Cross-cultural adaptation and psychometric validation of *The Continuous Traumatic Stress Response Scale*: Ukrainian version

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Abstract. Adapting and validating diagnostic tools aimed to evaluate the post-traumatic effects of war in low-income countries is essential for assessing needs and planning support programs. This paper will describe the process of cross-cultural adaptation and psychometric validation of the Continuous Traumatic Stress Response (CTSR) Scale for war-affected Ukraine. The study includes Phase 1, Translation and cross-cultural adaptation of the Scale, and Phase 2, Psychometric validation of the Scale. Cross-cultural adaptation goes through four stages: forward translation, expert panel review and back translation (n=3), pretesting and cognitive interviewing mental health professionals (n=8), and final version. Psychometric validation includes exploratory (n=200) and confirmatory (n=419) factor analysis, internal consistency, construct validity and test-retest reliability. Findings from the current research indicate that the components identified through factor analyses differed from those in the original questionnaire. While all original items in the questionnaire were retained, they merged into two new factors: "Exhaustion and Rage" and "Fear and Betrayal". The results show that the overall Cronbach's Alpha is .858, indicating a high level of internal consistency. Significant correlations exist between the total CTSR Scale score, the subscale scores, PTSD (PCL-5), moral injury (MISS-C-SF), depression (PHQ-9), and anxiety (GAD-7) symptoms, indicating construct validity. The findings demonstrate the test-retest reliability of the CTSR Scale and have practical implications for how it could be implemented in trauma-informed care.

Keywords: *continuous traumatic stress, moral injury, secondary traumatic stress, cross-cultural adaptation, translation, validation.*

Засєкіна Лариса, Ґорал Авіва, Федотова Тетяна, Акімова Анастасія, Мартинюк Анастасія. Крос-культурна адаптація та валідизація шкали «Реакція на тривалий травматичний стрес»: українська версія.

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Анотація. Адаптація та валідизація діагностичних інструментів, призначених для діагностики посттравматичних наслідків війни в країнах із низьким рівнем доходу, має важливе значення для визначення потреб та планування програм підтримки. У статті викладено процес крос-культурної адаптації та валідизації української версії шкали «Реакція на тривалий травматичний стрес» (РТТС). Дослідження містить стадію 1 - переклад та крос-культурна адаптація шкали та стадію 2 - психометрична валідизація шкали. Крос-культурна адаптація охоплює чотири етапи: прямий переклад, експертна оцінка та зворотний переклад (n=3), претестування та когнітивне інтерв'ю з фахівцями у сфері психічного здоров'я (n=8), а також фінальна версія. Валідизація здійснюється з допомогою експлораторного (n=200) та конфірматорного (n=419) факторного аналізу. У дослідженні також представлені результати внутрішньої узгодженості, конструктної валідності та надійності при повторному тестуванні шкали. Результати дослідження вказують на те, що фактори, визначені за допомогою факторного аналізу, відрізняються від тих, що представлені в оригінальній шкалі. Незважаючи на те, що всі вихідні пункти шкали залишилися незмінними, вони об'єднані у два нові фактори: «Виснаження і лють» та «Страх і зрада». Результати дослідження свідчать про те, що загальний показник альфа Кронбаха становить 0,858, що показує високий рівень внутрішньої узгодженості шкали. Встановлено кореляційні зв’язки між загальним балом за шкалою РТТС та показниками її субшкал, симптомів ПТСР (PCL-5), моральної травми (MISS-C-SF), депресії (PHQ-9) та тривоги (GAD-7), що свідчить про валідність конструкту тривалого травматичного стресу. Отримані результати демонструють надійність шкали РТТС при повторному тестуванні та мають практичне значення для використання у діагностиці та лікуванні ПТСР.

Ключові слова: *тривалий травматичний стрес, моральна травма, вторинний травматичний стрес, крос-культурна адаптація, переклад, валідизація.*

Introduction

Adapting and validating diagnostic tools for assessing the posttraumatic effects of war on civilian and military populations in low-income countries is crucial for proper assessment and planning of psychological services and social support. The need for translation and cross-cultural adaptation, according to WHO guidelines (2020), arises for several reasons. Among them are cultural relevance (diagnostic tools developed in high-income countries may not accurately capture the same constructs in low-income countries), accuracy and validity (validating diagnostic tools in low-income countries ensures reliability and validity within that population and leads to more accurate data collection and interpretation); and cross-cultural differences (cross-cultural comparisons extend our understanding of universal versus culture-specific aspects of trauma-related mental health symptoms) (Schnyder et al., 2016; Starrs & Békés, 2024). These adaptations are essential for planning effective interventions and training mental health professionals to deal with trauma.

As Armour and colleagues (2016) point out, diagnostic tools for assessing posttraumatic effects must account for cultural expressions and linguistic idioms of psychotrauma that may differ across various cultural contexts. Additionally, the language in assessment tools affects the prevalence rates of PTSD observed across different studies (Blackmore et al., 2020). Blackmore and colleagues (2020) point out that studies using diagnostic assessment tools in the native language indicate a higher prevalence of PTSD in adolescents. Therefore, translating, adapting, and validating

psychological trauma-focused measures in the context of the full-scale invasion of Ukraine could provide accurate assessment and trauma-informed care within Ukrainian civilian communities.

The concept of continuous traumatic stress has been central to our understanding of the psychological consequences of multiple exposures to war trauma. In contrast to posttraumatic stress disorder (PTSD), which often arises from a specific traumatic incident or series of discrete events, continuous traumatic stress involves constant exposure to multiple and intense traumatic experiences, resulting in prolonged physiological arousal, physical and mental fatigue, and heightened morbidity (Goral et al., 2021). Evidence suggests that applying posttraumatic stress models to people facing ongoing traumatic situations in high-risk environments, including wars and armed conflicts, is often not efficient (Kaminer et al., 2018). Although multiple exposures to trauma are represented in diagnoses of complex PTSD (c-PTSD) in the ICD-11, there is still a gap in assessing ongoing threats in the DSM-5 (American Psychiatric Association, 2013). Furthermore, moral injury, including feelings of betrayal and rage, is often omitted from the diagnostic criteria for PTSD or c-PTSD. The original Continuous Traumatic Stress Response (CTSR) Scale, among exhaustion and detachment, fear and helplessness, includes a subscale for moral feelings of betrayal and rage, which enhances the assessment of posttraumatic effects involving moral feelings (Goral et al., 2021). Additionally, the authors of the CTSR Scale point out its sound psychometric properties; however, they underscore the necessity to confirm these findings in various countries and cultures exposed to war-related trauma (Goral et al., 2021).

The aim of this study was to describe the process of cross-cultural adaptation and psychometric validation of the Continuous Traumatic Stress Response Scale for war-affected Ukraine. The study was approved by the Ethical Committee of Lesya Ukrainka Volyn National University (№ 03-24/04/118) on January 19, 2023.

This study was initiated as part of the projects “Exposure to continuous traumatic stress and its consequences among young adults in Ukraine,” which was supported by the British Academy Researchers at Risk Fellowship (2022-2025), and “Living on the edge: continuous traumatic stress in adolescents during military conflict,” which was funded by the Leverhulme Research Support Grant (2023-2024).

Method

The study has two phases: translation and cross-cultural adaptation of the CTSR Scale (phase 1), and psychometric validation of the CTSR Scale (phase 2), represented by exploratory factor analysis followed by confirmatory factor analysis.

Translation and Cross-Cultural Adaptation of the CTSR Scale

The CTSR Scale is an 11-item self-report measure with three subscales assessing exhaustion/detachment, rage/betrayal, and fear/helplessness aspects of continuous exposure to stress (Goral et al., 2021). The CTSR Scale is related to, but

distinct from, PTSD. CTSR items are rated on a 4-point Likert scale ranging from 0 (Not at all) to 3 (Severe) representing the degree of each item's manifestation. The internal consistency is α = .90 for the total scale, α = .86 for exhaustion/detachment, α = .82 for rage/betrayal, and α = .74 for fear/helplessness.

In phase 1, the procedure followed the WHO guidelines for translation and cultural adaptation validity of mental health questionnaires (Lina et al., 2019). WHO guidelines provide precise instructions for completing four stages: forward translation, expert panel review and back translation, pretesting and cognitive interviewing, and final version. Table 1 illustrates the translation and cultural adaptation process, including the qualitative and quantitative stages. The Ukrainian version of the CTSR Scale was developed in collaboration with the authors of the original scale (Goral et al., 2021).

Table 1
Translation and Adaptation of the CTSR Scale into the Ukrainian Language

The Sequence of Stages and Steps	Tasks
Qualitative stage	
Forward translation	Applying the conceptual equivalent of a word or phrase vs word-for-word translation
Bilingual (English and Ukrainian) expert panel review	1) Identifying and resolving the inadequate expressions/concepts of the translation and discrepancies between the original text and target text; 2) Producing a complete translated version of the Scale
Back translation	Particularly problematic words or phrases that do not completely capture the concept addressed by the original item brought to the attention of mental health professionals
Pretesting and cognitive interviewing	Pretesting the instrument on the target population
Final version	Developing the final version of the instrument in the Ukrainian language
Quantitative stage	
Exploratory and confirmatory factor analyses	To validate the factor structure and psychometric properties of the Ukrainian version of the CTSR Scale

Qualitative Stage

Forward translation: we compared four versions of the translated text to reach consensus on the final questionnaire translation. We thoroughly discussed the

selection of words and grammatical structures in each instance. The primary objective of this stage was to identify conceptual equivalents for words or phrases rather than relying on literal translation. All translators were instructed to translate the original terms in a manner that best captured their content. A bilingual expert panel (n=3) consisting of one native speaker and two Ukrainian psychologists with English at an advanced level questioned some linguistic constructions and suggested alternatives. In particular, the sentence "I feel that I cannot protect those who depend on me" was initially translated as "Я відчуваю, що не можу захистити тих, хто залежить від мене" to avoid any lexical and grammatical transformations in the translated text. After discussing the alternatives, the final version close to the original text was accepted: "Я відчуваю, що не можу захистити тих, хто від мене залежить" to specify the Ukrainian word order and theme-rheme patterns in the Ukrainian language.

Back translation: two translators (one native in English with Ukrainian as a second language, and the other vice versa) conducted back translations. The translators worked independently and were not provided with the original version of the questionnaire. At this stage, the focus of the back translation was to ensure conceptual and cultural equivalence rather than linguistic correspondence.

Pretesting and cognitive interview aimed at assessing the equivalence and comprehension of the scale. A group of mental health professionals (n=8), each with at least five years of counselling experience, who were enrolled in the Continuing Professional Development Program in Clinical Psychology at Lesya Ukrainka Volyn National University, assessed the equivalence and comprehension of each item using the questionnaire suggested by Lima et al. (2016). Following each item from the CTSR Scale, the assessment was made regarding semantic (the meaning of words, vocabulary, and grammar), cultural (terminology and events relevant to the population), idiomatic (usage of idiomatic and colloquial expressions), and conceptual (the proposed construct in the original instrument) equivalence. To conduct this assessment, experts compared the items from both versions and assigned ratings using a 3-point Likert scale: 0 = no equivalence observed between the versions; 1 = uncertain; and 2 = equivalence identified between the versions. When equivalence was lacking or uncertain, mental health professionals were asked to revise them. Table 2 shows the changes in the Ukrainian version of the CTSR Scale.

Table 2
Linguistic Changes in the Translated Version of the CTSR Scale

Items	Translated version	Changes after pretesting and cognitive interview	Comments
# 4: I feel that my life has no meaning	Я відчуваю, що має життя не має сенсу	Я відчуваю, що моє життя беззмістовне	The word "беззмістовне" is more coherent with the word "life".

# 7: I feel that no one understands me	Я відчуваю, що ніхто мене не розуміє	Мені здається, що ніхто не розуміє мене	The original item expresses experience rather than perception or feeling. The target item also highlights the change due to the Ukrainian word order and theme-rheme patterns in the Ukrainian language.
# 8: I have intense feelings of fear or horror	Я відчуваю сильний страх та жах	Я відчуваю сильний страх та тривогу	This semantics is more appropriate, as the word "сильний" intensified the nouns "fear and anxiety".
# 9: I have episodes of rage	В мене трапляються напади злості	В мене трапляються епізоди люті	This semantics is more appropriate for individuals with lived experience in the Ukrainian context.
# 11: I feel that I cannot protect those who depend on me	Я відчуваю, що не можу захистити тих, хто залежить від мене	Я відчуваю, що не можу захистити тих, хто від мене залежить	The translation specifies the Ukrainian word order in the sentence and theme-rheme patterns in the Ukrainian language.

Psychometric Validation of the CTSR Scale

The psychometric validation of the CTSR Scale (phase 2), includes exploratory and confirmatory factor analyses, examining internal consistency, construct validity and test-retest reliability.

Sampling and Participants

The survey was conducted between March and May 2023 at Lesya Ukrainka Volyn National University and Volyn Medical Institute, where the Ukrainian Psychotrauma Center organized psychosocial support for civilians affected by war trauma. As Volyn Oblast is situated on the border with Belarus, residents have been exposed to the ongoing life threats of multiple missiles and continuous sirens. Participants for psychosocial support programs were recruited through social media platforms, where information about the programs was shared.

Individuals who applied to participate in psychosocial support programs (Zasiekina et al., 2023) were approached and asked to participate in the assessment. This study exclusively used pre-test data collected before the psychosocial support program. The inclusion criteria were as follows: aged 17 years or older; have stayed in Ukraine for at least one month before the assessment; have been experiencing ongoing threats; and have not been diagnosed with a neurological or mental illness not directly related to the experience of the invasion and its consequences.

In total, 639 participants were initially enrolled to the study. Of these, 11 withdrew at a later stage, and 9 were diagnosed with mental illness not related to trauma. Thus, the final sample includes 619 participants, aged 17-41 years (mean age = 18.87, SD = 2.206). The data obtained from 200 participants who applied for psychosocial support by the Ukrainian Psychotrauma Center at Volyn Medical Institute between March-April 2023 was used for exploratory factor analysis, while the data obtained from 419 participants who applied for psychosocial support by the Ukrainian Psychotrauma Centre at Lesya Ukrainka Volyn National University between April-May 2023, was used for confirmatory factor analysis. Despite the differences in sample size, the two samples do not statistically differ in terms of age ($t(617)=5.54$, $p=.29$, 95% CI =-.25, .45, $d = .05$), sex ($\chi^2=1.46$, df=1, p>.05), family trauma ($\chi^2=2.99$, df=3, p>.05), displacement ($\chi^2=.41$, df=1, p>.05) and having trauma-related mental health symptoms ($\chi^2=.80$, df=1, p>.05).

Sample demographic characteristics are presented in Table 2. It can be seen that most participants (87.56%) were females. Nearly one third of the sample (38.13%) experienced past family trauma, including the Holodomor (n=77) and other family traumas (n=159). About 12% of participants had been forcibly displaced. To assess the test-retest reliability of the CTSR Scale, the study involved repeated assessments of additional randomly selected participants (n=50) from Volyn Medical Institute. These participants did not take part in a psychosocial support program and volunteered for the study. The repeated assessment was conducted over a one-month period (March-April 2023).

To assess the CTSR Scale construct validity and relevance to trauma-related mental health symptoms, we used the test battery consisting of measures that are known to correlate with war trauma in civilian populations (Fani et al., 2021; Vukčević et al., 2023; Zasiekina et al., 2022). Together, these measures assessed moral injury, PTSD symptoms, depression and anxiety.

The Moral Injury Symptoms Scale (MISS-M-SF) assesses betrayal, guilt, shame, moral concerns, loss of trust, loss of meaning, difficulty forgiving, self-condemnation, religious struggle, and loss of religious/spiritual faith. Cronbach's alpha is .73 (95% CI .69–.76), and test-retest reliability is .87 (Koenig et al., 2018). The Ukrainian version of the MISS-M-SF scale for civilians (MISS-C-SF) was culturally adapted and validated by Zasiekina and Kozihora (2022). Reliability was assessed through internal consistency using Cronbach's α=.70 (n=111), and the test–retest reliability after 8 days, r=.67, p≤.01 (n=32). Ten items were rated on a 10-point scale, ranging from 0 (Not at all) to 10 (Extremely). Items 5, 6, 7, 9, and 10 involve reverse scoring, and the cumulative score reflects the severity of moral injury, with a potential range of 10-100.

The PTSD Checklist for DSM-5 (PCL-5) is a 20-item self-report measure aimed to assess PTSD symptoms experienced during the last month in accordance with DSM-5 criteria (Weathers et al., 2013). The active-duty soldiers and civilians use the military and civilian forms of PCL-5 respectively. Participants were instructed to complete the PCL-5 considering the most stressful life event in their military/war experience. Items were rated on a 5-point scale, ranging from 0 = Not at all to 4 = Extremely, and summed for a total symptom severity score. Internal consistency of PCL-5 is α =.97.

The 9-item Patient Health Questionnaire (PHQ-9) and 7-item Generalized Anxiety Disorder (GAD-7) were used to measure depression and anxiety symptoms, respectively. These two instruments are short screening measures often utilized to assess comorbidities of MI. Each item on these measures is rated on 4-point Likert scale (from 0 to 3) indicating how often each symptom has occurred within the past 2 weeks. Total scores range from 0 to 54 for PHQ-9 and 0–42 for GAD-7, with higher scores indicating more severe symptoms. PHQ-9 demonstrates strong internal consistency using Cronbach's α=.70 and test-retest reliability is .83 (Kroenke et al., 2001). Internal consistency of the GAD is .92 (Spitzer et al., 2006).

The study uses SPSS 28.0 with Amos for data entry and statistical analysis.

Table 2
Demographic Characteristics of the Participants (n=619)

	Mean (SD)	**Percentage**
Age (mean/SD)	18.84 (2.07)	
Age range	17-41	
Sex		
Female	542	87.56
Male	75	12.12

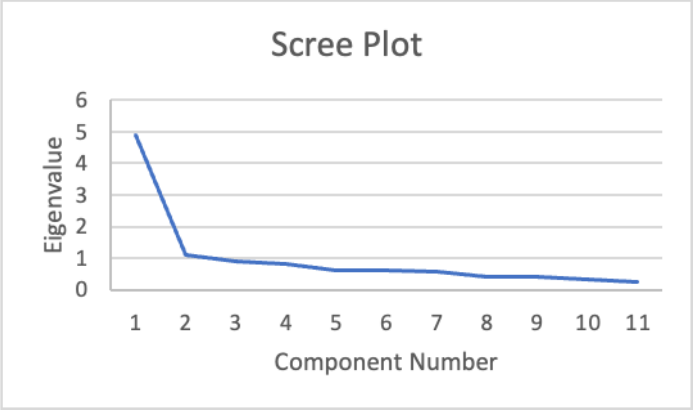
Unspecified	2	.32
Previous family trauma		
Yes	236	38.13
Holodomor	77	32.63
Other	159	66.97
No	383	61.87
Displaced		
Yes	75	12.12
No	544	87.88

Results

Exploratory Factor Analysis

The KMO test result was adequate at .869, and Bartlett's test of sphericity was statistically significant ($p<.001$). Factors to be retained were evaluated based on the following criteria: eigenvalue greater than one supported by the scree plot and Horn's parallel analysis (Hoyle & Duvall, 2004, pp. 301–315). Eigenvalues were 4.572 for factor 1 and 1.128 for factor 2. The scree plot indicated that two factors should be retained, explaining 51.82% of the variance (Fig. 1).

Figure 1
Scree Plot of Exploratory Factor Analysis



All items had loadings values of .50 or greater. Assuming two factors, we proceeded to estimate the exploratory structure of these factors among the items of the adapted CTSR Scale. Considering the conceptual commonalities between the variables, we named factors as "Exhaustion and Rage" and "Fear and Betrayal". Loadings of all items on their respective factors are illustrated in Table 3. The highest loading was seen for item 2 "I feel mentally exhausted", which referred to mental exhaustion (item loading .78), while the lowest loading was seen for item 6 "I find it hard to trust the people around me", which referred to one's distrust towards others (item loading .52).

Table 3
Results of Exploratory Factor Analysis (n=200)

	Factor 1 Exhaustion and Rage	Factor 2 Fear and Betrayal
#2 I feel mentally exhausted	.78	
#1 I feel unmotivated	.77	
#5 I have difficulty controlling my emotions	.72	
#4 I feel that my life has no meaning	.61	
#9 I have episodes of rage	.59	
#7 I feel that no one understands me	.59	
#11 I feel that I cannot protect those who depend on me		.72
#3 I feel that my life is in danger		.70
#8 I have intense feelings of fear and horror		.68
#10 I feel betrayed		.56
#6 I find it hard to trust the people around me		.52
Eigenvalues		
% of variance	4.89	1.12
Cronbach's alpha	44.43	10.13
Factor mean (SD)	.84	.76
Range	.86 (.88)	.60 (.78)
	0-3.00	0-3.00

Confirmatory Factor Analysis

Confirmatory factor analysis was performed to confirm the resulting 2-factor model (Figure 2). As indicated in Table 3, all eleven items were measured in two factors. The comparative fit index is in good parameters, including CMIN/DF≤5.000, CMIN=3.597, and the root mean square error of approximation is on acceptable level (RMSEA≤.080, RMSEA = .079) (Bentler & Bonett, 1980; Chen et al., 2008). The full 90% confidence interval for the RMSEA is also in acceptable parameters (.066<RMSEA CL_{90} < .092).

Overall, the model fit indices indicated an acceptable model fit based on CMIN/DF and RMSEA according to model specifications, degrees of freedom, and sample size (Chen et al., 2008).

The correlation between latent factors was significant, r=.85 at $p < .001$. The item loadings were all significant at $p < .001$ and ranged from .43 (item 11 "I feel that I cannot protect those who depend on me") to .80 (item 5 "I have difficulty controlling my emotions").

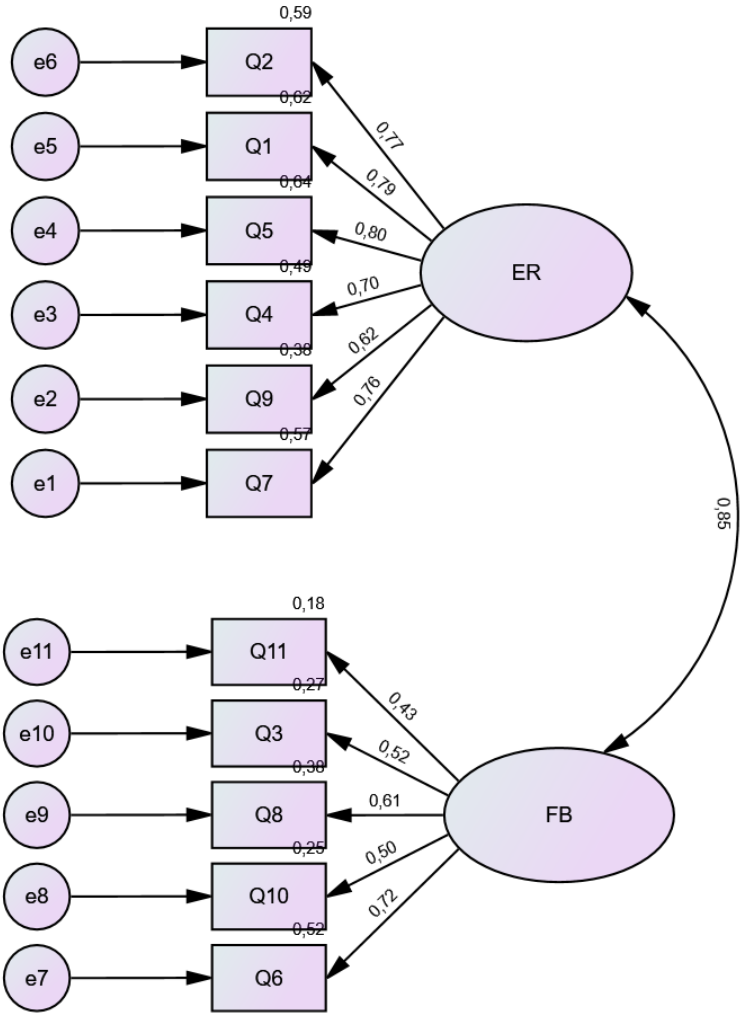
Internal Consistency

The overall Cronbach's α of the Scale was .858, indicating reliable internal consistency (Hajjar, 2018).

Construct Validity

Construct validity was calculated by assessing correlations between CTSR Scale scores and measures of specific posttraumatic symptoms, including moral injury, PTSD symptoms, depression and anxiety (Table 4).

Figure 2
A 2-factor Model for the Ukrainian Version of the CTSR Scale



Significant correlations were identified between the total CTSR Scale and subscale scores, and all included measures of related posttraumatic effects. The results indicate

that most of these correlations are positive and fall in the moderate range. More than 50 % of the variance in stress symptoms is accounted for by any single correlation between the PCL-5 scale and each CTSR factors (55% to 52%), demonstrating a significant overlap in the symptoms captured by the two scales: CTSR and PCL-5 scales.

Table 4
Correlations Between CTSR Scale Scores, Moral Injury, Depression and Anxiety

	CTSR total score	Exhaustion and Rage	Fear and Betrayal
PCL-5	.797**	.739**	.722**
MISS-C-SF	.540**	.525**	.461**
PHQ-9	.785**	.776**	.640**
GAD-7	.670**	.623**	.578**

Note. p≤.01; MISS-C-SF=Moral injury, PCL-5=PTSD symptoms, PHQ-9=Depression, GAD-7=Anxiety

Test-retest Reliability

The questionnaire's test-retest reliability was satisfactory, with no difference between participants' assessments over a one-month period (Table 5).

Table 5
Test-retest Reliability. Results of the t-test for Time 1 and Time 2 Scores in the Sample (n=50)

	T1	T2	t	p
CTSR Scale Total Score Mean (SD)	4.26 (3.48)	4.33 (4.10)	.07	.47
Exhaustion and Rage Mean (SD)	1.13 (1.22)	1.00 (1.44)	.36	.36
Fear and Betrayal Mean (SD)	1.34 (1.56)	1.38 (1.44)	.06	.48

T=Time

Discussion

This study focused on the cross-cultural adaptation and psychometric evaluation of the CTSR Scale. The adaptation process included examining cultural, political and

linguistic aspects to ensure the tool's potential for war-affected settings in Ukraine. Our findings are in line with recent studies and show that following four stages, including forward translation, expert panel review and back translation, pretesting and cognitive interviewing, and final version, are necessary steps in the cultural adaptation of diagnostic tools (Balqis-Ali et al., 2021; Kazlauskas et al., 2023). Considering these stages allows experts to discuss discrepancies between translated versions and select the most appropriate lexical and grammatical equivalent in the target language.

Findings from the current research indicate that the components identified through factor exploratory and confirmatory analyses differed from those in the original CTSR questionnaire. While all original items in the questionnaire were retained, they merged into two new factors: "Exhaustion and Rage" and "Fear and Betrayal". Therefore, new subscales emerged from existing constructs, which might be explained by the impact of the Ukrainian culture and ongoing war context. Despite changes in the number and content of factors, the overall conceptual ideas of continuous traumatic stress and its manifestation in war-affected population remained similar.

To evaluate the construct validity of the CTSR Scale, we calculated correlations between CTSR Scale scores and measures of specific posttraumatic effects, such as PTSD symptoms, moral injury, depression, and anxiety. The analysis revealed significant correlations between the total CTSR scores, the subscale scores and posttraumatic effects. These findings suggest that the CTSR Scale is effectively measuring constructs that are theoretically related to posttraumatic stress disorder (PTSD), thereby supporting the validity of the CTSR Scale as a tool for assessing posttraumatic effects during ongoing multiple exposures to trauma (Foley et al., 2022; Zasiekina et al., 2022). However, the findings indicate high concurrent validity between the CTSR Scale and PCL-5. This is not consistent with the original CTSR Scale (Goral et al., 2021) and could be related to the cultural specifics of war-affected Ukraine. This overlap may also be explained by the fact that both constructs involve responses to traumatic stress and share common emotions such as feelings of detachment, fear, and helplessness. Key differences, however, lie in the context and duration of the stressors. PTSD is linked to specific past trauma, while continuous traumatic stress is related to ongoing threats. Additionally, the CTSR Scale includes feelings of betrayal and distrust, adding the dimension of moral injury to the assessment of PTSD. Therefore, despite high concurrent validity, findings consistently suggest that psychological distress under ongoing threat should be assessed by both PTSD and continuous traumatic stress measures, as these constructs are rooted in different theoretical frameworks, symptomatology, and contexts (Goral et al., 2021; Kaminer et al., 2018).

The significant correlations between CTSR Scale and trauma-related symptoms strengthen the CTSR Scale's capability to accurately reflect the posttraumatic effects under ongoing exposure to trauma, represented by moral injury, depression and anxiety.

A major strength of this study was the thorough exploration of how culture, context, and language influence the cross-cultural adaptation process. This approach provides both the translation's accuracy and the instrument's validity. The findings represented in this paper shed new light on our understanding of what experience constitutes

continuous traumatic stress. The results of the study have practical implications for assessment and treatment plans in trauma-informed care.

Limitations

The sample was heterogeneous in terms of sex, status of displacement, and previous family trauma. This heterogeneity complicates the generalizability of the findings, introduces potential confounding variables, and creates risks of biasing the results. Further studies should include relevant covariates in the model to account for this heterogeneity. The RMSEA is at a mediocre level; however, considering CMIN/DF, the model specifications, degrees of freedom, and sample size, the findings show an acceptable model fit.

Conclusion

The aim of the present research was to examine the process of cross-cultural adaptation and psychometric validation of the CTSR Scale for war-affected Ukrainians. The study identified a two-factor model, including "Exhaustion and Rage" and "Fear and Betrayal" subscales which differs from the original Scale. This implies that Ukrainian culture and war context affect the perception of ongoing threats and the verbal disclosure of war-related experience. The analysis of the items on the CTSR Scale undertaken in this study has extended our knowledge of posttraumatic effects arising from ongoing multiple exposures to war-related trauma. The findings of this study have several important implications for the assessment of PTSD and associated mental health symptoms, including moral injury, depression and anxiety under the circumstances of continuous traumatic stress.

Data Availability Statement

The data that support the findings of this study are openly available in Mendeley Data: Zasiekina, Larysa (2024), "Exploratory and confirmatory factor analyses of the Ukrainian version of CTSR Scale", Mendeley Data, V1, https://doi.org/10.17632/22xt2zj86t.1.

Disclosure Statement

No potential conflict of interest was reported by the authors.

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Appendix

Ukrainian Version of the Continuous Traumatic Stress Response (CTSR) Scale
Українська версія шкали «Реакція на тривалий травматичний стрес» (РТТС)

Назва субшкали	**Перелік пунктів**
Виснаження та лють	# 1. Я почуваюся демотивованим/-ою. # 2. Я почуваюся розумово виснаженим/-ою. # 4. Я відчуваю, що моє життя беззмістовне. # 5. Мені важко контролювати свої емоції. # 7. Мені здається, що ніхто не розуміє мене. # 9. У мене трапляються епізоди люті.
Страх та зрада	# 3. Я відчуваю, що моє життя в небезпеці. # 6. Мені важко довіряти людям, які мене оточують. # 8. Я відчуваю сильний страх та тривогу. # 10. Я почуваюся зрадженим/-ою. # 11. Я відчуваю, що не можу захистити тих, хто від мене залежить.

0=Зовсім ні, 1=Деякою мірою, 2=Дуже сильно, 3=Нестерпно сильно