaas (2022) suggested that those whose reality testing and judgment of the present functioned well despite traumatic reminders, can improve more rapidly in therapy. Those who have more problems with perceiving objective reality may need a longer therapy, or therapy focused on discussing present relationships and experiences.

Problem management plus intervention

The problem management plus (PM+) is an intervention to provide individual psychological help for adults impaired by distress and trauma in communities exposed to adversity (World Health Organization, 2016). It can be provided by non-clinical professionals, which makes it convenient and accessible. The intervention consists of six modules to help an individual with problem management. These modules include managing stress, managing problems, getting going, keeping doing, strengthening social support, and staying well. However, it is important to note that we should not provide psychotherapy if the person is not in a stable situation. If the person is soon to be moved to a different facility or area where psychotherapy cannot be followed up, certain therapies like trauma-focused single-session interventions can do more harm than good (World Health Organization, 2015). Therefore, as helpers, we need to make sure when starting psychotherapy that follow-up sessions are possible to maintain.

Resilience and resilience building

Many people handle war trauma and other adverse life events with resilience, and without developing reactions that impede their everyday functioning (Bonanno, 2004). Some are able to handle repeated experiences of adverse life events without getting traumatized or without needing clinical help. Some, however, get strong reactions for a while, but then recuperate fully. Yet others will need short-term or longterm clinical and social support to build resilience after living through a war.

Resilience refers to the individual's ability to use resources within themselves and in the environment to overcome distress. Even if the individual does not fully have these capacities, resilience can be stimulated by active outreach and support from others. Relationships are important in times of extreme stress, and a single friendly person can make a difference. Research by Fernando (2006) found that among war-affected children in Sri Lanka, the children with higher resilience were better able to make sense of and accept their trauma of the war they had survived. Building resilience can transform negative thoughts and emotions into a more positive outlook. These findings were also supported by another study by Shoshani and Slone (2016) where they found adolescents' resilience as a function of character strengths in the face of war and protracted conflict. War-related violent exposure was associated with psychiatric symptoms whereas resilience function of character was negatively associated with psychiatric symptoms. Thereby building resilience can be a potent tool for helpers for increasing coping with civilians in war and refugees.

Everly and Lating (2019), refer to six primary factors that may protect against and aid in recovery from extreme or traumatic stress and in building resilience: (1) actively facing fears and trying to solve problems; (2) regular physical exercise; (3) optimism; (4) following a moral compass; (5) promoting social support, nurturing friendships, and seeking role models; and (6) being open-minded and flexible in the way one thinks about problems, and avoiding rigid and dogmatic thinking. Using some of these components as helpers, we can promote people's resilience by helping trauma-affected individuals to see their own strengths, to see whatever choices there may be in the situation, by supporting their trust in themselves to be able to influence their environment, by supporting their belief that they can tolerate and bear their own thoughts and emotions, by teaching them to talk supportively to themselves, and by encouraging them to seek companionship and support through relationships (Switchboard, 2019). As a helper, you can strengthen traumatized people's sometimes-frail belief in humanity by being kind and to be trusted.

At the present, when the western world is more aware of mental health issues, we need to build proactive programs that can offer models for strengthening resilience. In the current model, we seek to give low-threshold support to people who have suffered war-related traumatic events, so that more people may be helped. This avoids the likelihood of refugees becoming chronically ill or unable to function. However, we believe that these helpful actions should be integrated into existing models in order to strengthen resilience and mental health of the trauma-affected individuals: Provide basic safety, with access to shelter, food, and water; to be met with respect, acceptance, solidarity and human kindness; possibility to be able to stay active and use one's resources, not be left to long-term passivity in reception center (the limbo!); to be given some basic knowledge of normal reactions to trauma, and what one can do to alleviate stress and help oneself and others.

Resilience has to be seen as a two-way process in order to provide better support. In addition to providing a support mechanism for refugees, we also need to prepare our communities in a more sustainable way. Host communities need awareness and training for the communities, to allocate resources to those with an acute need for physical or mental health treatment or other psychosocial measures. For the communities to have a long-term perspective and preparedness

to meet the mental health needs of the refugees would be vital. Such perspective and preparedness can help them in assessing what needs should have precedence. Some needs may arise during ongoing war danger, some needs may arise shortly after individual safety is restored, and some support needs might be more relevant during the process of limbo and waiting. Lastly, for some people, mental health problems and relevant support needs may become more relevant in the aftermath of trauma. Such needs may only arise or be recognized months or even years later.

Take a strength-based approach

When working with refugees, focusing on their strengths rather than their deficits can be helpful to increase resilience (Switchboard, 2019). There are 10 principles for implementing a strength-based approach. The first includes empowering, by focusing on their ability to identify strengths and solve problems. Second, be culturally humble. People's own culture can be a strength in different ways. Third, build supportive relationships between staff and others in the community. In some cases community-based therapy can create a long-term support and empowerment (Gruner et al., 2020). Fourth, identify ways to increase and strengthen the level of support around the person. Fifth, expand community engagement and outreach efforts when recognizing their support network. Sixth, acknowledge the different social-political contexts and histories, and how this contributes to both strengths and challenges when resettling. Seventh, strengthen relationships outside the initial refugee resettlements. Eighth, partner up with other refugee families to learn from each other and together. Ninth, identify goals and create an action plan to meet their goals. Tenth, adapt services to focus on the family's or individual's strengths.

Collecting data to provide the best resources, help and therapies

When working with refugees, it can be helpful to collect data on the occurring mental health problems to get a better overview of diagnoses and develop proper interventions (Ventevogel et al., 2019). The Integrated Refugee Health Information System (iRHIS) is a tool to collect data on mental health, neurological health, and substance abuse developed by the United Nations High Commissioner for Refugees (UNHCR). The iRHS contains nine definitions of mental, neurological, and substance abuse (MNS): epilepsy/seizure, alcohol/substance use disorder; intellectual disability/developmental disorder; psychotic disorder (including mania); delirium/dementia; depression or other emotional disorder; other emotional complaints; medically unexplained somatic complaint; and self-harm/suicide. One can also add other disorders if appropriate. The users of the iRHIS, including healthcare staff in refugee health facilities, can use the MNS categories to make a diagnosis of a person seen during a consultation (Ventevogel et al., 2019).

As a helper make sure you take care of yourself

It is important as a therapist to understand the individual's feelings. However, it is important to not take on the emotions as your own or become too involved in the client's concerns. This can make you feel overwhelmed and stressed by your work (World Health Organization, 2016; Bhui, 2022). Another way to help yourself is to speak with colleagues and your supervisor regularly. Schedule proper breaks between clients to do something that helps you (going for a walk, breathing, chatting with colleagues, etc.) and ask for help (e.g., talk to your supervisor) if you are experiencing distress or you find that your work is bothering you (Bhui, 2022). Supervisors or managers should consistently check in on their staff and provide a community of support, inclusiveness, and transparency (World Health Organization, 2015). If you work alone or in a smaller organization, it can be helpful to stay in touch with other organizations working with the same issues to share your experiences (World Health Organization, 2015).

It is also vital that as helpers we are aware of the politics of being helpers in humanitarian work. Elizabeth Cullen Dunn (2018) has examined how individuals and communities who have been displaced by war experience the humanitarian aid system. Dunn argues that the aid system is often focused on providing basic necessities, such as food and shelter, but that it is less effective in addressing the emotional, social, and cultural needs of people who have been displaced (Dunn, 2018). Therefore, helpers are advised to be more cognizant of the emotional, social, and cultural needs of people who are living in the limbo of the Ukraine war.

The war circumstances make helpers' work more complex because foreign aid is not apolitical. War can propagate conflicting perceptions, relationships, and political interests between the donors, and the local authorities (Dunn, 2012; Dunn, 2014). Therefore, help and foreign aid is highly political and thus closely related to the humanitarian–development–security nexus, where separation between the apolitical and the political can no longer hold. The proliferation of various tools to address crises also contributes to the complexity of emergencies. Bureaucratization of help and aid work is often focused on predetermined programming solutions, rather than solutions stemming from the identified local problems (Dunn, 2012). Because of these complexities, mental health practitioners must continue to separate humanitarian work from political goals and integrate lived experiences of aid recipients to provide the support that would count as effective humanitarian work.

Conclusion

The Ukraine war has created one of the largest exoduses of people from their homeland creating an enormous refugee crisis. While many European countries have accepted many refugees, the psychological limbo of being in and escaping the war continues. We conclude that the experience and effects of this limbo should be treated on multiple levels (physical, psychological, social, and institutional). Exposure to war trauma during childhood has long-term consequences that can persist into adulthood. The exposure to war trauma can interrupt life-long physical, mental, and emotional deficiencies. Research shows that trauma survivors can suffer from depression, anxiety, abandonment issues, unstable relationships, and other mental illnesses. Therefore, it is important for clinicians to understand better characterization of patient profiles and methodologies for successful treatment modalities to help alleviate the symptoms of trauma survivors. Clinicians must work collaboratively with patients regarding treatment preferences to ensure that the outcomes will be more effective and successful. This will help the helpers in providing a more nuanced framework for

supporting refugees. There is a need to utilize experiential learning from the ongoing work with refugees of the Ukraine war to provide a better support infrastructure for being better prepared for working with war refugees in general.

In the end, we would like to acknowledge that there are two caveats to this paper. First, the review work presented in this paper is based on preliminary and initial work published on the effects of the Ukraine war. This literature is still in its infancy; therefore, we have capitalized on reviewing literature from other war contexts. We have applied the existing literature to develop a framework of living in limbo to highlight the multilevel effects of war on civilians who are internally displaced Ukrainians and Ukrainian refugees. The second caveat of this work is that the practical help strategies we have provided in this paper were accumulated for months specifically to help Ukrainian refugees in Norway and Canada. Indeed, many of these helping strategies are adapted from other war contexts and empirical research, which may be a limitation of this work. However, these strategies were recommended by our panel of psychologists and trauma therapists who have been approved for working with Ukrainian refugees. In our feedback sessions with more than one hundred Ukrainians, we have found positive feedback and endorsement of these strategies.

Author contributions

GA was the lead author who conceptualized this project, prepared the manuscript and wrote the first two drafts of the paper. She received feedback from a clinical psychologist on the manuscript and integrated their feedback. She revised the manuscript and finalized the revision. MA was the second author who helped with the first and the second draft of the manuscript, and participated in the revision and finalization of the revision. HH worked on the first and second draft of the manuscript and approved the revision of the manuscript. All authors approved the revision and proofs of the manuscript.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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The impact of the war in Ukraine on the perinatal period: Perinatal mental health for refugee women (pmh-rw) protocol

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Background: The aim of the Perinatal Mental Health for Refugee Women (PMH-RW) Project is to investigate the impact of the war on perinatal mental health: anxiety, post-traumatic stress, depression, and birth trauma symptoms. It will also evaluate the factors that serve as protective elements for the development of these potential diagnoses (such as personality traits, social support, sociodemographic characteristics, and access to medical/mental health services).

Method: An international observational cohort study with baseline data is being assessed in Ukraine (for internal refugees) and several European Countries (for external refugees). The study includes as participants both pregnant women and those who have recently given birth (with babies up to 1 year old). The assessment includes measures on depression (EPDS), anxiety (GAD-7), experiences during birth (City Birth Questionnaire), post-traumatic stress symptoms [Impact of events scale—revised (PTSD-R)], Personality (10-Item Personality Inventory-TIPI), and a questionnaire for socio-demographic data which also such social support.

Conclusion: This study will provide needed information for determining the impact of the Ukrainian Crisis on perinatal mental health by studying potential risk and protective factors. The data collected will be used to inform policymakers with useful information that can be used in the development of plans to protect and promote the mental health of the perinatal refugees impacted by this event. Also, it is our hope that data collected from this study will serve to plant the seeds for further research regarding the impact of the crisis in Ukraine on the offspring and to analyze how these events are affecting further generations.

Clinical Trial Registration: ClinicalTrials.gov, Identifier: NCT05654987.

KEYWORDS

perinatal period, war, anxiety, post-traumatic stress, depression, birth trauma symptoms

Introduction

United Nations Population Fund (UNFPA. Ukraine. Conflict compounds the vulnerabilites of women and girls, 2020), estimated that about 265,000 Ukrainian women were pregnant when the war broke out in February 2022. Eighty thousand women were expected to give birth in the subsequent 3 months in Ukraine or abroad (UNFPA. Ukraine. Conflict compounds the vulnerabilites of women and girls, 2020). The current migratory situation in Ukraine varies. The number of women fleeing the country, returning to Ukraine, and remaining in Ukraine even though the ongoing hostilities is difficult to estimate. However, it can be concluded that many Ukrainian women have experienced and will experience stress and/or possible adverse consequences (or trauma) related to the war and forced migration (Ancheva and Morozova, 2016; Zhabchenko et al., 2018; Romanenko, 2020).

To examine and suggest the most effective practices that may reduce the psychological effects of war refugee status on women, members of the "Research Innovation and Sustainable Pan-European Network in Peripartum Depression Disorder—Riseup-PPD" (Cost Action 18138), funded by the European Cooperation in Science and Technology (COST), established the "Perinatal Mental Health and War Refugees status" group.

Even in non-war conditions, the perinatal period (from pregnancy to the first year after the baby is born) is a vulnerable time *per se*. It is estimated that 1 in 5 women will develop a perinatal mental disorder, which implies that the onset and recurrence of mental health disorders during this period is very high (Andersen et al., 2012; Soto-Balbuena et al., 2018, 2021; Fawcett et al., 2019; Legazpi et al., 2022a,b). Depression, posttraumatic stress disorder (PTSD), and anxiety are shown on the literature as the most recurrent diagnoses (Chrzan-Dętkoś et al., 2022). The consequences of war and migration can be particularly damaging for mothers and babies. Studies have shown that the trauma of war or moving to a new area can have long-term negative effects on mental health, leading to an increased risk of depression and post-traumatic stress disorder (PTSD; Hoppen and Morina, 2019; Hoppen et al., 2021).

Mental health professionals who specialize in working with refugees have identified pregnant women and recent mothers as particularly vulnerable members of the migrant community because they are "in a precarious situation in a foreign country, when the sense of inner homelessness can easily develop, and the capacity for empathy and intuitive parenting can be weakened" (Utari-Witt, Walter, 2021, p. 58). For example, a study carried out in war-affected Syria indicated a high percentage (28.2%) of women is at high risk for postpartum depression (Roumieh et al., 2019).

It is also important to note that experiencing war can increase the chances of having a difficult pregnancy and delivery, as well as negative experiences related to childbirth (Fatusic et al., 2005; Arnetz et al., 2013). Along the same lines, exposure to armed conflict can lead to premature birth and babies with low birth weight (Fatusic et al., 2005; Davis and Sandman, 2010; Keasley et al., 2017). However, the likelihood of premature births, stillbirths, and miscarriages increases when there is direct exposure to conflict. For instance, the negative effects often stem from being exposed to a toxic environment with pollutants, radiation, exhaust fumes, or even water or food that has been contaminated in a war zone (Arnetz et al., 2013). Additionally, emerging research has found that women who fled from the Ukraine war experience significant changes in their status, including a loss of a previous lifestyle, daily contact with friends and relatives, financial losses, changes in perinatal health care associated with limited access to health care, and difficulties in finding a health professional (doctor or midwife) that meets all the medical needs (Chrzan-Dętkoś et al., 2022). Additionally, these women report having limited social support (lack of friends, relatives) and live in isolation as a result of being an immigrant (external refugee); research has found that lack of social support (perceived or actual) is a significant risk factor for developing several mental illnesses during the perinatal period (Marcos-Nájera et al., 2020, 2021).

Another risk factor for mental health is the individual adaptation to a new life in the host country. Heslehurst et al. (2018) reported daily difficulties faced by immigrants and asylum seekers in the host country: not knowing the language and being unfamiliar with the local lifestyle and health practices can create additional burdens and risks for mental and general health. Systematic reviews report that perinatal outcomes such as mental health, maternal mortality, preterm birth and congenital anomalies are predominantly more severe among migrant women (Falah-Hassani et al., 2015: Heslehurst et al., 2018). In a German study, 87.4% of the pre-and postpartum migrants were affected by medical complications or high-risk pregnancies (Kaufmann et al., 2022). However, these studies often do not distinguish among the different statuses of migrant (refugee vs. immigrant) populations, and host countries that may significantly differ regarding the organization of access to support and health care services. For example, an Australian study (Snow et al., 2021) showed elevated psychosocial risk factors among women of refugee background compared with Australia born-women, with the possible under-reporting of mental health problems and family violence. Research on healthcare for pre-, peri- and postpartum refugee women in high-income countries has shown that their access to health care is hampered by immigration experiences, insufficient health literacy, poor language skills, insufficient perception of health needs and use of health services, and legal restrictions (Haith-Cooper and Bradshaw, 2013; Rizkalla et al., 2020). These results raise questions regarding assessing psychosocial risk within different cultural groups and show the importance of the culture-sensitive approach to women with different cultural backgrounds. A systematic review and meta-analysis showed that the prevalence of current PTSD among migrants exposed to armed conflict is 31%, the current major depressive disorder is 25%, and the prevalence of generalized anxiety disorder is 14% (Mesa-Vieira et al., 2022). Migrating to a middle-income or low-income country was associated with an increased prevalence of generalized anxiety disorder—however, evidence is still scarce (Fellmeth et al., 2018).

Pre-migration experiences, migration and experiencing perinatal complications can profoundly impact the lives and mental health of both mother and child and have also been shown to have long-term effects on the mother–child relationship (Graignic-Philippe et al., 2014), day-to-day functioning as well as interpersonal relationships and past traumas (Fellmeth et al., 2018) Protecting and monitoring perinatal mental health in response to the war crisis in Ukraine is crucial (Sacchi, 2022). Focusing on helping this target group of refugees also gives the possibility to reduce the health costs associated with poor perinatal health, such as depression and prevent child development and intergenerational transmission of adversity and trauma. Determining factors that increase the likelihood of developing PPD, anxiety and PTSD in war affected population could help identify women at risk and improve efforts at prevention and early detection.

In non-war and forced migration condition, personality traits such as neuroticism (Puyané et al., 2022), perfectionism (Gelabert et al., 2012), poor social support and a personal history of psychopathology (Robertson et al., 2004) are well established risk factors for perinatal mental health disorders—however, not much is known about their role in war affected population.

Generally, research indicates that many factors associated with perinatal depression are more context-specific and vary according to culture (Fellmeth et al., 2018). It is essential to carry out more thorough investigations to evaluate the psychological distress of women, as well as the potential risks and protective factors in varied contexts (internal vs. external refugee) that have emerged due to war, in order to lay a reliable foundation for comprehending the effect of war on women's mental health during pregnancy.

As Chrzan-Dętkoś et al. (2022) has pointed out, more research should focus on different topics (e.g., risk and protective factors for the perinatal mental health status). The first necessary step should be to develop a comprehensive definition of psychological distress in this target group. Depression and anxiety are the most prevalent psychological diseases in the perinatal period, but PTSD is also an important disorder related to the impact of war and migration (Andersen et al., 2012; Hahn-Holbrook et al., 2017; Shorey et al., 2018; Fawcett et al., 2019). Conducting more research regarding the prevalence and prevention of mental health disorders during the perinatal period is essential. Not only it would benefit the implementation of prevention interventions to support mothers during pregnancy, but also it can have a very positive impact on the offspring (Caparros-Gonzalez et al., 2021). As Tuovinen et al. (2020) state maternal depression and anxiety are strongly related to an increase in inflammatory biomarkers in the mother during pregnancy. These increased numbers of biomarkers are associated with a higher risk of neurodevelopment delay in the offspring. Although fetal programming hypothesis is still under research and results show as inconsistent, there is a valuable truth that can be removed from it: that mothers and babies are interconnected, and that taking care of one implies taking care of the other.

The war in Ukraine brings new challenges to primary care and mental health services all over Europe. We focus on perinatal mental health, and to our knowledge, no previous studies have been conducted to study the impact of war in this field. Although for most European citizens, the date of the war outburst is 24 February 2022, the war in Ukraine, with all the consequences for the civil population, including pregnant and postpartum women, started in 2014. A study conducted in 2016 (Ancheva and Morozova, 2016) demonstrated PTSD frequency in 34.8% of pregnant women displaced internally. Another study showed an increased risk of reactive and personal anxiety, depressive manifestations, autonomic dysfunction, insomnia (Romanenko, 2020), and the risk of premature termination of pregnancy among war-affected population (Cox et al., 1987; Romanenko, 2020). Pregnant women who have been forced to relocate within their own country display a high amount of both reactive and personal anxiety. In pregnant women who were internally displaced, reactive anxiety was 3.3 times higher, and personal anxiety was 2.6 times higher than in pregnant women who were not internally displaced (Zhabchenko et al., 2018). However, to date, there are no publications on changes in the mental health of pregnant women and mothers of newborn children during the full-scale war in Ukraine. The research team intends to launch an international longitudinal study in order to address the lack of knowledge on the consequences of the war and the status of war refugees on maternal mental health during pregnancy. This article outlines the design of the study.

Aim

The purpose of this upcoming research is to explore how the situation of war in Ukraine may be affecting perinatal mental health, such a anxiety, post-traumatic stress, depression, and birth trauma symptoms.

Symptoms

Another objective is to evaluate possible risk and protective factors (including social and economic factors, personality traits, social support, and access to medical/mental health services). We are focusing on the two groups of women who were affected by war during pregnancy: those who left Ukraine and are now refugees in other European countries (known as external refugees) and those who chose to remain in Ukraine (in the same place of residence, considered as internal refugees).

The main goals are the following:

1. To evaluate how perinatal mental health has been affected during the war, by observing the differences in (a) levels of depression, anxiety, post-traumatic stress disorder, and birth trauma; as well as in (b) clinical risk indices (proportion of women above the clinical cut-off point on a validated self-report scale)
2. To research which risk and protective factors have a bearing on perinatal mental health during the war.
3. To examine the links between pregnancy results and mental health of women in war-affected areas.
4. To examine the experiences during the birth and delivery, specifically the potential traumatic events during this period.
5. To assess the perinatal women's needs concerning support and mental health services in Ukraine and in the host countries.

Methods

Study design

This is an international observational cohort study. The rationale is to evaluate women's perinatal mental health experiences throughout pregnancy and the first year after childbirth. The general study will extend from 01 December 2022 to 30 June 2023. This date can be changed depending on the situation of the war.

Setting

The study will be based online on https://blogs.uned.es/mama/ and carried out in European countries which host war refugees and in Ukraine.

Participants

The research sample consists of females in the time around childbirth. To be included in the study at the beginning, participants must meet the following criteria:

Being pregnant or a biological mother of an infant up to 12 months of age.

Being 18 years or older.

Being a war refugee from Ukraine (entrance to EU countries from 24 February 2022) or staying in Ukraine after/during the war.

Consenting to take part in the study.

The exclusion criteria are:

Not being currently pregnant or not being the biological mother of an infant up to 12 months of age.

Younger than 18 years of age.

Not consenting to take part in the study.

Sample size

No restrictions have been put in place for participant registration. Nevertheless, the sample size was determined by taking into account the number of newborns in Ukraine. Consequently, a minimum sample size of 300 individuals will be recruited using a significance level of α-level of 0.05 and variability of 50%. It is essential to bear in mind, though, that the ongoing war situation, which includes the lack of electricity in Ukraine, the possibility of people evacuating cities, and missiles, may make it challenging to reach this sample size.

TABLE 1 Variables and measures used in the study.

Variables	Measures	References
Independent/predictor		
Social support	ACT-PNM	NA
Coping strategies	ACT-PNM	NA
Emotional impact	ACT-PNM	NA
War exposure	ACT-PNM	NA
Pregnancy outcome (birthweight, preterm birth, complications?)	ACT-PNM	NA
Health background/ earlier mental health, substance use,	ACT-PNM	NA
access to the perinatal health services	ACT-PNM	NA
Pregnancy outcome (birthweight, preterm birth, complications?)	ACT-PNM	NA
Dependent/outcomes		
Depression symptoms	EPDS	Cox et al. (1987)
Anxiety symptoms	GAD-7	Spitzer et al. (2006)
PTSD symptoms	IES-R	Weiss and Marmar (1997)
Birth PTSD	City BiTS	Ayers et al. (2018)
Personality	The 10-item personality inventory (TIPI)	Gosling et al. (2003)

NA = Not Applicable.

Variables and measures

An overview of the assessment measures is provided in Table 1.

Assessment, care, and trust—In pregnant and new mothers

This questionnaire includes 40 questions to record sociodemographic data, including current residence, education, number of prior pregnancies, the number of biological children (including miscarriages), the number of individuals residing in their home (adults and children), marital status, whether they are living with a partner, basic information concerning the location after the war outbreak and access to support, changes since the beginning of the war, exposure to armed-conflict or limitations to medical support and social support. This questionnaire was created for this study.

Edinburgh postnatal depression scale

The Edinburgh Postnatal Depression Scale (EPDS; Cox et al., 1987) is the most widely used self-assessment tool designed to recognized women at risk for perinatal depression (Hahn-Holbrook et al., 2017 < NICE. National Institute for Health and Care Excellence, 2017). This scale includes 10 items measuring common symptoms of depression and anxiety. The scores range from 0 to 30. The cut-off values of 10 or higher and 13 or higher are most often used to identify women who are at risk for depression (Levis et al., 2020). However, 13 has been shown to be the most useful cut-off point established in previous studies. The positive predictive value of EPDS is estimated to be 70% (Cox et al., 1987) or even 90% (Levis et al., 2020). A systematic review has also shown that the EPDS has good psychometric properties in low and middle countries (Shrestha et al., 2016). The EPDS has been validated in over 60 languages (Cox et al., 1987; Gibson et al., 2009; Cox, 2019; Vázquez and Míguez, 2019; Levis et al., 2020). The Ukrainian version, "Единбурзька шкала післяпологової депресії (ЕШПД)" was translated by the study authors.

Generalized anxiety disorder screener, GAD-7

The GAD-7 (Spitzer et al., 2006) is a 7-item instrument that assesses each of the seven symptoms of general anxiety disorder. The GAD-7 screens for anxiety symptoms in the general population and according to the criteria established by the Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV and DSM-IV-TR (American Psychiatric Association, 1994; American Psychiatric Association, 2000). The GAD-7 total score ranges from 0 to 21. The scale's total score indicates the level of anxiety symptoms, with higher scores reflecting a greater anxiety severity. Scores of 5, 10, and 15 represent cut-off points for mild, moderate and severe

anxiety, respectively (Spitzer et al., 2006). When screening for an anxiety disorder, a recommended cut-off point for referral for further evaluation is 10 or greater (Spitzer et al., 2006). The Ukrainian version of the GAD-7 is available (Romanchuk, 2011) but no psychometric properties have been studied yet. The GAD-7 has shown good psychometric properties during pregnancy (Soto-Balbuena et al., 2021) and the postpartum period (Simpson et al., 2014; Fairbrother et al., 2019).

Experience during the birth: City BIRTH

The City Birth Questionnaire (Ayers et al., 2018) evaluates PTSD symptoms within the context of childbirth and it contains 29 items related to the DSM-5 diagnostic criteria. It also has two other remaining questions related to the DSM-IV diagnostic criteria. This questionnaire examines participant's subjective feelings of discomfort related to a specific traumatic event. The City Birth Trauma Scale assesses two factors, Birth-related symptoms and General symptoms of re-experiencing the traumatic event (Ayers et al., 2018; Nakić Radoš et al., 2020). The scores range from 0 to 60. As the authors have pointed out, the scores for percentiles are 25th = 3, 50th = 9, 75th = 18. The questionnaire has shown good psychometric properties (Ayers et al., 2018; Nakić Radoš et al., 2020).

The Ukrainian version, "Міська шкала пологової травми" was translated for the purpose of the study by the authors.

Impact of events scale-revised

The Impact of Event Scale-Revised (IES-R; Weiss and Marmar, 1997) is a self-assessment tool measure for capturing the level of symptomatic response to specific traumatic stressors as it was manifested in the previous 7 days.

The scale has been translated into different languages (Baguena et al., 2001; Asukai et al., 2002) and different samples (Beck et al., 2008) with good psychometric properties.

A revised version of the Impact of Event Scale-Revised by Weiss and Marmar (1997), contains 22 items with scores gathered using a 5-point scale (0–4). What differentiates this revised version of the Impact of Event Scale (IES-R) from the previous one is that this latest version has seven additional questions and a scoring range of 0 to 88.

On this test, a score of 24 or more is clinically significant as it is indicative of an individual having full or partial PTSD. A score of 33 or more is the most accurate way to determine the probability of PTSD, and a score of 37 or higher is a strong indication of the disorder (Weiss, 2007).

This questionnaire considers the three dimensions of PTSD according to DSM-IV (Weiss and Marmar, 1997), including the following: Intruding recurring images, dreams, and/or thoughts or perceptual impressions related to the traumatic event; Agitation characterized by increased alertness, anxiety, impatience, and/or difficulty concentrating attention; and Avoidance manifested by efforts to get rid of thoughts, emotions, or conversations related to the traumatic event.

The Ukrainian version "Шкала впливу стресових подій – переглянута (ШВСП-П)" was translated into Ukrainian by the study authors.

Ten-item personality inventory

The Ten-Item Personality Inventory (TIPI; Gosling et al., 2003) measures the "Big Five" traits of personality, including neuroticism, extraversion, conscientiousness, openness to experience, and agreeableness (Costa and McCrae, 1992). Research shows that this two-minute questionnaire is a relatively accurate and reliable tool for measuring personality (Sosnowska et al., 2020). In each of the 5 subscales, scores range from 2 to 14 (two points on each subscale; the scores range for each point is from 1 to 7) TIPI scale scoring ("R" denotes reverse-scored items): Extraversion: 1, 6R; Agreeableness: 2R, 7; Conscientiousness; 3, 8R; Emotional Stability: 4R, 9; Openness to Experiences: 5, 10R (Gosling et al., 2003). This questionnaire has a Ukranian adaptation (Klimanska and Haletska, 2019).

Translations of the measures

Three instruments were translated to Ukrainian in this study. The Edinburgh Postnatal Depression Scale (Cox et al., 1987) was translated by L.K., O. M-L., and A.V. The City Birth Trauma Scale (Ayers et al., 2018) was translated by L.K., O. M-L., A.V., and V.S. The impact of events scale-revised (Weiss and Marmar's, 1997) was translated by L.K., O. M-L., and V.K. The translation was carried out according to Brislin's translation model (Brislin, 1970; 1986), applicable to the preparation of instruments for cross-cultural research. The back translations were carried out, and the detailed procedure of the translations is available from the authors.

Ethical standards

This study has been conducted in accordance with the protocols stated in the Declaration of Helsinki. Ethical authorization was given (21-PSI-2022). All national guidelines for data security are followed in the management of study data. Digitalized informed consent will be received from all members, and the confidentiality of all the data will be protected. The study design has been preregistered in ClinicalTrials.gov (ref: NCT05654987) following gold standards in research on cross-sectional studies, STROBE (Vandenbroucke et al., 2007).

Participation in the study can elicit changes in one's emotional state. To address this specific problem, at the end of the survey, a list of up-to-date services and resources will be provided where the participants can obtain information and help concerning mental health services and lactation advice. In addition, contact details of the lead research team for each nation will be available if participants wish to seek out further information. On request, the researchers will provide the participants with the global results of the study.

Procedure

Potential participants will be sought out through social media platforms (e.g., Twitter, Facebook, Instagram, LinkedIn, ResearchGate, WhatsApp), networks of educational institutions, healthcare facilities, and non-governmental organizations working in the area of perinatal

mental health, policymakers, local organizations, and other stakeholders (utilizing the contacts provided by the Riseup-PPD), in addition to the personal networks of the research team members and through direct contact *via* text or email.

Participants taking part in the study will be asked to click on the website link found on the general project website[1] in order to access the online questionnaire. They will then be presented with an electronic consent form that outlines the purpose and content of the questions, the risks and benefits, and the ethical considerations (such as voluntary participation, data confidentiality, secure storage of data, and the lack of financial compensation). At the bottom of the form, they must confirm that they meet the eligibility criteria and provide consent for the study. If a participant does not meet the criteria, they will be directed to a message thanking them for their interest and informing them of the requirements for participation. Completion of the baseline questionnaire is estimated to take around 35 min.

Data analysis

Descriptive

At the beginning, descriptive statistics will be examined for all the study variables. To analyze the presence or not of the different variables (depression, anxiety or PTSD) concerning the different categorical variables, contingency tables will be made using *Pearson's Chi-Square*. *Cramer's V* will be used to calculate the effect size. Likewise, when the variables are continuous, Student's *t* will be used, and the effect size will be calculated using Cohen's *d*.

Psychometric properties

To examine the psychometric properties of the questionnaires in the Ukrainian language, several analyses will be reported. Exploratory Factor Analyses (EFA) will be conducted using Statistical Package for the Social Sciences (SPSS), Version 26 software. Analysis of the factor dimensional constraints will determine each model's underlying individual item loadings. Based on the results of the EFA, Confirmatory Factor Analysis (CFA) will then be analyzed. ECA will be used to analyze how to fit the models using several indexes such as Satorra-Bentler χ^2, CFI, RMSEA and the confidence interval of RMSEA statistics will be calculated. Lagrange multipliers and Wald test will be sequentially performed to improve the models' fitness, following the study's hypotheses. Standardized coefficients and measurement equations with scores in R2 will be reported. These analyses will be conducted using the AMOS program.

Prediction models. To examine the risk and protective factors associated with perinatal mental health outcomes, a random sample of 70% of participants will be used to derive the machine learning algorithms, including regularized logistic regression, random forest, decision tree, and gradient boosting to predict the risk of perinatal mental health outcomes, and their performance, and the remaining 30% for validation. First, in the derivation sample, all predictors described above will be included in the models to estimate the probability of depression, anxiety, or PTSD. Beginning with a model containing all potential covariates, the variable with the least significant *p* value will be removed and tested using the likelihood-ratio test until all variables left in the model significantly (at alpha = 0.05) contributed to the model.

In regularized logistic regression models, results will be presented as Odds Ratio (OR) with 95% confidence intervals (CIs).

Logistic regression analyses will be conducted using the steps forward procedure to examine which variables will predict the study's dependent variables. This regression analysis makes it possible to predict a dichotomous dependent variable based on predictor, categorical or quantitative variables the R^2 will be used to calculate the proportion of the explained variance of clinical outcomes by the selected predictors. The different aspects of model performance will be studied. The receiver operating characteristics (ROC) curves (and the corresponding area under the ROC curve—AUC) will also be calculated to test for discrimination characteristics.

Dissemination and data sharing plan

Data and resources obtained and utilized for the study will be made available to other qualified researchers in accordance with academic standards. Those who wish to gain access to the datasets and analyses can do so upon making a legitimate request. The results of the study will be published in peer-reviewed publications and presented at scholarly conferences both domestically and abroad.

Discussion

The current war in Ukraine affects every other European country in some ways. Since the war outbreak, the neighboring countries have absorbed and registered a high number of refugees on a daily basis (Chrzan-Dętkoś et al., 2022; Kumar et al., 2022; Lloyd and Sirkeci, 2022). Although the number of war refugees varies in European countries, every country faces similar challenges in providing adequate support and possible medical and psychological interventions for women during this vulnerable period; these challenges include language barriers, provision of culturally sensitive services and trauma-informed care, and equitable access to health and mental health services in each European country. Our study aims to assess the mental health needs of perinatal Ukrainian women in their home country and abroad to ascertain the risk and protective factors and the provision of services needed during the perinatal period. Systematic reviews (Hajak et al., 2021) show that migrants who have experienced armed conflict are particularly vulnerable to mental health issues and require mental health assistance. Women in the perinatal period are a vulnerable group, and their mental health may be further exacerbated during wartime.

The midwifery and obstetric care systems in European countries may be an important reference in identifying and caring for those affected. Screening for depression and anxiety with the EPDS and GAD-7, for example, may reduce the disparities observed in the cited literature. Knowing the rate and severity of mental health symptoms and the needs of female war refugees is the first step to creating a plan for helping and preparing services to supply this group of women.

Based on the literature, interventions supporting war-affected mothers and mother—babies dyads should be comprehensive, sustainable, and devoid of harm. Support should be multi-level,

1 https://www.blog.une.es.mama

resilience-oriented, multidisciplinary, and tailored to the needs of the individual mother (Tol et al., 2011). The Inter-Agency Standing Committee (2007) proposed a multilevel intervention pyramid for mental health and psychosocial support in emergencies, which includes four levels of intervention: (1) provision of basic services and security, (2) community and family support, (3) focused non-specialized support, and (4) specialized support. All layers of the pyramid are essential and should be implemented concurrently according to the needs of the individual. However, to implement it, we need to begin to understand the impact of perinatal mental health of Ukranian perinatal women by investigate prevalence and associated risk and protective factors of mental health problems and the special needs of this target group.

Research shows that many of the European countries do not report specific clinical recommendations or specific guidelines for managing peripartum depression even for women living under normal conditions. Additionally, the existing guidelines vary a lot in the number and themes of clinical recommendations (Motrico et al., 2022). Therefore, the results from this study could assist The European Union and other nations' policymakers to Create a set of rules and strategies to help reduce the occurrence of mental health issues during pregnancy and childbirth in the Ukrainian crisis and other potential armed conflicts and war-forced migration to EU countries. The United Nations High Commissioner for Refugees (2019) report shows that due to persecution, armed conflicts, deficient healthcare and human rights violations, more than 70 million people worldwide were forcibly displaced from their homes by the end of 2018, with approximately one-sixth seeking protection abroad. Women account for nearly 50% of all refugees, internally displaced, and stateless persons (United Nations High Commissioner for Refugees, 2019). In the literature, we can find interesting reflections focusing on the methodology of studies of immigrants' mental health. For example, Crumlish and O'Rourke (2010) observed that very few scientists from refugee communities lead research in their communities or the refugee mental health field in general. Planning and implementation of research aimed at understanding these survivors are mainly in the hands of "mainstream academia." In our study, we could reduce this bias while working in the international team and applying the study protocol together with Ukrainian researchers.

Conclusion

To sum up, this study is an international research project created to evaluate the effect of the Ukrainian War on the mental health of women during pregnancy. It will allow for a thorough overview of how the war has affected mental wellbeing during the perinatal period, which could then be used to support and guide refugees and providers in different situations. Ultimately, this research should provide concrete data for policymakers and healthcare professionals to utilize.

Ethics statement

The studies involving human participants were reviewed and approved by Comité de Ética de la Investigación, UNED (Madrid), the Research Ethics Committee of the Faculty of Psychology of Taras Shevchenko National University of Kyiv. The patients/participants provided their written informed consent to participate in this study.

Author contributions

MR-M contributed to conception and design of the study and wrote the first draft of the manuscript. MC-D contributed to conception and design of the study. AU contributed to conception. HG-L organized the database and wrote the first draft. LK and OM-L contributed to conception and design of the study and provided psychometric adaptation. AV provided psychometric adaptation and prepared collecting data. AM prepared collecting data. NM contributed to design of the study. H-NL reviewed and edit the final version. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Envisioning the future for families running away from war: Challenges and resources of Ukrainian parents in Italy

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Since February 2022, 7.8 million people have left Ukraine. In total, 80% are women and children. The present quali-quantitative study is the first in Italy to (i) describe the adaptation challenges and the resources of refugee parents and, indirectly, of their children and (ii) investigate the impact of neuropsychopedagogical training on their wellbeing. The sample includes $N = 15$ Ukrainian parents (80% mothers, mean age = 34 years) who arrived in Italy in March and April 2022. The parents participated in neuropsychopedagogical training within the program Envisioning the Future (EF): the 10 Keys to Resilience. Before the training, participants completed an *ad hoc* checklist to detect adjustment difficulties. After the training, they responded to a three-item post-training questionnaire on the course and to a semi-structured interview deepening adaptation problems, personal resources, and the neuropsychopedagogical training effects. Participants report that since they departed from Ukraine, they have experienced sleep, mood, and concentration problems, and specific fears, which they also observed in their children. They report self-efficacy, self-esteem, social support, spirituality, and common humanity as their principal resources. As effects of the training, they report an increased sense of security, quality of sleep, and more frequent positive thoughts. The interviews also reveal a 3-fold positive effect of the training (e.g., behavioral, emotional-relational, and cognitive-narrative).

KEYWORDS

refugees, neuropsychopedagogical training, parents, resilience, positive resources, Ukraine, asylum seekers, war

1. Introduction

According to the United Nation Office for the Coordination of Humanitarian Affairs (2022) report—updated on 23 November 2022—since 24 February 2022, more than 7.84 million Ukrainians (a quarter of the country's total population) have fled their homes in the face of the Russian-Ukrainian conflict and sought refuge in Europe. An estimated 40% are children (Save the Children, 2022). According to the scientific literature, refugee children and adolescents may develop post-traumatic stress disorder, anxiety, and depression symptoms, mainly related to the protracted sense of threat to their safety (Bronstein and Montgomery, 2011). As with natural disasters and other widespread socio-political conflicts around the world (Fazel and Stein, 2002; Taylor and Sidhu, 2012; Cai et al., 2022; Tandon et al., 2022), the conflict between Russia and Ukraine can threaten the mental health of refugee children and adolescents.

In families fleeing war, special attention must also be paid to parents. Higher levels of anxiety and psychological distress in parents predict internalizing and externalizing behaviors in their children, as shown in a study of refugees from Eritrea (Betancourt et al., 2012a) and Colombia (Flink et al., 2013). A study by Hosin et al. (2006), on refugees from Iraq, reported that children of refugee parents may also show lower adaptation skills. Conversely, having parents who can offer care, listening, and respect is a predictor of lower levels of anxiety in refugee children from Chechnya (Betancourt et al., 2012b). Similarly, a study of Syrian refugee children revealed that a family climate that encourages emotional expression decreases the risk of developing PTSD symptoms (Khamis, 2019).

It has been underlined by ethnographic research that resilience is a key resource for parents who are going through alone such a severe situation (Lenette et al., 2013). In such a population, resilience should be fostered through specific educational programs (Paoletti et al., 2022a). These activities allow the individuals to be fortified by trauma and adversity, turning challenging events into opportunities to improve oneself in the present and future (Grotberg, 1995), including the experience of parenting. Specifically, in response to humanitarian crises, programs that integrate combined complementary approaches (Kalmanowitz and Ho, 2016) can facilitate improvements in refugees' quality of life (Chung and Hunt, 2016) by reducing negative symptoms of stress, intrusive thoughts, and sleep disturbances (Rees et al., 2014) and helping them to view adversity situations with a more positive mindset (Goehring, 2018).

Refugee parents, who are subjected to high levels of stress, may be compromised in their ability to care for their children. Therefore, their children's health must also be implemented and protected by, in turn, promoting the health of their caregivers (Riber, 2017; Buchmüller et al., 2018; Scharpf et al., 2021) and implementing their overall wellbeing, as individuals and as parents, under adversity.

In consideration of the premises highlighted in the literature, it is a priority to monitor the health and coping strategies of refugee parents in the host country and implement interventions that are helpful to increase the level of wellbeing in these populations.

2. Study aims

The aims of this research note were two-fold: (i) to describe both the adaptation challenges faced by Ukrainian parents, and indirectly by their children, and the main personal resources they have put in place since their arrival in the host country; (ii) to investigate the impact of neuropsychopedagogical training on the wellbeing of Ukrainian parents and the indirect impact on their children.

3. Materials and methods

3.1. Procedure

Neuropsychopedagogical training based on the program "The 10 Keys to Resilience" (Paoletti et al., 2022b) took place in the context of an educational campus targeting Ukrainian families fleeing war, held from 13 June to 22 July 2022, organized by Fondazione Patrizio Paoletti (FPP) with the support of Assisi International School (AIS). The program has been applied in several emergency settings, in Italy, as part of the multi-year Envisioning the Future (EF) project (Di Giuseppe et al., 2022; Di Giuseppe et al., 2023; Maculan et al., 2022; Paoletti et al., 2022b). The goal of EF is to provide individuals and communities with an educational pathway to strengthen the resilience and resources of people engaged in the care of children and adolescents. The educational intervention and related research were conducted with the approval of the Ethics Committee of the University of Padua (Protocol No. 0003662). At the campus, the educational materials used were translated into Ukrainian.

The theoretical-practical framework of the program "The 10 Keys to Resilience" is based on the Sphere Model of Consciousness (Paoletti and Ben-Soussan, 2019; Pintimalli et al., 2020) and Pedagogy for the Third Millennium (Paoletti, 2008), developed by the FPP interdisciplinary team, which includes guidance based on neuropsychopedagogical knowledge and techniques for coping with stress and difficulties. The program has been successfully implemented among educators in the juvenile penal circuit (Paoletti et al., 2022c, 2023), among inmates during the COVID-19 pandemic (Di Giuseppe et al., 2022), and among earthquake survivor communities (Di Giuseppe et al., 2023). The "10 keys to resilience" are as follows: (1) restart from what you can control and make small decisions; (2) identify an attainable, challenging, and measurable goal; (3) several times a day become aware of your posture; (4) be inspired by the others stories; (5) ask yourself what is really important; (6) cultivate gratitude; (7) experience the other as a resource, cultivate and expand your social network; (8) cultivate curiosity; (9) practice a few minutes of silence; (10) embrace and transform: before going to sleep, generate today your own tomorrow (for more information, see Paoletti et al., 2022a,b).

The program provided for Ukrainian parents to benefit from the blended training (e.g., online and in-person activities) "The 10 Keys to Resilience," through 14 meetings (average duration of 2.5 h), with simultaneous translation and training materials provided in both Italian and Ukrainian. The presence of a cultural mediator of Ukrainian nationality was provided both in the design and creation phase of the content and in its fruition, ensuring not only translation but also a relational link between teachers and participants.

The program included two intervention focuses: self-focused, for the development of parental resilience and positive resources, and child-focused, for the strengthening of parenting skills during adversity.

3.2. Participants

In total, 15 Ukrainian parents (mean age = 34 years, 80% mothers), who were subject to informed consent, took part in the study. They arrived in Italy (Umbria), with their children, through the support of Ukrainian relatives, friends, and

acquaintances, already residing in Italy. The latter created on their own initiative communities of welcome and support for their refugee compatriots (providing them with accommodation, food, and the possibility of temporary job placement). The participants, welcomed by these spontaneous communities, reported leaving Ukraine 20% in April and 80% in March 2022. Most of the refugee participants were from the city of Kyiv (46%), with the remainder coming from Ivano-Frankivsk (27%), Kharkiv (7%), Irpin (7%), Smila (7%), and Dnipro (6%). A total of 53% were mothers who reported being in Italy without the child's other parent.

3.3. Measures

The measures were created *ad hoc* following the principles of psychology research methods (Kazdin, 2013). Pre-training, participants completed an *ad hoc* self-administered checklist on their own and their children's biopsychosocial health status. The checklist allows them to report dichotomously (e.g., by answering yes or no to each item) on the occurrence, since leaving Ukraine, of problems related to adaptation (e.g., lack of attention, negative mood, specific fears, irritability, physical symptoms, appetite-related difficulties, sleep-related difficulties, and, in children, also difficulties in relating to peers and playing).

Post-training, an *ad hoc* questionnaire was also administered: it consisted of three items related to the program experience on "The 10 Keys to Resilience," which investigated dichotomously (with yes or no answer options) improvements with respect to the participant's sleep quality, increase in positive thoughts, and increased perception of safety.

In addition, post-training, participants also responded to individual semi-structured interviews, conducted by a psychologist, about issues of adaptation, major difficulties since arrival in Italy, and the impact of the training. The interviews were conducted in the presence of a cultural mediator of Ukrainian nationality, in line with the literature that posits the mediator as an active participant in the interview and not just a translator (Raga et al., 2020), capable of creating a link between the interviewer and the interviewee.

3.4. Data analysis

To investigate the defined aims, two studies were implemented. The first one aimed at a quali-quantitative analysis of the main personal resources and adjustment challenges of Ukrainian parents, and—indirectly—the difficulties of their children. For this purpose, descriptive statistics were performed on the data from the *ad hoc* self-administered checklist and bottom-up text analysis on the verbatim transcripts of the semi-structured interviews, with subsequent categorization.

The second study aimed at a quali-quantitative assessment of the impact of "The 10 Keys to Resilience" training on Ukrainian parents. For this purpose, descriptive statistics were performed on the responses to *ad hoc* post-training dichotomous items. To understand the effect of the training, according to the two lines of intervention (self-focused and child-focused), the transcripts of the interviews were analyzed in a bottom-up approach, extracting the main categories.

For the categories that emerged in the two studies, the analysis of the interviews involved the statistical calculation of the inter-rater agreement between two different evaluators using Cohen's K. The evaluators were to score the relevance of the extracts related to each category on a scale from 0 = not relevant to 3 = totally relevant.

4. Results

4.1. Study 1: Adjustment problems and personal resources

Most parents report that in recent months, they are experiencing sleep-related difficulties (80%), negative mood (70%), lack of attention and concentration difficulties (60%), specific fears (60%), and irritability (63%) (Table 1). Similarly, they report that their children are experiencing mostly problems related to attention (60%), mood (60%), irritability (60%), and specific fears (40%) (Table 1).

Parents' main adjustment problems, as revealed by the analysis of the semi-structured interviews (Table 2), appeared to be related to the language and bureaucratic barrier (40%), prolonged permanence in Italy (13%), job loss (13%), and family issues (6%). Difficulties in caring for children (20%) and, for the latter, drastic changes in their routines (6%) also emerged (Table 2). At the same time, the main resources deployed by parents appear to be self-efficacy (26%), perceived social support (66%), spirituality (6%), common humanity (13%), and self-esteem (13%). The inter-rater agreement appears to be high (Cohen's K = 0.88).

4.2. Study 2: The impact of the "10 Keys to Resilience" program

According to the statistical-descriptive results, on the post-training questionnaire, Ukrainian parents report that they perceived improved sleep (80%), increased confidence (86%), and more frequent positive thoughts (86%) after the training on the "10 Keys to Resilience." The impact of the training was further explored by text analysis of the interview excerpts (Table 3).

Ukrainian parents reported that the "The 10 Keys to Resilience" training provided them with theoretical-practical instruments, to be used for their own (self-focused line of intervention) and children's (child-focused line of intervention) wellbeing, concerning three specific areas (Figure 1): (i) behavioral (keys 1 and 3); (ii) emotional-relational (keys 4, 5, 6, and 7); (iii) cognitive-narrative (keys 2, 8, 9, and 10). The inter-rater agreement is found to be high (Cohen's K = 0.88).

TABLE 1 Post-traumatic symptoms in Ukrainian parents and children.

	Sleep	Appetite	Relationship with peers	Physical symptoms	Irritability	Specific fears	Negative mood	Attention
Parents	80%	40%	0%	20%	63%	60%	70%	65%
Children	30%	30%	30%	0%	60%	40%	60%	60%

TABLE 2 Excerpts of the main areas related to adjustment problems and personal resources of Ukrainian parents ($N = 15$).

Main area: Adjustment problems	Excerpts
Language and bureaucratic barriers	L200193: the difficulties are first of all of the fact that it's another country, it's other rules, other language, other customs, it's all different ... the difficulties initially were with the documents and with the house, life, where to live, space, moving, all the organizational issues
Prolonged permanence in Italy	L200193: First of all the understanding that I am here and I have a shock, a shock because I thought it would be for two months, that I would wait here for two months and afterwards I would go back to my home. Now I understand, I realize that I will stay here
Job loss	I199232: My whole life, all my work is there, I'm an artist, a freelancer all my life, since I was a little girl I've always been earning as an artist, and so all the connections, my network is there ... It would be nice to solve the work issue now to be able to engage in ordinary normal work as well
Family issues	M1999229: the difficulties I can say are right now within the family, for example with my husband because I would like to come back but he does not agree, and this is also my inner conflict
Difficulties in caring for children	M1999229: With three children certainly it is an economic issue, you have to earn money to get by because they have needs and wants
Drastic changes in children routines	N198329: The second difficulty, or challenge, if we can call it that, is our regime that has been disrupted, destroyed completely, everything that I built in the first four years in Ukraine, cartons, sweets, telephone, all those rules that we built to give us a regime, today are gone. in the beginning we were all under stress and it was difficult because we were all in the news trying to figure out what was going on, or we were documenting what we have to do here, how things work here, what are the procedures, and so I was busy with that, now that a little bit this part is clearer I'm getting her back to her routine, her rules, her regimes. Plus I was telling her that we are going on vacation, eating gelato in Italy, so also for her it was a time without rules, without obligations, without a routine, now instead we are resuming classes with the teacher we had in Ukraine but online currently, and then there are other things that are coming back into her life
Main area: Personal resources	**Excerpts**
Self-efficacy	E198310: self-efficacy, being open, don't close yourself off. Finding, doing what you love, what you enjoy in order to access your resourceful state, to then be able to do what you need to do
Self-esteem	E198310: since we moved, already after a month or so since we moved out of the danger territory, so out of the life danger, I realized that I had an inner prohibition to happiness, and so I was not allowing myself joy, happiness, then then I realized for example the things that are very important for women: makeup, looking good, even that I felt guilty about, and the first time for example I wore makeup when we went to do the documents, the pictures for the documents, I realized how important it is to like yourself in the mirror, to have a look that you like about yourself, it supports you, it sustains you, it gives you that strength to face things. Then I realized that my being sad in the moment, it will not be able to support, help people, children who are dying, these are terrible things that happen, but not with my sadness I will be able to be supportive of these situations
Social support	L200193: they welcomed us very well, certainly, I can say that they welcomed us not as people belonging to a nationality because I really feel that this is the place where there is no distinction between country of belonging, they welcomed us as people, I say what kind of person are you ... It was a very good moment when people here started to help us. When you receive, when you see people helping, you feel like going on and continuing your journey, and giving back to people
Spirituality	I199232: Faith and trust that everything that happens to me is for my best, faith is in the Almighty, in God
Common humanity	N194998: I think it's essential that people remain human, because to think that in the 21st century not only so many friends but also so many children die is unbearable, unacceptable today, so I think you have to have faith ... hope is certainly love for humanity

5. Discussion

5.1. Ukrainian refugee parents in Italy: Principal features

5.1.1. Adaptation challenges

Study 1 results show that Ukrainian refugee parents experience mood-related problems and irritability. This finding is in line with recent studies investigating both migration flows caused by wars and the COVID-19 pandemic reactions, showing the prevalence of emotional dysregulation, anxiety, and post-traumatic stress in individuals, across different nations and socio-political conditions (Henkelmann et al., 2020; Turliuc and Candel, 2022). In addition, they report sleep problems related to both migration stress and broader post-traumatic symptomatology (Richter et al., 2020). These elements may also cause the lack of concentration that the

TABLE 3 Excerpts from the interviews with Ukrainian parents participating in the intervention ($N = 15$).

The impact of the "10 keys to resilience": Main areas	Self-focused excerpts	Child-focused excerpts
Behavioral area (Keys 1, 3)	M198669: the first one that helped me was key 1, the one that says "don't try to understand or give answers to everything around you, but try to break it down into small steps and do what you can do now."	E198310: The unraveling, the biggest discovery for me was the example of not telling the children what to do, but showing them because they imitate us, they copy us ... So before I was very much in the position of "do this, do this," instead now it's "let's do together, let's thank together," or I realized that it's important, when I do something, to involve them in what I do, and so we do a planning of the day together ... I realized that maybe I lacked time in the last life, instead now I have more time to participate in their things, to participate in their life
	N198329: Do what depends on you right now. That's the key that I tried to implement when we arrived, that's what I asked myself and said when we arrived, I realized that I have to take care of my family, I have to take care of, and so I have to get the resources, the food, and so that's what I need to have the strength to deal with what I have to do	Y198380: In the relationship with the daughters, I realize that it is useful to teach them, to instruct them to things, and what I have seen is that it is very interesting and useful to make them see, to teach them through their own example, it allows them to copy my useful behaviors intentionally
Emotional-relational area (Keys 4, 5,6,7)	E198310: now in the situation I found myself in, the key that is inhabiting me is that of "be thankful". I understood it in a new way, it's not saying thank you out of kindness, out of courtesy, as we used to do, it's experiencing that emotion of gratitude, and when you pass it through you the things that come to you are greater	I199232: (with my daughter) we have always had a good relationship because she is my mirror, so when I am better this thing is also reflected in her, certainly, so certainly it has helped me because if I grow, in her this thing is reflected ...
	A198535: I always thought that you have to take the good from others, the beautiful things, but there we said that even if the experience, the people around you are not beautiful, beautiful, it is still an experience, and it is always a resource	M198669: another very important key that we are using is to build the social network, widen the social network, in fact I'm talking a lot with my daughter, I'm telling her that as we ended up today in Italy, tomorrow we could end up in another country, in new circumstances, in new conditions and even there she should not be afraid to build new relationships because those are the ones that then allow you to both solve problems, and then to have people around you with whom to share a life path
Cognitive-narrative area (Keys 2, 8, 9, 10)	M1999229: first of all be patient, certainly remember that nothing is permanent, even this moment, whatever it is, will pass, everything will pass, and then remember that you can achieve, you can arrive, give yourself goals and tell yourself that you can achieve them because this moment is not static, it is not stable, it will pass, it is not permanent	I199232: I have seen that it has improved with her (my daughter), this thing of seeing from multiple points of view, a negative thing from a positive point of view
	N194998: this minute (of silence) is not just a minute, it's a healing minute, it heals you in this minute, not only because you rest, you can rest in the sense of not thinking about it, or you can dwell on something that is really important to you. It rests you, it heals your body, it rests your emotions, it orders your thoughts, then I would recommend it to everybody, to today's moms, to all people	E198310: definitely now is to help the child to build, to define his goal and detail it in the little steps that can help him to reach it, and to remind him daily, involving him, not telling him "do do do," which was my position before, but to do it together and to be part of that, and it's also my problem to detail, I see the goal and I want everything and right away, and so detailing, defining the little steps is important, I'm doing that. And then another important thing I started to do is to, after each little step, to celebrate, to emphasize, to say "bravo, bravo, you did well," to support

participants' report (Kaplan, 2009) and the experience of specific fears and phobias (Thapa et al., 2003; Betancourt et al., 2017).

Regarding the issues parents report in their children, the literature highlights a higher incidence of PTSD among refugee children and adolescents than among adults (Henkelmann et al., 2020): a statistical comparison was not performed in this study, but issues of irritability and negative mood in children are defined as salient by their parents. Similarly, adults report a lack of concentration in children that could be due to the effects of trauma, with a possible negative impact on cognitive development and learning abilities (Beers and De Bellis, 2002; Kaplan et al., 2016). Finally, specific phobias and fears may emerge in the child subjected to traumatic situations (e.g., detachment from one of the parents, from one's routine, from one's home, and from one's parental and friendship circle), as witnessed by the parents, which may negatively influence development (Javanbakht et al., 2021).

The adaptation difficulties that emerged from the semi-structured interviews concern multiple topics: forced migration, language and bureaucratic difficulties, sense of uncertainty, unemployment, and taking care of the children. First, the dramatic circumstances in the participants' home country lead them to a forced migration where the destination country was not chosen (Becker, 2022). Language difficulties amplify the sense of alienation in the new context, and language constitutes a barrier to the fulfillment of bureaucratic matters (Gerlach and Ryndzak, 2022), undermining the individual's sense of autonomy as well as their perceived ability to manage their family. Other sources of concern include the sense of uncertainty about the future

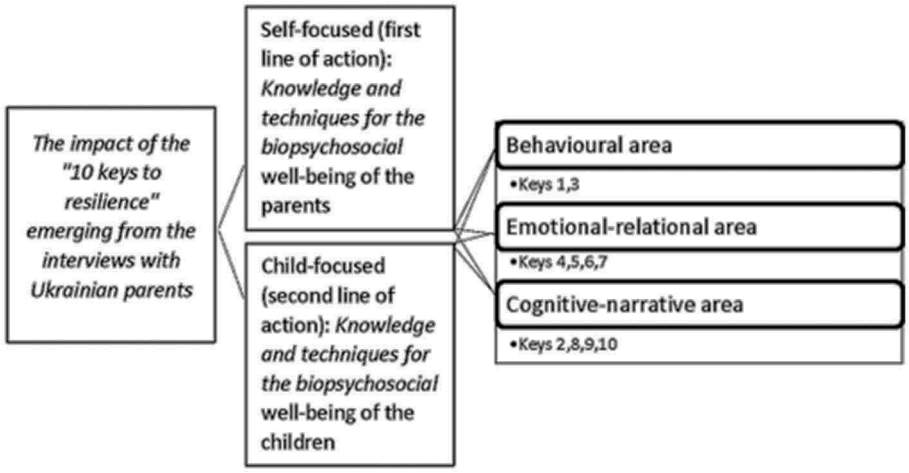

FIGURE 1
Impact of the "10 Keys to Resilience" emerging from the interviews with Ukrainian parents.

provoked by the ongoing war in Ukraine (Mohamed and Thomas, 2017; Becker, 2022) and the unemployment status which can predict depression among refugees (Beiser et al., 1993). Adaptation difficulties are also reported in the management of children: refugee parents are worried about their mental and physical health status (Javanbakht, 2022), given the disruption of their before-war routines.

5.1.2. Adaptive resources

In Study 1, five adaptive resources emerged from the semi-structured interviews of Ukrainian refugee parents: self-efficacy, social support, spirituality, sense of common humanity, and self-esteem. Being a refugee could decrease individual empowerment (Bowie et al., 2017). However, among the resources deployed by parents, self-efficacy appears to strengthen coping by supporting them in raising children (Slagt et al., 2012; Vintilă and Istrat, 2014). More specifically, self-efficacy predicts greater relational involvement (Shumow and Lomax, 2002) and greater support and ability to maintain general wellbeing (i.e., their own and the children) (Deković et al., 2010; Goian, 2014; Kalaitzaki et al., 2022), factors associated with positive adaptation (Meunier and Roskam, 2009).

Another key resource is the perceived social support both externally and within the refugee community. This finding is in line with previous research highlighting the importance of social support in decreasing the risk of PTSD and increasing adaptation among Sudanese refugees in Australia (Schweitzer et al., 2006) and Afghans in Canada (Ahmad et al., 2020). Specifically, a study by Stewart et al. (2017), on refugee parents from Sudan and Zimbabwe in Canada, reports that social support is perceived as higher if it comes both from the refugee community and from professionals who are sensitive to cultural differences issues. An additional resource mentioned by Ukrainian parents is spirituality, consistent with evidence on spirituality as a coping resource associated with greater hope and optimism in refugees (Ai et al., 2003), especially among refugee parents (El-Khani et al., 2017).

Participants refer to perceive a sense of closeness with other human beings. This data could be interpreted in light of Neff (2011) "Common Humanity," a subdimension of self-compassion, which describes the sense of feeling as a part of humanity. Finally, perceiving intact self-esteem is mentioned by the refugee parents as a basic element for psychological wellbeing (Neff, 2011).

5.1.3. The impact of the neuropsychopedagogical training

In Study 2, participants responses to the post-training questionnaire reveal an improvement in sleep after the training. In this sense, the intervention may be a protective factor against the chronicization of sleep disorders, which can remain in refugees long-term after the traumatic events, with negative consequences for individual health (Basishvili et al., 2012; Richter et al., 2020). The responses to the questionnaire, "The 10 Keys to Resilience" within the EF program, appear to increase the frequency of positive thoughts, in line with the outcomes of positive psychology interventions on refugees (Kubitary and Alsaleh, 2018; Foka et al., 2021), to facilitate post-traumatic growth through hope (Umer and Elliot, 2021). Parents report that EF increased their sense of security, comforting them about their newfound safety but also about the possibility of constituting, in attachment terms, a secure base for themselves and their children (Dalgaard et al., 2016). Moreover, by helping parents to focus on their own positive resources, the intervention could have played an important role to prevent the feeling of "subjective incompetence" in stressful situations, described in the literature as demoralization (Costanza et al., 2022a).

Extracts from the participants' interviews describe the positive impact of the training on the behavioral, emotional-relational, and cognitive-narrative areas, highlighting the importance of providing the Ukrainian population with psychological support tools (Costanza et al., 2022b).

As regard the behavioral area, the training encouraged participants to perceive themselves as active subjects, who can

exert control over their environment. Having a greater sense of control promotes safety and a reduction in anxiety and negative emotions (Gallagher et al., 2014). Participants refer an increase in wellbeing and coping through small actions. This data also reflects the importance for parents of being an example for their children and engaging them in practical actions to build together new reassuring routines, able to mitigate uncertainty. As reported in the literature, in times of severe crisis, being able to decide which simple and regular activities to be engaged in is fundamental. This allows persons to reinforce the perception of a safe and stable surrounding (Nelson and Shankman, 2011; Bentley et al., 2013), as experienced by the refugee parents through EF.

Regarding the emotional-relational area, refugee parents felt gratitude, an emotional state associated with wellbeing, in a relationship mediated by perceived social support (Lin, 2016). Social support is a key resource for refugees' mental health and resilience (Schweitzer et al., 2006; Stewart et al., 2017; Sim et al., 2019; Ahmad et al., 2020) and a positive coping strategy (El-Khani et al., 2017). Perceiving higher social support may lead individuals to want to show reciprocity and be helpful to others in turn (Schmitt, 2021) as emerged in the interviews.

Finally, the intervention seems to have had an impact on the cognitive-narrative area. The use of cognitive strategies, such as problem-solving, planning, and positive reappraisal, helps cope with stressors (Feder et al., 2009) and makes it possible to experience a minor impact of war-related trauma and life changes related to refugee status (Fino et al., 2020). The practice of silence-based meditation (Paoletti, 2018), suggested in the program, also impacts the cognitive-narrative area, and it is described by the participants as a powerful tool for activating a re-narration of experiences through self-talk, in the form of a "silent narrative" (Morin, 2009; Kross et al., 2014). The practice of silence-based meditation is mentioned as a healing experience, in line with studies on the therapeutic effect of meditative practices on refugees (Hinton et al., 2013; Kalmanowitz and Ho, 2016), and as a restful experience, promoting mental functioning and reducing alertness and stress symptoms (Rees et al., 2014).

6. Limitations and future directions

The first limitation of the present research is the small sample size, which does not allow result generalization. However, sample size standards in qualitative research are linked to historical and cultural factors related to the target sample (Marshall et al., 2013). The second limitation is the use of the semi-structured interview, even in the presence of a cultural mediator, that could generate social desirability bias in refugee samples (Da Silva Rebelo et al., 2022).

Notwithstanding these limitations, this is the first study in Italy to investigate the adaptation problems and challenges of Ukrainian parents and at the same time the effects of neuropsychopedagogical training on their wellbeing. The study lays the foundation for subsequent investigations into the biopsychosocial health of Ukrainian refugees, especially concerning the experience of parenting and interventions aimed at supporting them. It is suggested for future studies in the field to implement a multidisciplinary approach that integrates clinical and socio-educational interventions, which should be longitudinally evaluated.

7. Conclusion

The present findings describe the complexity of the experience of Ukrainian refugee parents, who arrived in Italy between March and April 2022. The quantitative analysis highlights the negative impact of refugee status on the wellbeing of Ukrainian parents. However, attention is also paid to the positive resources emerging from the qualitative analysis of their interviews. It is precisely this aspect that the EF training sought to enhance to support Ukrainian refugee parents. The training allowed the refugee parents not only to improve their coping strategies but also to renew their awareness of their role as a parent, guiding their children in times of complexity. The interviews' extracts highlight their role, not only as protectors and caregivers of their children but also as active educators promoting their mental and emotional wellbeing.

The research is the first neuropsychopedagogical experience, in Italy, to apply a specific theoretical and methodological framework to safeguard the wellbeing of Ukrainian refugees, educating primary educators (e.g., parents) in the functioning of the resilient mind and transmitting usable long-term techniques (e.g., the practice of silence). The interdisciplinary approach recalls the importance of monitoring the wellbeing of refugees—adults and, indirectly, children. The study highlights the timeliness of intervening to transform the traumatic experience into a source of resources to face the present and future.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by Ethics Committee of the University of Padua (Protocol No. 0003662). The patients/participants provided their written informed consent to participate in this study.

Author contributions

PP, TD, CL, and GP contributed to the design and implementation of the research. GP, CL, and GS analyzed quantitative and qualitative data. GS, AM, and FV helped with the references. PP structured the theoretical framework as the developer of the Sphere Model of Consciousness and Pedagogy for the Third Millennium. GP, LC, and TD drafted the manuscript. TD integrated and coordinated the study. All authors provided substantial contributions to the study, critically revised the manuscript, approved this version, and agreed to be accountable for all aspects of this study and its integrity.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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School-based mental health screenings with Ukrainian adolescent refugees in Germany: Results from a pilot study

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Since the Russian invasion of Ukraine in February 2022, high numbers of Ukrainians, mostly women and children, have left the country. As of today, Germany has accepted more than one million refugees fleeing from Ukraine including ~200,000 children and adolescents registered in German schools. Since refugee minors are typically affected by high rates of mental health issues, the identification of potential psychological problems at an early stage after arrival is essential in order to make timely referrals for vulnerable youth to diagnostic or treatment services possible. The aim of the present study was to test the feasibility of a classroom-based mental health screening procedure and to assess symptoms of PTSD, depression, and anxiety in a small sample of adolescents who had fled to Germany. Forty-two adolescents (n=20 girls) took part in the study. Screening results showed that more than half of the sample had elevated ratings in the Refugee Health Screener (RHS) and about 45% reported clinically significant levels of PTSD. Overall, the amount of both mental health problems and current worries related to the war was significantly higher in girls compared to boys. In general, screenings were well received by the adolescents. The findings of this pilot study point to a considerable level of mental health problems and distress in adolescent refugees affected by the recent war in Ukraine. Brief psychological screenings within the school setting might represent a promising approach to identifying potential mental health disorders as early as possible in newly arriving refugee youth.

KEYWORDS

Ukrainian war, refugees, stress, mental health, school-based screenings

1. Introduction

By the end of 2021, nearly 37 million children worldwide were displaced due to war, conflict and violence, including 13.8 million children seeking refuge and asylum in foreign countries. Not since the Second World War has the number of displaced minors been so high (United Nations, 2022), although people who fled the war in Ukraine are not yet included in this count. By the end of 2022, Germany alone has accepted more than one million refugees from Ukraine including ~200,000 children and adolescents registered in German schools (Mediendienst Integration, 2022).

So far, there are no reliable data on the consequences of the current war in Ukraine on the well-being of the affected children and adolescents. However, there is ample evidence on refugee

minors from other conflict regions pointing to the detrimental effects of war trauma on mental health (Kadir et al., 2018; Müller et al., 2019; Dangmann et al., 2022) and on broader developmental outcomes that compromise social relations, school performance, and general life satisfaction (Catani, 2018). Posttraumatic Stress Disorder (PTSD) and depression are among the most common psychological disorders in child and adolescent refugees and asylum seekers with an average prevalence rate around 22% for PTSD and 14% for depression according to a recent meta-analysis (Blackmore et al., 2020).

It is reasonable to assume that many of the children and adolescents who have fled from Ukraine might show similar psychological problems as a result of the war, especially since large parts of the country's population have already been suffering from a violent conflict for several years (Gonçalves Júnior et al., 2022). Additionally, in today's digital world, even children who were able to escape the attacks on Ukraine in the early phase of the war often continue to experience the conflict indirectly through extensive media coverage in the news, through social media and continuous reports of family members who stayed behind in Ukraine (Elvevåg and DeLisi, 2022).

To prevent the development or deterioration of mental disorders in these young refugees, early referral to targeted diagnostic or treatment services following their arrival in the host country is necessary. However, given the high number of refugees in need, providing mental health services to this group is a challenge even for a country like Germany with a well-functioning health care system (Bajbouj, 2016; Nowak et al., 2022). To address this problem, the so-called "screen and treat" approach (Brewin et al., 2008), originally developed for the aftermath of disasters with high numbers of traumatized survivors, has been adapted to care for refugees in overburdened health systems. The first step in such an approach is to systematically conduct pragmatic mental health screenings with newly arrived refugees to identify those who are at risk of developing psychological disorders (Hollifield et al., 2016). To date, there are promising findings from studies with refugees in German reception centers showing that brief mental health screenings can be employed as a cost-effective measure to detect psychological problems thereby enabling targeted referrals to appropriate, evidence-based treatment services (Kaltenbach et al., 2017; Stingl et al., 2019). While the study by Stingl and colleagues only included adult refugees, the sample by Kaltenbach and colleagues comprised refugees over the age of 12, although the average age of the entire sample was still 29 (Kaltenbach et al., 2017). Overall, however, there is a lack of research regarding systematic mental health screenings with refugee minors in Germany as well as in other high-income host countries. This is unfortunate given that an early identification of psychological risks especially in this vulnerable group should be regarded as critical in order to prevent negative long-term mental health consequences.

To implement systematic screenings with refugee children and adolescents in Germany, schools may be an optimal setting since young refugees are admitted to schools rather quickly after arriving in Germany. In fact, schools have often been featured as key sites for the identification and treatment of mental health problems in non-refugee populations and there is evidence pointing to the effectiveness of mental health services delivered directly within the school setting (Stephan et al., 2015; Hoover and Bostic, 2021). In particular for refugee children, schools are an ideal place that can provide readily accessible mental health care, help with linguistic barriers and offer motivational support to strengthen adherence and participation in diagnostic and treatment (Fazel and Betancourt, 2018). Unfortunately, to date, there is little knowledge about the experience of refugee adolescents in the German educational system (Podar et al., 2022). In their qualitative study, based on interviews with teachers and school psychologists, Podar et al. concluded that schools in Germany have the potential to serve as the primary source of mental health support for refugee youth, but lack the resources to truly fulfill this role (Podar et al., 2022). Discussions with school psychologists pointed to a number of barriers that prevent refugee minors and their families from seeking help for mental health problems, such as a lack of knowledge about mental health care services and providers as well as fear of stigmatization.

Systematically conducting brief mental health screenings on every refugee minor who is newly admitted to school could therefore be an important step in improving access to mental health services and avoiding stigma.

Based on these considerations, the aim of the present pilot study was to determine the feasibility of a classroom-based mental health screening procedure for Ukrainian adolescents who had recently fled to Germany. The classroom as a screening setting is particularly suitable for young refugees from Ukraine, as so-called welcome classes were set up in many parts of Germany, in which pupils from Ukraine are initially taught separately. In addition, schools provide easy access to most families who have fled Ukraine. In fact, in a representative survey of Ukrainian refugees, conducted between August and October 2022, 91% of families with school-age children reported that at least one child attends school (Brücker et al., 2022).

Without claiming to determine the prevalence rate of mental disorders in a representative sample, we further aimed to gain an initial estimation of the mental health needs of adolescents who had recently fled the war in their home country and sought refuge in Germany. Given the scarcity of data on the well-being of Ukrainian children early after the flight, the assessment of mental health needs in an unselected convenience sample may allow to formulate targeted research questions and to propose appropriate diagnostic services for young refugees seeking asylum in Germany.

We used brief standardized self-report questionnaires to assess symptoms of PTSD, depression, and anxiety as well as questions addressing the amount of distress related to specific worries about the current war in Ukraine. Finally, we examined whether specific sociodemographic factors, i.e., age, gender, time since arrival in Germany, and the experience of war attacks prior to the flight are associated with the overall mental health burden reported by the adolescents.

2. Materials and methods

2.1. Sample

The present study was designed as a pilot school-based mental health screening with a convenience sample of adolescent refugees from Ukraine. The study was conducted in June 2022, ~4 months after the Russian invasion of Ukraine. In order to be eligible for this study, participants had to be aged over 16 so that they could give their consent to participate.

A total of 42 adolescents (20 girls) who fled their home country during the early phase of the war took part in the study. On average, participants had arrived in Germany 13 weeks ago. Table 1 provides an overview of participants' sociodemographic characteristics. Since there were no significant differences between boys and girls for any of the reported variables, we have only included means and frequencies for the entire group of participants.

2.2. Procedure

Screenings were conducted at three different vocational schools in three so-called "welcome classes" attended only by young refugees from Ukraine. At the beginning of school lessons, the respective class was informed in detail about the contents and procedure of the screening by the study team. All adolescents present in the classes gave written informed consent and filled in the questionnaire.

During the screening procedure, a team of two psychologists and two interpreters with training and experience in translating in a mental health context were present in the room to assist the adolescents in case of questions or difficulties in understanding. The questionnaire took about 20 min to complete. After the screenings, the participants could take a short break during which the study team evaluated the questionnaires. Subsequently, every adolescent was offered a one-on-one consultation in which brief, individual feedback was provided. All but two of the participants agreed to take part in the personal feedback meeting that was conducted by a psychologist together with an interpreter.

Screenings were conducted as part of the recruitment procedure for a larger clinical trial with traumatized young refugees in Germany (Wilker et al., 2020; Wittmann et al., 2022). Out of the present sample, 11 children were invited for further detailed diagnostic interviews with the possibility of being treated within the controlled therapy study. As part of the ethical review of this trial, the procedure and the informed consent form of this screening were approved by the Ethic Committee of the German Psychological Association (Deutsche Gesellschaft für Psychologie, DGPs).

TABLE 1 Characteristics of participants (N=42).

Variable	
Age, *M* (SD)	16.4 (0.73)
Gender, % (*n*) female	47.6 (*n* = 20)
Size of home town/place, % (*n*)	
<10,000	4.8 (2)
10,000–100,000	14.3 (6)
100,000–500,000	33.3 (14)
>500,000	47.7 (20)
Weeks in Germany (since flight), *M* (SD)	13.6 (3.2)
Current living situation, % (*n*)	
With relatives	7.3 (3)
With friends	2.4 (1)
Private housing/rent	70.7 (29)
Refugee center/group setting	19.5 (8)
Currently separated from family, % (*n*)	34.1 (14)
Home town/place was attacked before flight, % (*n*)	69.0 (29)

2.3. Instruments

We chose all instruments based on their psychometric properties, transcultural applicability, brevity, and previous use in (adolescent) refugee populations. All questionnaires were available in Russian prior to the start of our survey. We also prepared Ukrainian versions of the entire set of instruments, in case participants would feel more at ease with Ukrainian questions. However, when given the choice at the beginning of the screening, all participants chose to fill in the Russian questionnaires.

2.3.1. Sociodemographic information

The first part of the screening questionnaire comprised a series of questions about individual sociodemographic characteristics, such as age, gender, place of origin as well as some basic information about the time of the flight and whether the hometown had been attacked before the flight. Also, adolescents were asked how often they followed the news about the war and the political situation in Ukraine.

2.3.2. Mental health screening questionnaires

We included the Russian version of the Refugee Health Screener –15 (RHS-15; Hollifield et al., 2013) as a general measure of emotional distress in refugees aged 14 or older. The first 13 items of the RHS-15 assess symptoms of anxiety, depression, and trauma-related problems on a five-point Likert scale. Two additional items address a person's level of functionality as well as the current distress level indicated by a distress thermometer ranging from 0 to 10. Whereas the first 14 items of the RHS-15 refer to the last month, the distress thermometer only refers to the last week (Hollifield et al., 2016). We used the cut off-score suggested by Hollifield et al. (2013) whereby a positive screening result is defined by a score of ≥12 on the items 1–14 or ≥5 on the distress thermometer. In the present study, the RHS-15 showed excellent internal consistency ($\alpha = 0.91$). Three adolescents each had one missing response on the RHS. The missing values were replaced by imputed values, i.e., by the average value across all RHS items for the specific participant.

To identify participants with probable PTSD, the Primary Care PTSD Screen for DSM-5 (PC-PTSD-5; Prins et al., 2003) was used. The PC-PTSD-5 is a five-item dichotomous (yes/no) screening questionnaire measuring symptoms of PTSD over the past months. The total score is a count of the "yes" responses to the five questions about trauma-specific symptoms. The PC-PTSD showed acceptable internal consistency ($\alpha = 0.72$) in the present study.

For three participants who each had missed one item, the missing value in the PC-PTSD was replaced by a mean imputation.

Depressive symptoms were measured by means of the Patient Health Questionnaire-9 (PHQ-9) which was originally designed to detect depression in primary care services (Spitzer et al., 1999; Kroenke and Spitzer, 2002). It comprises nine items that can be scored from 0 to 3, resulting in a total score between 0 and 27. A score ≥ 10 has been set as a cut-off for a potential major depressive disorder. The internal consistency of the PHQ-9 was good ($\alpha = 0.87$) in the present sample.

The General Anxiety Disorder 7 (GAD-7) was originally developed to screen for general anxiety disorder in primary care (Spitzer et al., 1999, 2006) but has more recently been used to assess the severity of more generalized anxiety symptoms in refugee populations (Mitschke et al., 2013; Leiler et al., 2019). The questionnaire includes seven items that are scored from 0 to 3, resulting in a maximum total score of 21. We used a cut-off score ≥ 8, which has been suggested for a more general screening of anxiety symptoms (Kroenke et al., 2007). The GAD-7 showed good internal consistency ($\alpha = 0.84$) in the present study.

2.3.3. Questions about current worries related to the Ukrainian war

The following four self-developed items were used to ask about current concerns:

- How much do you worry about relatives or friends who are (still) in Ukraine?
- How much do you worry about your own educational and professional future?
- How much do you worry about the future of Ukraine?
- How much do thoughts of a possible expansion of the war or a third world war bother you?

Participants indicated their level of distress for each worry on a distress thermometer ranging from 0 ("not at all") to 10 ("extremely worried"). The sum of the four items indicated the overall burden of concerns related to the war in Ukraine.

TABLE 2 Results of the mental health screenings and comparison between boys and girls.

Mental health outcomes	Entire sample (*n*=42)	Girls (*n*=20)	Boys (*n*=22)
RHS sum score, *M* (SD)	14.26 (10.79)	20.30** (10.63)	8.75 (7.65)
RHS above critical cut-off, % (*n*)	57.1 (24)	75.0* (15)	40.9 (9)
RHS distress thermometer >4, % (*n*)	21.5 (9)	45.0** (9)	0 (0)
PC-PTSD sum score, *M* (SD)	2.23 (1.59)	3.0** (1.59)	1.52 (1.33)
PC-PTSD above critical cut-off, % (*n*)	45.2 (19)	65.0* (13)	27.3 (6)
GAD-7 sum score, *M* (SD)	5.62 (4.05)	7.65** (4.39)	3.77 (2.65)
GAD-7 above critical cut-off, % (*n*)	33.3 (14)	55.0** (11)	13.6 (3)
PHQ-9 sum score, *M* (SD)	6.6 (5.7)	9.50** (6.09)	4.00 (3.86)
PHQ-9 above critical cut-off, % (*n*)	23.8 (10)	45.0** (9)	4.5 (1)

RHS, Refugee Health Screener 15; PC-PTSD, Primary Care PTSD Screen for DSM-5; GAD-7, General Anxiety Disorder 7; PHQ-9, Patient Health Questionnaire-9.
*Indicates significantly different means (Mann–Whitney *U*-test) and frequency distribution (Fisher's Exact Test) for girls compared to boys, *$p < 0.05$, **$p < 0.01$.

2.4. Data analysis

All statistical analyses were carried out using SPSS, Version 28 (IBM Corp., 2021) and JMP 8 (SAS Institute Inc., 2009). Group differences between boys and girls were analyzed by means of Mann–Whitney-*U* tests for continuous variables and Fisher's exact tests for categorical variables. Correlations between the mean screening scores for the whole sample were calculated by means of Spearman rank correlations.

In order to identify specific factors associated with mental health problems, we conducted a linear regression analysis on the global mental health score including age, gender, time since arrival in Germany, and whether the home town had been attacked prior to the flight as predictor variables.

3. Results

3.1. Mental health outcomes and war-related worries

The majority of participants were affected by significant mental health problems, in particular by symptoms of posttraumatic stress. Table 2 provides an overview of the mean severity scores for the different screening instruments and the number of participants who scored above the cut-off values indicating potential mental health disorders. Considering all four domains of mental health that were assessed (general emotional distress, posttraumatic symptoms, depressive and anxious symptoms), 35.7% of the sample did not exceed the critical cut-offs in any domain whereas 21.4% exceeded the cut-off in only one domain. In total, 5 adolescents (11.9%) had critical ratings across two domains, 4 (9.5%) in three and another 21.4% of the sample ($n = 9$, 8 of them girls) exceeded the cut-off scores in all four screening tools.

As can be seen from Table 2, girls showed significantly higher scores compared with male participants on all mental health outcomes.

We found strong correlations between the different mental health screening outcomes for the entire sample. The RHS-15 was positively correlated with the PC-PTSD ($r_s = 0.73$), the GAD-7 ($r_s = 0.87$), and the PHQ-9 ($r_s = 0.80$). In addition, there were positive correlations between the average score on the PC-PTSD and the GAD-7 ($r_s = 0.62$) as well as the PHQ-9 ($r_s = 0.62$). Finally, the mean score of the GAD-7 was strongly correlated with the PHQ-9 ($r_s = 0.88$). All correlations were significant ($p < 0.01$).

A global mental health score was calculated as the mean of *z* transformed values of all mental health outcome measures that had been included in the screening, i.e., RHS-15, PC-PTSD, PHQ-9, and GAD-7.

When asked about their current worries related to the war in Ukraine, the vast majority of the sample was found to be burdened by these worries. Again, girls had higher distress ratings in three out of four worry domains resulting in a significantly higher overall burden ($Mdn = 25.4$) compared to boys ($Mdn = 17.9$; $U = 298.5$,

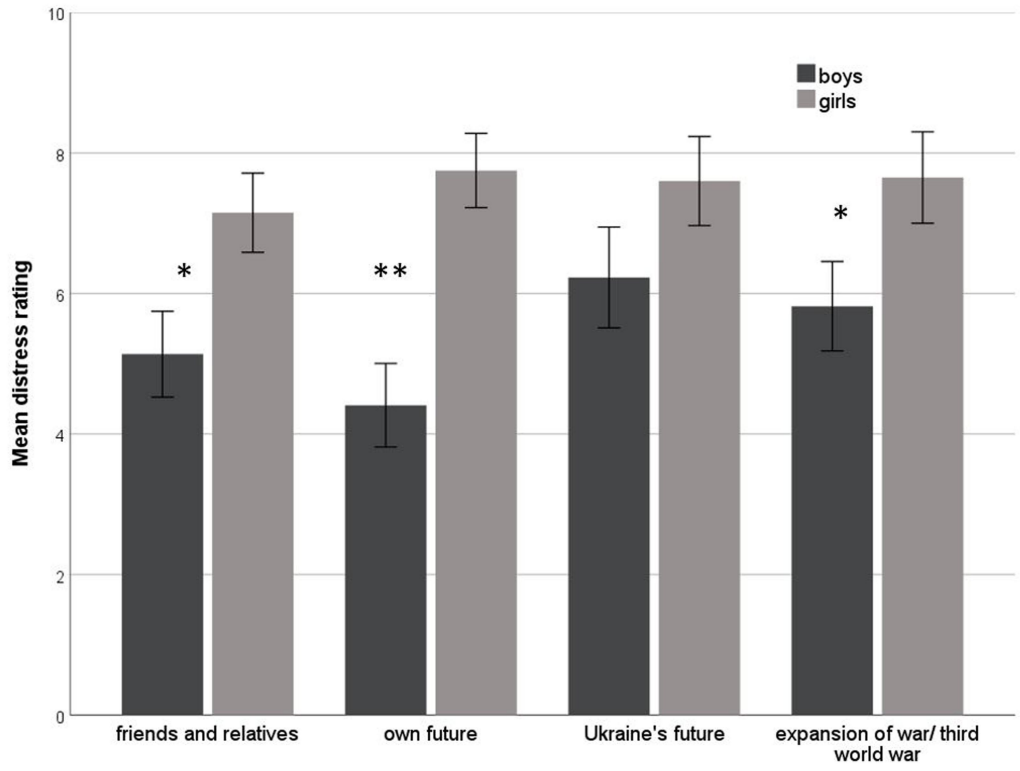

FIGURE 1
Distress ratings for worries related to the Ukrainian war. Means and standard errors are shown separately for girls and boys; * indicates significant group differences (Mann–Whitney *U*-test, *p<0.05, **p<0.01).

TABLE 3 Sociodemographic factors associated with mental health: standardized beta coefficients and zero-order correlation coefficients resulting from a linear regression model on global mental health score.

Predictor	β	Zero-order correlation
Age	0.22	−0.02
Gender (female)	0.59**	0.52**
Weeks since arrival in Germany	−0.18	−0.12
Home town attacked prior to flight (yes)	0.18	0.16

Full model's adjusted $R^2 = 0.29$; $F(4.37) = 5.26$, $p < 0.01$. Zero-order correlation is represented by Spearman's rho for continuous predictor variables and point-biserial correlation for dichotomous predictor variables.
**Indicate associations significant at $p < 0.01$.

$p < 0.05$). Mean ratings and standard errors for current worries are shown in Figure 1.

Overall participants reported to follow the news about the situation in Ukraine on a very regular basis. 24.4% said they followed the news less than once per week, 24.4% stated they would search for updates on the war in their home country several times per week, 36.5% did so on a daily base, and 14.6% reported to have a look at the news almost every hour. There were no significant differences between boys and girls regarding their news seeking behavior.

3.2. Association between demographic factors and overall mental health problems

We calculated a linear regression model on the global mental health score (see Table 3). The model including age, gender, weeks since arrival in Germany, and whether the home town was attacked prior to the flight as predictors could explain almost 30% of the variance of the aggregated mental health score. Female gender was the only significant predictor for mental health problems in this model.

4. Discussion

By introducing classroom-based brief psychological screenings for Ukrainian refugee youth, the present pilot study demonstrated that this approach was feasible and well accepted by the participants. Overall, the screening procedure was easy to deliver, i.e., it took little time and required a manageable amount of human resources. For the most part, the students were able to complete the questionnaires on their own and only in rare cases did they need the help of the psychologists and translators present in the room. A remarkable result is that all but two of the adolescents took part in the brief individual consultation that was offered to every participant regardless of their mental health results. In fact, our impression was that the one-on-one interviews were indeed well accepted because they were presented as a regular part of the examination and did not only target those who showed signs of mental disorders. It can be assumed that such an

approach is helpful to avoid possible fears of stigmatization among the young people.

Our finding regarding feasibility is in line with prior research on mental health screenings with non-refugee student populations (see review by Soneson et al., 2020). Regarding refugee children, research has focused primarily on school-based mental health interventions carried out in high-income countries without specifically examining the use of large-scale systematic psychological screenings in schools (see, for a review, Tyrer and Fazel, 2014; Sullivan and Simonson, 2016; Bennouna et al., 2019). As suggested by Podar et al. (2022), the possibility of low-threshold access to psychosocial care is rarely offered in German schools due to a lack of resources within the school system and various barriers making it difficult for refugee minors and their families to seek support (e.g., lack of knowledge about mental health care services, fear of stigmatization). Classroom-based mental health screenings ideally in combination with a brief psychoeducational session as proposed in the present pilot study, could therefore be an important step in overcoming these barriers and facilitating access to mental health services for adolescent refugees.

The Ukrainian adolescents examined here, too, seem to have an increased need for psychosocial support as more than 50% of the sample had elevated ratings in the RHS, 45% reported clinically significant levels of PTSD, and 33.3% and 23.8%, respectively, showed abnormal scores in anxiety and depression. Of course, since the present sample is small and far from being representative, these findings have to be treated with caution. However, they provide a first indication of increased vulnerability to mental illness among Ukrainian adolescents arriving in German schools. Overall, the elevated number of mental health problems found in this study is in line with a growing body of research on refugees from other war and crisis zones suggesting that refugee minors in Germany are at a high risk for developing mental health disorders, in particular PTSD and depression (Soykoek et al., 2017; Müller et al., 2019; Pfeiffer et al., 2019). It is important to note, though, that the assessment of psychological problems during such an early immigration phase as in the present study might lead to an overestimation of mental health disorders. Emotional distress in the first weeks after immigration may not necessarily be due to underlying mental illness, but may also be caused by current post-migration stressors (Li et al., 2016). In agreement with this, participants in the present study reported being very burdened by specific worries relating to the ongoing war in their home country and their personal future. In addition, more than one-third of the sample reported being currently separated from family, so anxiety about the well-being of family members who have stayed behind or who may be fighting in the war may serve to exacerbate mental health problems. A recent study with adult refugees found that standard cut-off values for screening tools such as the RHS lead to an over-estimation of the mental health need in the immediate aftermath of the flight and thus recommended that these cut-off values be increased in order to reach satisfying diagnostic specificity (Schmidt et al., 2022).

In the present study, the length of stay in Germany was not predictive of the global mental health score. This is in accordance with previous studies showing that mental health problems in refugee minors do not change considerably over time in the host country (Derluyn and Broekaert, 2007; Vervliet et al., 2014). However, the finding might also be attributed to the limited variance in this variable as all adolescents in the present study had fled Ukraine in the very early days or first weeks of the war. In the future, longitudinal studies are needed that follow young refugees from the first weeks after arrival in the host country over a longer period of time. Gender resulted as the only significant predictor in a regression model that could explain almost 30% of the variance. Strong gender effects were also noted with respect to all mental health outcomes with girls having significantly higher scores compared to boys on measures for PTSD, depression, anxiety, and emotional distress (RHS). Also, the amount of current worries about the war in Ukraine and one's personal future was significantly higher in female participants. This gender effect is consistent with previous research pointing to a higher prevalence of depression (Piccinelli and Wilkinson, 2000) and PTSD (Hapke et al., 2006) in women compared to men, both for non-refugee populations as well as for asylum seekers and refugees (Tekin et al., 2016). A systematic review on gender differences in the mental health of unaccompanied refugee minors in Europe reported strong evidence for a higher burden of depression among girls and mixed evidence for an elevated PTSD symptom load in girls compared to boys (Mohwinkel et al., 2018). Since the brief screenings conducted in the present study were not designed to determine risk factors for mental health problems, it can only be speculated as to why the consistent gender effect was observed. It could simply reflect the typical pattern of PTSD and depression prevalences observed in the general population. In fact, previous research examining PTSD symptoms in internally displaced Ukrainians and refugees both before the recent Russian invasion (Shevlin et al., 2018) and after (Ben-Ezra et al., 2023) also point to dramatically higher PTSD rates in females. Differences in the amount and type (e.g., sexual violence, combat etc.) of experienced traumatic events might also account for the observed gender difference (Wilker et al., 2021); however, the present data cannot provide any insight into these mechanisms.

5. Conclusion

This pilot study aimed to evaluate the feasibility of brief classroom-based mental health screenings to assess symptoms of PTSD, depression, and anxiety in Ukrainian adolescents admitted to German schools. As already mentioned, a number of limitations have to be noted. The sample size is small and participants were recruited through selected schools and classes. Thus, findings cannot be generalized to the entire population of Ukrainian refugee minors in Germany. Moreover, the regression model analyzing potential predictors of mental health problems included only few variables and the assessment of war experiences in Ukraine was limited to one item, namely the question about an attack on the hometown. In order to actually identify risk factors associated with psychopathology, studies with much larger samples are needed, using instruments that allow quantification of different types of war events and other traumatic experiences. However, this aim goes beyond the scope of a brief mental health screening. Finally, as the present study did not include participants below the age of 16, conclusions about the psychological well-being of younger children who fled the Ukrainian war cannot be drawn. Since the requirement for parental consent has been shown to be a significant barrier to conducting school-based assessments of young children's mental health (Soneson et al., 2020), future research should seek solutions to this problem.

Though the present results should be interpreted with cautions, they point to significant levels of mental health problems and distress

due to worries among adolescent refugees affected by the recent war in Ukraine. Most importantly, our findings encourage the assumption that systematic mental health screenings of newly arriving refugees in schools may be a promising way to identify youth at risk of developing a mental disorder as early as possible. Such an approach should ideally be integrated with follow-up diagnostic and therapeutic services that are specifically tailored to the needs of these refugee minors in the early stages of their resettlement.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors upon request, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by Ethic Committee of the German Psychological Association (Deutsche Gesellschaft für Psychologie, DGPs). The patients/participants provided their written informed consent to participate in this study.

Author contributions

CC conceived and designed the study, participated in and supervised data acquisition, carried out statistical analyses, and drafted the manuscript. JW helped designing the study, trained and supervised interpreters, participated in data acquisition and critically revised the manuscript. TS and SW helped designing and coordinating the study, participated in data acquisition and critically revised the manuscript. SN helped designing the study, trained and coordinated interpreters and research assistants, supervised data entry and critically revised the manuscript. FN was the PI of the larger research project, conceived the study, and critically revised the manuscript. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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Fake news during the war in Ukraine: coping strategies and fear of war in the general population of Romania and in aid workers

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Introduction: In addition to the health crisis that erupted during the COVID-19 pandemic, the war between Russia and Ukraine is impacting the mental health and wellbeing of the Romanian population in a negative way.

Objectives: This study sets out to investigate the impact that social media consumption and an overload of information related to the armed conflict between Russia and Ukraine is having on the distribution of fake news among Romanians. In addition, it explores the way in which several psychological features, including resilience, general health, perceived stress, coping strategies, and fear of war, change as a function of exposure to traumatic events or interaction with victims of war.

Methods: Participants (N=633) completed the General Health Questionnaire (GHQ), the CERQ scale with its nine subscales, the Perceived Stress Scale (PSS), and the BRS scale (Brief Resilience Scale), the last of which measures resilience. Information overload, information strain and the likelihood of the person concerned spreading fake news were assessed by adapting items related to these variables.

Findings: Our results suggest that information strain partially moderates the relationship between information overload and the tendency to spread false information. Also, they indicate that information strain partially moderates the relationship between time spent online and the tendency to spread false information. Furthermore, our findings imply that there are differences of high and moderate significance between those who worked with refugees and those who did not as regards fear of war and coping strategies. We found no practical differences between the two groups as regards general health, level of resilience and perceived stress.

Conclusion and recommendations: The importance of discovering the reasons why people share false information is discussed, as is the need to adopt strategies to combat this behavior, including infographics and games designed to teach people how to detect fake news. At the same time, aid workers need to be further supported to maintain a high level of psychological wellbeing.

KEYWORDS

war refugees, asylum seekers, mental health workers, health providers, demoralization, fake news overload

Introduction

In recent years, the entire population of Romania has been exposed to various disasters, for example the COVID-19 pandemic—events that have had a major impact on both physical and mental health. Most recently, we have been exposed to a large-scale conflict close at hand, the war between Russia and Ukraine, which has created a new context of uncertainty and panic among people. Coming on top of the health crisis that erupted during the COVID-19 pandemic, the war between the two states is once again impacting, again in a negative way, the mental health and wellbeing of the population. A number of states, among them Romania, Hungary, and Poland, have mobilized themselves to help those who have left their country in the hope of escaping with their lives.

One of the most important aspects to consider when discussing war victims is the concept of demoralization. This has been defined as the inability of individuals to cope with stressful events and is associated with a lack of hope and meaning in life, helplessness, and low self-esteem (Clarke and Kissane, 2002). This feature was observed first among American soldiers during World Word II and subsequently among Holocaust survivors, immigrants, mental health providers, and patients suffering from psychiatric or somatic symptoms, and is associated in most cases with suicidal ideation and suicidal risk (Frank, 1946). A systematic review by Costanza et al. (2022b) of 18 studies that investigated the concept of demoralization has highlighted how economic insecurity (the economic crisis of 2008) and unsafe living conditions (the COVID-19 pandemic) impact people's mental health, associated with an increased risk of suicide. Taking into consideration what was stated above, we may say that both victims of war (refugees) and inhabitants of countries that receive refugees and are exposed to information related to the armed conflict between Russia and Ukraine are currently living in unsafe conditions, which means that the two groups represent risk categories in terms of mental health, associated with the concept of demoralization. Given this situation, we wish to investigate how traumatic experiences influence those exposed to them.

In terms of psychological aspects of trauma exposure, Vinck et al. (2007) highlight the prevalence of depressive and PTSD symptoms among the war-exposed Ugandan population; these points are supported by Ahorsu et al. (2020), who mention how traumatic events that affect an entire population (for example pandemics, wars, economic crises) can cause worry, fear, and anxiety, and by Hajek et al. (2022), who show how exposure to conflicts such as war can lead to a much lower level of mental health. Kirby (2022) has recently highlighted how terrifying these events are, above all for the citizens of Ukraine but also for all the countries of Europe, as they register increased levels of anxiety as a consequence of the ongoing climate of uncertainty and aggression to which they have been exposed.

Furthermore, exposure to traumatic events instills a certain level of fear, which can have negative consequences for mental health in both adults and children. A situation in which fear is one of the predominant emotions can have various negative consequences, with the attention of specialists being concentrated especially on children, a particularly vulnerable category. It has been observed that both children (Joshi, and O'donnell, 2003; Shaw, 2003) and their parents (Thabet et al., 2008), when exposed to war or other political conflicts, develop PTSD-type symptoms, depression, anxiety, and other somatic symptoms. At the same time, Rometsch-Ogioun El Sount et al. (2018) explains how fear of war negatively impacts people's mental health by causing them to worry about their loved ones (relatives, children), since they feel powerless in the face of this type of calamity.

In addition to these psychological consequences, fear can also lead to the adoption of various behaviors that exacerbate hysteria among the population, such as the spreading of false information about the various crises that humanity has endured. Thus, Elías and Catalan-Matamoros (2020) show how in Spain, during the coronavirus pandemic, the volume of information disseminated in the mass media increased, with a focus on mystery and the esoteric, an emphasis that contrasted sharply with the line being taken by the official sources. Not surprisingly, the contradiction itself led to even more uncertainty and confusion among people. This effect is also supported by the studies of Montesi (2021), Beauvais (2022), and Pomerance et al. (2022) all of whom have shown how concern about the pandemic generated uncertainty, which was then amplified by exposure to fake news.

Health providers and exposure to war

In addition to children and their parents, a further category of people who are most often exposed to traumatic experiences and can develop some symptoms associated with the concept of demoralization is represented by those who work directly with people (doctors, psychologists, nurses). Figley (2002) shows that such work can result in consequences such as nightmares, insomnia, hopelessness, and other forms of secondary traumatic stress (indirect exposure to trauma through a traumatic event; Zimering et al., 2003). Cardozo et al. (2005) describe how Kosovan and Albanian aid workers implementing health programs in Kosovo and working with victims exposed to traumatic events reported symptoms of PTSD and depression, with support services being an important factor in ameliorating these. Similar symptoms have been reported for aid workers in Palestine (Veronese et al., 2017) and Uganda (Ager et al., 2012). Additionally, during the European refugee crisis, medically qualified people went to Greece to provide first aid which eventually resulted in their developing post-traumatic stress symptoms following exposure to these traumatic events (Sifaki-Pistolla et al., 2017). Given these results, which highlight a decline in mental health among humanitarian workers, it is desirable to find strategies to help such workers improve their psychological wellbeing. Veronese et al. (2013) show how a high level of sense of coherence can improve the mental health of staff working with victims of traumatic events. Maguen et al. (2008) also show how resilience played a protective role in the context of negative experiences and in promoting healthy coping strategies, psychological wellbeing, and good mental health among military medical personnel in Iraq.

Although the studies so far mentioned emphasize the development of strategies at the intrapersonal level among mental health workers, it is equally crucial to intervene in the case of the refugee population, since this directly affects the mental health of the residents of countries receiving war news or hosting refugees. In this context, Costanza et al. (2022b) have summarized the results of studies that tested the effectiveness of interventions among the refugee population designed to improve their mental health: some refugees to whom an intervention based on self-help was applied reported a lower level of depression and a higher level of quality of life 6 months after its

implementation. As well as this, CBT is effective in reducing PTSD and anxiety symptoms, EMDR is effective in reducing depressive symptoms, while in the case of narrative therapy there is an absence of consensus (in some studies it was shown to be effective in reducing symptoms, while in other studies no effect was recorded). Thus, in the interventions we have mentioned, it can be seen that the focus is not on the quality of the information or on its transmission between people but on other aspects (e.g., changing thoughts and beliefs). This highlights the need to investigate how the content of information circulating on social media affects individuals when they are faced with a disaster. Doing this will enable us to create interventions (also based on the power of the word) that work for both groups involved (refugees, and people hosting/caring for refugees) on an interpersonal and intrapersonal level.

Fake news, time spent online, and traumatic events

The spread of false information on social media has become a major problem in recent years. The worrying aspect of false information is that it spreads very quickly, potentially negatively affecting the political, economic, and social spheres (Vosoughi et al., 2018). To better understand the term "false information," which has been in such general use in recent years, Fallis and Mathiesen (2019) undertook research that led them to the conclusion that false information represents counterfeit, fabricated information that is presented as being from reliable sources. The spread of fake news in times of crisis can have disastrous effects, as supported by the study of Zarocostas (2020), which shows how, during the COVID-19 pandemic, misinformation had a catastrophic effect not only on the health of individuals but also on their behaviors (people bought extraordinary amounts of toilet paper, disinfectant, and food; Naeem, 2021). Mukhtar (2020) points out that the conspiracy theories (especially regarding vaccination; Domgaard and Park, 2021) and misinformation that took social media by storm during the pandemic only alarmed the population, leading to a loss of calm and creating a state of hysteria. The studies we have cited show the link between exposure to traumatic events and post-traumatic stress syndrome, the latter variable being associated by Marco et al. (2020) with other stressors, such as the spread of false information about COVID-19 on social networks.

Thus, to combat the spread of fake news, we must first investigate what motivates people to share information without checking whether the source from which it comes is a reliable one. One of the reasons that could underlie these decisions relates to the extraordinary amount of information that appears on social media when humanity faces a crisis (Zhang et al., 2016, 2022; Bawden and Robinson, 2020; Tang et al., 2021; Tandoc and Kim, 2022), whether this is a health crisis or a political conflict. Loading social media with information can be a stressor among people (Bermes, 2021) who want to eliminate the uncertainty caused by the negative experience they are facing (Shu et al., 2020). Another aspect of information load is the tension that appears along with the news distributed on social media about the harmful event (Sulaiman et al., 2020; Al-Zaman, 2021; Molina et al., 2021; Zeng et al., 2021). Ayyagari et al. (2011) also make these points in their work on technostress. In the present study, "information stress" is used to refer to the fact that, when browsing social networks, people feel that their lives are becoming overwhelmed by information about the conflict between Russia and Ukraine. And when people feel overwhelmed by a huge amount of information, their desire to understand it or to search for accurate information is greatly reduced, which results in a lack of effort and motivation to check the sources and their accuracy (Catedrilla et al., 2020; Xu et al., 2022).

Another factor that could be related to the spread of fake news, which has such an influence, especially in times of crisis, is time spent online (Nelson and Taneja, 2018; Di Domenico et al., 2021; Pennycook and Rand, 2021; Obadă and Dabija, 2022). Taking into consideration the conclusions already stated, it can be assumed that, when people spend considerable amounts of time on social networks, exposed to the informational load and tension that inevitably accompany a global crisis, it is much more likely that they will spread false information (Weinreich et al., 2008; Fletcher et al., 2018; Apuke and Omar, 2021) rather than filtering it to see which is accurate.

Given the previously mentioned need for a more detailed investigation of the effectiveness of narrative therapy (there is no consensus in the specialist literature regarding its efficacy) in improving mental health among victims of war, it is important to observe how information related to the current conflict that is circulated in social media is taken up and distributed further by individuals. It is well known that false information shared on social media without being questioned is a cause of hysteria. By learning how this mechanism operates, we can use social media to combat the spread of fake news and the escalation of tension and to deliver online narrative-based interventions, in which experiences are rewritten with compassion, that contain expressions which can have a positive impact.

Even though Romania is not directly involved in the war between Ukraine and Russia, its people have from the beginning dedicated themselves to helping refugees, especially through voluntary action. According to official border police figures, by the beginning of December 2022 over 98,000 Ukrainians had crossed the border into Romania. However, even among Romanians, more and more information has been circulating via social media, causing a certain degree of hysteria, anxiety, and uncertainty about the future. This being the case, the present study has as its first objective an investigation of the impact that the uploading of information related to the armed conflict between Russia and Ukraine on social networks has on the distribution of fake news among Romanians. A secondary objective is to explore how certain psychological aspects such as resilience, general health, perceived stress, coping strategies, and fear of war change as a function of exposure to traumatic events or interaction with victims of war.

Drawing on a synthesis of the specialist literature, the following hypotheses were investigated:

> H1. Information strain moderates the relationship between information overload and the likelihood of spreading fake news.
> H2. Information strain moderates the relationship between time spent online and the likelihood of spreading fake news.
> H3. Those who have interacted with victims of war will report higher levels of perceived stress and fear of war and lower levels of resilience and general health and will use different coping strategies to those who have not interacted with them.

Our research project therefore sets out to examine the impact of war proximity on Romanians both in the online environment, through

exposure to information (time spent online, information overload, information strain and fake news regarding war), and in the offline environment, through interaction with war refugees (here we consider psychological issues related to the concept of demoralization).

Materials and methods

Participants

The sample included 633 participants aged between 18 and 73 ($M = 24.58$; $SD = 9.47$), of which 67.93% were female and 32.07% were male. Regarding their interaction with refugees from Ukraine, 200 of the 633 respondents mentioned some degree of interaction (21.55% made donations to help refugees, 4.91% volunteered in refugee centers, 2.38% are translators, 1.58% hosted refugees in their homes, 1.43% are educators, 0.79% social workers, 0.48% psychologists/counselors and 0.32% doctors), while the remaining 433 did not interact.

Research instruments

General health

This variable was measured using the General Health Questionnaire (GHQ-12) (Goldberg and Williams, 1988), which consists of 12 items that measure on a Likert-type scale (from 0 to 3) the severity of a mental problem in the past 4 weeks. A total score, which could therefore range between 0 and 36, was obtained from the answers provided. The internal consistency of the scale in the present study was 0.90, 95% CI [0.891, 0.914].

Coping strategies

The Cognitive Emotion Regulation Questionnaire (CERQ) (Garnefski et al., 2001), in the version validated for the Romanian population (Perte and Miclea, 2011), was used as a measurement tool to see what type of strategy participants used when they were exposed to this specific type of disaster—war. The CERQ contains 36 items, reported on a Likert scale from 1 to 5, which are grouped into several subscales, each of which corresponds to an emotion regulation strategy (self-blame, acceptance, rumination, positive refocusing, refocus on planning, positive reappraisal, putting into perspective, catastrophizing, other-blame). A high score on a subscale indicates more frequent use of the corresponding coping strategy. The scale records good internal consistency (Cronbach's $\alpha = 0.89$, 95% CI [0.881, 0.905]).

Perceived stress

The Perceived Stress Scale (PSS; Cohen et al., 1994) was used. The 10 items of the scale measured respondents' thoughts and emotions during the past month. Responses are rated on a Likert scale from 0 to 4, with higher scores indicating a higher level of perceived stress. In this study, the internal consistency of the scale was 0.86, 95% CI [0.844, 0.877].

Resilience

Respondents' level of resilience was measured using the Brief Resilience Scale (BRS) (Smith et al., 2008). This scale contains six statements that participants had to evaluate, expressing their degree of agreement or disagreement on a scale from 1 to 5. The internal consistency of the scale was 0.84, 95% CI [0.827, 0.864].

Time spent online

For this variable, we used the Social Networking Time Use Scale (SONTUS) (Olufadi, 2016). This instrument presents 29 items in which subjects have to identify the number of times they have used social media in the past week in various contexts, using an 11-point Likert scale. The scale showed good internal consistency (Cronbach's $\alpha = 0.92$, 95% CI [0.917, 0.933]) in this study.

Fear of war

To evaluate this construct, the Fear of War Scale (FOWARS) (Kalcza-Janosi et al., 2022) was used. This scale contains 13 items, measured on a Likert scale from 1 to 5, through which respondents have to evaluate how characteristic of them the statements given in the questionnaire are. The total score is obtained by averaging the items, with a high score indicating a greater fear of war. The internal consistency reported in this study is 0.92, 95% CI [0.912, 0.930].

Informational overload and informational strain

To measure these variables, the information given in Luqman et al. (2017) study was used. We adapted four items for each of the two variables so that they fitted the present context, the conflict between Russia and Ukraine. Items were measured on a 7-point Likert scale, where 1 = strongly disagree and 7 = strongly agree. The internal consistencies for each of the two scales were 0.82 95% CI [0.806, 0.849], for information overload and 0.84, 95% CI [0.826, 0.865], for information strain.

The probability of spreading fake news

Two items were adapted in accordance with the information provided by Talwar et al. (2019), reported on a 7-point Likert scale. The internal consistency was. 92, 95% CI [0.917, 0.940].

Procedure

Ethical approval for this study was obtained from the relevant departmental ethics committee (approval code 2298) and all research was conducted in accordance with the principles of the Declaration of Helsinki. To collect participant responses, a questionnaire was designed using Google Forms. Participants were recruited via advertisements on social media sites, supplemented using a snowball sampling method. All potential participants were provided with additional information about the requirements of the study and assured of the confidentiality and anonymity of the data and its use exclusively for scientific research purposes. In addition, they were informed of an estimated time to complete the questionnaire (20–25 min) and told that they could withdraw from the research at any point if they felt a high degree of discomfort or distress while working on the survey. Those who expressed an interest in being part of the research gave their consent via a digital form before completing, online, the questionnaire made up of the scales described above. The questionnaire was anonymous, and respondents participated as volunteers without being remunerated. Before actually completing the scales, participants were asked to provide their email addresses if they

were willing to be contacted for participation in future studies. All data were collected between November 2022 and January 2023. Internet Protocol (IP) addresses were checked to ensure that no participant took the survey more than once.

Results

Statistical analyses were performed using SPSS v20 and jamovi programs (The Jamovi Project, 2020). In jamovi, we used to evaluate multivariate models in general. To check the reliability of the questionnaires that evaluated the variables in the study, internal consistency α Cronbach coefficients were calculated. A first step before testing the actual hypotheses consisted in carrying out a descriptive analysis of the variables; the central tendency indicators for each of them can be observed in Table 1. Additionally, the assumptions for testing the hypotheses using parametric tests were verified. Since all the variables tested were symmetric, we used a moderation test to investigate whether information strain moderates firstly the relationship between information overload and the probability of sharing fake news and secondly the relationship between time spent online and fake news sharing. Also, we used the *t*-test for independent samples to compare the two groups (those who worked with refugees and those who did not) in terms of variables such as general health, coping strategies, resilience, perceived stress, and fear of war. Considering that the study is not an exploratory one (where it would be essential to adjust the *p*-values; Greenland and Hofman, 2019), an experimental or RCT type in which are tested several outcomes (Vickerstaff et al., 2019), in the present study, which is a cross-sectional one (correlational and comparative), we did not resort to adjusting the *p*-values when reporting the results.

TABLE 1 Descriptive statistics for study variables.

Variables	*M*	*SD*
General health (GHQ)	16.17	8.18
Time spent online (SONTUS)	12.97	4.06
Self-blame (CERQ)	12.61	3.52
Acceptance (CERQ)	14.52	3.39
Rumination (CERQ)	15.09	3.56
Positive refocusing (CERQ)	12.58	3.86
Refocus on planning (CERQ)	15.84	3.83
Positive reappraisal (CERQ)	15.40	3.56
Putting into perspective (CERQ)	14.30	3.72
Catastrophizing (CERQ)	10.49	3.82
Blaming others (CERQ)	9.67	3.72
Perceived stress (PSS)	19.39	7.26
Resilience (BRS)	3.20	0.839
Fear of war (FOWARS)	3.04	0.906
Information overload	16.34	6.06
Information strain	10.31	5.49
Fake news sharing	3.35	2.65

M, Mean; SD, Standard deviation.

TABLE 2 Moderation estimates.

	Estimate	SE	*Z*	*p*	*s*
Information overload	−0.06774	0.01415	−4.79	< 0.001	–
Information strain	0.32750	0.01519	21.56	< 0.001	–
Information overload × information strain	−0.00671	0.00253	−2.65	0.008	6.97

s = *S*-value (*p*-value converted to s-value – in bits).

Moderation analyses

We tested the first moderation model using information overload as a predictor, the probability of spreading fake news as the dependent variable and information strain as the moderating variable. A main effect of extreme significance was found between information overload and the possibility of spreading fake news, $b = -0.07$, BCa CI [− 0.10, −0.04], $z = -4.79$, $p < 0.001$, along with a main effect of extreme significance between information strain and fake news spreading, $b = 0.33$, BCa CI [0.30, 0.36], $z = 21.56$, $p < 0.001$. An interaction of high significance was also observed between information overload and information strain, $b = -0.01$, BCa CI [−0.01, −0.001], $z = -2.65$, $p = 0.008$. Participants who were exposed to high rather than medium or low levels of information strain were also exposed to a greater amount of information about the war, leading to a significantly higher likelihood of spreading fake news ($b = -0.10$, BCa CI [−0.15, −0.06], $z = -4.72$, $p < 0.001$). When participants were exposed to a low rather than a medium level of information strain, there was an absence of practical effect ($b = -0.03$, BCa CI [−0.06, −0.003], $z = -1.78$, $p > 0.05$, $p = 0.07$). Thus, from these results, we can conclude that the effect of social network information overload on the likelihood of spreading fake news is partially moderated by information strain. Thus, the hypothesis was sustained (see Table 2). However, it is recommended to interpret the results with caution. Regarding the interaction between informational overload and informational strain, a high significant one is recorded, but if we investigate the confidence interval, we notice that the lower threshold is very close to the null value, which could mean that the effect is of very low significance. Comparing the confidence interval of this interaction with the confidence interval observed following exposure to a low level of informational strain, we can see that its lower threshold is far from the null value even if the interaction has no practical significance, $p = 0.07$, very close to 0.05. This may mean that there could be an interaction of very low significance even if in this case was not recorded.

The second moderation model included as predictive variable time spent online, as dependent variable the probability of sharing fake news and as moderating variable information strain. A main effect of high significance was found between time spent online and the possibility of spreading fake news, $b = 0.06$, BCa CI [0.02, 0.10], $z = 3.03$, $p = 0.002$, along with a main effect of extreme significance between information strain and false news spreading, $b = 0.27$, BCa CI [0.24, 0.30], $z = 17.65$, $p = < 0.001$. An interaction of high significance was also observed between time spent online and information strain ($b = 0.01$, BCa CI [− 0.00, −0.02], $z = 2.70$, $p = 0.007$. Participants who were exposed to high rather than medium or low levels of information strain also reported a greater amount of time spent online, which led to a much higher probability of spreading fake news ($b = 0.11$, BCa CI [0.06, 0.17], $z = 4.24$, $p < 0.001$). When participants were exposed to a low rather than a medium level of information strain, there was an

TABLE 3 Moderation estimates.

	Estimate	SE	Z	p	s
Time spent online	0.06250	0.02064	3.03	0.002	8.97
Information strain	0.26865	0.01522	17.65	<0.001	–
Time spent online × information strain	0.00929	0.00344	2.70	0.007	7.16

s = *S*-value (*p*-value converted to *s*-value – in bits).

absence of practical effect ($b = 0.01$, BCa CI [−0.05, 0.07], $z = 0.39$, $p > 0.05$, $p = 0.69$). Thus, from these results, we can conclude that the effect of time spent online on the likelihood of spreading fake news is partially moderated by information strain, so the hypothesis is supported by the data analysis (see Table 3). However, it is recommended to interpret the results with caution. Regarding the interaction between time spent online and informational strain, a high significant one is recorded, but if we investigate the confidence interval, we notice that the lower threshold is very close to the null value, which could mean that the effect is of very low significance or without practical significance. Comparing the confidence interval of this interaction with the confidence interval observed following exposure to a low level of informational strain, we can see that its lower threshold is far from the null value even if the interaction has no practical significance, $p = 0.69$. This could lead to the possibility of finding an interaction of very low significance even if in this case was not recorded.

Comparisons between groups in terms of general health, perceived stress, resilience, coping strategies, and fear of war

We expected that those who had interacted with war victims would report higher levels of perceived stress and of fear of war, with lower levels of resilience and of general health, and would use different coping strategies to those who had not interacted with them. As we can see below (see Table 4), this hypothesis is only partially supported. Those who worked with refugees reported higher levels of fear of war, the size effect being small: $t(633) = 2.343$, $p = 0.010$, $d = 0.20$, than those who did not. Regarding coping strategies, we may observe that those who worked with refugees chose to focus on rumination as an emotional regulation strategy, the size effect being small: $t(633) = 1.718$, $p = 0.04$, $d = 0.14$, while those who did not work with refugees chose to focus on blaming others, the size effect being small in this case too: $t(633) = -1.656$, $p = 0.04$, $d = 0.14$.

As can be seen, the observed effect sizes are small, which suggests that the results obtained should be interpreted with caution. The low magnitude of the effect can be due to the lack of an association of the constructs in reality (the risk of committing a type 1 error that can occur when there is a large sample—statistically significant associations are obtained but of a low magnitude due to the large number of respondents even if in reality this association does not exist; it happens when the null hypothesis that is true in the general population is rejected) or of a lack of practical applicability of the results obtained. Another error that can occur is type 2 error, which it is not in the case of the present study (it happens when we have a small sample—we have a large effect, but the significance is low or non-existent; the null hypothesis that is false in the general population is not rejected). It is important then to investigate the accuracy of the effect size measure. For the first effect size, where we compared the fear of war level between the two groups: $d = 0.20$, we report the following confidence interval: 95% [−0.03, 0.37]. For the second effect size (those who worked with refugees chose to focus on rumination as emotional regulation strategy): $d = 0.14$, we report the following confidence interval: 95% [−0.02, 0.31]. As for the third effect size (those who did not work with refugees chose to focus on blaming others as emotional regulation strategy): $d = 0.14$, we report the following confidence interval: 95% [−0.31, 0.02]. As we can see, the width of the confidence intervals are very large, another reason to interpret the obtained results with caution (the fact that the intervals are very wide indicate that we do not have very much information about the effect; this implies there is a need for further studies on this topic to gain more knowledge).

Discussions

The present study had two objectives. The primary objective was to investigate the reasons behind people's tendency to share fake news on social media, especially when they are exposed to traumatic events. The secondary objective was to observe how specific psychological correlates change among frontline people who work and interact with war victims.

Following the statistical analysis, it was possible to observe the impact that information strain has on the probability of sharing fake news. The variable mentioned above (information strain) was a moderating factor of both (a) the relationship between social media information overload related to the armed conflict and the probability of spreading fake news, and (b) the relationship between time spent online and fake news sharing. Thus, our results regarding the link between information overload, information strain, and the probability of spreading fake news are consistent with those reported by Bermes (2021). We can explain these findings by adapting the transactional stress theory (Lazarus, 1993) to the present traumatic situation and arguing that when social media consumers are exposed to information strain (they feel that information about the war between Ukraine and Russia is everywhere, overwhelming and invading their lives), they will tend to resort to certain behaviors to avoid the negative emotions provoked by exposure to such information (Luqman et al., 2017). Thus, when social networks are loaded with information that only deals with the subject of war, it can be assumed that people will wish to avoid contact with this information as much as possible, so they will read the articles in question as superficially as they can and will not want to devote effort to deep processing of information or to checking whether the source is indeed accurate, which can lead in turn to a greater likelihood of spreading fake news (Laato et al., 2020). Regarding the link between time spent online, information strain, and the probability of spreading fake news, the results obtained in this study are consistent with those of Apuke and Omar (2021). They can be explained by the fact that when consumers spend the greater part of their time online rather than limiting their use of social media, they are very likely to have much more contact with the huge amount of information found online that is related to the armed conflict (Fletcher et al., 2018). This behavior can activate their desire to go through the information as quickly as possible (so that they are informed, which somewhat mitigates the uncertainty caused by the global crisis), and also their wish not to come into contact with reality through deep

TABLE 4 Comparisons between those who worked with refugees and those who did not.

Variables	The group who worked with refugees (*N*=200)		The group who did not work with refugees (*N*=433)		*t*	*p*	*s*	Size effect (Cohen's *d*)
	M	*SD*	*M*	*SD*				
Self-blame	12.60	3.673	12.61	3.454	−0.049	0.480	1.06	–
Acceptance	14.40	3.601	14.57	3.303	−0.594	0.276	1.86	–
Rumination	15.45	3.455	14.92	3.613	1.718	0.043*	4.54	0.14
Positive refocusing	12.55	3.775	12.60	3.916	−0.161	0.436	1.2	–
Refocus on planning	15.89	3.119	15.81	3.289	0.260	0.397	1.33	–
Positive reappraisal	15.58	3.522	15.31	3.588	0.855	0.196	2.35	–
Putting into perspective	14.40	3.751	14.26	3.721	0.413	0.34	1.56	
Catastrophizing	10.36	3.829	10.55	3.824	−0.588	0.278	1.85	–
Blaming others	9.31	3.727	9.84	3.722	−1.656	0.049*	4.35	0.14
Perceived stress	19.62	7.141	19.28	7.325	0.544	0.293	1.77	–
Resilience	3.17	0.851	3.22	0.833	−0.705	0.240	2.06	–
General health	15.53	8.211	16.46	8.082	−1.339	0.090	3.47	–
Fear of war	3.17	0.904	2.99	0.903	2.343	0.010**	6.8	0.20

**$p < 0.01$; *$p < 0.05$; M, Mean; SD, Standard deviation; s = *S*-value (*p*-value converted to *s*-value – in bits).

processing and to avoid the negative emotions that might arise from understanding the material read) and implicitly to further distribute news items of questionable quality (Huang et al., 2015).

Regarding the secondary objective of the study, the results showed that there were no significant differences between those who interacted with war victims and those who did not in terms of their degree of perceived stress, resilience, and general health. This probably happened because those who interacted with refugees were exposed to the traumatic event only indirectly, through the aid activities they carried out. That is why it is possible that the stress that comes with direct exposure to a traumatic event was not felt so strongly and, as an implicit consequence, that their general state of health was not affected to a significant extent. The explanatory hypotheses mentioned above are supported by the results of the systematic review of May and Wisco (2016), which show that indirect exposure to traumatic events can indeed have negative consequences for psychological wellbeing, but that the probability of developing a disorder such as PTSD merely from indirect exposure to trauma is much lower (Neria and Sullivan, 2011) than would be the case from direct exposure.

Turning to the emotional regulation strategies used by the two groups of participants, we noticed that those who interacted with war victims used rumination as an adaptive mechanism, a result consistent with those obtained by Szabo et al. (2017). Basharpoor et al. (2015) and Im and Follette (2016) state that rumination is frequently associated with exposure (direct or indirect) to traumatic events, with individuals tending to think repetitively about the consequences of these experiences, the emotions they provoked, and the causes of the events in question. This being the case, it can be assumed that those who interacted with refugees from Ukraine resorted to rumination since they had a greater opportunity to think about what they would have done in such a situation, how they would have felt, and how they would have behaved. At the same time, it can also be surmised that when these subjects were exposed to the war through their interaction with its victims, they gained a much better understanding of the situation these people were experiencing, hence the greater degree of fear of war recorded among those who helped refugees (Pine et al., 2005; Zhen et al., 2018). When we look at the strategies adopted by those who had not interacted with refugees, we can see that they resorted to blaming others for the traumatic conflict. Given that this was the category of participants least exposed to trauma (either directly or indirectly) we can understand the emotional regulation strategy they resorted to (those who started the war are to blame for what is happening). In the case of those directly exposed to trauma, the emotional regulation strategy often encountered is self-blame (McNally, 2003; Ceschi et al., 2014; Reich et al., 2021).

Limitations

The present study investigates issues related to the war between Russia and Ukraine in both the online environment (social networks) and the offline environment (interaction with refugees), and was completed by a large sample of respondents. It also deals with the subject from the point of view of demoralization, a phenomenon often encountered in war victims, related to depression and high suicidal risk, which is to be introduced as a concept in the next version of the DSM. Regarding the limitations of the study, all the instruments used to measure the variables of interest were of the self-reported type, leading to a possibility that subjects might give answers that corresponded to their need to be socially acceptable. At the same time, there were no items designed to measure participants' motivation for completing the questionnaire, so they may have run out of patience as they were filling it in and not paid great attention to the answers they were giving. Another limitation concerns the design of the study: it is cross-sectional, meaning that we cannot highlight causal links. A further limitation would be that only one of the instruments used had

been validated for the Romanian population and that three of the constructs of interest were measured not by a specific scale but by items used by other authors in similar contexts, adapted to the needs of the present study.

Practical implications

Although the effect sizes recorded in this study are low, suggesting a reduced practical applicability, but also the cautious interpretation of the results obtained due to the risk of a type I error, the present research brings with it the further investigation of the recorded phenomena. The subjects who participated in the study were exclusive of Romanian nationality, Romania not being a country directly involved in the war. In addition to the previously mentioned aspects, the fact that Romania did not directly participate in this armed conflict may represent another factor for the effects to be so low (not participating in the war, the psychological impact of the calamity may not have been so high). However, it is recommended to further investigate the psychological impact of disasters on people so that specialists know how to act in the future (interventions, psychological support). Although there is limited practical applicability of the study, it can represent a first step for carrying out other similar studies in the future to highlight the functioning mechanisms of people when natural disasters occur. This aspect can lead to the prevention of hysteria that occurs in such cases of uncertainty (let us take the example of the COVID-19 pandemic) by creating protocols for the effective management of crises.

Conclusion

The exchange of information without prior verification is always harmful, but the seriousness of this problem is exacerbated during crises by the negative effects of false news. Although it is vital to help those who have been subjected to such disasters, it is also crucial to support those who care for them (counselors, doctors, volunteers). Given all that has been said above, it is imperative that these topics be studied further. As for the practical implications of the study, we assume that the moment we reach a clear understanding of the reasons why people share fake news, we will be able to combat the phenomenon using appropriate methods. Thus, Siricharoen and Siricharoen (2018) propose using infographics to reduce information overload on social networks, Roozenbeek and Van der Linden (2019) consider creating games to teach people how to detect fake news, and Okeke et al. (2018) regard it as necessary to develop an intervention to help people reduce the time they spend online. Regarding asylum seekers and the use of narratives, Costanza et al. (2022a) recommend an intervention based on meaning-centered therapy. It is also crucial to help those on the front line, the health providers, to be able to find resources and healthy coping strategies to stay healthy both physically and mentally. When the problems they face are discovered, specialists such as psychologists and psychotherapists will be able to create interventions to help these people reduce their levels of stress, burnout, and withdrawal. Naudé and Rothmann (2006) emphasize the need for psychological support and supervisors for health providers.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by the Ethics Committee of the West University of Timișoara. The relevant registration number is 2298/16.01.2023. The patients/participants provided their written informed consent to participate in this study.

Author contributions

MV, G-ML, and AK: conceptualization and methodology of the study. OT, CG, and G-ML: data collection and data proofing. MV and G-ML: data analysis and manuscript writing. AK, OT, and CG: manuscript review. All authors contributed to the article and approved the submitted version.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2023.1151794/full#supplementary-material

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The impact of the Russian-Ukrainian war on the mental health of Italian people after 2 years of the pandemic: risk and protective factors as moderators

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Objective: This contribution aimed at investigating the moderating role of risk (e.g., the negative influence of COVID-19 on mental health) and protective (e.g., post-traumatic growth) factors on the relationship between the concern for war and stress and anxiety/depression levels among Italian people.

Methods: A questionnaire that included sociodemographic characteristics, the Perceived Stress Scale (PSS-4), the Patient Health Questionnaire (PHQ-4), the Brief Resilience Scale (BRS), the Post-Traumatic Growth Inventory (PTGI), and questions formulated *ad hoc* about concern for war was administered online. A sample of 755 participants (65.4% females, mean age = 32.39, SD = 12.64, range = 18–75) was recruited by convenience and snowball sampling. The researchers spread the link to the questionnaire to their acquaintances asking them to fill it out and to recruit other people.

Results: Results showed that concern for war significantly augmented the levels of stress and anxiety/depression in Italian people. Being a healthcare professional or having a chronic illness negatively moderated the effect of concern for war on stress and anxiety/depression. Instead, the negative influence of COVID-19 on mental health positively moderated the effect of concern for war on stress. Moreover, the overall positive changes after trauma and four of its five scales (i.e., Relating to Others, New Possibilities, Personal Strength, and Spiritual Change), negatively moderated the effect of concern for war on anxiety/depression.

Conclusions: In conclusion, concern about the Russian-Ukrainian war affects the mental health of the Italian population even if they are not directly involved in the conflict.

KEYWORDS

Russian-Ukrainian war, mental health, psychological well-being, moderators, Italian citizens

1. Introduction

In 2020, the world was attacked by an insidious virus that changed our daily routines and everything we took for granted until then. We entered the new reality of COVID-19 pandemic rules aiming to contain the pandemic's deadly effects. Work, education, and social interactions changed in ways that had a significant psychological impact on individuals (Talevi et al., 2020).

Even though we are still grappling with the unprecedented scale of disruption the pandemic caused in our lives, we are slowly returning to a less isolated lifestyle. In the midst of this global recovery, since 24 February 2022, the world is experiencing a shocking new reality: the Russian-Ukrainian war. The beginning of this war has dimmed prospects of a post-pandemic economic recovery, triggering a humanitarian crisis throughout Europe as food and commodity prices rose (Orhan, 2022; The Lancet Regional, 2022).

These two crises have also been considered able to compromise physical and mental health globally (Kalaitzaki et al., 2022b), and the relationship between lifetime trauma and vulnerability to the development of mental disorders has been extensively investigated (e.g., Castro-Vale et al., 2020; Silovsky et al., 2022). Together with the COVID-19 pandemic, the war has generated stressors and increased anxiety in different areas of the world (Surzykiewicz et al., 2022).

Much research has been undertaken in the past on the negative effects of wars, terrorist acts, and natural disasters on mental health. Studies in countries that have experienced war and/or armed conflict have shown significant deterioration in mental health among populations directly involved (Bogic et al., 2015; Borho et al., 2020). Recent research has investigated the effects of war on the mental health of citizens directly involved in the Russian-Ukrainian war (Kurapov et al., 2022, 2023; Xu et al., 2023). The results confirm the negative effects of war-related to mental health, fear, substance use, stress, loneliness, burnout, and other related conditions. War-affected populations are at increased risk for mental health problems including PTSD, anxiety and depression (Morina et al., 2018). However, images and information on war posted on social media can also have a negative impact on mental health outside Ukraine. The fear and uncertainty created by the war can have lasting effects on the mental health of Ukrainians and people from other parts of the world, even if they are not directly involved (e.g., Gottschick et al., 2023). The war in Ukraine is the first war in history to be covered almost continuously by the media, and its dramatic scenes and images can be viewed by anyone with access to the Internet or television. Consequently, the psychological negative effects of the war can be felt by the citizens of other countries, even if the effects pale in comparison to those experienced by the citizens of Ukraine (Chudzicka-Czupała et al., 2022). Results have indicated the occurrence of anxiety disorders, acute stress reactions, depressive episodes, cognitive disorders, personality changes, or post-traumatic stress disorder (PTSD) among not only combatants, veterans, and refugees but also among broader groups influenced by mass media coverage of war (Lopez-Ibor et al., 2005; Calderoni et al., 2006; Wahlstrom et al., 2008; Iversen and Greenberg, 2009; Vermetten et al., 2014; Bisson et al., 2015; Johnson et al., 2021). A study on Israeli adults, during the 2014 Gaza war, showed that the frequency of news consumption was associated with anxiety, hyperarousal, and sleeping disorders (Bodas et al., 2015). The negative psychological effects of continued exposure to information about war have contributed to an overall increase in psychopathology, mental health problems, psychosocial dysfunction, self-destruction, and other mental disorders that pose a disease burden for the entire society (Rozanov et al., 2019). Recently, Hoyt et al. (2022) revealed that frequency of exposure to news of traumatic events, such as the COVID-19 pandemic, was a predictor for greater anxiety and depression among United States adults.

Some studies (Brooks et al., 2020; Rubin and Wessely, 2020) have highlighted how the isolation measures, quarantine, and social distancing of the pandemic have affected habitual activities and routines, and this has brought about an increase in loneliness, anxiety, depression, insomnia, harmful use of alcohol and drugs, and self-injurious or suicidal behavior (World Health Organization, 2020). Social isolation as a strategy to contain the spread of COVID-19, was experienced as a traumatic event by young Italian people with pre-existing psychological problems and dysfunctional thinking styles (Giusti et al., 2020). Therefore, undoubtedly, the COVID-19 pandemic had a significant impact on mental health (Cénat et al., 2020; Usher et al., 2020).

Kalaitzaki and Tamiolaki (2022) and Kalaitzaki et al. (2022b) hypothesized that the combined effects of COVID-19 and the war in Ukraine would likely put the mental health of women, the elderly, people with disabilities, and healthcare professionals at serious risk. Indeed, previous studies have found that females, during crisis situations, exhibited more posttraumatic stress disorder (PTSD) or secondary traumatic stress (STS; Kalaitzaki, 2021) and were more prone to anxiety (Wang et al., 2020) than men. Other studies (e.g., Gorrochategi et al., 2020) showed that individuals with a chronic disease appear to experience more symptoms of stress and anxiety than those who do not have a chronic disease during emergency situations, such as COVID-19 pandemic. Moreover, some evidence (e.g., Sergeant et al., 2020) suggests that people with pre-existing mental disorders are more susceptible to the effects of major life stress, such as epidemics and wars. Finally, other scientific evidence has showed that healthcare workers are prone to suffering psychological disorders such as stress, anxiety, and depression due to the specifics of their daily work (Garcia et al., 2022), especially during times of great tribulation. However, compared to non-frontline healthcare workers, frontline healthcare workers were more likely to report anxiety and stress symptoms (Alshekaili et al., 2020).

Italy is not a country directly involved in the ongoing war, but the war has also affected the Italian population because they fear that hostilities could spread beyond Ukraine's borders. Furthermore, Italy is among the countries with the biggest Ukrainian diaspora. Indeed, over 100,000 Ukrainian sought shelter in Italy after the war started (Mancino, 2022) leading to higher risk of more intensive war-related exposure in the local population as well as a media bombardment process with dire scenes. Long-term or repeated exposure to perceived helplessness is a risk factor for depression, especially when the psychological spectrum of COVID-19 is still present (Jawaid et al., 2022).

Although there is evidence that traumatic events have many negative physical and psychological consequences, many studies examined the importance of personal and social resources (protective factors) that can positively moderate the responses to traumatic events. Researchers have identified multiple risk and protective factors that can impact mental health outcomes during a traumatic experience. Among the identified protective factors there are social support, higher post-traumatic growth (PTG) levels and resilience. Bottomley et al. (2017) showed that social support is central to reducing distress and improving the ability to adapt to traumatic events. Some studies (e.g., Shavitt et al., 2016) have shown that social support is negatively correlated with levels of stressful life events and positively correlated with mental health across cultures. These results were consistent with previous research that has emphasized the importance of social support in decreasing the risk of PTSD (Paoletti et al., 2023). Other studies (Luchetti et al., 2020; Laconi et al., 2021) have also found that being unmarried, lack of social support and

loneliness bear a significant mental health toll. These findings were supported by Kalaitzaki (2021) who found that people living with a partner reported less posttraumatic stress disorder/secondary traumatic stress (PTSD/STS), more posttraumatic growth, more frequent use of adaptive coping strategies than those living alone. Some researchers believe that victims are always worried about the negative consequences of stressful events, fearing that the situation will worsen and that their lives will get out of control (Shigemoto et al., 2017). Inquiring about the negative psychological effects of victims' trauma may prompt the victims to recall the trauma, and this may exacerbate their distress. Instead, focusing on positive psychological changes increases resilience to trauma by strengthening victims' positivity and reminding them that the trauma did not destroy their entire lives and that the stressful event brought about positive changes (Meyerson et al., 2011).

When faced with a life-threatening event, people tend to reevaluate their goals and priorities, feel more socially connected, and express a greater appreciation of life (Aflakseir et al., 2016). Tedeschi and Calhoun (1996) identified this positive psychological change, which creates a new perception of life after a challenging event, as post-traumatic growth (PTG). PTG can be observed in five domains: valuing interpersonal relationships, greater spiritual gains, greater appreciation of life, discovering new possibilities, and personal strength (Tedeschi and Calhoun, 1996). PTG may coexist with post-traumatic stress symptoms (Kalaitzaki et al., 2022a; Kalaitzaki et al., n.d.), and it may also have a buffering effect on the negative effects of pain and depression (Silva et al., 2012; Wang et al., 2017). Sawyer et al. (2010) also found that PTG was positively associated with positive mental health and subjective physical health but negatively associated with negative mental health. Most studies have found that higher PTG levels are associated with fewer depressive symptoms (Shand et al., 2015). However, some authors (Bianchini et al., 2017) found that personal PTG was predicted by moderate levels of depression in a sample of college students, showing that moderate depressive levels and the related distress could promote the drive to overcome the psychological consequences of the traumatic event. Kalaitzaki et al. (2022c) found emotional social support during the first lockdown and instrumental social support during the second lockdown to predict PTG. While posttraumatic growth is "positive change that an individual experiences as a result of the struggle with a traumatic event" (Calhoun and Tedeschi, 2000, p. 135), resilience is often thought of as the ability to continue living a purposeful life after experiencing hardship or adversity (Thabet, 2017). In contrast to resilience, in which the individual returns to baseline functioning following a highly stressful or traumatic experience, posttraumatic growth is characterized by post-event adaptation that exceeds pre-event levels. Anjum et al. (2023) highlighted that exposure to war-related violence was associated with psychiatric symptoms, while resilience function of character was negatively associated with psychiatric symptoms. However, resilience has been found to correlate moderately with well-being, and higher levels of resilience have been found to be associated with lower levels of reported distress (Kimhi et al., 2020), anxiety, and depression (Barzilay et al., 2020). Resilient individuals are more likely to be proactive in seeking social support and confident in resolving negative events, which has a positive impact on mental health development (Ye et al., 2020). Resilience can transform negative thoughts and feelings into more positive views (Anjum et al., 2023). In a recent study (Xu et al., 2022) a mediated regulation model examined the effects of intrusive rumination on the creativity of college students during the COVID-19 pandemic, as well as the mediating effect of post-traumatic growth and the moderating role of psychological resilience. The results showed that intrusive rumination affected creativity directly and also indirectly through post-traumatic growth. The psychological resilience played a moderating role between intrusive rumination and creativity.

The general aim of this study was to investigate whether and how the war in Ukraine has affected the mental health and well-being of Italian citizens, in order to understand and discover connections and relations among protective factors and stressors. Indeed, we focused on both the negative psychological impact (i.e., anxiety, depression, stress) and the potential positive changes experienced after a traumatic event (i.e., posttraumatic growth in the aspects of relating to others, new possibilities, personal strength, spiritual change, and appreciation of life). In particular, we hypothesized that concern for war would have:

1. A greater negative impact on stress and anxiety/depression levels depending on demographics such as gender (females), age (older), and living conditions (alone), having children (no), those suffering a psychological disorder, chronic illness or underlying diseases;
2. A less negative impact on stress and anxiety/depression levels in resilient people, and in healthcare providers;
3. A greater negative impact on stress and anxiety/depression levels in people who experience the effects of traumatic events (i.e., those informing most frequently themselves about the war, those that COVID-19 has already had a negative impact on their mental health, and those who have less PTG after a traumatic event).

2. Materials and methods

2.1. Participants

The study involved 755 participants, 491 women (65%) and 260 males (34.4%; 4 missing values), aged between 18 and 75 years old (M_{age} = 32.39, SD = 12.64). Most of them were married or in a relationship (53.6%), cohabiting (86.9%), had no children (75.8%) and declared not to suffer from any chronic illness/underlying diseases (83.6%) or psychological disorders (87.6%). The majority of the participants had obtained a secondary high school diploma (48.9%), were students (30.6%), were living with their family (68.6%) in urban areas (58.1%) and stated that they used Internet as a reference source for their information about war (54.2%). Approximately one third of the sample were healthcare professionals (33.3%) such as physicians (7.5%), nurses (6.0%), psychologists (1.9%), social workers (0.8%) and para-clinicians (6.1%).

2.2. Data collection and procedure

This cross-sectional study was conducted as part of an international project, "The impact of war in Ukraine on mental health", which aimed to investigate how the war in Ukraine affects the

psychological well-being and mental health of people globally. We began the data collection shortly before the election of a new Italian government in 2022. During this period, Italian citizens lived in a context of general social unease related to concerns about the fate of own country from a political point of view, price increases following Russia's invasion of Ukraine, and the COVID-19 pandemic. Despite a slow global recovery, the human, social, and economic effects of COVID-19 were still highly significant. On top of all this, there was also a concern, exacerbated in that period by the media, of not having enough commodities, such as wheat and gas, which Italy imports from the two countries involved in the conflict. Additionally, we do not underestimate the continuous media exposure of Italian citizens to dramatic scenes and images of war.

The data collection was collected over a one-month period, specifically from 20 September to 24 October 2022, by an online survey. A convenience and snowball sampling technique were used. For this reason, the researchers disseminated the link to the Google Forms questionnaire to their friends, acquaintances, and extended family members. Either through messaging apps (e.g., WhatsApp) or in person, they sent the link and invited their acquaintances to fill out the questionnaire, asking them in turn to spread the link and invite other people. The researchers were involved in spreading the link as much as possible but in focusing, in particular, on identifying also healthcare professional people among their acquaintances. Participants were told that their participation was voluntary, their answers would be confidential, and they could withdraw from the study at any time without any explanation. By entering the online webpage of the survey, participants confirmed that they had read and understood the information about the study and gave their consent to be involved in the research. The study was conducted in conformity with the Declaration of Helsinki requirements, and it was approved by the Ethical Committee of the Hellenic Mediterranean University (no. 87/17-10-2022), in which the principal investigator of the international study (AK) was affiliated.

2.3. Measures

A back-translation procedure (Brislin, 1970) was used for scales not already translated and validated in Italian (i.e., resilience, depression and anxiety, and questions about the impact of the war on mental health).

2.3.1. Demographic information

At the beginning of the survey, participants answered demographic questions to provide basic descriptive information such as gender (0 = Males; 1 = Females), age, marital status, educational level, work and, in addition, if they were or not a health professional (i.e., "Are you a health professional working in a health structure (e.g., a hospital)?" – 0 = No; 1 = Yes, a doctor; 2 = Yes, a nurse; 3 = Yes, a psychologist; 4 = Yes, a social worker; 5 = Yes, other paraclinical staff), health personal status (i.e., "Do you suffer from any chronic illness or underlying diseases?" and "Do you suffer from a psychological disorder?" – 0 = No; 1 = Yes), number of children (0–5), and whether or not they lived with other people ("Who do you live with at home?" – 1 = Alone; 2 = Spouse/Partner; 3 = Family; 4 = Other). For the purposes of our analyses, we recoded answer values of health professional question in this way: 0 = No; 1 = Yes. We did the same for the question about number of children (0 = No children; 1 = With children) and cohabiting question (1 = Alone; 2 = With other people).

2.3.2. Concern for the war in Ukraine

Concern for war in Ukraine is defined as the fear of Italian people that they as Italian citizens could be directly involved in the war in the future and that the war itself could any case negatively affects their economic status and psychological state. It included five questions: "Do you think that at some point – sooner or later – our country will also have a war?"; "How stressed are you in the idea that at some point our country might also have a war?"; "How worried are you about the economic crisis that the war in Ukraine has brought about?"; "How much has the economic crisis caused by the war in Ukraine affected you personally?"; "How much do you think the news about the war in Ukraine affects your psychological state?". Participants were asked to answer using either 5-point Likert scale (i.e., 0 = *Not at all* to 4 = *A lot* or 0 = *Not at all* to 4 = *More than 7 h a week*) either 7-point Likert scale (i.e., 0 = *Not at all* to 6 = *Too much*). The mean of the above five questions defined the Concern for War variable. On these five questions, we carried out a one-factor Principal Component Analysis (PCA). The one-factor solution accounted for 51.76% of the total variance with the unique eigenvalue >1. The Cronbach's α was 0.76.

2.3.3. Perceived stress

We used the four-item version of the Perceived Stress Scale (PSS-4; Cohen et al., 1983) in its Italian translation and adaptation version (Fossati, 2010) to measure the degree to which people assess situations in their lives as stressful. The four-item version was developed as a subset of the longer 10-item version (Cohen et al., 1983). For each item, the respondents rated how often they experienced stressful situations in the previous month using a 5-point Likert scale ranging from 0 (*Never*) to 4 (*Very often*). Two of the PSS-4 items were reverse scored ("In the last month, how often have you felt confident about your ability to handle your personal problems?" and "In the last month, how often have you felt that things were going your way?"). Higher values on the PSS-4 indicate more stress. In this study, the Cronbach's α for this scale was 0.69.

2.3.4. Depression and anxiety

We used the four-item version of the Patient Health Questionnaire (PHQ-4; Kroenke et al., 2009) to measure core symptoms of depression and anxiety. This short form was derived by combining the two-item measure for depression of the Patient Health Questionnaire (PHQ-2; Kroenke et al., 2003) and the two-item Generalized Anxiety Disorder scale (GAD-2; Spitzer et al., 2006). Participants rated the frequency of a given symptom in the past 2 weeks on a 4-point Likert scale, from 0 (*Not at all*) to 3 (*Nearly every day*). Sample items from the scale are "Little interest or pleasure in doing things" and "Feeling down, depressed, or hopeless." The total PHQ-4 score was extracted by adding together the scores of each of the four items. In this study, the Cronbach's α for this scale was 0.87.

2.3.5. Frequency and sources of war's information

Two questions were used to assess the frequency with which people inform themselves about war ("How often are you informed about the war in Ukraine?") and the sources of war's information ("Where do you get your information from?"). Participants were asked

to answer using a 5-point Likert scale, from 1 (*Not at all*) to 5 (*More than 7 h a week*) for the first question; and choosing from the following alternatives for the second question: *TV, Internet, Newspapers, Friends/Acquaintances, Other*. With regard to the first question for the purposes of the analyses, we recoded answer values in this way: 1 = Not at all; 2 = 1–2 h a week; 3 = More than 2 h a week. Instead, for the second question, among the alternatives, we considered only two sources: TV and Internet (1 = TV; 2 = Internet).

2.3.6. Impact of COVID-19 on mental health

One question was developed to assess the impact of COVID-19 pandemic on mental health ("How negatively has COVID-19 affected your mental health overall?"). Participants were asked to answer using a 7-point Likert scale ranging from 0 (*Not at all*) to 6 (*Too much*).

2.3.7. Resilience

The Brief Resilience Scale (BRS; Smith et al., 2008) was used to measure resilience, defined as the ability to bounce back or recover from stress. The scale consists of six statements. The participants rated each of them on a 5-point Likert scale, from 1 (*strongly disagree*) to 5 (*strongly agree*). Sample items from the scale are "It does not take me long to recover from a stressful event" and "It is hard for me to snap back when something bad happens". Three of the BRS items ("I have a hard time making it through stressful events," "It is hard for me to snap back when something bad happens", and "I tend to take a long time to get over setbacks in my life") were reverse scored. In this study, the Cronbach's α for this scale was 0.83.

2.3.8. Positive changes after traumatic events

The Post-Traumatic Growth Inventory (PTGI; Tedeschi and Calhoun, 1996) in its Italian version (Prati and Pietrantoni, 2014) was used to assess the positive changes experienced after extremely stressful and potentially traumatic events. The scale consists of 21 items organized into five factors: Relating to Others (seven items—for example, "I have more compassion for others"), New Possibilities (five items—for example, "I am able to do better things with my life"), Personal Strength (four items—for example, "I discovered that I'm stronger than I thought I was"), Spiritual Change (two items—for example, "I have a better understanding of spiritual matters"), and Appreciation of Life (three items—for example, "I have a greater appreciation for the value of my own life"). The items are rated using a 6-point Likert scale with values ranging from 0 (*I did not experience this change as a result of my crisis*) to 5 (*I experienced this change to a very great degree as a result of my crisis*). In this study, the Cronbach's α for this scale was 0.96.

2.4. Statistical analysis

Descriptive statistics and correlation analysis between key variables were carried out using SPSS 26.0. To control the familywise type I error in correlations, we used the Bonferroni correction. The Hayes (2022) PROCESS macro (model 1) for SPSS and bootstrap procedures ($N = 5{,}000$) were adopted to examine the moderation models, with Concern for the war as predictor, Stress and Depression-Anxiety as outcome variables, and the following 17 variables as moderators: Sex, Age, Resilience, Healthcare profession, Chronic illness, Number of children, Cohabiting, Psychological disorder, Frequency of war news, Sources of war's information, COVID-19, Five Aspects of Posttraumatic Growth (Relating to Others, New Possibilities, Personal Strength, Spiritual Change, and Appreciation of Life), and Posttraumatic Growth total score.

3. Results

3.1. Descriptive statistics and correlation analyses

The distribution of background variables (e.g., gender, age, marital status, etc.) that we will use as moderators in the subsequent analyses has been presented in the Participants section. The descriptive statistics (mean and standard deviation) of all the other variables involved in the study as predictor, outcome variables and moderators are provided in Table 1.

Table 1 shows also the correlation matrix between those variables. Out of 66 correlations, 31 were significant with Bonferroni correction ($p < 0.00076$). The first group of strongest significant correlations ($0.48 < r < 0.94$) was between the subscales of the Posttraumatic Growth. The second group ($0.28 < r < 0.66$) was between the following variables: Concern for war, Stress, Anxiety/Depression, COVID-19, and Resilience. All these last variables correlated positively one each other, apart from Resilience that had a negative correlation with all the others.

We also report the threshold values for the clinical scales used in our research. As far the Stress (PSS-4; Cohen et al., 1983), the 65.7% of our sample obtained a score ranging from 0 to 8 and the 32.7% obtained a score ranging from 9 to 16. According to the threshold values of the Anxiety/Depression scale (PHQ-4; Kroenke et al., 2009), in our sample, the 22.6% fell into the "Normal" category of psychological distress, the 39.7% into "Mild", the 20.9% into "Moderate" and the 15.5% into "Severe" category. Finally, with regard to the Posttraumatic Growth (Tedeschi and Calhoun, 1996), 50.7% of participants obtained a score ranging from 0 to 52 and the 47.3% ranging from 53 to 105.

3.2. The effect of concern for war on stress and the role of the moderators

The results of the moderation analysis for Stress are shown in Table 2.

As expected, in all analyses, Concern for war significantly augmented the levels of stress in Italian people. Additionally, all the moderators, apart from Cohabiting, had a significant impact on Stress.

As far as the direction of these effects, males rather than females, younger rather than older people, people with no children compared to people with at least one child, and not being a healthcare professional in comparison to healthcare professionals had higher levels of Stress. People also who were less resilient compared to the more resilient, and people with psychological disorders or with chronic diseases compared to people without, had higher levels of Stress. In terms of the trauma variables, the greater the influence of COVID-19 on mental health, the less informed people about war and the more they received their information via the Internet rather than TV, the higher the levels of Stress. The more positive changes occurred

TABLE 1 Descriptive statistics and correlations matrix among predictor, outcome variables and some moderators.

Variables	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. Concern for war (0–4)	2.17	0.76	1										
2. Stress (0–16)	7.37	3.25	0.28*	1									
3. Anxiety/Depression (0–12)	4.89	3.21	0.31*	0.66*	1								
4. Frequency of war news (1–3)	2.07	1.05	0.15*	−0.10	−0.11	1							
5. COVID-19 (0–6)	3.63	1.75	0.42*	0.38*	0.47*	−0.04	1						
6. Resilience (1–5)	3.11	0.84	−0.29*	−0.57*	−0.51*	0.10	−0.41*	1					
7. PTG—Relating to Others (0–35)	15.88	8.87	0.06	−0.13	−0.07	0.04	0.09	0.03	1				
8. PTG—New Possibilities (0–25)	12.27	6.44	0.01	−0.16*	−0.08	0.02	0.03	0.08	0.79*	1			
9. PTG—Personal Strength (0–20)	10.47	5.29	−0.07	−0.24*	−0.13*	0.02	−0.03	0.20*	0.71*	0.86*	1		
10. PTG—Appreciation of Life (0–15)	8.35	3.95	0.10	−0.10	−0.04	−0.01	0.10	0.05	0.67*	0.79*	0.76*	1	
11. PTG—Spiritual Change (0–10)	3.30	2.78	0.08	−0.06	−0.03	0.10	0.09	0.02	0.56*	0.54*	0.50*	0.48*	1
12. PTG—Total Score (0–105)	50.08	24.23	0.03	−0.16*	−0.08	0.03	0.06	0.08	0.91*	0.94*	0.90*	0.85*	0.66*

*Bonferroni correction ($p < 0.00076$).

after traumatic events (i.e., total and subscale scores on PTGI), the lower the level of Stress.

Only three interaction effects were significant, that is, three variables moderated the effect of Concern for war on Stress: Healthcare profession, Chronic illness and Negative influence of COVID-19. We present below the analysis of the direction of each effect.

The slope for the interaction effect for Concern for war*Healthcare profession on Stress was significant and negative, explaining an additional 1.3% of the variance in Stress levels ($\Delta R^2 = 0.013$, $p < 0.01$). As expected, simple slopes analysis showed that, for those who are not healthcare providers, the effect of Concern for war on Stress was significant and positive (b = 1.42, s.e. = 0.17, t = 8.26, $p < 0.001$), while for healthcare providers it was no longer significant (b = 0.26, s.e. = 0.32, t = 0.81, $p = 0.419$).

The slope for the interaction effect for Concern for war*Chronic illness or underlying diseases on Stress was significant and positive. It explained an additional 0.9% of the variance ($\Delta R^2 = 0.009$, $p < 0.01$). Simple slopes analysis showed that, for both those who suffered and those who did not suffer from chronic illness or underlying diseases, the moderation effect was significant and positive. However, in line with our expectation, for those who suffered from chronic illness or underlying diseases, the effect (b = 2.07, s.e. = 0.36, t = 5.80, $p < 0.001$) was higher than for those who did not (b = 1.02, s.e. = 0.17, t = 6.17, $p < 0.001$).

Finally, the slope for the interaction Concern for war*Negative influence of COVID-19 on Stress was significant and positive. The moderation explained an additional 0.6% of the variance in Stress levels ($\Delta R^2 = 0.006$, $p < 0.05$). Simple slopes showed that, for people whose mental health was severely damaged by the COVID-19 pandemic, the effect of Concern for war on Stress was significant and positive (b = 0.88, s.e. = 0.23, t = 3.82, $p < 0.001$), while for people on whom the pandemic had not had a negative impact, the effect on Stress was not significant (b = 0.26, s.e. = 0.22, t = 1.19, $p = 0.236$).

3.3. The effect of concern for war on anxiety/depression and the role of the moderators

The results of the moderation analysis for Anxiety/Depression are shown in Table 3. In all analyses, Concern for war significantly increased Anxiety/Depression. More, out of the 17 moderators, 13 had a main effect on Anxiety/Depression.

As far as the direction of these effects, males rather than females, younger rather than older people, people with no children compared to people with at least one child, and not being a healthcare professional compared to professionals had higher levels of Anxiety/Depression. People less resilient compared to the more resilient, and people with psychological disorders or chronic illness compared to those who had not, had higher levels of Anxiety/Depression. In terms of trauma variables, the greater the influence of COVID-19 on mental health, the less informed people about war and the more they received their information via the Internet rather than TV, the higher the levels of Anxiety/Depression. The more positive changes occurred after traumatic events (i.e., total and subscale scores on PTGI, except for Appreciation of Life subscale), the lower the level of Anxiety/Depression.

TABLE 2 Effect of concern for war, of the moderators, and of their interaction on stress.

Moderators	Concern for war				Moderator				Interaction			
	b	S.E.	T	*p*	b	S.E.	T	*p*	b	S.E.	T	*p*
Sex (*N* = 740)	1.13	0.16	7.26	<0.001	−0.61	0.25	−2.42	<0.05	−0.37	0.33	−1.13	0.260
Age (*N* = 744)	1.11	0.15	7.54	<0.001	−0.07	0.01	−7.55	<0.001	−0.02	0.01	−1.87	0.062
Resilience (*N* = 741)	0.54	0.14	3.98	<0.001	−2.04	0.12	−16.84	<0.001	−0.27	0.14	−1.90	0.058
Healthcare profession (*N* = 744)	1.15	0.15	7.63	<0.001	−0.74	0.28	−2.69	<0.01	−1.16	0.36	−3.21	<0.01
Chronic illness (*N* = 730)	1.18	0.15	7.83	<0.001	1.03	0.32	3.24	<0.01	1.06	0.39	2.68	<0.01
Number of children (*N* = 744)	1.18	0.15	8.00	<0.001	−1.64	0.26	−6.27	<0.001	−0.44	0.34	−1.29	0.197
Cohabiting (*N* = 718)	1.13	0.16	7.29	<0.001	−0.45	0.40	−1.11	0.268	0.04	0.53	0.07	0.947
Psychological disorder (*N* = 706)	0.98	0.15	6.52	<0.001	2.64	0.37	7.21	<0.001	−0.11	0.47	−0.23	0.817
Frequency of war news (*N* = 741)	1.32	0.15	8.73	<0.001	−0.68	0.16	−4.30	<0.001	0.36	0.21	1.71	0.088
Sources of war's information (*N* = 670)	1.15	0.16	7.29	<0.001	0.83	0.25	3.36	<0.001	0.06	0.32	0.19	0.850
COVID-19 (*N* = 659)	0.57	0.17	3.30	<0.001	0.63	0.07	8.54	<0.001	0.18	0.08	2.20	<0.05
PTG—Relating to Others (*N* = 730)	1.24	0.15	8.08	<0.001	−0.05	0.01	−4.02	<0.001	−0.01	0.02	−0.30	0.762
PTG—New Possibilities (*N* = 731)	1.20	0.15	7.87	<0.001	−0.08	0.02	−4.70	<0.001	−0.04	0.02	−1.91	0.057
PTG—Personal Strength (*N* = 732)	1.10	0.15	7.36	<0.001	−0.14	0.02	−6.43	<0.001	−0.04	0.03	−1.44	0.151
PTG—Appreciation of Life (*N* = 732)	1.24	0.15	8.10	<0.001	−0.11	0.03	−3.78	<0.001	−0.04	0.04	−1.01	0.314
PTG—Spiritual Change (*N* = 730)	1.24	0.15	8.04	<0.001	−0.10	0.04	−2.28	<0.05	−0.06	0.05	−1.13	0.258
PTG—Total Score (*N* = 734)	1.19	0.15	7.83	<0.001	−0.02	0.01	−4.84	<0.001	−0.01	0.01	−0.88	0.381

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TABLE 3 Effect of concern for war, of the moderators, and of their interaction on anxiety/depression.

Moderators	Concern for war				Moderator				Interaction			
	b	S.E.	T	*p*	b	S.E.	T	*p*	b	S.E.	T	*p*
Sex (*N* = 742)	1.27	0.15	8.13	<0.001	−0.86	0.24	−3.54	<0.001	0.34	0.32	1.06	0.290
Age (*N* = 746)	1.23	0.14	8.72	<0.001	−0.07	0.01	−8.64	<0.001	−0.01	0.01	−1.21	0.226
Resilience (*N* = 741)	0.77	0.14	5.62	<0.001	−1.75	0.12	−14.22	<0.001	−0.13	0.14	−0.90	0.368
Healthcare profession (*N* = 746)	1.30	0.15	8.82	<0.001	−0.61	0.27	−2.27	<0.05	−1.06	0.35	−2.98	<0.01
Chronic illness (*N* = 732)	1.33	0.15	9.07	<0.001	0.93	0.31	2.99	<0.01	0.93	0.38	2.42	<0.05
Number of children (*N* = 746)	1.32	0.14	9.21	<0.001	−1.79	0.25	−7.10	<0.001	−0.20	0.33	−0.60	0.550
Cohabiting (*N* = 720)	1.30	0.15	8.61	<0.001	−0.03	0.39	−0.07	0.943	−0.22	0.51	−0.43	0.666
Psychological disorder (*N* = 708)	1.08	0.14	7.55	<0.001	3.17	0.35	9.11	<0.001	−0.09	0.44	−0.19	0.847
Frequency of war news (*N* = 743)	1.45	0.15	9.82	<0.001	−0.78	0.15	−5.06	<0.001	0.34	0.20	1.67	0.096
Sources of war's information (*N* = 672)	1.28	0.15	8.38	<0.001	0.89	0.24	3.76	<0.001	0.24	0.31	0.77	0.441
COVID-19 (*N* = 660)	0.44	0.16	2.66	<0.01	0.79	0.07	11.29	<0.001	−0.04	0.08	−0.54	0.590
PTG—Relating to Others (*N* = 730)	1.34	0.15	8.89	<0.001	−0.03	0.01	−2.52	<0.05	−0.04	0.02	−2.66	<0.01
PTG—New Possibilities (*N* = 731)	1.33	0.15	8.93	<0.001	−0.05	0.02	−2.66	<0.01	−0.05	0.02	−2.45	<0.05
PTG—Personal Strength (*N* = 732)	1.26	0.15	8.46	<0.001	−0.07	0.02	−3.34	<0.001	−0.06	0.03	−2.33	<0.05
PTG—Appreciation of Life (*N* = 732)	1.35	0.15	8.95	<0.001	−0.06	0.03	−2.04	<0.05	−0.07	0.04	−1.86	0.064
PTG—Spiritual Change (*N* = 730)	1.37	0.15	9.14	<0.001	−0.07	0.04	−1.69	0.092	−0.11	0.05	−2.02	<0.05
PTG—Total Score (*N* = 734)	1.29	0.15	8.61	<0.001	−0.01	0.01	−2.55	<0.05	−0.01	0.01	−2.17	<0.05

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Seven significant interaction effects arose between Concern for war and the following moderators: Healthcare profession, Chronic illness, overall Positive changes after trauma and four of its aspects (Relating to Others, New possibilities, Personal Strength, and Spiritual Change). We present below the analysis of the direction of each effect.

The slope of the interaction Concern for war*Healthcare profession on Anxiety/Depression was significant and negative, explaining an additional 1.1% of the variance in Anxiety/Depression levels ($\Delta R^2 = 0.011$, $p < 0.01$). As expected, simple slopes showed that, for those who were not healthcare providers, the effect of Concern for war on Anxiety/Depression was significant and positive (b = 1.54, s.e. = 0.17, t = 9.22, $p < 0.001$) while for healthcare providers it was no longer significant (b = 0.49, s.e. = 0.31, t = 1.56, $p = 0.121$).

The slope of the interaction effect Concern for war*Chronic illness or underlying diseases was significant and positive, explaining an additional 0.7% of the variance in Anxiety/Depression levels ($\Delta R^2 = 0.007$, $p < 0.05$). Simple slopes analysis showed that the effect of Concern for the war on Anxiety/Depression was significant and positive for both people who were not chronically ill (b = 1.19, s.e. = 0.16, t = 7.39, $p < 0.001$) and those who were chronically ill (b = 2.12, s.e. = 0.35, t = 6.09, $p < 0.001$), even if, in the latter case, the effect was much more positive. This outcome is in line with our expectation.

The slope of the interaction effect between Concern for war and the total score of the PTGI on Anxiety/Depression was significant and negative, explaining an additional 0.6% of the variance in Anxiety/Depression levels ($\Delta R^2 = 0.006$, $p < 0.05$). Simple slopes analysis showed that both in the absence of positive change after a traumatic event (mean = 1SD; b = 1.60, s.e. = 0.20, $t = 8.10$, $p < 0.001$) and in the presence of great positive change experienced after a traumatic event (b = 0.98, s.e. = 0.22, $t = 4.53$, $p < 0.001$), Concern for war increased Anxiety/Depression, even if, in line with our expectations, in people who experienced positive change after a traumatic event, the war affected Anxiety/Depression less than in people who did not experience positive changes. The specific interaction effects between Concern for War and the four subscales of PTGI followed the same pattern. Simple slopes analysis showed that in people who experienced positive changes after a traumatic event in Relating with Others ($\Delta R^2 = 0.009$, $p < 0.01$; b = 0.96, s.e. = 0.22, $t = 4.35$, $p < 0.001$), Having New Possibilities ($\Delta R^2 = 0.007$, $p < 0.05$; b = 0.98, s.e. = 0.21, $t = 4.63$, $p < 0.001$), Personal Strength ($\Delta R^2 = 0.007$, $p < 0.05$; b = 0.94, s.e. = 0.21, $t = 4.50$, $p < 0.001$), and Spiritual Change ($\Delta R^2 = 0.005$, $p < 0.05$; b = 1.07, s.e. = 0.21, $t = 5.09$, $p < 0.001$), the effect of Concern for war on Anxiety/Depression was positive, as it was for people who did not have that positive experience (respectively, b = 1.72, s.e. = 0.20, $t = 8.81$, $p < 0.001$; b = 1.68, s.e. = 0.20, $t = 8.36$, $p < 0.001$; b = 1.58, s.e. = 0.20, $t = 7.99$, $p < 0.001$; b = 1.67, s.e. = 0.21, $t = 7.99$, $p < 0.001$). However, for the people who experienced positive changes, the effect was weaker than for the people who did not have that positive experience, and this result aligned with our expectation.

4. Discussion

The general aim of this study was to investigate whether and how the war in Ukraine affected the mental health and psychological well-being of Italian citizens, considering the moderating role of some risk (e.g., the negative impact of COVID-19 on mental health) and protective factors (e.g., resilience). To answer this question, we first provide a discussion of the main general results of the present research and then we will pass to discuss in detail each point.

First, the present research demonstrated that the occurrence of a war, the fear for its consequences and the concern of being involved may have a negative effect on levels of stress and anxiety/depression also on people not directly involved in the war, as the Italian citizens. Second, almost all the variables we considered had a direct impact on stress and anxiety/depression on these people during a time of crisis and that many of them may act as risk or protective factors for improving or aggravate their mental health. Indeed, our research demonstrates that many background variables (as age, sex, healthcare profession and number of children), pathologic conditions (psychological disorders, chronic illness), individual psychological resources as resilience and abilities to face traumatic events, contextual variables connected to exposure to and source of war news and, finally, the serious problematic situation due to the past pandemic, all of these variables may strongly impact, in different ways, on the levels of stress and anxiety/depression. Third, our research demonstrated that some of these variables may moderate, in a positive or negative way, the effect of concern for war on stress and anxiety/depression.

As far as specific results of our research regard, we have seen that gender and age had a significant, negative main effect on both stress and anxiety/depression levels. Contrary to the results of previous studies (e.g., Mohsen et al., 2021; Riad et al., 2022), which have shown that women, children, and elderly people are more vulnerable in crisis situations, we did not find age and gender to moderate the relationship between concern for war and stress and anxiety/depression. Therefore, the hypothesis that women's and older people's mental health is more at risk in crisis situations, such as a war, was not confirmed. With regard to age, this result can be due that, the elderly, during their lifetime, have been exposed to higher number of potential traumatic experiences compared to young people, and this had allowed them to acquire/develop useful skills to successfully deal with similar experiences. Similarly, resilience showed a significant negative main effect on both stress and anxiety/depression levels, in line with the results of previous studies (Barzilay et al., 2020; Kimhi et al., 2020; Maftei et al., 2022; Anjum et al., 2023) which have been found that higher levels of resilience were associated with lower levels of reported distress, anxiety, and depression. But contrary to the assumptions, it did not moderate the relationship between concern for war and stress and anxiety/depression levels. We consider "having children" as a protective factor. Specifically, we start with the assumption that that people with children did not experience loneliness and had a greater social support than those without children. Indeed, as we have seen from previous literature (e.g., Shavitt et al., 2016), both loneliness and lack of social support (Paoletti et al., 2023) have a significant negative impact on mental health. In line with this, we found a negative main effect of the number of children on mental health. But contrary to our assumptions, this variable did not moderate the relationship between concern for war and stress and anxiety/depression levels. Psychological disorder had a main negative effect on stress and anxiety/depression levels, in line with some evidence from previous studies (e.g., Sergeant et al., 2020) which suggested that people with pre-existing mental disorders are more vulnerable to the effects of high life stress. Despite this, contrary to our assumptions, psychological disorder did not moderate the relationship between

concern for war and mental health. Similarly, and in line with the hypothesis of Hoyt et al. (2022), the results of this study showed a significant and negative effect of the frequency with which people inform themselves about the war on stress and anxiety/depression levels. But despite this, the frequency of following war news did not moderate the relationship between the concern for war and stress and anxiety/depression levels. Literature has clearly suggested that healthcare workers, due to the specifics of their daily work, tend to suffer from psychological disorders such as stress, anxiety, and depression (Garcia et al., 2022), but it also suggested that such risks were greater for frontline healthcare workers compared to non-frontline healthcare workers (Alshekaili et al., 2020) as in the case of Italian healthcare workers. Moreover, healthcare workers, due to their work, are exposed to multiple problematic medical situations, and in cases like this in which war is not experienced directly, this, according to us, can be a protective factor. In line with our hypothesis and the findings of the previous studies, the results showed that being a healthcare professional (non-frontline) moderated the relationship between concern for war and both stress and anxiety/depression; in particular, the mental health of people who were lay persons was mostly affected by concern for the war in Ukraine. Although the results showed that both suffering and not suffering from chronic illnesses positively affected the relationship between concern for war and mental health, people who suffered from chronic illness or underlying diseases were mostly affected by concern for war. These results are in line with those of previous studies (e.g., Gorrochategi et al., 2020) which have shown that individuals with a chronic disease experience more symptoms of stress and anxiety than those who do not have a chronic disease during crisis situations. Another important aspect not to be underestimated is the negative impact that the COVID-19 pandemic has already had on mental health. Literature has clearly indicated that the COVID-19 pandemic negatively impacted mental health (e.g., Barchielli et al., 2022). The current study revealed that the COVID-19 pandemic had a main positive effect on high levels of stress and anxiety/depression, and that it also had an interaction effect between concern for war and the COVID-19 pandemic on stress levels but not on anxiety/depression levels. To our knowledge, this is the first study that has investigated the role of the PTG factors as moderators in the relationship between a traumatic event and mental health. In line with findings showing that PTG is associated with positive mental health (Sawyer et al., 2010), our study showed that total score and all five PTG subscale scores negatively affected high levels of stress and anxiety/depression. Moreover, PTG total and subscale scores, except for the Appreciation of Life subscale, moderated the relationship between concern for war and anxiety/depression levels, but not for stress levels.

In conclusion, the Russian invasion of Ukraine has had a negative impact on the well-being and mental health of Italian people. Additionally, the study suggests that the invasion affected citizens of countries not directly being involved in the war, causing increased levels of anxiety and depression. However, our research demonstrates that many factors–whether they are sociodemographic, individual, or psychological factors, or whether they are related to exposure to war, the COVID-19 pandemic, or the capability to positively react to traumatic events (i.e., PTG)—have a direct impact on mental health and, in some cases, they reduce or increase the risk with which the war and the concern about it determines mental health problems.

The results of this study might provide guidelines to develop clinical interventions aimed at coping with difficult living circumstances. Specifically, psychotherapy should focus on three situations: the refugees themselves, citizens of countries that are not directly involved in the war, such as Italians in our study, and professional caretakers. Until now several psychotherapeutic models have been applied and assessed related to PTSD of refugees and in war affected regions: Trauma-Focused Cognitive-Behavioral Therapy (Anjum et al., 2023), Emotional Schema Therapy, Narrative Exposure Therapy, Integrative Gestalt Derived Intervention (Jacob et al., 2014; Kira and Tummmala-Narra, 2014; Butollo et al., 2016; Rajeh et al., 2017). Each of them proved its efficiency and that the effects were maintained at re-evaluation after 6/12 month. They helped decrease anxiety, depression and controlling symptoms of PTSD. The existing studies focus on refugees and their unique challenges, not on citizens of other countries and how they experience this specific situation, given the large number of refugees, the huge media exposure, social-financial burden etc. In the future, based on our study, specific interventions should be designed for the three target groups mentioned above with the purpose of focusing on resilience and posttraumatic growth.

This study has great significance in considering the impact of war in Ukraine on a wide and large sample of Italian citizens' mental health. Despite this, the study had some limitations. First, the design was cross-sectional, which is not very suitable for assessing causality since the temporality of association cannot be checked. Second, the sample had a higher percentage of females than males and of younger people (M_{age} = 32.39) than older people, thus the generalizability of our results can be limited. Third, the participants were recruited, using a convenience and snowball sampling procedures, mainly from central and southern Italy, consequently, the generalizability of our findings can be limited compared to a national sample. Finally, for the measure of some psychological aspects (such as, the impact of COVID-19 pandemic on mental health) we used only one item: future studies should use scales with more items to adequately represent the construct.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by Ethical Committee of Hellenic Mediterranean University (no. 87/17-10-2022). The participants provided their electronic informed consent to participate in this study.

Author contributions

FM translated and adapted the Italian instruments not previously validated, contributed to data collection, performed the statistical analysis, wrote part of the manuscript, and critically reviewed it. AG

formulated the research questions/hypotheses, supervised the data collection and analysis, interpreted the results, wrote part of the manuscript, and critically reviewed it. AK and MV designed the study, prepared the questionnaire, supervised the data collection, and critically reviewed the manuscript. IS prepared and adapted the Italian measure instruments not previously validated, supervised the data collection, and wrote part of the manuscript. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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The mental health impact of the ongoing Russian-Ukrainian war 6 months after the Russian invasion of Ukraine

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Objective: This study aimed to investigate the impact of the ongoing war in Ukraine on the mental health of Ukrainians, focusing on war-induced trauma, disturbances in self-organization, post-traumatic stress disorder, complex post-traumatic stress disorder, anxiety, stress, and depression.

Methods: Data was collected from 703 participants 6 months after the full-scale invasion using a structured questionnaire that included sections on socio-demographic information, trauma-related issues, and mental health.

Results: The study found that levels of depression and anxiety were relatively low, while stress and resilience were relatively high among Ukrainians affected by the war. However, those who were directly exposed to military actions, physical violence, or severe human suffering had higher levels of anxiety, depression, stress, and trauma-related symptoms. The war experience varied by gender, age, and living conditions. Participants who stayed in Ukraine had significantly lower anxiety, depression, stress, and trauma-related symptoms compared to those who moved abroad. Anxiety, depression, stress, low resilience, and subjective satisfaction with living conditions were predictors of trauma-related symptoms, including PTSD and CPTSD.

Conclusion: These findings suggest that the mental health of Ukrainians affected by the war was impacted differently depending on their level of exposure to violence and their living conditions. Additionally, the study identified several predictors of trauma-related symptoms, including PTSD and CPTSD, such as anxiety, depression, stress, low resilience, and subjective satisfaction with living conditions. Future research should further explore the relationships between trauma type, sociodemographic factors, resilience, stress, anxiety, depression, and PTSD and CPTSD to better understand the mediation mechanisms underlying these relationships and to develop effective interventions to support the well-being of Ukrainians during this difficult time.

KEYWORDS

war, Ukraine, trauma experience, stress, anxiety, depression, PTSD, complex PTSD

1. Introduction

On February 24th 2022, the Russian Federation started a full-scale invasion of Ukraine, causing a wide range of serious problems within the country and globally. A large body of research has shown that experiencing (witnessing) such traumatic events involving threat to one's or other's lives, or bodily integrity directly increases the risk of mental disorders (1–3): people with direct or indirect interaction with the war may develop serious physical and mental health issues. Within the context of war trauma, it is relevant to consider post-traumatic stress disorder (PTSD) and complex post-traumatic stress disorder (CPTSD) as indicators of trauma experience (4). The ICD-11 model of PTSD includes six symptoms measuring three core elements (each element is composed of two symptoms): (a) re-experiencing of the trauma in the present (Re), (b) avoidance of traumatic reminders (Av), and (c) a persistent sense of threat that is manifested by increased arousal and hypervigilance (Th). CPTSD is composed of six symptom clusters: three are shared with PTSD and three that are collectively referred to as "disturbances in self-organization" (DSO): affective dysregulation (AD), negative self-concept (NSC), and disturbed relationships (DR) (5).

The current study examines the impact that the war has had on the mental health of Ukrainians during the first 6 months, in particular, levels of anxiety, depression, stress, and trauma experience (prevailing trauma type, levels of PTSD, and CPTSD). This timeframe is of particular significance as it allows for an assessment of the immediate and ongoing effects of the conflict on mental health and by examining its multiple dimensions, the study provides a more nuanced and complete understanding of how the war is impacting Ukrainians. That is why we aim to investigate the following research hypotheses:

1. Exposure to the war in Ukraine is positively associated with higher levels of anxiety, depression, stress, DSP, PTSD, and CPTSD
2. Levels of anxiety, depression, stress, DSO, PTSD, and CPTSD differ based on gender, age, working conditions, and current exposure to traumatic experiences (placement within or outside Ukraine)
3. Anxiety, depression, stress, and resilience predict the severity of DSO, PTSD, and CPTSD.

2. Literature review

2.1. General impact of war on mental health

War and crisis are significant public health concerns with immense mental health implications. War-affected civilians are at a higher risk of developing mental health issues than military combatants (6). Anxiety, depression, and PTSD are the most prevalent mental health challenges reported among populations affected by war (7). About 86% of Syrians believe that war is the leading cause of their mental problems, having experienced unending war (8). Severe post-traumatic symptoms were observed among adult Palestinians who participated in the Great March of Return in the Gaza Strip (9). Moreover, exposure to war in Afghanistan has been associated with an increased prevalence of PTSD and suicidal attempts (10). Subsequently, people with a recent history of exposure to traumatic events are at a high risk of developing PTSD (8, 11). The impact of war on mental health could be long-lasting with lifelong implications (12, 13): survivors of World War II reportedly had a high prevalence of PTSD even more than 50 years after the war (13). Additionally, people in war-prone areas like Israel and Palestine are highly likely to suffer from prolonged adverse mental health effects like distress, anxiety, and depression (14).

2.2. Traumatic experience during the war

Wartime increases the exposure to traumatic events for the civilian population. Traumatic experiences during times of war and crisis mainly result in avoidance and re-experiencing of the events (8). Memories of traumatic events may trigger the development of PTSD. During war and crises, many people end up as internally displaced people (IDP) or refugees in neighboring nations. Unlike in their homes, the living conditions in refugee and IDP camps increase their predisposition to developing anxiety and depressive disorders (15). Conflict-induced displacements may also become significant traumatic experiences (15, 16). Forced displacements are characterized by heightened uncertainties among victims of war and crisis (17); uncertainties from forced evictions and loss of social support due to war increase the risk of developing anxiety and depression (18).

2.3. Stress and resilience

Stress is a normal body response to external perceived threats. Elevated stress levels are among the psychological impacts of the ongoing Russian invasion of Ukraine (19). Stress responses to traumatic events can be acute or chronic. Acute stress is characterized by intense emotional reactions to a traumatic event, usually within 1 month after exposure to the experience (20). However, some trauma survivors remain at risk of experiencing prolonged distress. Prolonged exposure to stressful events leads to severe mental health conditions like PTSD (21); stress due to exposure to violence (22) and loss of close family and friends (23) have adverse mental effects on war victims and civilians. High distress levels are reported among direct victims of war and those who have witnessed violence (22). Stress resilience has been observed in people from most countries confronted with war traumas. Shifting people's focus from the war has helped to reduce the psychological burden associated with it: among Ukrainian refugees, attempts to stay and spend time with loved ones are the most common coping strategy against war-induced stress (24).

2.4. Anxiety, depression, and PTSD

Anxiety and depression are common responses by people from countries experiencing crisis and war (25–28). Anxiety levels may be high if people believe that the crisis will continue for a long time (28); high levels of depression and anxiety have been reported among young people exposed to war in Ukraine (23); elevated depression and increased tendencies toward alcohol and drug abuse have been reported among university students and personnel from Ukraine (29);

a high prevalence of anxiety and depression has been reported among war refugees (15, 30, 31) and IDP (32). PTSD is common among people following traumatic experiences like war. Countries affected by war report high incidences of PTSD (11, 27, 33, 34): IDP and refugees are the primary victims of PTSD as they actively re-experience traumatic events (11).

3. Materials and methods

3.1. Data collection

The data was collected in one phase. The collection process started on July 22, 2022, and lasted until October 21, 2022. For this study, we used an online questionnaire (with the use of Google Forms) through a snowball procedure: the link to the questionnaire was shared through Telegram Channels with 5,000+ subscribers and instructions asked to share the survey with relatives and friends. Considering the diversity of subscribers, we managed to obtain information from people residing in Ukraine, and refugees, and even reached out to a few participants from currently occupied territories. All questions were presented in the Ukrainian language. The questionnaire form was divided into three main sections: socio-demographic, trauma-related variables, and mental health.

3.2. Study design and measures

For this research, we have used a descriptive-correlational design. Dependent variables of this study included: depression, anxiety, stress, resilience, DSO, PTSD, and CPTSD; while independent variables included gender, age, satisfaction with current living conditions, and current exposure to traumatic experience (placement within or outside Ukraine). For defining predictors of PTSD, DSO, and CPTSD (dependent variables) we have used depression, anxiety, stress, and resilience (independent variables) in order to identify whether the latter could increase the severity of trauma experience symptoms.

Sociodemographic data: Information about the sociodemographic data included standardized questions that concerned several aspects (see Table 1).

Traumatic events, DSO, PTSD, and CPTSD: The exposure to traumatic events was measured by the Life Events Checklist (LEC-5 (35)). To assess trauma exposure, we have used the International Trauma Questionnaire (ITQ-9 (36)) (Cronbach's alpha = 0.83, 0.84, and 0.74 for PTSD, DSO, and CPTSD, respectively). We have differentiated the most prevailing trauma types into the following categories: (i) experience of war (war exposure), (ii) death of a close person/relative, (iii) accident, (iv) military actions, (v) enemy occupation, (vi) sexual violence, (vii) rocket attacks, (viii) family problems, (ix) personal problems, (x) physical injury, (xi) road accident.

Mental health assessment: For the assessment of resilience, The Brief Resilience Scale (BRS-6 (37)) with 6 items was used (Cronbach's alpha = 0.81). The perceived stress level was measured with The Perceived Stress Scale-4 (PSS-4 (38)) (Cronbach's alpha = 0.71). Depression and anxiety were measured with The Patient Health Questionnaire for Depression and Anxiety (PHQ-9 (39)) (Cronbach's alpha is 0.84 for anxiety and 0.81 for depression, respectively).

TABLE 1 Overview of sociodemographic data.

		N	%
Gender	Male	155	22.0
	Female	548	78.0
Marital status	Single	275	39.1
	Married	364	51.8
	Divorced	56	8.0
	Widowed	8	1.1
Education	Doctorate	54	7.7
	Higher (Masters)	466	66.3
	Secondary	114	16.2
	Incomplete Higher	2	0.3
	Professional	46	6.5
	Incomplete Secondary	2	0.3
	Other	18	2.6
Children	No	442	62.9
	1	140	19.9
	2	107	15.2
	3	13	1.8
	5	1	0.1
Job	Unemployed	126	17.9
	Governmental worker	34	4.8
	Regular employee	218	31.0
	Freelancer/self-employed/ entrepreneur	134	19.1
	Retired	12	1.7
	Student	171	24.3
	Other	8	1.1
Working conditions	Online	229	32.6
	Offline	179	25.5
	Unemployed	295	42.0
Financial state	Not enough for basic needs	50	7.1
	Enough for basic needs and additional needs	25	3.6
	Enough only for basic needs	208	29.6
	Enough money for all needs	132	18.8
	Enough money for basic and some additional needs	288	41.0

3.3. Participants

The inclusion criteria for the participants were: age 18–65 and the ability to give informed consent. The exclusion criterion concerned the issue of accessibility: inability to access internet or being under censorship (i.e., on the occupied territories). The total number of participants that fulfilled the criteria was 703 (age M = 32.1, SD = 12.1), 77.9% female. A detailed overview of sociodemographic data is presented in Table 1.

We consider the current location of the participant to be important in the perception of trauma and the overall level of traumatization. The following major categories have been identified: no movement, movement inside and outside of the country. The first category included three major cases: (i) stayed in the same place that was never occupied, (ii) stayed in the same place and it was occupied, (iii) stayed in the same place and it was de-occupied. The second category included two major cases: (i) moved to another place in Ukraine and did not register as an official IDP, (ii) moved to another place in Ukraine and officially registered as IDP. The third category included two cases: (i) moved to another country and did not officially register as a refugee, (ii) moved to another country and registered as a refugee. Detailed differentiation is presented in Table 2.

3.4. Statistical analysis

Statistical analysis was conducted using R (version 2022.07.1) and Jamovi (version 2.3.18). (i) To identify an overall level of traumatization and the prevailing type of trauma, we have used descriptive statistics, such as mean, standard deviations, frequencies, t-test, and one-way ANOVA. According to the power estimates, to detect a moderate effect size of 0.5 with a desired power of 0.80 and an alpha level of 0.05, for one-way ANOVA we need a sample size of 63 respondents per each subgroup of a fixed factor ($N = [2*(Z\_\alpha/2 + Z\_\beta)^2*\sigma^2]/\Delta^2$, where N is the required sample size, $Z\_\alpha/2$, and Z_β are the critical values of the standard normal distribution for the desired significance level (α) and power (1-β), respectively, σ^2 is the population variance, and Δ is the effect size). (ii) To identify the statistically significant mean differences with gender, age, working conditions, and current exposure to traumatic experience (placement within or outside Ukraine) as fixed factors we have used one-way ANOVA with the same power estimates. (iii) To identify whether anxiety, depression, stress, and resilience are the predictors of DSO, PTSD, and CPTSD, we have used correlation analysis (Pearson), linear regression, and generalized linear modeling together with the estimation of the effect size (epsilon squared). According to the power estimates, to detect a large effect size of $R^2 = 0.6$ with a desired power of 0.80 and an alpha level of 0.05 for multiple linear regression with two predictor variables, we need a sample of at least 71 participants ($N = [F(k, N - k - 1)*(1 - R^2)/R^2] + k$, where k is the number of predictor variables, N is the total sample size, R^2 is the proportion of variance in the outcome variable explained by the predictor variables, and $F(k, N - k - 1)$ is the critical F-value for a given significance level and degrees of freedom). Based on power estimates, obtained sample size of 703 participants is representative of the populations from which the study subjects were drawn and is sufficient obtain desired statistical effects.

TABLE 2 Differentiation of current location.

Current location	*N*	%
Within Ukraine		
The same place as before the war, never occupied	380	54.1%
Moved within Ukraine, officially registered IDP	56	8.0%
Moved within Ukraine, did not officially register as IDP	52	7.4%
The same place under occupation now	7	1.0%
Outside Ukraine		
Moved to another country	163	23.2%
Moved to another country, did not officially register as a refugee	8	1.1%

4. Results

4.1. Overall level of traumatization

4.1.1. Mean scores

Results show that Ukrainians, after 6 months of the war, show low levels of depression ($M = 2.45$, $SD = 1.80$; score range 0–5), and low levels of anxiety ($M = 2.26$, $SD = 1.80$; score range 0–5). At the same time, levels of stress ($M = 7.55$, $SD = 3.16$; score range 0–16) and resilience ($M = 2.85$, $SD = 0.84$; score range 1–5) are relatively high. The levels of traumatization are the following: PTSD ($M = 10.95$, $SD = 6.20$; score range 0–30), DSO ($M = 11.59$, $SD = 7.65$; score range 0–30), and CPTSD ($M = 22.6$, $SD = 11.9$; score range 0–60).

4.1.2. Traumatic life events

Traumatic events that happened with participants were reported through LEC-5 (see Figure 1) and ITQ-9 (see Table 3). Based on LEC-5 data, the most prevailing traumatic life events that happened with participants include: other stressful events ($N = 366$), military actions ($N = 289$), physical assault ($N = 180$), road accidents ($N = 142$), and severe human suffering ($N = 134$). The frequency distribution of traumatic events is presented in Figure 1.

The results of one-way ANOVA show that participants who were directly exposed to military actions, witnessed them, or learned about them show higher levels of anxiety (F (5, 56.5) = 2.78, $p = 0.026$, $\omega^2 = 0.04$), PTSD (F (5, 56.7) = 4.06, $p = 0.003$, $\omega^2 = 0.03$), and CPTSD (F (5, 55.4) = 2.09, $p = 0.080$, $\omega^2 = 0.01$). The same concerns participants, who reported experiencing "other stressful event," which, as we assume, is war-related: they show higher levels of anxiety (F (5, 83.5) = 10.93, $p < 0.001$, $\omega^2 = 0.06$), depression (F (5, 84.3) = 10.46, $p < 0.001$, $\omega^2 = 0.06$), stress (F (5, 83.0) = 5.09, $p < 0.001$, $\omega^2 = 0.03$), DSO (F (5, 84.2) = 14.6, $p < 0.001$, $\omega^2 = 0.09$), PTSD (F (5, 84.2) = 16.66, $p < 0.001$, $\omega^2 = 0.11$), and CPTSD (F (5, 84.4) = 20.29, $p < 0.001$, $\omega^2 = 0.14$). Those who reported exposure to physical violence show higher levels of anxiety (F (5, 50) = 4.33, $p = 0.002$, $\omega^2 = 0.02$), depression (F (5, 51.7) = 8.52, $p < 0.001$, $\omega^2 = 0.02$), DSO (F (5, 49.9) = 3.62, $p = 0.007$, $\omega^2 = 0.01$), PTSD (F (5, 53.1) = 3.75, $p < 0.006$, $\omega^2 = 0.01$), and CPTSD (F (5, 50.9) = 5.13, $p < 0.001$, $\omega^2 = 0.02$). Participants reporting the experience of severe human suffering show the highest differences in mean scores in anxiety (F (5, 144) = 10.68, $p < 0.001$, $\omega^2 = 0.06$), depression (F (5, 145) = 10.13, $p < 0.001$, $\omega^2 = 0.06$), stress (F (5, 147) = 5.98, $p < 0.001$, $\omega^2 = 0.04$), DSO (F (5, 149) = 8.24, $p < 0.001$, $\omega^2 = 0.06$), PTSD (F (5, 150) = 7.18, $p < 0.001$, $\omega^2 = 0.05$), and CPTSD (F (5, 150) = 10.43, $p < 0.001$, $\omega^2 = 0.07$). The differences in mean scores are presented in Tables A1–A4 in the Appendix A.

4.1.3. Prevailing trauma type

According to reports from ITQ-9, the beginning of the war, war exposure, or the war itself became the most traumatic event for the majority of Ukrainians (46.6%). No statistically significant differences

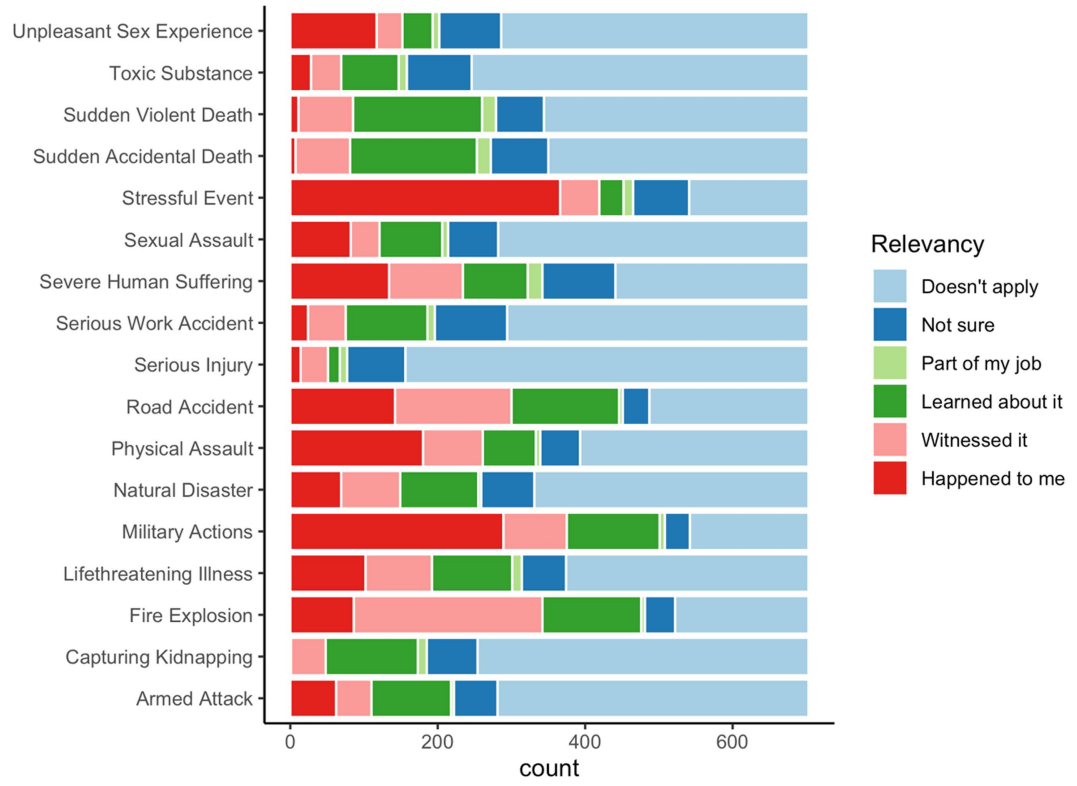

FIGURE 1
Frequency and relevancy of traumatic life events according to LEC-5.

TABLE 3 Mean scores of depression, and DSO according to the type of trauma.

Trauma type	*N*	%	Depression		DSO		CPTSD	
			Mean	SD	Mean	SD	Mean	SD
War	316	46.6%	2.41	1.81	11.53	7.58	22.1	11.57
Death of a relative	96	14.2%	2.63	1.85	11.73	7.5	23.4	11.83
Accident	49	7.2%	2.65	1.82	11.41	7.64	22.6	10.52
Military actions	36	5.3%	2.22	1.60	13.78	8.22	25.6	25.6
Occupation	29	4.3%	2.45	1.76	12.21	6.24	23.0	12.75
Sexual violence	23	3.4%	2.35	1.71	10.13	6.53	23.3	9.11
Rocket attacks	19	2.8%	2.26	1.75	9.89	7.64	21.3	11.82
Family problems	19	2.8%	2.68	2.03	11.58	6.64	21.6	9.54
Personal problems	17	2.5%	2.47	1.08	13.47	9.55	24.8	14.85
Physical injury	15	2.2%	2.27	1.90	8.93	7.39	20.8	13.03
Road accident	11	1.6%	2.82	1.99	12.36	7.54	21.9	11.21
Absent	48	7.1%	2.35	1.88	10.31	8.01	20.3	14.08

among different trauma types (as fixed factor) and anxiety (F (16, 35.1) = 0.92, p = 0.551), stress (F (16, 34.8) = 0.95, p = 0.521), PTSD (F (16, 34.9) = 0.58, p = 0.876), or resilience (F (16, 35.2) = 0.51, p = 0.925) were obtained; however, significant differences were obtained for depression (F (16, 35.4) = 2.191, p = 0.026), DSO (F (16, 36.9) = 10.365, p < 0.001), and CPTSD (F (16, 38.9) = 9.3, p < 0.001). Mean scores of depression, stress, DSO, and CPTSD by the trauma type are presented in Table 3.

4.2. Sociodemographic factors

4.2.1. Gender and age

Compared to men, women had higher levels of anxiety (M = 1.69, SD = 1.64 vs. M = 2.42, SD = 1.69; t = −4.70, p < 0.01, Cohen's d = −0.44), depression (M = 2.59, SD = 1.81 vs. M = 1.98, SD = 1.68; t = −3.66, p < 0.01, Cohen's d = −0.34), and stress (M = 7.77, SD = 3.1 vs. M = 6.7, SD = 3.33; t = −3.67, p < 0.01, Cohen's d = −0.34); while men

showed higher levels of resilience ($M = 3.31$, $SD = 0.83$) than women ($M = 2.73$, $SD = 0.8$; $t = 7.67$, $p < 0.01$, Cohen's $d = 0.71$). Women also show higher levels of DSO ($t = -2.57$, $p = 0.01$; $M = 12.00$, $SD = 7.76$, Cohen's $d = -0.24$) than men ($M = 10.23$, $SD = 7.09$), PTSD ($t = -3.09$, $p = 0.002$, Cohen's $d = -0.29$; $M = 11.40$, $SD = 6.16$ for women and $M = 10.23$, $SD = 7.14$ for men) and CPTSD ($t = -3.27$, $p = 0.001$, Cohen's $d = -0.31$; $M = 23.45$, $SD = 11.87$ for women and $M = 19.87$, $SD = 11.62$ for men).

Adults at the age between 28 and 45 show the highest levels of anxiety ($M = 2.49$, $SD = 1.67$; $F(3) = 5.20$, $p < 0.001$, $\omega^2 = 0.02$), depression ($M = 2.75$, $SD = 1.64$; $F(3) = 3.53$, $p = 0.015$, $\omega^2 = 0.01$), DSO ($M = 13.48$, $SD = 7.37$; $F(3) = 8.78$, $p < 0.001$, $\omega^2 = 0.03$), PTSD ($M = 12.07$, $SD = 5.96$; $F(3) = 3.13$, $p < 0.001$, $\omega^2 = 0.03$), and CPTSD ($M = 25.56$, $SD = 11.11$; $F(3) = 8.06$, $p < 0.001$, $\omega^2 = 0.04$), while participants at the age of 18–27 ($M = 3.07$, $SD = 0.88$) and 46–60 ($M = 2.96$, $SD = 0.81$) have highest levels of resilience ($F(3) = 4.80$, $p = 0.003$, $\omega^2 = 0.02$). Interaction between age and gender as fixed factors does not show statistical significance in the obtained models.

4.2.2. Job, living conditions, and current location

Employment is related to satisfaction with current living conditions ($\chi^2 = 38.7$, $df = 8$, $p < 0.029$), while the latter is capable of defining the trauma experience. As such, the better the reported living conditions, the lower are the levels of anxiety ($F(4, 79.3) = 5.58$, $p < 0.001$), depression ($F(4, 80.9) = 17.27$, $p < 0.001$), stress ($F(4, 80.2) = 18.32$, $p < 0.001$), DSO [$F(4, 79.6) = 15.61$, $p < 0.001$], PTSD ($F(4, 78) = 4.64$, $p = 0.002$), and CPTSD ($F(4, 79) = 13.57$, $p < 0.001$). The difference in mean scores is presented in Table A5 in the Appendix. Ukrainians who were forced to move either abroad or become IDP show higher levels of stress ($F(7, 49.6) = 2.6$, $p < 0.002$), DSO ($F(7, 49.4) = 2.62$, $p < 0.022$), and PTSD ($F(7, 49.3) = 2.22$, $p < 0.048$). Proximity to the war zone does not have an effect on the levels of anxiety, depression, DSO, PTSD, and CPTSD. The difference in mean scores is presented in Table A6 in the Appendix.

We also have divided the sample into two major groups: those who stayed in Ukraine, and those who moved abroad. A t-test was conducted to compare the mean scores on anxiety between those who stayed ($M = 2.18$, $SD = 1.67$) and those who moved abroad ($M = 2.49$, $SD = 1.78$). The results showed a statistically significant difference between the two groups ($t = -2.07$, $df = 701$, $p < 0.05$), with those who stayed showing significantly lower levels of anxiety than those who moved abroad. Identical results have been obtained for: depression ($t = -2.22$, $df = 701$, $p < 0.05$) with those who stayed showing significantly lower levels of depression ($M = 2.36$, $SD = 1.17$) than those who moved abroad ($M = 2.71$, $SD = 1.92$); stress ($t = -2.99$, $df = 701$, $p < 0.05$) with those who stayed showing significantly lower levels of stress ($M = 7.35$, $SD = 3.19$) than those who moved abroad ($M = 8.16$, $SD = 2.95$); DSO ($t = -2.82$, $df = 701$, $p < 0.05$) with those who stayed showing significantly lower levels of DSO ($M = 11.13$, $SD = 7.46$) than those who moved abroad ($M = 13.01$, $SD = 8.07$); and resilience ($t = 6.31$, $df = 701$, $p < 0.05$) with those who stayed showing significantly higher levels of resilience ($M = 2.96$, $SD = 0.86$) than those who moved abroad ($M = 2.51$, $SD = 0.66$).

4.2.3. Sociodemographic factors and trauma exposure

No statistically significant differences were obtained while performing two-way ANOVA for investigating effects of gender, reported traumatic events according to LEC-5 (any stressful event, military actions, physical violence, severe human suffering), the interaction of both fixed factors on anxiety, depression, stress, DSO, PTSD, and CPTSD. Age as a fixed factor in interaction with reported traumatic events according to LEC-5 also did not allow to obtain statistically significant results. While performing two-way ANOVA, gender, age, and decision to leave or stay in Ukraine did not show statistically significant interaction with reported traumatic events according to LEC-5 and on anxiety, depression, stress, DSO, PTSD, and CPTSD as dependent variables.

4.3. Predictors of trauma experience

4.3.1. Anxiety and depression

Anxiety positively correlates with DSO ($r = 0.462$, $p < 0.001$), PTSD ($r = 0.594$, $p < 0.001$), and CPTSD ($r = 0.510$, $p < 0.001$); depression positively correlates with DSO ($r = 0.576$, $p < 0.001$), PTSD ($r = 0.359$, $p < 0.001$), and CPTSD ($r = 0.558$, $p < 0.001$). Increased anxiety and depression levels are the predictors of DSO ($R^2 = 0.351$; Intercept: $B = 4.985$, $SE = 0.427$, $t = 11.68$, $p < 0.001$) and together with the subjective satisfaction with living conditions are the predictors of CPTSD ($R^2 = 0.379$; Intercept: $B = 10.47$, $SE = 1.117$, $t = 9.37$, $p < 0.001$).

4.3.2. Resilience and stress

Whereas stress is positively correlated with DSO ($r = 0.594$, $p < 0.001$), PTSD ($r = 0.376$, $p < 0.001$), and CPTSD ($r = 0.579$, $p < 0.001$), resilience is negatively correlated with DSO ($r = -0.528$, $p < 0.001$), PTSD ($r = -0.303$, $p < 0.001$), and CPTSD ($r = -0.498$, $p < 0.001$). Increased stress and reduced resilience levels, together with subjective satisfaction with living conditions, are the predictors of PTSD ($R^2 = 0.408$; Intercept: $B = 11.331$, $SE = 1.986$, $t = 5.704$, $p < 0.001$), DSO ($R^2 = 0.447$; Intercept: $B = 14.578$, $SE = 1.99$, $t = 7.304$, $p < 0.001$), and CPTSD ($R^2 = 0.642$; Intercept: $B = 25.909$, $SE = 3.194$, $t = 8.111$, $p < 0.001$).

5. Discussion

5.1. Exposure to the war trauma

Despite a number of studies showing that war has a devastating impact on the mental health of the population exposed to war (7, 8, 10, 40, 41), our study showed that Ukrainians, after 6 months of experiencing war, show relatively low scores of anxiety and depression, and medium levels of DSO, PTSD, and CPTSD. High scores have been obtained on acute stress and resilience levels, which explain the low levels of DSO, PTSD, and CPTSD (42). However, the same results do not concern the participants who have been directly exposed to war trauma (those who reported experiencing military attacks, physical violence, and severe human suffering), the number of which does not exceed 25% from the entire sample, meaning that despite reporting the war itself as the most traumatic experience and witnessing it, Ukrainians still show relatively low levels of anxiety, depression, stress, DSO, PTSD, and CPTSD in comparison to the sample average. Overall, participants who have been witnessing military actions or experiencing physical violence, together with severe human suffering,

just have higher levels of anxiety, depression, stress, DSO, PTSD, and CPTSD than those who did not report having such experience, but at the same time, not critically high. Higher levels of depression are more common for respondents who experienced personal trauma (e.g., non war-related deaths of parents or relatives), while higher levels of DSO, PTSD, and CPTSD are more common for war-related trauma experiences.

We assume that the low levels of anxiety and depression among Ukrainians can be explained by a large amount of perceived social support. Previous studies have shown that in the conditions of war, Ukrainian society feels more united than ever (43). The current situation is unique compared to earlier studies of local conflicts, which typically involve isolated combatants and refugees (e.g., on a state border) (44). Ukrainians can share their experiences and receive support and understanding at all levels, from households to the state. This support may lead to high levels of resilience, which are common for all Ukrainians.

Since most of the studies concerning the traumatic impact of war have been conducted mainly during the post-war period, we assume that the situation may change as soon as the acute phase of the war will be over. According to a longitudinal study on Israeli civilians' mental health during the Israel-Gaza 2008–2009 war (45), perceived social support moderated the decrease in PTSD, anxiety, and depression symptoms over time. Nevertheless, Ukrainians reported that the war itself became a major traumatic event for the majority of the population. In addition, we have identified the prevailing trauma types: (i) experience of war (war exposure), (ii) death of a close person/relative, (iii) accident, and (iv) military actions, which comply with the reported trauma events that include other stressful event (we assume this is war-related), military actions, physical assault, road accident, and severe human suffering. The model of polyvictimization (46) suggests that experience of multiple types of victimization over time leads to increased mental health problems and since Ukrainians, based on the results of our study and on the open facts, unergo polyvictimization, overall situation with mental health may worsen. However, it is also possible that the low levels of stress, depression, and PTSD among Ukrainians could be due to a lack of awareness acknowledgment of these issues. Many people may not realize that they are experiencing stress or mental health problems, or they may not seek out help for these issues due to stigma or other barriers. It is possible that the prevalence of stress, depression, and PTSD in Ukraine is actually higher than reported, but that these issues are not being adequately addressed.

5.2. Demographics

Women are more prone to traumatic experiences and increased levels of anxiety, depression, DSO, PTSD, and CPTSD, which was proven by other studies as well (47). Younger (up to 25) and older (over 46) participants show lower levels of trauma experience, while adults (aged between 26 and 45) show higher levels of trauma experience. Because of the war, many Ukrainians lost their jobs, and it impacted their financial state, either while staying in Ukraine or while fleeing to other countries. Half of the respondents maintain their job duties either online (remotely) or offline. The current financial state does not depend on whether people flee from or stay in Ukraine. The financial state majorly defines the current, subjectively reported living comfort, which relates to the trauma experience: the worse the subjective living conditions are, the higher the levels of stress, depression, DSO, PTSD, and CPTSD.

5.3. Stress, resilience, anxiety, and depression

Acute stress increases the risk of developing PTSD, while increased resilience reduces the level of trauma experience. It has been proven by several studies (20, 25, 48, 49). Results have shown that Ukrainians are ready to adapt to new conditions (living in the state of war) and are open to acceptance and development of new lifestyles, show increased confidence, self-reliance and develop meaningful narratives to live through the hard times. Despite that, regression models showed that due to the presence of increased stress, anxiety, and depression, together with reduced resilience, the current situation may change for the worse in the future, especially if current living conditions are not perceived as satisfactory. In particular, increased levels of DSP, PTSD, and CPTSD symptoms are to be expected. It means that when the war ends, all Ukrainians will develop certain difficulties in self-perception and in relations with other people due to exposure to acute stress and war-related trauma. What is more, the stress-diathesis model (50) suggests that mental health outcomes are the result of both environmental stressors and individual vulnerabilities, meaning that being exposed to war-related trauma, together with increased individual anxiety and stress, will lead to worse mental health outcomes after the direct exposure is over, in particular, DSO and prolonged depression.

Anxiety and depression play are critical for traumatic experiences. As such, anxiety and depression correlate with DSO, PTSD, and CPTSD, meaning that more anxious and depressed individuals will experience more severe trauma-related consequences. For example, this has already been shown in studies with Cambodian refugees (51). Multiple traumatizations, which apply to the Ukrainian sample, might further affect the emergence of clinical depression (52). In addition, increased depression makes a person more exposed to traumatic experiences (53). Nevertheless, despite being traumatized, Ukrainians did not yet show severe signs of serious consequences of traumatization.

6. Limitations

One of the greatest limitations of this study is its inability to reach individuals of the Ukrainian population who experienced a direct impact of war, for example, those who live on occupied territories, those who have been forced to move to the Russian Federation, or those who have experienced direct physical or sexual violence. This study reports on the general population of Ukraine that mainly lives on the territories that have never been occupied or who have escaped from war during the first several months after its beginning. To this end, further investigations are planned to understand better individuals in the territories that have been de-occupied and/or those who have returned after forced displacement since we presume that those populations would have more severe levels of traumatization. And, of course, it is necessary to distinguish between civilian and militant Ukrainians. The research sample has a relatively low number

of men, in comparison to women, which may be caused by the inability to reach out to male population due to direct engagement in military activities (or service in the army) and this is another limitation of the current study. Other limitations are consistent with the disadvantages of using the snowball method for sampling. This may include the inability to control the sampling process, the weight of the first respondents which leads to community bias, and also lack of representativeness due to the non-random way of population sampling. Besides, the cross-sectional study design implies that data are collected at a single moment in time, whereas data collection for this study lasted for almost 4 months.

Despite all these limitations, the data of this work is an important building block to inform the design of scalable (digital) public health interventions for individuals living in crises that explicitly target mental health (54, 55).

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by Ethics Committee of the Hellenic Mediterranean University (87/17-10-2022). The patients/participants provided their written informed consent to participate in this study.

Author contributions

ArK: conceptualization and methodology of the study. AnK and ID: data collection and data proofing. AnK and VK: data analysis. AnK, VK, and TK: manuscript writing. ArK, AnK, and TK: manuscript review. All authors contributed to the article and approved the submitted version.

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Conflict of interest

TK is affiliated with the Centre for Digital Health Interventions (CDHI), a joint initiative of the Institute for Implementation Science in Health Care, University of Zurich, the Department of Management, Technology, and Economics at ETH Zurich, and the Institute of Technology Management and School of Medicine at the University of St. Gallen. CDHI is funded in part by CSS, a Swiss health insurer. TK is also a co-founder of Pathmate Technologies, a university spin-off company that creates and delivers digital clinical pathways. However, neither CSS nor Pathmate Technologies was involved in this research.

The remaining authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyt.2023.1134780/full#supplementary-material

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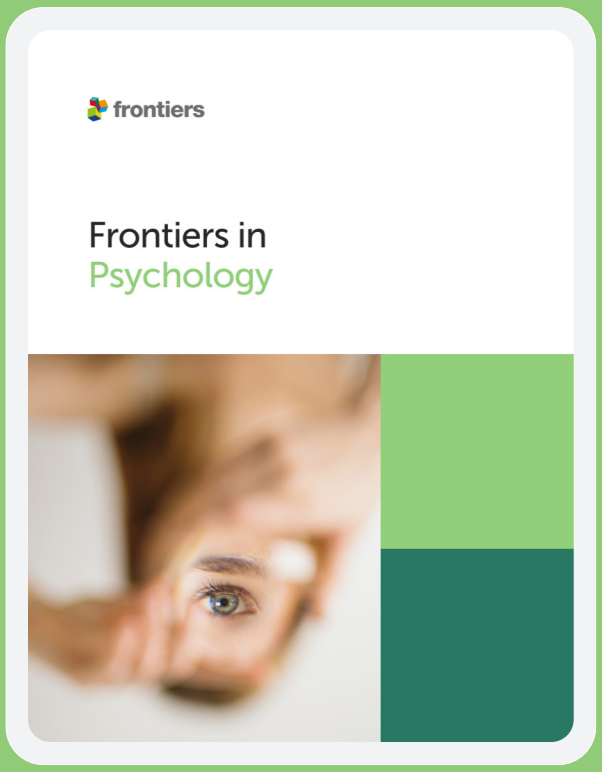

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