Received: 29 December 2022 | Accepted: 3 September 2023

DOI: 10.1111/aphw.12493

ORIGINAL ARTICLE

APPLIED PSYCHOLOGY: Health and Well-Being IAAP

Mapping the factors behind ongoing war stress in Ukraine-based young civilian adults

Marek Palace[1] | **Oksana Zamazii**[2] | **Sylvia Terbeck**[1] | **Anna Bokszczanin**[3] | **Tetyana Berezovski**[4] | **Dominica Gurbisz**[5] | **Lukasz Szewjka**[6]

[1]School of Psychology, Liverpool John Moores University, Liverpool, UK

[2]Department of Accounting, Audit and Taxation, Khmelnytskyi National University, Khmelnytskyi, Ukraine

[3]Institute of Psychology, Opole University, Opole, Poland

[4]Department of Mathematics, St Joseph's University, Philadelphia, Pennsylvania, USA

[5]Doctoral School of Social Sciences, Institute of Psychology, Jagiellonian University, Kraków, Poland

[6]Institute of Pedagogy, Jagiellonian University, Kraków, Poland

Correspondence
Marek Palace, School of Psychology, Liverpool John Moores University, Liverpool, UK.
Email: marekpalace@hotmail.com

Funding information
Future Society: Behavior in Crisis Lab - Flagship Project, Grant/Award Number: U1U/P02/NO/21.97

Abstract

While the literature on well-being and stress following natural disasters is well-developed, it is less so when it comes to ongoing war experiences. Between September and October of 2022, 223 Ukraine-based civilian adults (156 women and 67 men) completed a survey measuring symptoms of post-traumatic stress disorder (PTSD), peritraumatic experiences, paranoia, quality of life, death anxiety, anxiety about weapons of mass destruction and depression (i.e. assumed 'war consequence' factors), as well as perceived social support, resilience, loneliness and expected military support from the West (i.e. assumed 'buffer' factors). Our exploratory structural equation model (SEM) suggests that *Perceived Social Support* predicted fewer *PTSD Symptoms* and more *Peritraumatic Experiences*. The regression modelling, however, shows that *Perceived Social Support* was also positively correlated with *Peritraumatic Experiences*. Highlighting the need for a civilian war stress buffer disruption theory, we argue that when composed of one's circle of family and friends, social support could likely mean greater exposure to war stressors through the mutual sharing of ongoing war experiences with no end in sight. Such

a possible war stress sharing deterioration effect would imply that *Perceived Social Support* may compound peritraumatic distress if the support in question is offered by those facing the same grim reality.

KEYWORDS

anxiety, depression, resilience, support, Ukraine, war

INTRODUCTION

The Russian invasion of Ukraine on 24 February 2022 marks one of the most significant dates in the recent European history, ushering in the untold misery and suffering of the Ukrainian nation. The cases of genocide (Borger, 2022), indiscriminate shelling of civilian buildings (Beaumont, 2022), torture (Chao-Fong et al., 2022) and rape of women, men and children (McKernan, 2022) likely elevated the threat of injury and death to absolutely unprecedented levels.

As wars are known to result in the development and maintenance of post-traumatic stress disorder (PTSD) in affected civilian survivors (Carpiniello, 2023), the war in Ukraine is predicted to lead to significant psychological trauma and mental health problems (Fel et al., 2022; Pisaruk et al., 2022). This can already be supported by some recent research on Ukrainian civilians (Anjum et al., 2023; Zasiekina et al., 2023).

Conservation of resources (COR) stress theory suggests that major life events, including trauma and war experience where a threat to survival is present, can significantly impact one's mental health, potentially leading to PTSD, especially when people perceive a loss of coping resources (Hobfoll et al., 2020). Several studies have supported the relationship between war and trauma experience and mental health problems (Carpiniello, 2023, El-Khodary & Samara, 2020; Morina et al., 2018; Neria et al., 2010; Popham et al., 2022).

A factor often associated with PTSD is peritraumatic dissociation, defined as a range of zreactions (during or immediately after experiencing trauma), which include depersonalisation, dissociative amnesia, altered time perceptions and emotional numbing (Cyniak-Cieciura et al., 2022). Due to the complex nature of interacting factors, such experiences cannot definitively predict the onset of PTSD, nor its severity (Bovin & Marx, 2011). While fear and anxiety are the key emotions in developing PTSD, they do not necessarily result in the onset of disorders (Lancaster et al., 2011), and peritraumatic dissociation often accompanies the aforementioned experiences that may lead to intrusive thoughts (Danböck et al., 2021).

Loneliness has been linked to eliciting PTSD symptoms, depression and peritraumatic distress (Fox et al., 2021). This phenomenon can lead to social withdrawal and facilitates the development and maintenance of PTSD symptoms hampering effective treatment (Brown et al., 2018). Loneliness creates a loop effect, meaning that not only does it stem from the feeling of being socially distanced but it also perpetuates social withdrawal (Hawkley & Cacioppo, 2010). Thus, the nature of the relationship between PTSD and loneliness is bidirectional (Fox et al., 2021). Though social support and loneliness are often related and often highly correlated, they are distinct social constructs (Freak-Poli et al., 2021; Tomaka et al., 2006). One may, for example, have a strong family support system, but when the system is compromised by

unsatisfactory relationships with friends (which become more important in youth and adulthood—Zhang & Dong, 2022), a sense of loneliness may still be dominant.

Social support has been studied in terms of increasing mental health and well-being after trauma (Chang et al., 2022; Kaniasty, 2020; Kaniasty & Norris, 2004; Littleton et al., 2022). While social support theory argues that perceived help from others acts as a stress buffer (Cohen et al., 1985), the social support deterioration model (SSDM) suggests that social support following a disaster is a key factor in preventing mental health problems; those individuals who do not perceive such support seem to lose community and solidarity, resulting in more persistent distress (Kaniasty & Norris, 2004; Littleton et al., 2022).

It appears that perceived social and family support is a significant factor in reducing the chances of developing post-traumatic stress (Carpiniello, 2023; Neria et al., 2010) and in increasing a sense of well-being by creating feelings of belonging and community cohesion. To date, the majority of studies have investigated social support directly *after* a disaster, leaving the timeframe during the crisis seriously underexplored.

Social support along with resilience are often the two most researched buffers protecting against stress (Li et al., 2021; Ye et al., 2020). A working definition of resilience is the ability to effectively and quickly recover after stress (Tugade et al., 2004). This can be conceptualised as a psychological trait or an implemented process of dealing with adversities (Li et al., 2021). Resilience, known to alleviate war stressors (Farchi & Gidron, 2010), has been linked with such mechanisms as active coping styles (Sharkansky et al., 2000) and internal locus of control (Musich et al., 2022), which are associated with fewer PTSD symptoms and better adaptability and coping (Hoge et al., 2007).

Given the need for better understanding of the psychological impact of the war on civilians in Ukraine, the current study explored the underlying factors predictive of depression, PTSD symptoms, perceived peritraumatic experiences, anxiety and life quality measures. Considering the Eastern European socio-cultural setting of the current study, which is associated with traditional patriarchal family values (Ketelaars, 2019), the central role of the family unit, and strong sense of collective spirit, which was institutionalised in the Soviet Union (Gumeniuk et al., 2021), the current study will offer insights into the mapping of civilian war stress factors. Although the current literature allows for certain predictions between the factors that we examine, the unique setting at an extraordinary time of all-out war deserves special attention.

While anxiety buffer disruption theory (Greenberg et al., 1986) accounts for how one develops PTSD (symptoms) due to a trauma-induced disruption in one's anxiety-buffering mechanisms, there is an absence of civilian war stress buffer disruption theory whose development (we hope) our findings will help stimulate.

Based on the above literature, the following hypotheses have been formed:

1. *Peritraumatic Experiences* would be predicted by lower *Perceived Social Support*, lower *Resilience* and higher *Loneliness*.
2. *PTSD Symptoms* would be predicted by lower *Perceived Social Support*, higher *Loneliness* and lower *Resilience*.
3. *Depression* would be predicted by lower *Perceived Social Support*, lower *Resilience* and higher *Loneliness*.
4. *Anxiety about Russian Use of Nuclear*, *Biological* and *Chemical Weapons* would be predicted by higher *Expected Military Support from the West*, higher *Loneliness* and lower *Resilience* (based on the likely anticipated anxiety about the war escalation).

5. Higher *Life Quality* would be predicted by lower *Loneliness*, higher *Resilience* and higher *Perceived Social Support*.

METHODOLOGY

Participants and procedure

Following the institutional ethics review approval, between 22 September and 06 October 2022, 223 of its (temporarily online learning) students (mean age = 18.39; *SD* = 2.11; 156 women and 67 men) attending one of the largest institutions of higher education in Midwestern Ukraine provided their informed consent, confirmed their current residence as Ukraine and completed a 15-min Ukrainian language cross-sectional survey that was translated from English into Ukrainian and corrected by two Ukrainian native speakers fluent in English. The exclusion criteria were residing outside Ukraine and no current student status. The data were collected before the Crimean Bridge explosion on 08 October, which was immediately followed intensified Russian drone strikes on civilian objects and critical infrastructure across the whole country (Ryan et al., 2022). The city where the data were collected remained under the threat of shelling since the beginning of the war (24 February) and was not spared from Russian missiles (Sanchala, 2022) before our research commenced.

During the data collection window, the Ukrainian army started making significant counter-offensive advances in the Russian-occupied and illegally annexed Eastern and Southern Ukraine (Kharkiv and Kherson regions). The advances, largely facilitated by US-delivered HIMARS (high mobility artillery rocket system) launchers with their 80-km range missiles, started turning the tide of war. According to the Institute for the Study of War, the September counter-offensive took control of more territory than the Russian forces managed in all operations since April (Guardian Editorial, 2022). This, in turn, increased the risk of a Russian nuclear retaliation so much that the risk was proclaimed by US President Biden to be the highest since the 1962 Cuban missile crisis and potentially leading to 'Armageddon' (Stein, 2022). Thus, it can be argued that the data collection took place when the level of Russian military threat was one of the highest.

Measures

The online survey comprised the following scales: shortened RAND Peritraumatic Dissociative Experiences Questionnaire (six items; $\alpha = .79$; Marshall et al., 2002); a short form of the Mississippi scale for measuring change in combat-related PTSD (19 items; $\alpha = .90$; Norris & Perilla, 1996), Brief Depression Scale (six items; $\alpha = .84$; Keltikangas-Järvinen & Rimon, 1987); abbreviated version of the Connor-Davidson Resilience Scale (two items; $\alpha = .75$; Vaishnavi et al., 2007); Loneliness Scale (five items; $\alpha = .70$; De Jong-Gierveld & Kamphuls, 1985); Multidimensional Scale of Perceived Social Support (13 items; $\alpha = .77$; Zimet et al., 1988); Paranoia Scale (five items; $\alpha = .72$; Barreto carvalho et al., 2017); adapted Death Anxiety Scale (five items; $\alpha = .71$; Templer et al., 2006); the Manchester Short Assessment of Quality of Life (six items; $\alpha = .78$; Priebe et al., 2002); the War Events Questionnaire (described in Results; Karam et al., 1999). Participants also indicated their age, sex and student/working status and completed our four-item Perceived Support from the West Scale ($\alpha = .94$; four items: *The NATO will*

continue to offer its support to Ukraine; *the European Union will continue to offer its support to Ukraine*; *the United States will continue to offer its support to Ukraine*; and *the United Kingdom will continue to offer its support to Ukraine*).[1]

RESULTS

Descriptive statistics

There were 223 full survey completions with no missing data.[2] Table 1a features the data from the War Event Questionnaire (Karam et al., 1999).

Table 1b features data the predictor and outcome factor descriptive statistics.

Bivariate correlations

Examining the relationship between *Peritraumatic Experiences* and *PTSD* scores showed a medium positive correlation: $r(1, 223) = .43$, $p < .001$. The relationship between *Peritraumatic*

TABLE 1a War experiences statistics.

Reported experience	Number of participants	Percent of the sample
Personally experienced electric blackout	29	12.9%
Somebody close experienced electric blackout	53	23.7%
Personally mentally affected by the war	71	31.7%
Family mentally affected by the war	44	19.6%
Somebody close mentally affected by the war	48	21%
Personal serious physical injury	2	9%
Somebody close suffered serious physical injury	45	20.1%
Personal superficial physical injury	5	2.2%
Somebody close suffered superficial physical injury	57	25.4%
Somebody close went missing	17	7.6%
Personally affected by the lack of drinkable liquids	4	1.8%
Somebody close affected by the lack of drinkable liquids	28	12.5%
Personally affected by hunger	3	1.3%
Somebody close affected by hunger	34	15.2%
Somebody close killed in the war	40	17.9%
Somebody close died because of the war	31	13.8%
Never personally used a bomb shelter	32	14.3%
Personally used a bomb shelter occasionally	94	42%
Personally used a bomb shelter quite often	80	35.7%
Personally used a bomb shelter very often	16	7.1%

TABLE 1b Predictor and outcome factor descriptive statistics.

Response variable	Mean	Mode	Median	SD	SE	High sample scorers (5–7)
Peritraumatic Experiences	4.13	5	4.33	1.43	.09	34.8%
PTSD scores	2.80	1.13	2.58	1.13	.08	6%
Depression scores	2.90	1	2.66	1.51	.10	12.2%
Loneliness scores	3.42	2.20	3	1.37	.09	17.7%
Resilience scores	5.16	7	5.16	1.49	.09	66.9%
Expec. Milit. Supp. West	5.23	7	5.25	1.49	.09	64.4%
Perceived Social Support	4.99	7	5.25	1.50	.10	56%
Life Quality	4.15	3.67	4.17	3.67	.08	29.5%
Anx. Nucl. Weapons	4.81	7	5	2.09	.14	59.7%
Anx. Bio. Weapons	4.78.	7	5	2.13.	.14	59.3%
Anx. Chem. Weapons	5.06.	7	6	2.02	.13	64.3%

Experiences and *Depression* scores showed a medium positive correlation: $r(1, 223) = .34$, $p < .001$. The relationship between *Depression* and *PTSD* scores showed a strong positive correlation: $r(1, 223) = .84$, $p < .001$. The relationship between *Depression* and *Perceived Social Support* scores showed a small negative correlation: $r(1, 223) = -.187$, $p = .005$. Relationship between *Depression* and *Loneliness* scores showed a medium positive correlation: $r(1, 223) = .40$, $p < .001$.

There was a small positive significant correlation between *Bomb Shelter Use Frequency* and *Peritraumatic Experiences*, $r(1, 223) = .22$, $p < .001$. There were no statistically significant correlations between *Bomb Shelter Use Frequency* and *Depression*, $r(1, 223) = .07$, $p = .30$, *PTSD Symptoms*, $r(1, 223) = .06$, $p = .37$, *Life Quality*, $r(1, 223) = .06$, $p = .34$, and *Death Anxiety*, $r(1, 223) = .06$, $p < .39$.

Regression results

The VIF values are under 5, which suggests no issue with multicollinearity. Standardised residuals are under 3, and Cook's distance values are under 1, indicating no outliers.

Peritraumatic Experiences: The total variance explained by the model as a whole was 23.1%, $F(5, 215) = 14.360$, $p < .01$, adjusted $R^2 = .231$. The strongest predictor was higher *Perceived Social Support* ($\beta = .323$; $p < .001$), followed by lower *Resilience* ($\beta = -.251$; $p < .001$) and higher *Loneliness* ($\beta = .155$; $p = .021$).

PTSD Symptoms: The total variance explained by the model as a whole was 14.2%, $F(5, 215) = 8.30$, $p < .01$, adjusted $R^2 = .142$. The strongest predictor was higher *Loneliness* ($\beta = .336$; $p < .001$), followed by *Being a Woman* ($\beta = -1.48$; $p = .02$) and lower *Resilience* ($\beta = -.136$; $p < .001$).

Depression: The total variance explained by the model as a whole was 20.4%, $F(5, 217) = 12.38$, $p < .01$, adjusted $R^2 = .204$. The strongest predictor was higher *Loneliness* ($\beta = .408$, $p < .001$), followed by lower *Resilience* ($\beta = -.186$; $p < .006$) and *Being Woman* ($\beta = -.155$, $p = .013$).

Anxiety about Russian Use of Nuclear Weapons: The total variance explained by the model as a whole was 7.8%, $F(5, 217) = 4.744$, $p < .01$, adjusted $R^2 = .078$. The strongest predictor was higher *Expected Military Support from the West* ($\beta = .223$; $p = .001$), followed by higher *Loneliness* ($\beta = .203$; $p = .006$).

Anxiety about Russian Use of Chemical Weapons: The total variance explained by the model as a whole was 4.7%, $F(5, 217) = 3.181$, $p = .009$, adjusted $R^2 = .047$. The strongest predictor was higher *Expected Military Support from the West* ($\beta = .184$; $p = .010$), followed by higher *Loneliness* ($\beta = .170$; $p = .023$).

Anxiety about Russian Use of Biological Weapons: The total variance explained by the mode as a whole was 3.9%, $F(5, 217) = 2.825$, $p = .017$, adjusted $R^2 = .039$. The only significant predictor was higher *Loneliness* ($\beta = .201$; $p = .008$).

Death Anxiety: The total variance explained by the mode as a whole was 9%, $F(5, 217) = 5.366$, $p < .001$, adjusted $R^2 = .090$. The strongest predictor was higher *Loneliness* ($\beta = .267$; $p = .008$), followed by higher *Expected Military Support from the West* ($\beta = .144$; $p = .038$) and *Being a Woman* ($\beta = -.129$; $p = .055$).

Life Quality: The total variance explained by the model as a whole was 21.7%, $F(6, 217) = 13.291$, $p < .001$, adjusted $R^2 = .217$. The strongest predictor was lower *Loneliness* ($\beta = -.259$; $p < .001$), followed by higher *Resilience* ($\beta = .197$; $p < .003$) and higher *Perceived Social Support* ($\beta = .167$; $p = .032$).

Table 2 features the regression coefficients.

Structural equation modelling (SEM) results

Based on the related literature covered above and our data, an exploratory Civilian War Stress structural equation model was examined with a view to capturing the more complex multi-path inter-relations between the examined factors (not just between the 'war consequence' and 'buffer' factors) that go beyond the standard multiple regression. In line with our hypotheses, we retain the key observed variables already associated with civilian war stress: *Peritraumatic Experiences* (Gelkopf et al., 2019) and *PTSD Symptoms* (Fel et al., 2022). We did not include *Life Quality* as the employed measure is general and not focused on war consequences for civilians. Intriguingly, the initial inclusion of *Loneliness* in our early proto model resulted in a suboptimal fit, which presents a finding that further research on war stress complexities might find worth pursuing.

As the study location was far from the front, the (more general) factor *Death Anxiety* was replaced with a factor more relevant to our city-dwelling civilian participants—*Anxiety about Weapons of Mass Destruction* (based on *Anxiety about the Russian use of Chemical/Biological/Nuclear Weapons*). This is in line with a study showing (Riad et al., 2023) a strong and positive correlation between anxiety about nuclear war and depression in Eastern European students concerned about the war escalation (Riad et al., 2023). The proposed model also features *Resilience*, which is known to alleviate war stressors (Farchi & Gidron, 2010), *Perceived Social Support* and *Expected Military Support from the West*, which are grounded in research on the mitigatory effects of social support and close attachments to others on perceived stress in those in the combat zone (Jeftić et al., 2021) and those faced with disasters (Bokszczanin et al., 2023).

Acknowledging that SEM indices do not have absolute cut-off points that are based more on subjectively semantic rather than data-driven value (Peugh & Feldon, 2020), the key SEM indices suggest a satisfactory model fit. CMIN was statistically non-significant, $\chi^2(16) = 24.582$,

TABLE 2 Regression coefficients.

Response variable	Predictor	Standardised β	*p*-value	St error
Peritraumatic	Gender (1woman/2man)	−3.23	***	.191
	Perceived social support	3.23	***	.073
	Expected milit. support	.064	.311	.061
	Loneliness	.155	.021	.070
	Resilience	−.251	***	.063
PTSD	Gender (1woman/2man)	−1.48	.02	.160
	Perceived social support	.07	.40	.061
	Expected milit. support	−.01	.84	.051
	Loneliness	.336	***	.059
	Resilience	−.136	.051	.053
Depression	Gender (1woman/2man)	−1.55	.013	.205
	Perceived social support	.044	.577	.078
	Expected milit. support	−.011	.868	.065
	Loneliness	.408	***	.075
	Resilience	−.186	.006	.068
Anxiety about Russian Use of Nuclear Weapons	Gender (1woman/2man)	−.022	.739	.306
	Perceived social support	.150	.075	.117
	Expected milit. support	.223	***	.097
	Loneliness	.203	.006	.112
	Resilience	−.103	.152	.101
Anxiety about Russian Use of Chemical Weapons	Gender (1woman/2man)	−.074	.279	.301
	Perceived social support	.087	.308	.115
	Expected milit. support	.184	.010	.096
	Loneliness	.170	.023	.110
	Resilience	−.046	.529	.099
Anxiety about Russian Use of Biological Weapons	Gender (1woman/2man)	−.043	.530	.318
	Perceived social support	.128	.138	.122
	Expected milit. support	.136	.056	.101
	Loneliness	.201	.008	.116
	Resilience	−.058	.433	.105
Death Anxiety	Gender (1woman/2man)	−.129	.055	.195
	Perceived social support	.002	.977	.075
	Expected milit. support	.144	.038	.062
	Loneliness	.267	***	.071
	Resilience	−.089	.212	.065
Life Quality	Gender (1woman/2man)	−.016	.791	.163
	Perceived social support	.167	.032	.062
	Expected milit. support	.079	.219	.052

TABLE 2 (Continued)

Response variable	Predictor	Standardised β	*p*-value	St error
	Loneliness	−.259	***	.060
	Resilience	.197	.003	.054

***$p < .001$.

$p = .078$; χ^2 value was 1.536 (24.582/16), revealing a good model-fit (Marcoulides & Yuan, 2017). The other indices provide acceptable support: comparative fit index (CFI) = .971; the Tucker–Lewis index (TLI) = .949; the root mean square error of approximation (RMSEA) = .049 (95% CI = .000–.086).

The resulting model (Figure 1) found small to large associations between the variables. Although *Perceived Social Support* was directly and negatively correlated with *PTSD Symptoms* ($\beta = -.287$, $p < .001$), it was positively associated with *Peritraumatic Experiences* ($\beta = .358$, $p < .001$). Furthermore, *Resilience* was indirectly (through *Peritraumatic Experiences*) and negatively associated with *PTSD Symptoms* ($\beta = -.164$, $p < .010$). In this context, *Resilience* was a direct predictor of *Peritraumatic Experiences* ($\beta = -.325$, $p < .001$), and *Peritraumatic Experiences* directly predicted *PTSD Symptoms* ($\beta = .504$, $p < .001$).

The longest path come from *Expected Military Support from the West* via *Anxiety about Weapons of Mass Destruction* via *Peritraumatic Experiences* to *PTSD Symptoms* and revealed a positive effect ($\beta = .102$, $p < .010$).

In our path diagram, several direct effects were established: *Expected Military Support from the West* was a positive predictor of *Anxiety about Weapons of Mass Destruction* ($\beta = .236$, $p < .001$), and *Anxiety about Weapons of Mass Destruction* predicted *Peritraumatic Experiences* ($\beta = .430$, $p < .001$).

In addition, all exogenous variables were positively correlated: *Perceived Social Support* was correlated with *Resilience* ($r = .416$, $p < .001$), as well as *Expected Military Support from the West* ($r = .302$, $p < .001$); *Resilience* was also correlated with *Expected Military Support from the West* ($r = .304$, $p < .001$).

Table 3 features the SEM standardised parameter estimates.

DISCUSSION

The purpose of this research was to examine individual and social factors behind ongoing war stress in Ukrainian university students. Hypothesis 1 was supported partially, meaning that while *Peritraumatic Experiences* were indeed predicted by lower *Resilience* and higher *Loneliness*, the *Perceived Social Support* turned out to be a negative predictor. Hypothesis 2 was also partially supported, meaning that *PTSD Symptoms* were predicted by higher *Loneliness*, *Being a Woman* and lower *Resilience*. In addition, our SEM reveals that *Perceived Social Support* was a negative predictor of *PTSD Symptoms*.

Hypothesis 3 was partially supported, meaning that *Depression* was predicted by higher *Loneliness*, lower *Resilience* and *Being a Woman*, but not (as anticipated) by *Perceived Social Support*.

Hypothesis 4 was partially supported, meaning that although *Resilience* was not a statistically significant predictor, *Anxiety about Russian Use of Nuclear* and *Chemical Weapons* was

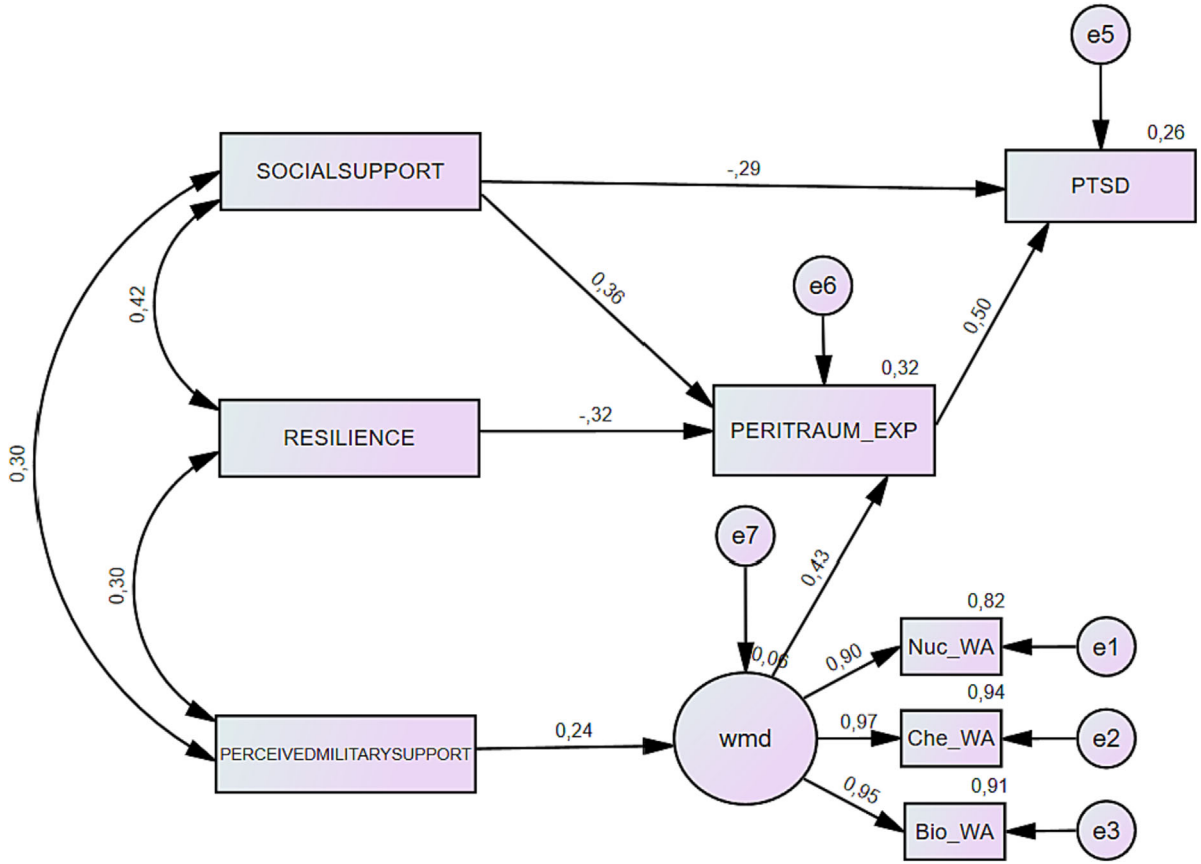

FIGURE 1 Exploratory civilian war stress model. BioWA, *Anxiety about the Russian Use of Biological Weapons*; ChemWA, *Anxiety about the Russian Use of Chemical Weapons*; NucWA, *Anxiety about the Russian Use of Nuclear Weapons*; PERITRAUM_EXP, *Peritraumatic Experiences*; PTSD, Post-Traumatic Stress Disorder Symptoms; SOCIALSUPPORT, *Perceived Social Support*; wmd, *Anxiety about Weapons of Mass Destruction*.

TABLE 3 Standardised parameter estimates for direct, indirect, and total effects for the SEM.

	β	*p*
Direct effects		
SOCIALSUPPORT → PTSD	−.287	<.001
SOCIALSUPPORT → PERITRAUM_EXP	.358	<.001
PERITRAUM_EXP → PTSD	.504	<.001
RESILIENCE → PERITRAUM_EXP	−.325	<.001
PERCEIVEDMILITARYSUPPORT → WMD	.236	<.001
WMD → PERITRAUM_EXP	.430	<.001
Indirect effects		
SOCIALSUPPORT → PERITRAUM_EXP → PTSD	. 180	<.010
RESILIENCE → PERITRAUM_EXP → PTSD	−.164	<.010
PERCEIVEDMILITARYSUPPORT → WMD → PERITRAUM_EXP → PTSD	.051	<.050
PERCEIVEDMILITARYSUPPORT → WMD → PERITRAUM_EXP	.102	<.050
WMD → PERITRAUM_EXP → PTSD	.217	<.001
Total effects		
SOCIALSUPPORT → PTSD	−.107	*n.s.*

Note: Total variance explained: R^2 for *PTSD* = .263; R^2 for *Peritraumatic Experiences* = .324; R^2 for *Anxiety about Weapons of Mass Destruction* (wmd) = .056. Indirect effects were calculated using the Gaskination plugin tool.

best predicted by higher *Expected Military Support from the West* and higher *Loneliness*; *Anxiety about the Russian Use of Biological Weapons* was only predicted by higher *Loneliness*. This, in turn, is consistent with these two factors (along with *Being a Woman*) predicting *Death Anxiety*. In addition, *Anxiety about Weapons of Mass Destruction* predicted more *Peritraumatic Experiences* and *PTSD Symptoms*.

Hypothesis 5 was fully supported, meaning that higher *Life Quality* was best predicted by lower *Loneliness*, followed by higher *Resilience* and higher *Perceived Social Support*.

As for gender, our results tie in with the previous research suggesting that women are at a particular risk of developing PTSD (Christiansen & Berke, 2020; Zasiekina et al., 2023) and appear to show a higher prevalence of depression (Albert, 2015), our contribution being that is also the case in an active war zone affecting civilians. The predictive power of loneliness and resilience is consistent with the mainstream studies on stress, depression and well-being in the context of natural disasters and armed conflicts (Neria et al., 2010; Popham et al., 2022), thus lending weight to the key role these two factors play across cultures and different types of catastrophes (Bokszczanin et al., 2023). While the military support from the United States, the United Kingdom and NATO strengthens the clout of the Ukrainian army, it is notable that such support is apparently associated with civilians' anxiety about the war escalation wherein the heavy-loss sustaining Russian army may resort to the use of weapons of mass destruction (DeDreuzy & Gilli, 2022; Riad et al., 2023). Our study aligns with the conservation of resources (COR) stress theory (Hobfoll et al., 2020), supporting the relationship between mental health and war trauma experience (Neria et al., 2010).

In general support of research on social support (Bokszczanin et al., 2023; Jeftić et al., 2021; Wolters et al., 2022), our SEM shows that *Perceived Social Support* predicted fewer *PTSD*

Symptoms, which is consistent with the social support deterioration model (SSDM) (Kaniasty & Norris, 2004). The regression modelling, however, shows that *Perceived Social Support* was also positively correlated with *Peritraumatic Experiences*. Similarly, the SEM model shows that *Perceived Social Support* predicted more *Peritraumatic Experiences*. As mentioned above, social support along with resilience are often the two most researched buffers protecting against stress (Li et al., 2021; Ye et al., 2020). This aspect was explored in the SEM model and shows that *Perceived Social Support* was correlated with *Resilience*. In addition, a path was identified indicating that *Resilience* predicted *Peritraumatic Experiences* and, indirectly, *PTSD Symptoms*.

The indirect SEM effects deserve some elaboration as they are consistent with research showing that intrapersonal (i.e. individual) resilience can indeed offer some protection against poor functioning following stressful life events (e.g. Besser & Zeigler-Hill, 2014) and during real-time exposure to war (Besser et al., 2015). Bearing in mind anxiety buffer disruption theory (Greenberg et al., 1986), the indirect effect shows how a similar process could occur in case of lower *Resilience* that was associated with more *Peritraumatic Experiences*.

The longest path of *Expected Military Support from the West* via *Anxiety about Weapons of Mass Destruction* via *Peritraumatic Experiences* to *PTSD Symptoms* deserves some closer attention. To elaborate, the link between *Expected Military Support from the West* and *PTSD Symptoms* was mediated by *Anxiety about Weapons of Mass Destruction* and *Peritraumatic Experiences*, meaning that the anticipated military help from the Western allies was associated with concerns about the (underequipped and desperate[3]) enemy forces resorting to acts of mass killings. As featured in the SEM diagram, the link between such concerns and *PTSD Symptoms* was also mediated by *Peritraumatic Experiences*.

This, in turn, adds to the related research on Israeli evacuees under missile threat (Besser & Neria, 2012), which showed that the link between attachment anxiety and PTSD symptoms was mediated by low levels of perceived social support. What we show is that under some circumstances (such as facing the enemy with the world's largest stockpile of weapons of mass destruction), the expected (military) support from the allies might actually be a negative stressor associated with anxiety about mass killings. While social support theory (Cohen et al., 1985) would not provide the best account of this complex mechanism, anxiety buffer disruption theory (Greenberg et al., 1986) could shed some light. More specifically, it appears that the buffer disruptor does not have to be trauma-induced—the realistic threat of such trauma alone (reinforced by Russia's nuclear sabre-rattling) could take its form as well.

We argue that when composed of one's circle of family and friends, social support could likely mean greater exposure to war stressors through the mutual sharing of ongoing war experiences with no end in sight. This implies that *Perceived Social Support* may compound peritraumatic distress if the support in question is offered by those facing the same grim reality, opening questions about such a possible *war stress sharing deterioration effect* that deserves further research.

A recent review (Kaniasty, 2020) concluded that social support and community feeling might vary according to the point in time of when it is being measured in relation to the disaster. Specifically, reported social support seems to increase after the disaster, which is then followed by a subsequent decline. Relatedly, higher perceived social support was associated with more positive affect and less negative affect following a hurricane disaster (Wolters et al., 2022). Since our study examined social support during a war time in a country with its every major city under attack and continuous threat, it could be argued that the relationship between perceived social support and mental health might vary in its nature depending on the complex time in which it is assessed.

Limitations

Since there was no issue with outliers and heteroscedasticity, calculating robust standard errors was not essential. Although the Midwestern Ukrainian city was not at the war front, it was hit by Russian missiles before the data collection started, meaning that it was directly affected by the war in both psychological and physical terms. The employed methodological tools allow only for the analysis of some of the most apparent PTSD and depression symptoms rather than their formal diagnoses and the inclusion of covariances, such as chronic conditions, is recommended in follow-up research. A greater and more gender-balanced sample size involving war-affected residents of different age groups and resident in other Ukrainian regions would likely bring other fresh insights to light.

It is worth adding that the exploratory SEM model is peripheral to the central multiple regression analysis. While not all associations turned out to be statistically significant, efforts were made to build a model that would provide at least some nuanced insights that would help stimulate an academic debate, open new questions and provide a platform for related follow-up research that now will have some grounds to hypothesise about indirect effects.

As our study included a survey and self-reported measures, those are inevitably vulnerable to biases as people might not be able to accurately reflect on their personal wellbeing and mental health, and thus a more nuanced assessment, involving behaviour, and a symptomatology is recommended in further research. Finally, a longitudinal study (with different age groups) would be desirable and likely insightful in assessing the complex nature of the role of social support during a war time. It is unclear if the participants' responses stemmed from the dramatic war escalation in February 2022 or from the unstable political environment and annexation of Crimea in 2014 followed by the Donbas invasion.

Conclusions

The findings show that the ongoing war is associated with compromised mental health, which neither resilience nor perceived social support can effectively buffer against. Our results have relevance beyond the Ukrainian borders, the reasons being the NATO involvement, its spillover risk, the media spotlight and its global repercussions. The results also offer a relatively rare opportunity to examine the impact of a modern full-scale Geneva-convention breaching war on civilians' well-being. Our results shed light onto the complexity of resilience and social support, suggesting that they are not to be treated as universal buffers against stress and anxiety. Monitoring the state of Ukrainian citizens during the wake of the war is crucial to better understanding the inner working mechanisms of war trauma and its possible interventions, highlighting the need for a civilian war stress buffer disruption theory whose development we hope our research will help stimulate. Counter to the post-disaster research, perceived social support does not seem as a universal buffer for individuals sharing their experiences. When the supporter lacks the emotional resources to deal with the grave consequences of war this may set off a downward spiral leading to adverse effects, one practical implication being the need for greater promotion of social support from the Ukrainians beyond the country's borders who share a more optimistic vision, which could be facilitated through social media. Such digital social support might thus include those less directly exposed to the war stressors, potentially reducing at least some symptoms of peritraumatic stress.[4]

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data may be available at the discretion of Professor Oksana Zamazii.

ETHICS STATEMENT

The ethics approval was granted by the 2nd author's institutional board.

ORCID

Marek Palace https://orcid.org/0000-0003-3016-2118
Anna Bokszczanin https://orcid.org/0000-0002-0499-8133

ENDNOTES

[1] Classical anchors were used (e.g. '1 *not at all*; 7 *completely*'; '1 *very unlikely*; 7 *very likely*'; '1 *strongly disagree*, 7 *strongly agree*').

[2] Thus, the required sample of 220 based on the power analysis and recommendations by Pallant (2020) and Collier (2020) was exceeded.

[3] According to most Western media; https://www.theguardian.com/world/2022/oct/20/the-army-has-nothing-new-russian-conscripts-bemoan-lack-of-supplies.

[4] This research has been supported by a grant from the Priority Research Area (*Future Society: Behaviour in Crisis Lab - Flagship Project*) under the *Strategic Programme Excellence Initiative* at Jagiellonian University (3700000 PLN; U1U/P02/NO/21.97).

REFERENCES

Albert, P. R. (2015). Why is depression more prevalent in women? *Journal of Psychiatry & Neuroscience: JPN*, *40*(4), 219–221. https://doi.org/10.1503/jpn.150205

Anjum, G., Aziz, M., & Hamid, H. K. (2023). Life and mental health in limbo of the Ukraine war: How can helpers assist civilians, asylum seekers and refugees affected by the war? *Frontiers in Psychology*, *14*, 1129299. https://doi.org/10.3389/fpsyg.2023.1129299

Barreto carvalho, C., Sousa, M., Motta, C., Pinto-gouveia, J., Caldeira, S. N., Peixoto, E. B., Cabral, J., & Fenigstein, A. (2017). Paranoia in the general population: A revised version of the General Paranoia Scale for adults. *Clinical Psychologist*, *21*(2), 125–134. https://doi.org/10.1111/cp.12065

Beaumont, P. (2022, March 2). 'Constant shelling' as Russian forces lay siege to key Ukrainian cities. *The Guardian*. https://www.theguardian.com/world/2022/mar/02/constant-shelling-as-russian-forces-lay-siege-to-key-ukrainian-cities-kyiv-mariupol

Besser, A., & Neria, Y. (2012). When home isn't a safe haven: Insecure attachment orientations, perceived social support, and PTSD symptoms among Israeli evacuees under missile threat. *Psychological Trauma Theory Research Practice and Policy*, *4*(1), 34–46. https://doi.org/10.1037/a0017835

Besser, A., & Zeigler-Hill, V. (2014). Positive personality features and stress among first-year university students: Implications for psychological distress and self-esteem. *Self and Identity*, *13*, 24–44. https://doi.org/10.1080/15298868.2012.736690

Besser, A., Zeigler-Hill, V., Weinberg, M., Pincus, A. L., & Neria, Y. (2015). Intrapersonal resilience moderates the association between exposure-severity and PTSD symptoms among civilians exposed to the 2014 Israel–Gaza conflict. *Self and Identity*, *14*(1), 1–15. https://doi.org/10.1080/15298868.2014.966143

Bokszczanin, A., Palace, M., Brown, W., Gladysh, O., Tripathi, R., & Shree, D. (2023). Depression, perceived risk of COVID-19, loneliness, and perceived social support from friends among university students in Poland, UK, and India. *Psychology Research and Behavior Management*, *16*, 651–663. https://doi.org/10.2147/PRBM.S380318

Borger, J. (2022, May 27). Russia is guilty of inciting genocide in Ukraine, expert report concludes. The *Guardian*. https://www.theguardian.com/world/2022/may/27/russia-guilty-inciting-genocide-ukraine-expert-report

Bovin, M. J., & Marx, B. P. (2011). The importance of the peritraumatic experience in defining traumatic stress. *Psychological Bulletin*, *137*(1), 47–67. https://doi.org/10.1037/a0021353

Brown, L. A., Belli, G. M., Asnaani, A., & Foa, E. B. (2018). A review of the role of negative cognitions about oneself, others, and the world in the treatment of PTSD. *Cognitive Therapy and Research*, *43*(1), 143–173. https://doi.org/10.1007/s10608-018-9938-1

Carpiniello, B. (2023). The mental health costs of armed conflicts—A review of systematic reviews conducted on refugees, asylum-seekers and people living in war zones. *International Journal of Environmental Research and Public Health*, *20*(4), 2840. https://doi.org/10.3390/ijerph20042840

Chang, C. W., Chang, K. C., Griffiths, M. D., Chang, C. C., Lin, C. Y., & Pakpour, A. H. (2022). The mediating role of perceived social support in the relationship between perceived stigma and depression among individuals diagnosed with substance use disorders. *Journal of Psychiatric and Mental Health Nursing*, *29*(2), 307–316. https://doi.org/10.1111/jpm.12794

Chao-Fong, L., Hall, R., & Lock, S. (2022, November 17). Ukrainian official says scale of torture in Kherson is 'horrific' and claims people have been electrocuted—As it happened. *The Guardian*. https://www.theguardian.com/world/live/2022/nov/17/russia-ukraine-war-live-news-blasts-heard-in-crimea-putin-trying-to-freeze-ukraine-into-submission-us-envoy-says

Christiansen, D. M., & Berke, E. T. (2020). Gender-and sex-based contributors to sex differences in PTSD. *Current Psychiatry Reports*, *22*(4), 1–9, 19. https://doi.org/10.1007/s11920-020-1140-y

Cohen, S., Mermelstein, R., Kamarck, T., & Hoberman, H. (1985). Measuring the functional components of social support. In I. G. Sarason & B. R. Sarason (Eds.), *Social support: Theory, research and application* (pp. 73–94). Martinus Nijhoff. https://doi.org/10.1007/978-94-009-5115-0_5

Collier, J. E. (2020). *Applied structural equation modeling using AMOS: Basic to advanced techniques*. Routledge. https://doi.org/10.4324/9781003018414

Cyniak-Cieciura, M., Popiel, A., Kendall-Tackett, K., & Zawadzki, B. (2022). Neuroticism and PTSD symptoms: Gender moderates the mediating effect of peritraumatic emotions and dissociation. *Psychological Trauma Theory Research Practice and Policy*, *14*(3), 462–470. https://doi.org/10.1037/tra0001065

Danböck, S. K., Rattel, J. A., Franke, L. K., Liedlgruber, M., Miedl, S. F., & Wilhelm, F. H. (2021). Peritraumatic dissociation revisited: Associations with autonomic activation, facial movements, staring, and intrusion formation. *European Journal of Psychotraumatology*, *12*(1), 1991609. https://doi.org/10.1080/20008198.2021.1991609

De Jong-Gierveld, J., & Kamphuls, F. (1985). The development of a Rasch-type loneliness scale. *Applied Psychological Measurement*, *9*(3), 289–299. https://doi.org/10.1177/014662168500900307

DeDreuzy, P. & Gilli, A. (2022). Russia's nuclear coercion in Ukraine. NATO. https://www.nato.int/docu/review/articles/2022/11/29/russias-nuclear-coercion-in-ukraine/index.html

El-Khodary, B., & Samara, M. (2020). The relationship between multiple exposures to violence and war trauma, and mental health and behavioural problems among Palestinian children and adolescents. *European Child & Adolescent Psychiatry*, *29*, 719–731.

Farchi, M., & Gidron, Y. (2010). The effects of 'psychological inoculation' versus ventilation on the mental resilience of Israeli citizens under continuous war stress. *The Journal of Nervous and Mental Disease*, *198*(5), 382–384. https://doi.org/10.1097/NMD.0b013e3181da4b67

Fel, S., Jurek, K., & Lenart- Kłoś, K. (2022). Relationship between socio-demographic factors and posttraumatic stress disorder: A cross sectional study among civilian participants' hostilities in Ukraine. *International Journal of Environmental Research and Public Health*, *19*(5), 2720. https://doi.org/10.3390/ijerph19052720

Fox, R., McHugh Power, J., Coogan, A. N., Beekman, A. T., van Tilburg, T. G., & Hyland, P. (2021). Posttraumatic stress disorder and loneliness are associated over time: A longitudinal study on PTSD symptoms and loneliness, among older adults. *Psychiatry Research*, *299*, 113846. https://doi.org/10.1016/j.psychres.2021.113846

Freak-Poli, R., Ryan, J., Tran, T. D., Owen, A. J., McHugh, J. E., Berk, M., Stocks, N., González-Chica, D. A., Lowthian, J., Fisher, J., & Byles, J. (2021). Social isolation, social support and loneliness as independent

concepts, and their relationship with health-related quality of life among older women. *Aging & Mental Health*, *26*(7), 1335–1344. https://doi.org/10.1080/13607863.2021.1940097

Gelkopf, M., Lapid Pickman, L., Carlson, E. B., & Greene, T. (2019). The dynamic relations among peritraumatic posttraumatic stress symptoms: An experience sampling study during wartime. *Journal of Traumatic Stress*, *32*(1), 119–129. https://doi.org/10.1002/jts.22374

Greenberg, J., Pyszczynski, T., & Solomon, S. (1986). The causes and consequences of a need for self-esteem: A terror management theory. In R. F. Baumeister (Ed.), *Public self and private self* (pp. 189–212). Springer-Verlag. https://doi.org/10.1007/978-1-4613-9564-5_10

Guardian Editorial. (2022). The guardian view on Ukraine's counteroffensive: A stunning breakthrough. *The Guardian*, 12 Sep. https://www.theguardian.com/commentisfree/2022/sep/12/the-guardian-view-on-ukraines-counteroffensive-a-stunning-breakthrough

Gumeniuk, O., Durnov, Y., Shkuratenko, O., Kumeda, T., & Savytskyi, R. (2021). Ukrainian Soviet family: Formative stages. *Amazonia Investiga*, *10*(38), 188–196. https://doi.org/10.34069/AI/2021.38.02.18

Hawkley, L. C., & Cacioppo, J. T. (2010). Loneliness matters: A theoretical and empirical review of consequences and mechanisms. *Annals of Behavioral Medicine*, *40*(2), 218–227. https://doi.org/10.1007/s12160-010-9210-8

Hobfoll, S. E., Gaffey, A. E., & Wagner, L. M. (2020). PTSD and the influence of context: The self as a social mirror. *Journal of Personality*, *88*(1), 76–87. https://doi.org/10.1111/jopy.12439

Hoge, E. A., Austin, E. D., & Pollack, M. H. (2007). Resilience: Research evidence and conceptual considerations for posttraumatic stress disorder. *Depression and Anxiety*, *24*(2), 139–152. https://doi.org/10.1002/da.20175

Jeftić, A., Ikizer, G., Tuominen, J., Chrona, S., & Kumaga, R. (2021). Connection between the COVID-19 pandemic, war trauma reminders, perceived stress, loneliness, and PTSD in Bosnia and Herzegovina. *Current Psychology*, *42*(10), 8582–8594. https://doi.org/10.1007/s12144-021-02407-x

Kaniasty, K. (2020). Social support, interpersonal, and community dynamics following disasters caused by natural hazards. *Current Opinion in Psychology*, *32*, 105–109. https://doi.org/10.1016/j.copsyc.2019.07.026

Kaniasty, K., & Norris, F. H. (2004). Social support in the aftermath of disasters, catastrophes, and acts of terrorism: Altruistic, overwhelmed, uncertain, antagonistic, and patriotic communities. In R. J. Ursano, A. E. Norwood, & C. S. Fullerton (Eds.), *Bioterrorism: Psychological and public health interventions* (pp. 200–224). Cambridge University Press.

Karam, E. G., Al-Atrash, R., Saliba, S., Melhem, N., & Howard, D. (1999). The war events questionnaire. *Social Psychiatry and Psychiatric Epidemiology*, *34*, 265–274. https://doi.org/10.1007/s001270050143

Keltikangas-Järvinen, L., & Rimon, R. (1987). Rimon's Brief Depression Scale, a rapid method for screening depression. *Psychological Reports*, *60*(1), 111–119. https://doi.org/10.2466/pr0.1987.60.1.111

Ketelaars, E. (2019). Geographical value spaces and gender norms in post-Maidan Ukraine: The failed ratification of the Istanbul Convention. *Review of International Studies*, *45*(5), 731–747. https://doi.org/10.1017/S0260210519000287

Lancaster, S. L., Melka, S. E., & Rodriguez, B. F. (2011). Emotional predictors of PTSD symptoms. *Psychological Trauma Theory Research Practice and Policy*, *3*(4), 313–317. https://doi.org/10.1037/a0022751

Li, F., Luo, S., Mu, W., Li, Y., Ye, L., Zheng, X., Xu, B., Ding, Y., Ling, P., Zhou, M., & Chen, X. (2021). Effects of sources of social support and resilience on the mental health of different age groups during the COVID-19 pandemic. *BMC Psychiatry*, *21*(1), 16. https://doi.org/10.1186/s12888-020-03012-1

Littleton, H., Haney, L., Schoemann, A., Allen, A., & Benight, C. (2022). Received support in the aftermath of Hurricane Florence: Reciprocal relations among perceived support, community solidarity, and PTSD. *Anxiety, Stress, and Coping*, *35*(3), 270–283. https://doi.org/10.1080/10615806.2021.1956480

Marcoulides, K. M., & Yuan, K. H. (2017). New ways to evaluate goodness of fit: A note on using equivalence testing to assess structural equation models. *Structural Equation Modeling: A Multidisciplinary Journal*, *24*(1), 148–153. https://doi.org/10.1080/10705511.2016.1225260

Marshall, G. N., Orlando, M., Jaycox, L. H., Foy, D. W., & Belzberg, H. (2002). Development and validation of a modified version of the Peritraumatic Dissociative Experiences Questionnaire. *Psychological Assessment*, *14*(2), 123–134. https://doi.org/10.1037/1040-3590.14.2.123

McKernan, B. (2022, April 4). Rape as a weapon: Huge scale of sexual violence inflicted in Ukraine emerges. *The Guardian*. https://www.theguardian.com/world/2022/apr/03/all-wars-are-like-this-used-as-a-weapon-of-war-in-ukraine

Morina, N., Stam, K., Pollet, T. V., & Priebe, S. (2018). Prevalence of depression and posttraumatic stress disorder in adult civilian survivors of war who stay in war-afflicted regions. A systematic review and meta-analysis of epidemiological studies. *Journal of Affective Disorders*, *239*, 328–338.

Musich, S., Wang, S. S., Schaeffer, J. A., Kraemer, S., Wicker, E., & Yeh, C. S. (2022). The association of resilience, social connections, and internal locus of control with pain outcomes among older adults. *Geriatric Nursing*, *48*, 43–50. https://doi.org/10.1016/j.gerinurse.2022.08.011

Neria, Y., Besser, A., Kiper, D., & Westphal, M. (2010). A longitudinal study of posttraumatic stress disorder, depression, and generalized anxiety disorder in Israeli civilians exposed to war trauma. *Journal of Traumatic Stress*, *23*(3), 322–330. https://doi.org/10.1002/jts.20522

Norris, F. H., & Perilla, J. L. (1996). The Revised Civilian Mississippi Scale for PTSD: Reliability, validity, and cross-language stability. *Journal of Traumatic Stress*, *9*(2), 285–298. https://doi.org/10.1002/jts.2490090210

Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. McGraw-Hill Education.

Peugh, J., & Feldon, D. F. (2020). "How well does your structural equation model fit your data?": Is marcoulides and Yuan's equivalence test the answer? *CBE Life Sciences Education*, *19*(3), es5. https://doi.org/10.1187/cbe.20-01-0016

Pisaruk, A., Shatilo, V., Chyzhova, V., Koshel, N., Pisaruk, L., & Ivanov, S. (2022). Posttraumatic stress disorder: Online poll of people who experienced war stress in Ukraine in 2022. *Ageing and Longevity*, *3*(2), 57–62. https://doi.org/10.47855/jal9020-2022-2-4

Popham, C. M., McEwen, F., Karam, E. G., Fayyad, J., Karam, G., Saab, D., Moghames, P., & Pluess, M. (2022). Predictors of psychological risk and resilience among Syrian refugee children. *Journal of Child Psychology and Psychiatry*, *64*(1), 91–99. https://doi.org/10.1111/jcpp.13670

Priebe, S., Huxley, P., Knight, S., & Evans, S. (2002). Manchester Short Assessment of Quality of Life. *The International Journal of Social Psychiatry*. https://doi.org/10.1037/t10432-000

Riad, A., Drobov, A., Alkasaby, M. A., Peřina, A., & Koščík, M. (2023). Nuclear anxiety amid the Russian-Ukrainian war 2022 (RUW-22): Descriptive cross-sectional study. *International Journal of Environmental Research and Public Health*, *20*(4), 3551. https://doi.org/10.3390/ijerph20043551

Ryan, M., Khurshudyan, K., & Ilyushina, M. (2022, October 10). Russia strikes Kyiv and cities across Ukraine after Crimea Bridge attack. *The Washington Post*. https://www.washingtonpost.com/world/2022/10/10/kyiv-missile-strikes-russia-ukraine-war/

Sanchala, V. (2022). Ukraine War: Khmelnytskyi Mayor Talks About Russian Shelling; 'investigations Underway'. *Republicworld*, 2 April. https://www.republicworld.com/world-news/russia-ukraine-crisis/ukraine-war-khmelnytskyi-mayor-talks-about-russian-shelling-investigations-underway-articleshow.html

Sharkansky, E. J., King, D. W., King, L. A., Wolfe, J., Erickson, D. J., & Stokes, L. R. (2000). Coping with Gulf War combat stress: Mediating and moderating effects. *Journal of Abnormal Psychology*, *109*(2), 188–197. https://doi.org/10.1037/0021-843X.109.2.188

Stein, C. (2022). 'We won't be intimidated by Putin's rhetoric', says White House after Biden's Armageddon warning - as it happend. *The Guardian*, 7 Oct. https://www.theguardian.com/us-news/live/2022/oct/07/biden-putin-russia-nuclear-weapons-ukraine-midterm-elections-us-politics-latest?page=with:block-634031d18f088272fbb9d7bf

Templer, D. I., Awadalla, A., Al-Fayez, G., Frazee, J., Bassman, L., Connelly, H. J., Arikawa, H., & Abdel-Khalek, A. M. (2006). Construction of a death anxiety scale–extended. *OMEGA-Journal of Death and Dying*, *53*(3), 209–226. https://doi.org/10.2190/BQFP-9ULN-NULY-4JDR

Tomaka, J., Thompson, S., & Palacios, R. (2006). The relation of social isolation, loneliness, and social support to disease outcomes among the elderly. *Journal of Aging and Health*, *18*(3), 359–384. https://doi.org/10.1177/0898264305280993

Tugade, M. M., Fredrickson, B. L., & Feldman Barrett, L. (2004). Psychological resilience and positive emotional granularity: Examining the benefits of positive emotions on coping and health. *Journal of Personality*, *72*(6), 1161–1190. https://doi.org/10.1111/j.1467-6494.2004.00294.x

Vaishnavi, S., Connor, K., & Davidson, J. R. (2007). An abbreviated version of the Connor-Davidson Resilience Scale (CD-RISC), the CD-RISC2: Psychometric properties and applications in psychopharmacological trials. *Psychiatry Research*, *152*(2–3), 293–297. https://doi.org/10.1016/j.psychres.2007.01.006

Wolters, B., Kok, A., Huisman, M., Cartwright, F., & Pruchno, R. (2022). Long-term impact of Hurricane Sandy exposure on positive and negative affect: The role of perceived social support. *The Journals of Gerontology: Series B*, *77*(10), 1892–1903. https://doi.org/10.1093/geronb/gbac066

Ye, Z., Yang, X., Zeng, C., Wang, Y., Shen, Z., Li, X., & Lin, D. (2020). Resilience, social support, and coping as mediators between COVID-19-related stressful experiences and acute stress disorder among college students in China. *Applied Psychology. Health and Well-Being*, *12*(4), 1074–1094. https://doi.org/10.1111/aphw.12211

Zasiekina, L., Zasiekin, S., & Kuperman, V. (2023). Post-traumatic stress disorder and moral injury among Ukrainian civilians during the ongoing war. *Journal of Community Health*, *48*, 1–9. https://doi.org/10.1007/s10900-023-01225-5

Zhang, X., & Dong, S. (2022). The relationships between social support and loneliness: A meta-analysis and review. *Acta Psychologica*, *227*, 103616. https://doi.org/10.1016/j.actpsy.2022.103616

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment*, *52*(1), 30–41. https://doi.org/10.1207/s15327752jpa5201_2

How to cite this article: Palace, M., Zamazii, O., Terbeck, S., Bokszczanin, A., Berezovski, T., Gurbisz, D., & Szewjka, L. (2023). Mapping the factors behind ongoing war stress in Ukraine-based young civilian adults. *Applied Psychology: Health and Well-Being*, 1–18. https://doi.org/10.1111/aphw.12493