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RESEARCH ARTICLE

Investigating the latent structure of the International Trauma Questionnaire to assess *ICD-11* posttraumatic stress disorder (PTSD) and complex PTSD in an adult civilian sample during the Ukraine war

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Abstract

The symptom structure of *ICD-11* posttraumatic stress disorder (PTSD) and complex PTSD (CPTSD) and the validity of the International Trauma Questionnaire (ITQ) are yet to be tested among civilians in an active war zone. The present investigation examined the factor structure of the ITQ, the internal consistency of observed scores, and their associations with demographic characteristics and war-related experiences using a nationwide sample of 2,004 adults from the general population of Ukraine approximately 6 months after the full-scale Russian invasion in 2022. Overall, rates of endorsement across all symptom clusters were high. The mean total number of war-related stressors reported was 9.07 (SD = 4.35, range: 1–26). Internal reliability was good for all six ITQ subscales, Cronbach's αs = .73–.88, and the correlated six-factor model was found to provide the best representation of the latent structure of the ITQ in the present sample based on fit indices. There was evidence of a dose–response relationship, with

increasing scores on all symptom clusters associated with higher total reported war-related stressors.

The 11th revision of the *International Classification of Diseases* (*ICD-11*; World Health Organization [WHO], 2019) presents posttraumatic stress disorder (PTSD) and complex PTSD (CPTSD) as two distinct but related diagnoses under the parent category of "disorders specifically associated with stress." In the *ICD-11*, PTSD comprises three symptom clusters: reexperiencing the trauma in the here and now (Re), avoidance of traumatic reminders (Av), and a sense of current threat (Th). In addition to the three PTSD symptom clusters, CPTSD includes three additional symptom clusters that reflect disturbances in self-organization (DSO). The DSO symptom clusters include affective dysregulation (AD), negative self-concept (NSC), and disturbances in relationships (DR) and are frequently associated with sustained, repeated, and multiple forms of trauma exposure (e.g., genocide campaigns, severe domestic violence or childhood abuse, torture, slavery).

The International Trauma Questionnaire (ITQ; Cloitre et al., 2018) was developed as a bespoke self-report measure of *ICD-11* PTSD and CPTSD diagnoses and is the most commonly used measure of *ICD-11* PTSD and CPTSD symptoms (Gelezelyte et al., 2022). Previous psychometric evaluations of the ITQ in treatment-seeking and community-based samples have demonstrated that it produces scores with good-to-excellent internal consistency (Cronbach's αs = .89–.94), strong correlations with scores on the PTSD Checklist for *DSM-5* (r = .89), and acceptable test–retest reliability across symptom clusters (rs = .55–.91; Cloitre et al., 2021; Ho et al., 2019). A recent systematic review on the factorial validity of the ITQ showed that a correlated six-factor model (i.e., factors representing Re, Av, Th, AD, NSC, and DR) and a two-factor second-order model (i.e., second-order factors representing PTSD and DSO explaining covariation among the six symptom clusters) are commonly supported (Redican et al., 2021). In general, the first-order model has demonstrated a better fit in general population samples (Ben-Ezra et al., 2018; Shevlin et al., 2017), whereas the second-order model has provided a better fit for distinguishing PTSD and DSO symptom levels in highly traumatized or treatment-seeking samples (Cloitre et al., 2018; Vang et al., 2021).

Although the symptom structure of *ICD-11* PTSD and CPTSD and the validity of the ITQ have been tested in refugee and military populations (Folke et al., 2021; Murphy et al., 2020; Vallieres et al., 2018), the psychometric properties of the ITQ have yet to be tested among civilians in an active war zone. In a recent study of a nationwide sample of 2,004 adults from the general population of Ukraine, 25.9% of participants screened positive for PTSD and an additional 14.6% screened positive for CPTSD when assessed using the ITQ approximately 6 months after the full-scale Russian invasion in 2022 (Karatzias et al., 2023). The present investigation used the same sample to assess the factorial validity of the ITQ based on two commonly supported dimensional models, the internal reliability of the observed scores, and the associations between different demographic and war-related stressors and the PTSD and DSO symptom clusters. The goal was to extend previous findings on the factor structure and internal consistency of the ITQ to civilians in an active war zone in the immediate aftermath of the onset of armed conflict.

METHOD

Participants and procedure

The present study used self-report data from 2,004 Ukrainian adults enrolled in the Mental Health of Parents and Children in Ukraine Study collected between July and September 2022. Participants were recruited from a nationally representative survey panel maintained by a survey company (TGM Research; Singapore) via email, in-app notifications, or text messaging. Respondents were eligible if they were 18 years of age or older, the parent of a child under 18 years old, living in Ukraine at the time of recruitment, and able to complete the survey in Ukrainian. A convenience sampling method was used, but strategies were adopted to recruit a diverse sample regarding participant sex, age, and region of residence within Ukraine.

Once an individual agreed to participate, they were initially presented with a detailed informed consent document providing them with information on the nature of the survey questions. Participants were informed that they would be required to answer all the questions but could also exit the survey at any point. Once informed consent was provided, screening questions were administered to ensure the participant met the study inclusion criteria. During survey completion, participants could not proceed to a new page if any question had not been answered, and an automated message indicated which questions needed a response. Therefore, there were no missing responses for any participant. In the final sample, 42.9% of participants were male, and the mean participant age was 37.7 years

(*SD* = 8.2). Most participants were living in an urban area (75.0%), married or living with their partner (78.0%), and had completed an undergraduate degree (62.7%). Over half of the sample (59.4%) was employed full-time or part-time, and 13.1% of participants were emergency service responders (e.g., health worker, rescue/aid worker, police officer, firefighter). This study received ethical approval from the SI Institute of Psychiatry, Forensic Psychiatric Examination and Drug Monitoring of the Ministry of Health of Ukraine.

Measures

Demographic information

Demographic variables included age, sex, and employment. For employment, participants were asked, "Are you currently employed in one of the following occupations?," with response options of health worker, emergency rescue, aid worker, social services, police, firefighter, and armed forces. Responses were recoded to indicate employment in any health, emergency, and/or military role (yes/no).

PTSD and CPTSD

The ITQ (Cloitre et al., 2018) is an 18-item self-report measure of *ICD-11* PTSD and CPTSD. Two items are used to measure each PTSD and DSO symptom cluster; three additional items are used to measure functional impairment associated with all PTSD or DSO symptoms. For PTSD, participants used a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*extremely*) to indicate how much each symptom had bothered them in the past month. DSO symptoms were measured using the same response options, but participants were asked to base their responses on how they typically feel. The diagnostic criteria for PTSD require a score of 2 (*moderately*) or higher for at least one of two symptoms from each symptom cluster (i.e., Re, Av, and Th) as well as for at least one functional impairment item. The diagnostic criteria for CPTSD include satisfying the PTSD criteria in addition to rating at least one symptom from each symptom cluster (i.e., AD, NSC, and DR) with a score of 2 (*moderately*) or higher and endorsing functional impairment associated with these symptoms. A person can receive a diagnosis of PTSD or CPTSD but not both. The ITQ was independently translated from English to Ukrainian by a bilingual clinician experienced in working with PTSD and a translator without a medical background. Discrepancies were discussed until a consensus was reached on the initial translated draft. The Ukrainian version was then back-translated into English and approved by the original developers of the ITQ. The Ukrainian ITQ is publicly available at traumameasuresglobal.com.

War-related stressors

War-related stressors were measured using a scale constructed for the current study. The scale consisted of 35 items reflecting war-related experiences (see Karatzias et al., 2023, for details), and respondents were asked to indicate their exposure to each experience (0 = absent, 1 = present). The 35 war-related experiences were collapsed into seven categories for the present analysis: disruptions of everyday life (eight items), forced separation (four items), invasion (three items), war threat (four items), war exposure/participation (four items), war loss/injury (three items), and exposure to death (two items; Supplementary Table S1). Endorsement of any item in a given category was considered exposure to that category of stressors. A sum score of the total number of war-related stressors was also computed and divided into quartiles. Participants were also queried about their experience of the 2014 Russian invasion of Eastern Ukraine with the following question: "Were you affected by the Russian invasion of eastern Ukraine in 2014?" (Yes/No).

Data analysis

Data were analyzed in three consecutive phases. First, item means, standard deviations, endorsement rates, and item-to-scale total correlations were calculated. Second, two competing dimensional models were tested using confirmatory factor analysis (CFA) with robust maximum likelihood (Yuan & Bentler, 2000). Model 1 was the correlated six-factor first-order model based on the *ICD-11* specification of three PTSD (i.e., Re, Av, Th) and three DSO (i.e., AD, NSC, DR) symptom clusters, each measured by two indicators. Model 2 was the second-order model in which the three first-order PTSD factors loaded on a second-order PTSD factor, and the three first-order DSO factors loaded on a second-order DSO factor; the PTSD and DSO factors were correlated. Third, composite reliability was used to estimate the internal consistency of the ITQ subscale scores based on the best-fitting factor model. Composite reliability values range from 0 to 1, with scores closer to 1 indicating higher internal reliability (Raykov, 1997).

Model fit was evaluated and compared using a standard range of model fit indices: chi-square tests were used to assess absolute fit such that models with statistically nonsignificant *p* values are preferred. However, the chi-square test has been shown to be sensitive to large sample sizes such as the present (Tanaka, 1987) and should

not be relied upon as the sole basis of model rejection. More accurate indices of misfit are the root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMR), where values of less than .05 and greater than .08 indicate acceptable and excellent fit, respectively (Jöreskog & Sörbom, 1993). Fit was also assessed using incremental fit indices such as the comparative fit index (CFI; Bentler, 1990) and Tucker–Lewis Index (TLI; Tucker & Lewis, 1973), which compare model fit to more restricted baseline models; values of .90 and .95 and above indicate close and excellent fit, respectively. Finally, the competing models were nested, as Model 2 represents a more restricted version of Model 1. The models could, therefore, be compared using the Bayesian information criterion (BIC; Schwarz, 1978). BIC differences of 10 or more are regarded as indicative of a significant difference in fit in favor of the model with the lower value (Raftery, 1995).

Finally, summed ITQ scores, representing the latent variables from the best-fitting model, were compared on demographic (age and gender), employment (health or emergency service work), and historic exposure to war (2014 Russian invasion of Eastern Ukraine). They were then compared across categories of war-related stressors using independent *t* tests; comparisons across quartiles of total war-related stressors were conducted using one-way analyses of variance (ANOVAs) with robust tests of equality of means and Games–Howell post hoc tests for group differences. Analyses were conducted in *Mplus* (Version 8.1) and SPSS (Version 26). There were no missing data. Effect sizes for *t* tests were calculated as Cohen's *d*, with values of up to .40 indicating small effects, values between .40 and .80 indicating moderate effects, and values greater than .80 indicating large effects (Cohen, 1988).

RESULTS

Table 1 displays the results from the first stage of data analysis. Overall, the rates of symptom endorsement were high, with the most frequently endorsed symptom (Th1) endorsed by 78.0% of the sample and the least frequently endorsed symptom (DR1) endorsed by 27.0% of the sample. The highest symptom scores were reported for symptoms related to sense of threat (Th), with a mean score for the entire sample above the cutoff for endorsement. In general, endorsement rates for PTSD symptoms (41.5%–79.8%) were also higher than endorsement rates for DSO symptoms (27.0%–57.9%).

TABLE 1 Mean score and endorsement rates of ICD-11 posttraumatic stress disorder (PTSD) and disturbances in self-organization (DSO) symptoms

Item	*M*	*SD*	%	*n*	Item-to-scale correlation
Re1	1.61	1.06	51.0	1,038	.58
Re2	1.35	1.05	41.5	831	.64
Av1	1.58	1.10	50.2	1,006	.61
Av2	1.39	1.07	43.2	866	.57
Th1	2.48	1.07	79.8	1,600	.62
Th2	2.09	1.22	64.7	1,297	.60
PTSD FI1	1.82	1.11	58.2	1,167	
PTSD FI2	1.85	1.22	58.0	1,162	
PTSD FI3	1.89	1.12	61.5	1,233	
Total PTSD	10.48	4.84	40.4	809	
AD1	1.73	1.04	57.9	1,160	.56
AD2	1.39	1.12	42.9	859	.58
NSC1	1.16	1.19	33.2	666	.71
NSC2	0.75	1.09	20.7	415	.72
DR1	1.00	1.09	27.0	541	.71
DR2	1.05	1.05	30.0	601	.65
DSO FI1	1.26	1.01	35.8	718	
DSO FI2	1.53	1.14	45.5	911	
DSO FI3	1.56	1.10	46.4	929	
Total DSO	7.08	5.05	20.5	411	

Note: Items were scored on a scale of 0–4; a score of 2 or higher was considered indicative of symptom endorsement. *ICD-11 = International Classification of Diseases and Related Health Problems* (11th ed); Re = reexperiencing; Av = avoidance; Th = sense of threat; AD = affective dysregulation; NSC = negative self-concept; DR = disturbed relationships.

TABLE 2 Fit statistics for confirmatory factor analysis models of the dimensional structure of the Ukrainian International Trauma Questionnaire

Model	χ	*df*	*p*	CFI	TLI	RMSEA	90% CI	SRMR	BIC
1	121.00	39	< .001	.991	.985	.032	[.026, .039]	.018	61,960.71
2	596.29	47	< .001	.940	.916	.076	[.071, .082]	.060	62,407.09

Note: Model 1: six-factor correlated model; Model 2: two-factor second-order model. *df* = degrees of freedom; CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; CI = confidence interval; SRMR = standardized root mean squared residual; BIC = Bayesian information criterion.

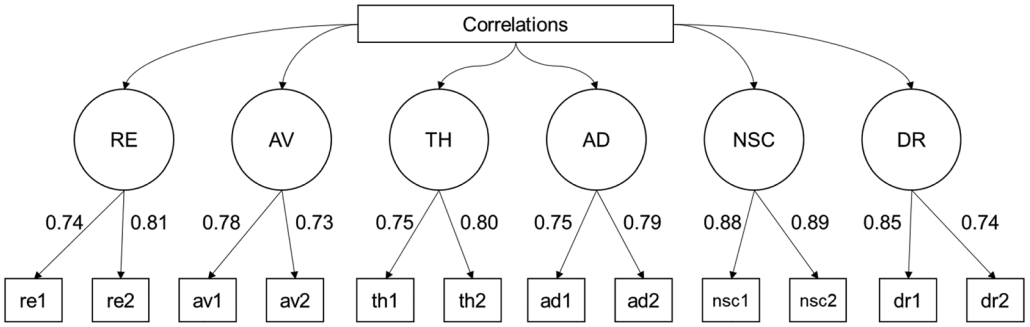

FIGURE 1 Six-factor correlated model including standardized factor loadings.
Note: All factor loadings were statistically significant at p < .001. Re = reexperiencing; Av = avoidance; Th = sense of threat; AD = affective dysregulation; NSC = negative self-concept; DR = disturbed relationships.

The mean total number of war-related stressors reported was 9.07 (*SD* = 4.35, range: 1–26). The most common categories of war-related stressors to which participants were exposed were war threat (99.6%), disruptions of everyday life (89.7%), and invasion (86.4%). Across quartiles, the mean number of endorsed war-related stressors was 3.85 (*SD* = 1.14) for Quartile 1, 7.08 (*SD* = 0.83) for Quartile 2, 10.00 (*SD* = 0.81) for Quartile 3, and 13.00 (*SD* = 2.74) for Quartile 4.

Table 2 displays the fit statistics from the CFA. Both models displayed acceptable fit to the data, but the correlated six-factor model (Model 1) outperformed the second-order model (Model 2) on all fit statistics. The CFI and TLI values indicated excellent fit for Model 1, and the RMSEA and SRMR values indicated small errors of approximation. A difference of 446.38 points for the BIC also highlights the superior fit of the correlated six-factor model. This conclusion was further supported by a difference of .044 on the RMSEA, where differences larger than .015 are considered meaningful (Chen, 2007). The scaled chi-square difference test also indicated that Model 1 was significantly better than Model 2, $\Delta MLR\chi^2 = 671.57$, Δ scaling factor = 0.77, $\Delta df = 8$, $p < .001$. Figure 1 displays standardized factor loadings, and Table 3 displays standardized factor correlations. All correlations were statistically significant and strong, *r*s = .44–.82, except the correlations between NSC and Av, *r* = .36, and NSC and Re, *r* = .38, which were moderate. The internal reliability for each of the six ITQ subscales was good, with Cronbach's alpha values of .75 for Re, .73 for Av, .75 for Th, .74 for AD, .88 for NSC, and .78 for DR (range: .73–.88).

Finally, we observed significant associations between war-related stressors and each symptom cluster, thus further supporting the validity of the correlated six-factor model (Model 1; see Table 4). There was evidence of a dose–response relationship, with increasing scores on all symptom clusters from lower to higher quartiles of total war-related stressors, although the tendency was most pronounced for the PTSD symptom clusters. Exposure to all categories of war-related stressors, except war threat and war exposure/participation, was associated with significantly higher sum scores for all PTSD and DSO symptom clusters; war threat was not associated with any PTSD or DSO symptoms, and war exposure/participation was only associated with higher Re and AD symptoms.

As shown in Supplementary Table S2, women scored significantly higher on all PTSD and DSO subscales, and the effect sizes ranged from small to moderate, *d*s = 0.28–0.73. Participants who worked in health-related, emergency, or military occupations reported significantly higher levels of reexperiencing, *d* = .19, and avoidance symptoms, *d* = .25, with small effects. Individuals who reported being affected by the 2014 invasion of Eastern Ukraine reported significantly higher scores for all PTSD symptom clusters as well

TABLE 3 Standardized factor correlations of Model 1

Variable	Re	Av	Th	AD	NSC	DR
Re	–	.72	.70	.69	.38	.44
Av		–	.69	.66	.36	.46
Th			–	.79	.41	.61
AD				–	.61	.69
NSC					–	.82
DR						–

Note: All factor correlations were statistically significant at $p < .001$. Re = reexperiencing; Av = avoidance; Th = sense of threat; AD = affective dysregulation; NSC = negative self-concept; DR = disturbed relationships.

as the AD cluster, with the differences representing small effect sizes, *d*s =0.12–0.20. Age showed a weak negative correlation with all symptom clusters except AD.

DISCUSSION

The present analysis provides the first psychometric evaluation of the ITQ for the assessment of *ICD-11* PTSD and CPTSD among civilians inside and near an ongoing and active war zone. The symptom-level findings were as expected, with PTSD symptoms more highly endorsed than DSO symptoms, especially those related to sense of threat. In fact, nearly 80% of the sample met the symptom requirement for Th. Consistent with prior findings, being in a war setting is a substantial stressor, as it creates a prevailing sense of hazard and imminent danger from the surrounding environment (Bierman & Kelty, 2014; La Bash et al., 2009). For civilians, a lack of experience or lack of sufficient psychological resources to buffer the impacts of war can lead to an increased tendency to perceive or recall those life-threatening experiences, thus resulting in a higher risk of posttraumatic psychopathology (Browne et al., 2007; Goral et al., 2020). However, our data were collected during an active war. Therefore, it is possible that the high rates of PTSD symptom endorsement reflect participants' peritraumatic reactions (i.e. their immediate response to trauma exposure; Ozer et al., 2003), and continued assessments are needed to examine whether and how PTSD symptoms among war-exposed civilians develop and are sustained over time.

As an extension to prior research assessing two commonly supported dimensional models of *ICD-11* PTSD and CPTSD, both the correlated six-factor model (Model 1) and the two-factor second-order model (Model 2) provided an acceptable fit to the data. Although the extant literature suggests that Model 2 generally better distinguishes the *ICD-11* PTSD and CPTSD symptom structure in the context of war and humanitarian crises (Murphy et al., 2020; Vallieres et al., 2018), Model 1 was found to provide a better representation of the latent structure of the ITQ in the present sample based on fit indices. Although the two-factor second-order model more closely aligns with the theoretical proposition for *ICD-11* PTSD and CPTSD, most community and population studies have identified the correlated six-factor model as the best structural representation of PTSD and CPTSD (Redican et al., 2021), thus suggesting the hierarchical model may not be necessary to distinguish between different levels of PTSD and CPTSD symptom severity (Hyland, Shevlin, et al., 2017). In the present study, the entire sample was subjected to experiences of ongoing war and had been exposed to war-related stressors at the time of assessment. Some evidence suggests that measuring PTSD and DSO symptoms using the ITQ among individuals in ongoing crisis situations may be more reflective of responses to acute distress (i.e., high sense of threat) as opposed to posttraumatic stress reactions (i.e., traumatic reexperiencing; Vang et al., 2021). Therefore, it is possible the correlated six-factor model presented a better model fit given that both PTSD and DSO symptom endorsement was high in this sample. Indeed, prior studies using mixture models have identified a CPTSD class that typically comprises the largest group in clinical, treatment-seeking, or highly traumatized samples (e.g. refugees; Redican et al., 2021). Our study findings support the factorial validity of the ITQ to assess *ICD-11* PTSD and CPTSD symptoms among civilians impacted by an ongoing war. Furthermore, all ITQ subscales possessed adequate levels of internal reliability despite comprising just two items each.

Last, we found that cumulative exposure to war-related stressors was associated with increased symptom severity in each PTSD and DSO symptom cluster in a dose–response fashion and in a more pronounced manner for PTSD symptoms than DSO symptoms. When symptom cluster summed scores were examined in relation to exposure to different categories of war-related stressors, significant associations were found in all stressor categories in the expected direction except for war threat and war exposure/participation. However, these findings should be interpreted with caution given these two categories of war-related stressors each received either the highest endorsement (war threat: 99.6%) or lowest endorsement (war exposure/participation: 12.2%) in the present

TABLE 4 Associations between International Trauma Questionnaire symptom cluster summed scores and war-related stressors

Variable		Re		Av		Th		AD		NSC		DR	
	%	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Disruption of everyday life													
Yes	89.7	3.07***	1.88	3.06***	1.92	4.71***	2.01	3.21***	1.90	2.02***	2.19	2.14***	1.95
No		1.97	1.70	2.03	1.75	3.33	1.87	2.26	1.71	1.02	1.56	1.26	1.52
Forced separation													
Yes	16.9	3.57***	1.94	3.50***	1.99	5.16***	2.02	3.82***	1.94	2.19*	2.21	2.54***	2.13
No		2.83	1.86	2.85	1.89	4.44	2.03	2.97	1.87	1.86	2.14	1.95	1.87
Invasion													
Yes	86.4	3.06***	1.89	3.07***	1.92	4.72***	2.01	3.20***	1.90	1.95*	2.19	2.10***	1.94
No		2.33	1.77	2.27	1.76	3.60	2.00	2.56	1.87	1.67	1.94	1.69	1.82
War threat													
Yes	99.6	3.00	1.89	2.96	1.93	4.57	2.05	3.12	1.91	3.12	1.91	2.78	2.44
No		2.00	1.87	2.56	1.33	3.78	2.33	2.44	1.74	2.56	2.51	2.04	1.92
War exposure/ participation													
Yes	12.2	3.23*	1.94	3.18	2.08	4.60	2.06	3.03*	2.02	1.58	2.07	1.93	1.90
No		2.92	1.88	2.93	1.90	4.56	2.04	3.13	1.89	1.96	2.17	2.06	1.93
War loss/injury													
Yes	52.7	3.27***	1.94	3.22***	1.99	4.87***	2.03	3.38*	1.94	2.01***	2.22	2.19***	1.97
No		2.60	1.77	2.67	1.81	4.21	2.01	2.82	1.82	1.80	2.08	1.88	1.86
Death													
Yes	20.0	3.72***	1.96	3.59***	2.05	5.26***	1.99	3.44***	1.95	2.05***	2.34	2.52***	2.09
No		2.77	1.82	2.81	1.86	4.39	2.03	3.03	1.89	1.88	2.11	1.93	1.87

(Continues)

TABLE 4 (Continued)

Variable	%	Re M	Re SD	Av M	Av SD	Th M	Th SD	AD M	AD SD	NSC M	NSC SD	DR M	DR SD
Quartile of total war-related stressors[a]													
1		2.19	$1.74_{2,3,4}$	2.17	$1.66_{2,3,4}$	3.57	$1.95_{2,3,4}$	2.45	$1.76_{2,3,4}$	1.51	$1.90_{2,3,4}$	1.52	$1.66_{2,3,4}$
2		2.63	$1.67_{1,3,4}$	2.79	$1.79_{1,3,4}$	4.30	$2.01_{1,3,4}$	3.00	$1.91_{1,4}$	1.87	$2.12_{1,4}$	1.99	$1.90_{1,4}$
3		3.17	$1.71_{1,2,4}$	3.15	$1.83_{1,2,4}$	4.84	$1.81_{1,2,4}$	3.20	$1.72_{1,4}$	1.94	2.10_{1}	2.10	$1.92_{1,4}$
4		3.76	$2.03_{2,3,4}$	3.65	$2.08_{2,3,4}$	5.44	$1.94_{2,3,4}$	3.73	$1.99_{2,3,4}$	2.29	$2.39_{2,3}$	2.51	$2.06_{2,3,4}$
Model statistics		$F(3, 1103.80) = 65.77^{***}$		$F(3, 1106.71) = 56.02^{***}$		$F(3, 1104.95) = 82.45^{***}$		$F(3, 1108.17) = 39.77^{***}$		$F(3, 1107.82) = 11.12^{***}$		$F(3, 1107.32) = 24.22^{***}$	

Note: Exposure-related comparisons were conducted pairwise for each symptom cluster summed score and category of war-related stressor using independent-samples *t* test. Statistically significant differences between participants in the exposed and unexposed groups are noted next to symptom cluster mean scores for the exposed group. Re = reexperiencing; Av = avoidance; Th = sense of threat; AD = affective dysregulation; NSC = negative self-concept; DR = disturbed relationships.

[a]Comparisons were conducted using one-way analyses of variance (ANOVAs). All ANOVAs were significant at $p < .001$ using a robust test of equality of means. Post hoc comparisons were conducted to identify statistically significant ($p < .05$) differences between quartiles using the Games–Howell correction and are indicated by quartile number in the subscript.

$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

sample. Thus, there may not have been sufficient variability and power to detect differences at the symptom level at a statistically significant level.

A strength of the current study is its use of a large sample of the Ukrainian civilian population that was assessed during an active war. However, several study limitations are noted. First, the study is limited by the lack of assessment of other previous trauma exposure apart from war-related traumatic events. Previous research has linked the development of *ICD-11* PTSD and CPTSD to childhood trauma exposure (Cloitre et al., 2014; Hyland, Murphy, et al., 2017), and we were unable to assess the extent to which previous trauma exposure might moderate the association between war-related trauma and symptoms of PTSD and DSO. Similarly, we were unable to assess the extent to which symptoms of PTSD and DSO are readily distinguishable from other internalizing mental health disorders, such as anxiety, depression, and Cluster B personality disorders, as the degree of concurrent symptoms of these disorders were not measured. Therefore, the construct validity of the Ukrainian ITQ could not be assessed in the absence of these criterion variables. Further, the measure used to assess war-related stressors had not been validated previously, but it was developed for the current study with the support of mental health experts in Ukraine to ensure face validity. In addition, the factorial validity of the Ukrainian ITQ was tested using two commonly supported competing dimensional models (i.e., the correlated six-factor model and the two-factor second-order model), and it is possible there are alternative factor structures that were not tested but would yield improved model fit. Lastly, the study data were collected approximately 6 months after Russia's full-scale invasion, and the cross-sectional nature of this study precluded understanding whether posttraumatic stress reactions due to exposure to the war are sustained over time.

This psychometric evaluation supports using the ITQ to measure *ICD-11* PTSD and CPTSD symptoms among civilians in an active war zone. Cumulative exposure to war-related stressors was associated with more severe PTSD and DSO symptoms in a dose–response fashion. This highlights a need to conduct detailed screening of the extent to which individuals have been impacted by war and assess their posttraumatic stress reactions when caring for the mental health of civilians living in or near a war zone. Longitudinal studies are needed to assess whether and how posttraumatic stress symptoms that stem from war exposure develop and sustain over time.

OPEN PRACTICES STATEMENT

This study was not formally preregistered. Neither the data nor the materials have been made available on a

permanent third-party archive; requests for the data or materials can be sent via email to the corresponding author at m.shevlin@ulster.ac.uk.

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SUPPORTING INFORMATION

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