BASIC RESEARCH ARTICLE

Translation and validation of the Dari International Trauma Questionnaire (ITQ) in Afghan asylum seekers and refugees

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ABSTRACT

Background: The International Trauma Questionnaire (ITQ) is a standardized and validated measure aligned with the 11th version of the International Classification of Diseases (ICD-11) diagnostic criteria to assess post-traumatic stress disorder (PTSD) and complex post-traumatic stress disorder (CPTSD). It has been translated into 25 different languages, but is yet to be translated into Dari and validated for use in the Afghan population.

Objective: This study aimed (1) to translate and culturally adapt the ITQ for use in Dari; (2) to assess the construct validity and composite reliability of ICD-11 PTSD and CPTSD using the Dari ITQ; and (3) to examine the concurrent, convergent, and discriminant validity of the Dari ITQ.

Method: The Dari ITQ was validated through the completion of a set of standardized measures by 305 Afghan asylum seekers and refugees in Austria. Factorial analyses and psychometric properties of the Dari ITQ were assessed using confirmatory factor analysis (CFA), bivariate correlations, and multivariate regression.

Results: Asylum seekers showed significantly higher levels of ICD-11 CPTSD symptomatology and probable diagnoses of ICD-11 PTSD, Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) PTSD, anxiety, depression, and psychological distress in comparison to refugees. CFA results supported the two-factor second-order model comprised of the PTSD and disturbances in self-organization (DSO) as the best fit to the data. The psychometric adequacy of this model in the Dari ITQ was evidenced by high factor loadings and excellent internal reliability. The Dari ITQ showed satisfactory concurrent, convergent, and discriminant validity.

Conclusion: The current study supports the statistical validity and cultural sensitivity of the Dari ITQ in identifying symptoms of ICD-11 PTSD and CPTSD among Afghan asylum seekers and refugees.

HIGHLIGHTS

- This study provides the first translation and validation of the ITQ in Dari with an Afghan refugee population in Austria.
- The two-factor second-order model was supported as the best fit to the data.
- Additional support for the composite reliability, and concurrent, convergent, and discriminant validity was provided, suggesting the statistical validity and cultural sensitivity of the Dari ITQ in identifying symptoms of ICD-11 PTSD and CPTSD among Afghan asylum seekers and refugees.

Traducción y validación del Cuestionario Internacional de Trauma (ITQ en su sigla en inglés) en Dari en solicitantes de asilo y refugiados afganos

Antecedentes: El Cuestionario Internacional de Trauma (ITQ) es una medida estandarizada y validada que se alinea con los criterios de diagnóstico CIE-11 para evaluar el trastorno de estrés postraumático (TEPT) y el trastorno de estrés postraumático complejo (TEPT-C). Se ha traducido a veinticinco idiomas diferentes, pero aún no se ha traducido al Dari ni se ha validado para su uso en la población afgana.

Objetivo: Este estudio tuvo como objetivo (1) traducir y adaptar culturalmente el ITQ para su uso en Dari, (2) evaluar la validez de constructo y la confiabilidad compuesta del TEPT y TEPT-C de la CIE-11 usando el ITQ en Dari, y (3) examinar la concurrencia, validez convergente y discriminante del ITQ en Dari.

Método: El ITQ en Dari fue validado mediante la realización de un conjunto de medidas estandarizadas por parte de 305 solicitantes de asilo y refugiados afganos en Austria. Los análisis factoriales y las propiedades psicométricas del ITQ en Dari se evaluaron mediante análisis factorial confirmatorio (AFC), correlaciones bivariadas y regresión multivariada.

Resultados: Los solicitantes de asilo mostraron niveles significativamente más altos de sintomatología TEPT-C según la CIE-11 y diagnósticos probables de TEPT según CIE-11, TEPT según DSM-IV, ansiedad, depresión y malestar psicológico en comparación con los refugiados. Los resultados del AFC respaldaron el modelo de segundo orden de dos factores compuesto por el TEPT y las alteraciones en la autoorganización (DSO en su sigla en inglés) como el mejor ajuste a los datos. La adecuación psicométrica de este modelo en el ITQ en Dari se evidenció por altas cargas factoriales y excelente confiabilidad interna. El ITQ en Dari mostró una validez concurrente, convergente y discriminante satisfactoria.

Conclusión: El estudio actual respalda la validez estadística y la sensibilidad cultural del ITQ en Dari para identificar los síntomas del TEPT y el TEPT complejo de la CIE-11 en los solicitantes de asilo y refugiados afganos.

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在阿富汗寻求庇护者和难民中达里国际创伤问卷 (ITQ)的翻译和验证

背景：国际创伤问卷 (ITQ) 是一种标准化且经过验证的测量方法，符合 ICD-11 诊断标准，用于评估创伤后应激障碍 (PTSD) 和复杂性创伤后应激障碍 (CPTSD)。 它已被翻译成 25 种不同的语言，但尚未被翻译成达里语并在阿富汗人口中使用。

目的：本研究旨在 (1) 使用达里语翻译 ITQ 并在文化上改编使用，(2) 使用达里语 ITQ 评估 ICD-11 PTSD 和 CPTSD 的结构效度和组合信度，以及 (3) 考查达里语 ITQ的同时、收敛和区分效度。

方法：达里语 ITQ 通过一套奥地利 305 名阿富汗寻求庇护者和难民完成的标准化测量得到验证。 使用验证性因素分析 (CFA)、双变量相关和多变量回归评估 达里语 ITQ 的因子分析和心理测量特性。

结果：与难民相比，寻求庇护者表现出显著更高水平的 ICD-11 CPTSD 症状和 ICD-11 PTSD 、焦虑、抑郁和心理痛苦的可能诊断。 CFA 结果支持由 PTSD 和自组织障碍 (DSO) 组成的双因素二阶模型作为数据的最佳拟合。 高因子负荷和出色的内部可靠性为达里语 ITQ 中该模型心理测量学的充分性提供了证据。 达里语 ITQ 表现出令人满意的同时、收敛和区分效度。

结论：本研究支持达里 ITQ 在识别阿富汗寻求庇护者和难民中 ICD-11 PTSD 和 CPTSD 症状方面的统计有效性和文化敏感性。

1. Introduction

In the 11th version of the International Classification of Diseases (ICD-11), two trauma-related disorders of post-traumatic stress disorder (PTSD) and complex post-traumatic stress disorder (CPTSD) are introduced under one parent category, 'disorders specifically associated with stress' (World Health Organization, 2018). PTSD is characterized by three symptom clusters arising as a result of exposure to one or a series of traumatic events: (1) re-experiencing the trauma here and now, (2) avoidance of traumatic reminders, and (3) persistent sense of current threat. CPTSD includes meeting all of the requirements for PTSD, with the addition of disturbances in self-organization (DSO). DSO consists of three symptom clusters: (1) problems in affect regulation, (2) negative self-concept, and (3) disturbances in relationships.

The best conceptual model that reflects the symptom structure of ICD-11 CPTSD is a hierarchical model with the PTSD and DSO components contributing to CPTSD as distinct but related higher order factors, each in turn supported by three first-order factors corresponding to the symptom clusters (Haselgruber et al., 2020). A substantial number of studies utilizing clinical and community samples have identified the two-factor second-order model as the best fit to the data (e.g. Hyland et al., 2017; Owczarek et al., 2020; Shevlin et al., 2017), but not all studies have replicated these findings. A factor structure in which all of the six PTSD and DSO factors are correlated with each other in a non-hierarchical fashion was also identified as the best-fitting model in a number of studies (e.g. Ben-Ezra et al., 2018; Frost et al., 2019). In addition, some studies reported that both models fitted the data equally well (e.g. Cloitre et al., 2018). Based on a systematic review of factor analyses of ICD-11 PTSD and CPTSD (Redican et al., 2021), the two-factor second-order model was consistently considered the optimal model in clinical studies and the correlated six-factor first-order model was identified as the best representative model in community studies. The factor analytic studies with refugee populations were in general consistent and supported the conceptualization of CPTSD as being comprised of two higher factors, PTSD and DSO (Brewin et al., 2017).

Both asylum seekers and refugees are people who have left their country or habitat and sought protection from persecution and serious human rights violations in another country. A refugee has a right to international protection, but an asylum seeker is someone who has not yet been legally recognized as a refugee and is waiting to receive a decision on his/her asylum claim (Amnesty International, n.d.). In this study, both groups are referred to as refugee populations. The majority of studies on ICD-11 PTSD and CPTSD have been conducted primarily with survivors of interpersonal trauma, childhood abuse, institutional abuse, and other forms of interpersonal trauma, and fewer studies have been conducted with refugee and post-conflict populations (Mellor et al., 2021). However, the evidence for PTSD and CPTSD among traumatized refugee populations is growing and is supported by recent studies (e.g. Nickerson et al., 2016; Vallières et al., 2018). To date, substantially high prevalence rates of PTSD (24.4–38.5%) and CPTSD (2–86%) have been reported in studies involving refugee populations and displaced populations (Blackmore et al., 2020; Mellor et al., 2021).

The majority of refugee populations have been exposed to different traumatic events in their pre-migration environments and they often face different stressors in their post-migration settlements (Hecker et al., 2018). The accumulation of pre-migration traumas and post-migration stressors makes up the most

consistent factors associated with anxiety, depression, and PTSD symptoms many years after resettlement (Bogic et al., 2015). It is consistently shown that anxiety symptoms are a stronger predictor of PTSD symptoms and depression symptoms are a stronger predictor of DSO symptoms (Gilbar, 2020; Vang et al., 2021). Exposure of refugee populations to the accumulated pre-migration traumas and post-migration stressors is significantly associated with PTSD symptoms, whereas only the experience of post-migration stressors is significantly associated with DSO symptoms (Hecker et al., 2018).

The International Trauma Questionnaire (ITQ) (Cloitre et al., 2018) is a standardized and validated measure aligning with the ICD-11 diagnostic criteria, which was introduced to assess PTSD and CPTSD, and its concurrent, convergent, and discriminant validity has been demonstrated in a number of studies (e.g. Hansen et al., 2021; Li et al., 2021). It has been translated into 25 languages (International Trauma Consortium, n.d.) and the numbers are growing. Dari and Pashto are the two national languages in Afghanistan. Dari is spoken in all parts of Afghanistan and commonly in the capital as a first language or as a second language, but as a native language it is mainly spoken in the north and west. There has been no national census in Afghanistan, except for a partial census in 1979 (Maley, 2002). Nawid (2012) has written that 50% of Afghans speak Dari and 35% speak Pashto. To our knowledge, the ITQ has not been yet translated into Dari or Pashto and is yet to be validated for use in the Afghan population.

Centred on Dari-speaking Afghan asylum seekers and refugees living in Austria, the current study aimed (1) to translate and culturally adapt the ITQ for use in Dari; (2) to assess the construct validity and composite reliability of ICD-11 PTSD and CPTSD using the Dari ITQ; and (3) to examine the concurrent, convergent, and discriminant validity of the Dari ITQ.

To address objective (1), the guidelines suggested by Beaton et al. (2000) were followed, as explained in detail in Section 2. To address objective (2), the authors tested different proposed models of ICD-11 CPTSD. Based on the dominant existing evidence in studies with refugees and highly traumatized populations, it was expected that the two-factor second-order model would be the best model of CPTSD to represent the population in this study. To address objective (3), the Dari-translated ITQ was assessed to provide (a) concurrent validity, by examining associations between its scales and Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) PTSD symptoms as assessed by the Harvard Trauma Questionnaire (HTQ), (b) convergent validity, by examining associations between its scales and different co-occurring psychopathologies, and (c) discriminant validity, through assessment of distinct contributions of predictors commonly associated with PTSD and DSO. Based on the findings of previous studies and to evaluate the discriminant validity of the Dari ITQ, it was hypothesized that (1) anxiety would predict PTSD while depression would predict DSO, and (2) pre-migration traumas and post-migration stressors would predict PTSD, while the post-migration stressors and not the pre-migration traumas would predict DSO.

2. Methods

2.1. Participants and procedures

Data were collected through a cross-sectional quantitative survey across Austria from Afghan asylum seekers and refugees who were residing in asylum shelters and private residences. The inclusion criteria were: being an asylum seeker or a refugee in Austria; identifying as Afghan; 18 years of age or older; came to Austria from Afghanistan, Iran, or Pakistan (and had lived there for at least 7 years before coming to Austria); willing to participate in the study; and able to speak and understand Dari.

There were no available public databases in Austria to locate the asylum shelters and private residences of the Afghan asylum seekers. Through an online search, the known organizations in Austria that give shelter to asylum seekers were identified. They were then approached with a formal written request for their approval of data collection in their residences. Regarding the Afghan refugees, an association in Austria that provides integration, cultural, and sporting activities to the Afghans helped voluntarily to identify the interested participants for this study. The association found the interested participants through advertisements in their social media, distribution of flyers, and asking the influential leaders in the Afghan communities to inform people. The data for the present study were collected from the Afghan asylum seekers between February 2019 and March 2020 and from the Afghan refugees between November 2020 and March 2021.

The participants were informed about the nature and purpose of the study, their rights, anonymity, and confidentiality of their participation through provision of a study participation information brochure and an informed consent form. They voluntarily participated in the study and were interviewed only after being informed and signing the informed consent form. No incentives were awarded to the participants. The data were collected either through self-administration of the questionnaire by the participants or through interviews in case participants could not fill in the questionnaire or preferred to be interviewed. The data collection from refugees coincided with coronavirus pandemic restrictions. Therefore, their data

were collected solely through self-administration. A total of 305 participants – 155 asylum seekers and 150 refugees – completed the questionnaires.

The mean age of the participants at the time of data collection was 31.38 years ($Mdn = 29$, $SD = 11.05$, range = 18–72 years old), with fewer women (33.8%) than men. The mean length of residence in Austria for asylum seekers was 3.88 years ($SD = 1.08$, range = 1 month to 9 years) and for refugees was 5.99 years ($SD = 2.02$, range = 6 months to 10 years). The sociodemographic characteristics of the study participants are presented in Table 1.

2.2. Measures

The International Trauma Questionnaire (ITQ) (Cloitre et al., 2018) is a self-report measure to assess ICD-11 PTSD and CPTSD, consisting of 18 items: six PTSD items, six DSO items, and three functional impairment items related to each symptom category. The section for PTSD consists of three symptom clusters, each with two items: re-experiencing of the trauma (Re), avoidance of internal or external trauma reminders (Av), and sense of current threat (Th). The section for DSO consists of three symptom clusters, each with two items: affective dysregulation (AD), negative self-concept (NSC), and disturbances in relationships (DR). In addition, there are three functional impairment items (social, occupational, and other important areas of life) for each of the PTSD and the DSO clusters. All items are answered on a five-point Likert scale, ranging from 0 (not at all) to 4 (extremely). A diagnosis of PTSD requires the endorsement of at least one symptom in each PTSD cluster, plus

endorsement of at least one indicator of functional impairment associated with these symptoms. Endorsement of a symptom or functional impairment item is defined as a score ≥ 2 (moderately). A diagnosis of CPTSD requires a PTSD diagnosis, plus endorsement of at least one symptom in each DSO cluster and at least one indicator of functional impairment associated with the DSO cluster. In the current study, the internal consistencies of the PTSD and DSO items were good ($\alpha = 0.83$ and $\alpha = 0.88$, respectively), and for the total scale the internal consistency was excellent ($\alpha = 0.90$).

The guidelines suggested by Beaton et al. (2000) were used for the Dari translation of ITQ and its cultural adaptation to the Afghan population. Two independent bilingual translators produced the initial Dari translation from the original English version developed by Cloitre et al. (2018). The first draft of the Dari measure was developed after comparing the two translations and resolving any discrepancies. The final Dari translation was given to a bilingual translator, who had no knowledge of the name, purpose, or concept of the measure, for back-translation. The last author compared the back-translation with the original English version to identify any discrepancies and to finalize the Dari version. Finally, a pilot test was conducted with 30 Afghan asylum seekers in Vienna to pretest the translated measure and to assess its linguistic and cultural comprehensibility.

The Harvard Trauma Questionnaire (HTQ) (Mollica et al., 1992) consists of three sections: traumatic events, DSM-IV-related post-traumatic symptoms, and additional culture-related post-traumatic symptoms. In this study, the use of the measure was restricted to the 16 DSM-IV-related PTSD items only. A mean item score of ≥ 2.5 is considered the cut-off point in diagnosing PTSD (Mollica et al., 1996). HTQ is a simple, reliable, and culturally sensitive screening instrument for assessing highly traumatized refugees and non-western populations (Mollica et al., 1992). The internal consistency of the Dari version was excellent ($\alpha = 0.91$).

The Hopkins Symptom Checklist-25 (HSCL-25) (Mollica et al., 1987) is a measure for screening and detecting symptoms of anxiety and depression, and is suitable for refugee populations. It is composed of a 10-item subscale for anxiety and a 15-item subscale for depression. A mean item score of ≥ 1.75 indicates clinically significant distress, and this cut-off point has become widely accepted in refugee settings and in cross-cultural research (Mollica et al., 1987, 2004). The internal consistencies of anxiety and depression in the Dari version were very good ($\alpha = 0.88$ and $\alpha = 0.91$, respectively).

The Afghan Symptom Checklist (ASCL) is a culturally grounded assessment measure of psychological distress symptoms, developed by Miller et al. (2006).

Table 1. Sociodemographic characteristics of the participants ($N = 305$).

	%	n
Sex		
Male	66.2	202
Female	33.8	103
Ethnicity		
Hazara	43.9	135
Tajik	21.6	66
Pashtun	8.5	26
Uzbek	2.6	8
Other minor ethnic groups	23.1	70
Educational level		
Did not go to school	14.4	44
Primary school	16.7	51
Middle school	29.5	90
High school	25.6	78
University	9.5	29
Religious education	0.7	2
Not stated	3.6	11
Came to Austria from		
Afghanistan	50.1	153
Iran	46.9	143
Pakistan	3.0	9
Sought mental health services (nature of service)	31.5	96
Only medicine	14.6	14
Only counselling or psychotherapy	33.3	32
Both	52.1	50

The ASCL has 23 items and contains symptoms corresponding to dimensions of mental health known to Afghans (e.g. *jigar khun*, a state of dysphoria or melancholy; *asabi*, a state of nervous irritability; and *fishar-e-payin*, a state of low energy and motivation), and includes items recognized by western psychiatry (e.g. crying, insomnia, social withdrawal, rumination). Total scores range from 23 to 115, with higher scores indicating higher levels of distress. The ASCL demonstrated excellent internal consistency ($\alpha = 0.93$).

The Pre- and-Post-migration Traumatic and Stressful Events Scale is a measure to enlist and measure two categories of traumatic and stressful events that Afghans faced in their pre-migration environments and are facing in their post-migration settlements. The pre-migration section consists of 31 items: 21 for traumatic events and 10 for stressful events. The scoring in this section is based on the total number of events that happened to the participants in their life before migrating to their current settlement and in the process of migration. The post-migration section consists of 15 items: two for traumatic events and 13 for stressful events. Some of the items were derived from the trauma events section of the HTQ (Mollica et al., 1992) and a version of the Post-migration Living Difficulty Checklist (Steel et al., 1999). To elicit a contextually relevant screening for the Afghan population, further items (e.g. family violence, forced marriage, fear that calls are under surveillance) were added via the administration of semi-structured interviews with 10 male and female Afghan asylum seekers in Vienna and with three individuals providing services for the Afghan asylum seekers. They were all selected through non-probability sampling. Only 21 items of the pre-migration traumatic events and 13 items of the post-migration stressful events were considered relevant and used in the current study. The items for pre-migration traumatic events are either war-related events and are relevant to the Afghans who lived in Afghanistan, or discriminatory experiences that Afghans faced in Iran or Pakistan.

2.3. Data analyses

A series of confirmatory factor analyses (CFAs) was conducted to test the construct validity of the Dari ITQ. Based on the proposed models of ICD-11 CPTSD in previous community, clinical, and refugee studies (e.g. Hyland et al., 2017; Shevlin et al., 2017; Vallières et al., 2018), seven alternative factor models were specified (Figure 1). Model 1 is a single-factor model with all PTSD and DSO items loading on a single latent factor (CPTSD). Model 2 comprises six correlated first-order factors (Av, Re, Th, AD, NSC, and DR). Model 3 comprises six first-order factors loading on a second-order factor (CPTSD). Model 4

comprises six first-order factors loading on two correlated second-order factors (PTSD and DSO): Av, Re, and Th loading on the PTSD factor; and AD, NSC, and DR loading on the DSO factor. In Model 5, PTSD items load directly on the PTSD factor, while DSO items load on their respective first-order factors (AD, NSC, and DR), which load on the DSO factor. In Model 6, PTSD items load on their respective first-order factors (Av, Re, and Th), which load on the PTSD factor, while DSO items load directly on the DSO factor. In Model 7, all PTSD and DSO items load on two correlated first-order factors (PTSD and DSO).

The models were estimated in Mplus 7.4 (Muthén & Muthén, 2015) using robust maximum likelihood estimation (MLR), which has been illustrated to produce correct parameter estimates, standard errors, and test statistics (Rhemtulla et al., 2012). The ITQ is a five-point scale and the MLR estimator is appropriate when the data are ordinal with more than three categories (Beauducel & Herzberg, 2006). In the data collection process, only completed questionnaires were included. Hence, there were very few missing data (0.0–0.3%); these were managed using the default pairwise present analysis method.

To evaluate the goodness of fit, standard procedures were used, calculating the chi-squared goodness-of-fit (χ^2), comparative fit index (CFI), Tucker–Lewis index (TLI), root mean square error of approximation with 90% confidence intervals (RMSEA 90% CI), and standardized root mean square residual (SRMR) for each model. Conventionally, a model having a chi-squared-to-degree of freedom ratio (χ^2:*df*) less than 3:1 indicates an acceptable fit; CFI and TLI values $\geq .90$ and $\geq .95$ reflect acceptable and excellent model fit, respectively; and RMSEA and SRMR values $\leq .08$ and $\leq .05$ reflect acceptable and excellent model fit, respectively. In addition, the Bayesian information criterion (BIC) was used to compare alternative models with lower values indicating a better fit, with a difference of 10 or more points lower on the BIC indicating superior model fit (Raftery, 1995). Identifying the best-fitting model, composite reliability scores were calculated for all scales, as is more appropriate for determining the internal reliability of measures with a small number of items, such as the ITQ. Values > .60 indicate acceptable internal reliability (Raykov, 1997).

Concurrent and convergent validity of the best-fitting model was further tested using a series of Pearson correlation analyses and interpreted using the guidelines provided by Dancey and Reidy (2007). The concurrent validity was measured by DSM-IV PTSD as assessed by the HTQ. The convergent validity was measured by different measures assessing psychopathologies (anxiety, depression, and psychological distress). Finally, multivariate regression analysis was
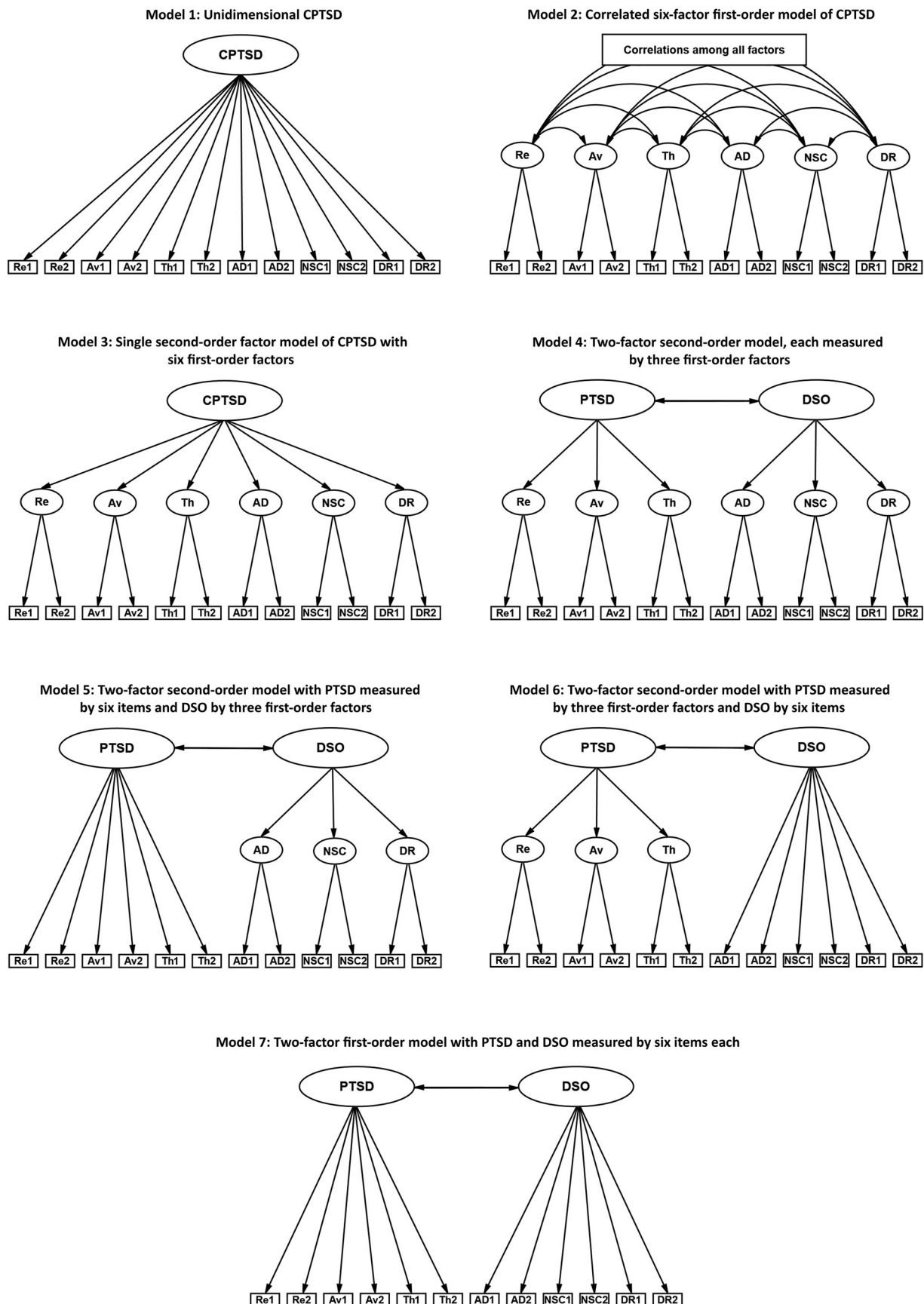
Figure 1. The seven alternative factor models. CPTSD = complex post-traumatic stress disorder; PTSD = post-traumatic stress disorder; DSO = disturbances in self-organization; Re = re-experiencing of the trauma; Av = avoidance of internal or external trauma reminders; Th = sense of current threat; AD = affective dysregulation; NSC = negative self-concept; DR = disturbances in relationships.

Table 2. Descriptive statistics of complex post-traumatic stress disorder (CPTSD) symptomatology, 11th revision of the International Statistical Classification of Diseases ICD-11 and DSM-IV are related to post-traumatic symptoms, and general psychopathology ($N = 305$).

	Total (%)	Male (%)	Female (%)	χ^2-Test statistic	Asylum seeker (%)	Refugee (%)	χ^2-Test statistic
CPTSD symptomatology							
Re-experiencing	51.8	49.0	57.3	1.87	58.1	45.3	4.95*
Avoidance	63.3	66.8	56.3	3.25	78.1	48.0	29.65**
Sense of current threat	51.1	50.5	52.4	0.10	60.6	41.3	11.38**
Affective dysregulation	59.0	58.4	60.2	0.09	63.2	54.7	2.31
Negative self-concept	43.3	40.1	49.5	2.46	44.5	42.0	0.20
Disturbances in relationships	48.5	49.5	46.6	0.23	51.6	45.3	1.20
ICD-11 PTSD and CPTSD diagnoses							
PTSD diagnosis	10.5	12.4	6.8	2.26	16.8	4.0	13.25**
CPTSD diagnosis	20.7	20.3	21.4	0.05	23.9	17.3	1.99
DSM-IV PTSD diagnosis							
PTSD (HTQ)	31.8	33.7	28.2	0.95	40.6	22.7	11.36**
Psychopathology							
Anxiety (HSCL-25)	52.8	50.5	57.3	1.26	60.6	44.7	7.81**
Depression (HSCL-25)	57.7	56.4	60.2	0.40	65.8	49.3	8.48**

Note: All factor loadings are statistically significant ($p < .001$).
PTSD = post-traumatic stress disorder; HTQ = Harvard Trauma Questionnaire; HSCL-25 = Hopkins Symptom Checklist-25.
*$p < .05$, **$p < .01$.

used to examine whether a range of potential predictive factors for CPTSD (sex, age, pre-migration traumas, post-migration stressors, anxiety, depression, and psychological distress) would distinctively predict PTSD and DSO simultaneously.

3. Results

3.1. Exposure to traumatic and stressful events and diagnostic estimates

The vast majority of the participants reported having been exposed to one or more traumatic events before their migration to Austria (95.1%) and having experienced stressful events in Austria (97%). The mean numbers of pre-migration traumatic events and post-migration stressful events experienced were 8.47 ($Mdn = 9.00$, $SD = 4.72$) and 7.33 ($Mdn = 8.00$, $SD = 3.51$), respectively. Compared to the refugees, the asylum seekers experienced significantly higher mean numbers of pre-migration traumatic events ($M = 9.42$ vs $M = 7.49$, $p < .01$) and post-migration stressful events ($M = 8.95$ vs $M = 5.65$, $p < .001$). The descriptive statistics and the list of exposure to traumatic and stressful events are presented in detail as supplementary data (see Table S1).

The asylum seekers also showed significantly higher levels of ICD-11 CPTSD symptomatology, and probable diagnoses of ICD-11 PTSD, DSM-IV PTSD, anxiety, and depression. There were no sex differences in any of the mentioned symptoms and diagnoses. Asylum seekers' mean total score on the ASCL ($M = 49.43$, $SD = 17.84$) was significantly higher than that of refugees ($M = 43.87$, $SD = 16.25$), $t_{301.915} = 2.85$, $p < .001$, indicating a markedly higher level of self-reported distress. Male participants' mean total score on the ASCL ($M = 46.00$, $SD = 17.21$) was not significantly different from that of females ($M = 48.07$, $SD = 17.40$). The probable ICD-11 PTSD and CPTSD

diagnostic rates were 10.5% ($n = 32$) and 20.7% ($n = 63$), respectively. The DSM-IV PTSD diagnostic rate was not significantly different from the combined ICD-11 PTSD and CPTSD rate (31.8% vs 31.2%, $z = 0.17$, $SE = .05$, $p = .43$). The descriptive statistics of the diagnostic estimates are presented in Table 2.

3.2. Construct validity and composite reliability

Model fit statistics for all models are presented in Table 3. Models 1, 5, and 7 were rejected owing to their poor fit to the data. The chi-squared test was statistically significant for all models. Models 2, 3, 4, and 6 had chi-squared-to-degree of freedom ratios less than 3:1, and exhibited acceptable to excellent fit regarding the CFI, TLI, RMSEA, and SRMR. Of these four models, Models 2 and 4 displayed the lowest BIC values. However, Model 4 indicated a superior model fit, having the lowest BIC value by a difference of more than 10 points. Considering all indices together and the theoretical structure of ICD-11 CPTSD, Model 4 offered the best representation of the factor structure of the Dari ITQ (consisting of two distinct but correlated second-order factors of PTSD and DSO) and was selected as the best-fitting model.

Standardized factor loadings of the selected model are presented in Table 4. All of the first- and second-order factor loadings were statistically significant ($p < .001$), positive, and high ($> .60$). The standardized factor loading of sense of current threat (Th) on the second-order PTSD factor was 1.07, a result that suggests a high degree of multicollinearity. However, if the factors are correlated (oblique), the factor loadings are regression coefficients and not correlations, and as such they can be larger than one in magnitude (Jöreskog, 1999). If the solution fits the theoretical model best and all of the factors are interpretable, a

Table 3. Model fit statistics of confirmatory factor analysis for alternative models of the 11th revision of the International Statistical Classification of Diseases (ICD-11) complex post-traumatic stress disorder (CPTSD) for the Dari International Trauma Questionnaire (ITQ) (N = 305).

Model	χ^2 (df)	RMSEA (90% CI)	CFI	TLI	SRMR	BIC
1	294.184 (54)*	0.121 (0.107–0.134)	0.809	0.766	0.085	10940.072
2	77.600 (39)*	0.057 (0.038–0.075)	0.969	0.948	0.039	10722.858
3	139.156 (48)*	0.079 (0.064–0.094)	0.927	0.900	0.063	10757.966
4	91.400 (47)*	0.056 (0.038–0.073)	0.965	0.950	0.045	10697.967
5	155.458 (50)*	0.083 (0.069–0.098)	0.916	0.889	0.061	10766.750
6	125.109 (50)*	0.070 (0.055–0.086)	0.940	0.921	0.050	10727.275
7	188.278 (53)*	0.091 (0.078–0.106)	0.892	0.866	0.065	10795.793

Note: Model 4 was selected as the best-fitting model.
χ^2 = chi-squared goodness-of-fit; df = degrees of freedom; RMSEA = root mean square error of approximation; CI = confidence interval; CFI = comparative fit index; TLI = Tucker–Lewis index; SRMR = standardized root mean square residual; BIC = Bayesian information criterion.
*$p < .01$.

factor loading with a value of slightly greater than one is acceptable. The two second-order PTSD and DSO factors were highly correlated ($r = 0.81$, $p < .001$). Composite reliability estimates derived from the CFA indicated that the PTSD (0.88) and DSO (0.93) scales possessed excellent internal reliability.

3.3. Concurrent, convergent, and discriminant validity of the Dari ITQ

Evaluating concurrent validity (Table 5), moderate to strong positive bivariate correlations were found between all ITQ symptom clusters and scales and DSM-IV PTSD, of which the second-order factors PTSD ($r = 0.71$) and DSO ($r = 0.70$) had strong positive correlations.

Evaluating convergent validity (Table 5), moderate to strong positive bivariate correlations between all ITQ symptom clusters and scales and comorbid psychopathologies were found, ranging from $r = 0.40$ to $r = 0.73$, except between avoidance and depression ($r = 0.37$, $p < .001$). DSO correlated strongly with depression and psychological distress, with $r = 0.71$ and $r = 0.73$, respectively.

Evaluating the discriminant validity of ITQ scales (Table 6), PTSD was significantly predicted by pre-migration traumas ($\beta = 0.17$), post-migration stressors ($\beta = 0.12$), anxiety ($\beta = 0.23$), and psychological distress ($\beta = 0.38$), explaining 52.7% of the variance. DSO was significantly predicted by post-migration stressors ($\beta = 0.10$), depression ($\beta = 0.28$), and psychological distress ($\beta = 0.46$), explaining 57.4% of the variance.

4. Discussion

The validation of the ITQ in a sample of a trauma-exposed non-western and refugee population is particularly important, as few studies have attempted to validate the ICD-11 PTSD and CPTSD screening tools among such populations in comparison to the western community and clinical samples. The results indicated high levels of ICD-11 PTSD (10.5%) and CPTSD (20.7%), along with DSM-IV PTSD,

depression, anxiety, and self-reported distress. Mental health problems in this refugee population appear to be more prevalent than in the general population. According to data from the World Mental Health Surveys, the lifetime prevalence rate of PTSD in the general population is 3.9% (Koenen et al., 2017) and for any depressive disorder is 12% (Kessler et al., 2009). A higher prevalence rate of CPTSD than PTSD in this study is consistent with the findings in some of the previous studies with refugee populations (Hyland et al., 2018; Vallières et al., 2018; Vang et al., 2021). However, it contradicts the findings of some other previous studies (Barbieri et al., 2019; Frost et al., 2019; Hecker et al., 2018).

Testing the construct validity of ICD-11 CPTSD, both the correlated six-factor model (Model 2) and the two-factor higher-order model (Model 4) fitted the data well. However, the two-factor higher-order model (Model 4) was selected as the best-fitting model as it exhibited superior fit regarding CFI, TLI, RMSEA, and SRMR, and possessed the lowest BIC value. The composite reliability of the selected model was established by statistically significant and high factor loadings for all first- and second-order factors and excellent levels of internal reliability for both PTSD and DSO scales. The small exception was one second-order factor – sense of current threat (Th) – having a slightly higher value than 1.0, which may suggest multicollinearity. However, the factor was interpretable and fitted to the overall model. The support of the two-factor higher-order model as the best model is in line with the conceptualization of ICD-11 CPTSD and previous studies in refugee populations (e.g. Nickerson et al., 2016; Vallières et al., 2018).

Concurrent validity was evidenced by significant positive bivariate correlations between ITQ symptom clusters and scales and DSM-IV PTSD, with moderate correlations of the first-order factors and strong correlations of the second-order factors. The ITQ demonstrated good convergent validity, with significant positive correlations of its factors with all of the measured variables. In particular, PTSD and DSO correlated more strongly with anxiety, depression, and psychological distress. Discriminant validity was

Table 4. Standardized factor loadings and standard errors for the two-factor higher-order model (Model 4) ($N = 305$).

Items	Re	Av	Th	AD	NSC	DR
Having upsetting dreams (Re1)	0.73 (0.04)					
Having powerful images and memories (Re2)	0.77 (0.04)					
Avoiding internal reminders (Av1)		0.72 (0.06)				
Avoiding external reminders (Av2)		0.83 (0.05)				
Being 'super-alert', watchful, or on guard (Th1)			0.61 (0.06)			
Feeling jumpy or easily startled (Th2)			0.81 (0.04)			
Long time to calm down when upset (AD1)				0.67 (0.05)		
Feeling numb or emotionally shut down (AD2)				0.81 (0.04)		
Feeling like a failure (NSC1)					0.90 (0.02)	
Feeling worthless (NSC2)					0.85 (0.03)	
Feeling distant or cut off from people (DR1)						0.87 (0.03)
Finding it hard to stay emotionally close to people (DR2)						0.72 (0.05)

First-order factors	PTSD			DSO		
Re-experiencing (Re)	0.87 (0.04)					
Avoidance (Av)	0.62 (0.06)					
Sense of current threat (Th)	1.07 (0.05)					
Affective dysregulation (AD)				0.96 (0.04)		
Negative self-concept (NSC)				0.94 (0.03)		
Disturbances in relationships (DR)				0.85 (0.05)		

Note: All factor loadings are statistically significant ($p < .001$).
PTSD = post-traumatic stress disorder; DSO = disturbances in self-organization.

verified by different variables predicting PTSD and DSO distinctively and differentially, explaining a substantial amount of variance in both constructs. PTSD was significantly predicted by pre-migration traumas, post-migration stressors, anxiety, and psychological distress, while DSO was significantly predicted by post-migration stressors, depression, and psychological distress.

Testing for discriminant validity, anxiety predicted PTSD but not DSO, while depression predicted DSO but not PTSD. This result was in line with our expectations and the findings of previous studies (Gilbar, 2020; Ho et al., 2020; Hyland et al., 2017; Vang et al., 2021), leading to acceptance of the first hypothesis of discriminant validity. Both pre-migration traumas and post-migration stressors were identified as predictors for PTSD, but only post-migration stressors were identified as a predictor for DSO, presenting a consistent finding with some previous studies on ICD-11 CPTSD in refugee populations (Hecker

et al., 2018; Liddell et al., 2019), leading to acceptance of the second hypothesis of discriminant validity. The findings confirmed both of the hypotheses of discriminant validity, thus completely supporting the discriminant validity of the Dari ITQ. In addition, the overall findings supported the concurrent, convergent, and discriminant validity of the Dari ITQ.

The current study used a comprehensive list of measures and checklists for the validation of the Dari ITQ, which were adapted to the refugee populations and were culturally sensitive in diagnosing the mental health problems of the Afghan population. The data in this study were collected from samples consisting of both general and treatment-seeking populations of asylum seekers and refugees. It is highly possible that the results reflect a realistic estimation of the prevalence rate of ICD-11 PTSD and CPTSD among the Afghan refugee populations.

However, this study had limitations that should be acknowledged. Access to asylum seekers in some of the residences was limited. Therefore, the authors were unable to account for potential differences between those who could be approached and those who were excluded owing to the prohibitions of the residences. Throughout the study, two issues were identified: the low educational level of participants, and Dari being not the mother tongue for all of the participants, which led to lower comprehension of the mental health terminologies in the questionnaire for some participants. The concept of mental illness is highly stigmatized in Afghan communities and most of their members would disclose a mental health problem only to their family members (Nine et al., 2022). There may be a potential for social desirability bias in reporting of mental health issues resulting from the desire of the participants to avoid embarrassment. Because the coronavirus pandemic restrictions coincided with data collection from the refugees,

Table 5. Pearson correlation coefficients between International Trauma Questionnaire (ITQ) symptom clusters and scales and different variables ($N = 305$).

ITQ	PTSD (HTQ)	Anxiety (HSCL-25)	Depression (HSCL-25)	Distress (ASCL)
Re-experiencing	0.61	0.59	0.56	0.64
Avoidance	0.50	0.40	0.37	0.41
Sense of current threat	0.67	0.63	0.62	0.68
Affective dysregulation	0.62	0.59	0.62	0.67
Negative self-concept	0.64	0.61	0.67	0.67
Disturbances in relationships	0.57	0.49	0.57	0.58
PTSD	0.71	0.64	0.61	0.68
DSO	0.70	0.64	0.71	0.73

Note: All correlations are significant at $p < .001$.
PTSD = post-traumatic stress disorder; DSO = disturbances in self-organization; HTQ = Harvard Trauma Questionnaire; HSCL-25 = Hopkins Symptom Checklist-25; ASCL = Afghan Symptom Checklist.

Table 6. Standardized regression coefficients (β), 95% confidence intervals (95% CIs), and standard errors (SEs) of different potential factors in predicting post-traumatic stress disorder (PTSD) and disturbances in self-organization (DSO) (N = 305).

	PTSD			DSO		
Predictor variable	β	95% CI	SE	β	95% CI	SE
Sex[a] (female)	−0.00	(−1.11, 0.95)	0.52	0.03	(−0.59, 1.41)	0.51
Age	−0.03	(−0.06, 0.03)	0.02	−0.08	(−0.08, 0.00)	0.02
Pre-migration traumas	0.17***	(0.09, 0.32)	0.06	−0.01	(−0.13, 0.09)	0.06
Post-migration stressors	0.12*	(0.04, 0.36)	0.08	0.10*	(0.02, 0.32)	0.08
Anxiety	0.23**	(0.06, 0.32)	0.07	−0.01	(−0.14, 0.12)	0.06
Depression	−0.02	(−0.11, 0.09)	0.05	0.28***	(0.07, 0.26)	0.05
Psychological distress	0.38***	(0.07, 0.18)	0.03	0.46***	(0.10, 0.21)	0.03
Variance explained		52.7%			57.4%	

Note: [a]0 = male, 1 = female.
*p < .05, **p < .01, ***p < .001.

they completed the questionnaires through self-administration, in contrast to the asylum seekers, the majorities of whom were interviewed. Hence, it is possible that the level of comprehension of questionnaire items between asylum seekers and refugees may have varied. To reduce the above problems and to improve the quality of data, the study instruments were mostly administered via face-to-face interviews and by an Afghan and Dari-speaking researcher to establish rapport and trust with the participants. Regarding the refugees, the questionnaires were checked before submission to ensure that they were filled in correctly and completely, and any items that participants did not understand were clarified.

This study provides the first empirical evidence of the factorial validity of the ITQ in Dari-speaking individuals from Afghanistan. Although satisfactory evidence was found, we suggest that the ITQ would be best administered with the assistance of a trained professional among illiterate and poorly literate Afghans and those for whom Dari is not their first language. The findings indicated that the pre-migration traumatic experiences of the refugee population and their ongoing daily stressful challenges in the host country are important sociodemographic characteristics in diagnosis and treatment of the ICD-11 PTSD and CPTSD symptoms. This implies the need to move away from simply focusing only on experienced pre-migration trauma and to incorporate measures addressing the distress resulting from ongoing stressors in the resettled post-migration environment.

This study was limited to cross-sectional data. Future longitudinal studies will allow a better understanding of the developmental changes in ICD-11 PTSD and CPTSD symptoms in relation to the post-migration stressors in the settlements of refugee populations. These studies should also investigate the relationship of ICD-11 PTSD and CPTSD with comorbid symptoms such as anxiety, depression, and psychological distress across time to assess the predictive validity of the ITQ. The validation of the Dari ITQ in this study was limited to Afghan refugee populations. Future studies should also examine the reliability and validity of the Dari ITQ in detecting

and measuring ICD-11 PTSD and CPTSD in the general Afghan population.

5. Conclusion

The current study supports the construct validity of the Dari version of the ITQ and its consistency with the symptom structure of ICD-11 CPTSD. It provides additional support for the composite reliability, and concurrent, convergent, and discriminant validity, suggesting the statistical validity and cultural sensitivity of the Dari ITQ in identifying symptoms of ICD-11 PTSD and CPTSD among Afghan asylum seekers and refugees. The use of adapted and culturally sensitive measures and checklists for the validation of the Dari ITQ has proven the differential diagnosis of ICD-11 PTSD and CPTSD.

Disclosure statement

No potential conflict of interest was reported by the authors.

Ethics approval and consent to participate

This study received ethics approval and consent from the Ethics Committee of the University of Vienna (reference number: 00279).

Data availability statement

The data are not publicly available owing to the vulnerability of the participants and for their data protection to ensure public safety.

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