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CLINICAL RESEARCH ARTICLE

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Complex posttraumatic stress disorder in treatment-seeking refugees: the role of trauma history, post-migration stressors and comorbid symptoms

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ABSTRACT

Background: Complex posttraumatic stress disorder (cPTSD) was recently added to the ICD-11. Refugees might be particularly vulnerable to develop this disorder, due to key risk factors including trauma history, comorbid symptoms, and post-migration stressors. However, most prevalence estimates rely on self-report questionnaires, which are less reliable than clinical interviews. This study aimed to assess $PTSD_{ICD-11}$ and cPTSD prevalence in treatment-seeking refugees using clinician ratings, and to examine risk factors influencing diagnostic status and symptom severity.

Method: $N = 104$ treatment-seeking refugees were assessed for cPTSD and $PTSD_{ICD-11}$, as well as symptom severity and single symptom endorsement using a new clinical interview, the Complex PTSD Item Set Additional to the CAPS. Trauma history, comorbid symptoms (dissociation, sleep problems, somatic symptoms, anxiety, depression, social impairment), and post-migration stressors were investigated as predictors for cPTSD diagnostic status and symptom severity using Wilcoxon Rank sum tests, logistic and linear regression.

Results: Prevalences for cPTSD and $PTSD_{ICD-11}$ were 14.42% ($n = 15$) and 63.46% ($n = 66$), respectively. Participants with and without cPTSD did not differ regarding the frequency of traumatic events experienced. However, cPTSD symptom severity was significantly positively associated with the frequency of experienced traumatic events. In regression analyses, comorbid symptoms were significantly associated with cPTSD diagnostic status and symptom severity with depressive symptoms being a significant predictor. Post-migration stressors were associated with cPTSD diagnostic status and symptom severity, and the perception of the present financial situation was a significant predictor for cPTSD severity.

Discussion: The prevalence of cPTSD was relatively low in this refugee sample. This discrepancy to earlier prevalence estimates could be due to the assessment since we used a clinical interview instead of a self-report questionnaire. More investigations into cPTSD diagnostic assessments are needed, and clinical interviews should be used more often.

Trastorno de estrés postraumático complejo en refugiados que buscan tratamiento: el rol de la historia de trauma, los factores de estrés post-migración y los síntomas comórbidos

Antecedentes: El Trastorno de Estrés Postraumático Complejo (TEPTc) fue recientemente agregado a la CIE-11. Los refugiados podrían ser particularmente vulnerables a desarrollar este trastorno debido a factores clave de riesgo, que incluyen la historia de trauma, los síntomas comórbidos y los factores de estrés post-migración. Sin embargo, la mayoría de las estimaciones de prevalencia se basan en cuestionarios de autoinforme, que son menos confiables que las entrevistas clínicas. Este estudio tuvo como objetivo evaluar la prevalencia de TEPTc y TEPT según la CIE-11 en refugiados que buscan tratamiento, utilizando valoraciones clínicas, y examinar los factores de riesgo que influyen en el estado diagnóstico y la severidad de los síntomas.

Método: Se evaluaron 104 refugiados que buscaban tratamiento para TEPTc y TEPT según CIE-11, así como la severidad de los síntomas y el endoso de un solo síntoma mediante una nueva entrevista clínica, el conjunto de ítems del TEPT complejo adicional al CAPS. Se investigaron la historia de trauma, los síntomas comórbidos (disociación, problemas de sueño, síntomas

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Complex posttraumatic stress disorder; posttraumatic stress disorder; risk factors; comorbid symptoms; post-migration stressors; trauma history; clinical interview

PALABRAS CLAVE

Trastorno de estrés postraumático complejo; trastorno de estrés postraumático; factores de riesgo; síntomas comórbidos; factores de estrés post-migración; historia de trauma; entrevista clínica

HIGHLIGHTS

- Investigation of cPTSD and PTSD diagnostic status, symptom severity and related risk factors in treatment-seeking refugees using a clinical interview.
- Clinical interviews might provide more reliable cPTSD prevalence estimates than self-reports.
- Trauma history, comorbid symptoms, and post-migration stressors impacted cPTSD symptom severity.

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somáticos, ansiedad, depresión, deterioro social) y los factores de estrés post-migración como predictores del estado diagnóstico de TEPTc y la severidad de los síntomas, utilizando pruebas de suma de rangos de Wilcoxon, regresión logística y lineal.
Resultados: Las prevalencias de TEPTc y TEPT según la CIE-11 fueron 14.42% (n = 15) y 63.46% (n = 66), respectivamente. Los participantes con y sin TEPTc no mostraron diferencias en cuanto a la frecuencia de los eventos traumáticos experimentados. Sin embargo, la severidad de los síntomas de TEPTc se asoció significativamente y de manera positiva con la frecuencia de los eventos traumáticos experimentados. En los análisis de regresión, los síntomas comórbidos se asociaron significativamente con el estado diagnóstico de TEPTc y la severidad de los síntomas, siendo los síntomas depresivos un predictor significativo. Los factores de estrés post-migración se asociaron con el estado diagnóstico de TEPTc y la severidad de los síntomas, y la percepción de la situación financiera actual fue un predictor significativo para la severidad del TEPTc.
Discusión: La prevalencia de TEPTc fue relativamente baja en esta muestra de refugiados. Esta discrepancia con las estimaciones previas de prevalencia podría deberse a la evaluación, ya que utilizamos una entrevista clínica en lugar de un cuestionario de autoinforme. Se necesitan más investigaciones sobre las evaluaciones diagnósticas de TEPTc, y las entrevistas clínicas deberían ser utilizadas con mayor frecuencia.

1. Theoretical background

Complex posttraumatic stress disorder (cPTSD) was recently added to the 11th edition of the International Classification of Diseases (ICD-11; WHO, 2019) as a sibling diagnosis to posttraumatic stress disorder (PTSD). CPTSD diagnostic criteria include disturbances of self-organization (DSO; i.e. affect dysregulation, negative self-concept, and difficulties in relationships) in addition to the core symptoms of PTSD re-experiencing, avoidance, and a persistent sense of current threat. Therewith, the DSO symptoms reflect persistent and general disturbances that extend beyond trauma-specific reactions as specified in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013). Moreover, the criterion of trauma exposure is defined as commonly including continuous or repeated events from which escape is difficult or impossible. This includes childhood sexual or physical abuse, torture, slavery or genocide campaigns. Refugees often report those kind of traumatic events (Nickerson et al., 2021), which might make them particularly vulnerable for cPTSD. The construct validity of cPTSD has been widely demonstrated (e.g. Hyland et al., 2017, 2018; Powers et al., 2017). Furthermore, it is clearly distinguishable from Borderline Personality Disorder (Cloitre et al., 2014; Hyland et al., 2019; Knefel et al., 2016). Since the ICD is used widely in clinical practice, and there is only limited research focusing on cPTSD in refugees, the present investigations are focused on cPTSD rather than PTSD according to the DSM-5 (First et al., 2021).

Higher probable prevalences for cPTSD have been reported in refugees than in general population samples, however past prevalence estimates are very heterogeneous and fall within a wide range. A recent systematic review found a pooled probable cPTSD prevalence of 57.4% in treatment-seeking refugee samples and 7.8% in refugee population samples (total range: 3–74.5%; Lechner-Meichsner et al., 2024). In treatment-seeking samples, cPTSD prevalence seems to be even higher than PTSD prevalence (~57% vs. ~30%; Lechner-Meichsner et al., 2024). So far, nearly all studies investigating these prevalences in refugees rely on self-reported PTSD or cPTSD symptoms. In representative general population samples in Western countries, probable cPTSD prevalence ranges between ca. 1 and 8%, while PTSD prevalence ranges between 1.5 and 9% (Ben-Ezra et al., 2018; Maercker et al., 2018, 2022; McGinty et al., 2023). There are several possible explanations for elevated cPTSD prevalences in refugees. First, risk factors for cPTSD include a high frequency of experiencing traumatic events and a high number of different traumatic events[1] (Lechner-Meichsner et al., 2024; Maercker et al., 2022; Mc Ginty et al., 2023; Mellor et al., 2021). In fact, a recent meta-analysis identified childhood sexual abuse as the most important predictor for cPTSD, followed by childhood physical abuse, childhood emotional neglect, and adulthood physical abuse (Leiva-Bianchi et al., 2023). Refugees often experience these critical events as well as other prolonged or repeated traumatic events such as torture (Nickerson et al., 2021). However, one population study did not find any differences in number of experienced traumatic events between patients with PTSD and cPTSD (Ben-Ezra et al., 2018). Second, cPTSD is often associated with comorbid mental disorders, such as depression, anxiety or dissociative disorders (Lechner-Meichsner et al., 2024; Leiva-Bianchi et al., 2023; Maercker et al., 2022), and it has been reported that refugees often suffer from severe mental disorders (Blackmore et al., 2020; Patanè et al., 2022). Third, some risk factors for cPTSD are specific to refugees, namely post-migration stressors. A systematic review found that there were more associations between post-migration stressors and cPTSD/ DSO rather than PTSD (Lechner-Meichsner et al., 2024). Two other studies also found post-migration stressors,

including discrimination (Ipekci, 2023) and lack of social support (Mellor et al., 2021) to be predictive of cPTSD.

However, differences in cPTSD prevalence estimates may also be due to methodological factors, especially mode of assessment. Being a relatively new diagnosis, cPTSD is often examined using a composition of items from different questionnaires matched to ICD-11 criteria or assessed with the International Trauma Questionnaire (ITQ), a self-report instrument specifically developed to capture cPTSD as defined in ICD-11 (Cloitre et al., 2018; Lechner-Meichsner & Steil, 2021). However, self-report measures only allow a probable diagnosis (Maercker et al., 2022) and prevalence estimates with clinical interviews could differ from those assessments (Lim et al., 2018). In two systematic reviews, there was no definite association of self-report measures with a higher prevalence estimate (de Silva et al., 2021; Mellor et al., 2021), but since only few studies used clinical interviews this remains an open question. However, one study directly compared the prevalence as assessed by the International Trauma Interview (ITI; Roberts et al., 2019) and the ITQ in a Lithuanian sample and found consistently higher endorsements for cPTSD symptom clusters and diagnoses using the ITQ as compared to the ITI (Gelezelyte et al., 2022).

In sum, most studies have assessed cPTSD in refugee populations using self-report measures rather than semi-structured interviews even though studies have shown that clinician assessments might be more accurate (Lim et al., 2018). An accurate assessment is important to recognize cPTSD in time. Treating cPTSD sooner and in more affected persons could relieve the burden on the health care system because a study has shown that health service use is higher in people suffering from cPTSD (Ho et al., 2024). In addition, reducing symptoms of cPTSD can increase refugees' well-being and abilities to adapt to life in the host country, including improving language skills and securing and keeping employment. It was therefore the primary aim of the present study to assess the prevalence of cPTSD and $PTSD_{ICD\text{-}11}$ in a sample of treatment-seeking traumatized refugees using the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5; Weathers et al., 2013) as well as the Complex PTSD Item Set additional to the CAPS (COPISAC; Lechner-Meichsner & Steil, 2021). COPISAC is a clinical interview developed to make a diagnosis of cPTSD and $PTSD_{ICD\text{-}11}$. The present study also aimed to determine cPTSD and $PTSD_{ICD\text{-}11}$ symptom severity (Aim 2) and identify the symptoms that were endorsed most often and most strongly in the present sample (Aim 3). Additionally, we aimed to investigate specific risk factors for cPTSD by examining the role of trauma history (Aim 4), post-migration stressors (Aim 5), and comorbid symptoms (Aim 6) in relation to cPTSD diagnostic status and symptom severity. We expected that cPTSD diagnostic status and severity is associated with a more severe trauma history, more severe comorbid symptoms and more post-migration stressors.

2. Method

2.1. Participants and procedure

Data were drawn from the baseline assessment of a multi-center randomized controlled trial investigating imagery rescripting as a treatment for adult refugees with PTSD (Steil et al., 2021). The study was conducted between 2019 and 2024 at four university outpatient treatment facilities located in Germany and approved by the ethics committee of the German Psychological Association (SteilRegina2019-10-18-VA, SteilRegina2020-02-26AM). Participants were recruited through multiple channels, including collaborations with local refugee service providers, healthcare professionals, cultural mediators, a project website, and (social) media. Following an initial screening, patients who provided informed consent were invited to the study centers to participate in clinical interviews and complete self-report questionnaires. Patients were included in the trial if they had a primary diagnosis of PTSD according to the DSM-5 (American Psychiatric Association, 2013), came to Germany as a refugee (independent of current asylum status), were between 18 and 65 years old, were able to communicate with a therapist with or without the help of an interpreter, were motivated to undergo trauma-focused treatment, and were able to stay in the location of the study centre for at least another six months. Exclusion criteria were a life-time diagnosis of psychosis, bipolar disorder or substance dependence, acute suicide risk or risk of harm to others, or the start of new psychopharmacological medication within the previous month. At baseline, diagnostic interviews were conducted by trained clinician raters to assess inclusion and exclusion criteria as well as PTSD symptom severity and comorbid symptom severity. Additionally, patients completed a set of self-report questionnaires. Throughout the process, participants could ask clinician raters or interpreters questions to ensure comprehension. The current study used baseline data from all randomized participants ($n = 94$) as well as from participants who were not randomized but had completed the clinician assessment of PTSD symptoms ($n = 10$).

2.2. Measures

2.2.1. Translation of measures

Clinical interviews were conducted in English or German. For participants not fluent in either language, a trained interpreter translated the questions and

answers during the interview. The questionnaires were available in English, German, Arabic, and Farsi. When no previously validated version was available, questionnaires were translated and back-translated by native speakers in the respective language with a background in psychology. In cases where the questionnaire was not available in the language of the participant (e.g. Pashto, Tigrinya) or the participant's literacy was not sufficient to complete the instrument, an interpreter read the questions out loud and noted the answers.

2.2.2. PTSD and cPTSD symptom severity and diagnostic status

The CAPS-5 (German version Müller-Engelmann et al., 2020, 2023; Weathers et al., 2013) is a structured clinical interview to assess diagnostic status and severity of posttraumatic stress symptoms according to DSM-5 in the past month and is widely considered as the gold standard in assessing PTSD (Weathers et al., 2018). Symptoms are rated on a 5-point Likert scale ranging from 0 (absent) to 4 (extreme). Therefore, total scores between 0 and 80 are possible.

To follow ICD-11 criteria for PTSD, CAPS items were matched to the core symptoms of PTSD included in the ICD-11 guideline (World Health Organization, 2019). A total score of $PTSD_{ICD\text{-}11}$ symptom severity was obtained by summing the six CAPS-5 items B2, B3 (i.e. re-experiencing); C1, C2 (i.e. avoidance); and E3, E4 (i.e. persistent perception of heightened current threat). A diagnosis of PTSD following ICD-11 was made when at least one item from each symptom cluster received a rating of ≥2, there was impairment in at least one area of functioning, and the symptoms were present for a few weeks. Total scores can range between 0 and 24.

Symptoms of cPTSD were assessed with the COPISAC (Lechner-Meichsner & Steil, 2021). It is an addition to the CAPS-5 that allows to assess both diagnostic status and symptom severity of cPTSD. COPISAC items are rated on the same 5-point Likert scale from 0 (absent) to 4 (extreme) as the CAPS-5 items. The instrument consists of three items pertaining to DSO, i.e. one item each assesses persistent and pervasive difficulties with affect regulation (CO1), self-concept (CO2), and difficulties in sustaining relationships (CO3). CAPS-5 item D6 is used to determine difficulties in feeling close to others. There are another two items pertaining to impairments from DSO symptoms, either in social (CO4) or occupational (CO5) aspects of life. Diagnosis of cPTSD is established when criteria for DSO are met in addition to criteria for $PTSD_{ICD\text{-}11}$ (see above). DSO are considered present when the COPISAC items pertaining to affective dysregulation (CO1) and self-concept (CO2) and both of the two items pertaining to difficulties in relationships (CO3, D6) and at least one of the impairment items (CO4, CO5) have received a rating of ≥2. A score of cPTSD symptom severity is obtained by summing the six PTSD items and four DSO items. Total scores for cPTSD severity can range between 0 and 40. Internal consistency for the six $PTSD_{ICD\text{-}11}$ items was somewhat low with Cronbach's $\alpha = .63$ whereas the four DSO items showed good consistency ($\alpha = .82$). Because Cronbach's α is sensitive to scale length, values in the .60 range can be observed for short, heterogeneous scales (Cortina, 1993). A similar internal consistency has been reported for the German validation of the ITI (Bachem et al., 2024). When all ten COPISAC items were combined, internal consistency for cPTSD was acceptable ($\alpha = .77$).

2.2.3. Trauma history

The Life Events Checklist for the Diagnostic and Statistical Manual of Mental Disorders – Interview Version (LEC-5; Weathers et al., 2013) screens for 16 potential traumatic events in the participant's lifetime, and includes an additional item screening for any other extremely stressful event not covered by the other 16 items. Participants were asked whether they have directly experienced, witnessed, learned about, or been exposed via their profession to the events listed and the interviewer rated whether the A criterium for PTSD was met. For the present study and as part of COPISAC, eight additional items were added that cover forms of trauma mentioned in ICD-11 for cPTSD (i.e. repeated sexual or physical abuse during childhood, prolonged domestic violence, torture, genocide, being enslaved, repeated medical trauma during childhood, any other prolonged event or series of events of an extremely threatening or horrific nature from which escape was difficult or impossible). To the best of our knowledge, this adaptation has not been employed in prior studies, but was deemed necessary to improve the instrument's relevance to the ICD-11 diagnostic framework for cPTSD (Lechner-Meichsner & Steil, 2021) . Similar to Wilker et al. (2015), participants were also asked how often they had been exposed to each event which was rated as 1 (*one time*), 2 (*2–3 times*), 3 (*4–10 times*), and 4 (*uncountable times*). We computed a total frequency score, a sexual trauma frequency score (i.e. items e, f, p; see Table 1), a multiple trauma frequency score (i.e. items a, b, c, d, e, f, g, l, n, s, t, u if reported ≥ 2; see Table 1), and an interpersonal trauma frequency score (i.e. items a, b, c, d, e, f, g, l, n, p, q, r, s, t, u; see Table 1) based on traumatic events that met criterion A. Scores were calculated as sum scores of the frequency values of the respective traumatic events.

2.2.4. Post-migration stressors

Post-migration stressors were assessed during an interview and with the Postmigration Living

Table 1. Demographic and clinical characteristics of the sample.

Variable	*n*	%	*M*	*SD*
Gender[c]				
Male	67	64.42%		
Female	33	31.73%		
Other	3	2.88%		
Age (years)			32.74	11.4
Country of origin[a]				
Afghanistan	34	32.69%		
Syria	22	21.15%		
Iraq, Iran	8 each	7.69% each		
Nigeria	5	4.80%		
Sierra Leone	4	3.84%		
Eritrea, Guinea, former Yugoslavia, Pakistan, Palestine, Turkey	2 each	1.98% each		
Cameroon, Egypt, Jordan, Morocco, Paraguay, stateless, Tajik, Tanzania	1 each	0.96% each		
Religion[a]				
Islam	74	71.15%		
Christian	15	14.42%		
Non-denominational	10	9.61%		
Other	2	1.92%		
Marital Status[b]				
Single, living with family	12	11.53%		
Single, living alone	43	41.34%		
Married	23	22.11%		
Divorced	8	7.69%		
Separated	4	3.84%		
Widowed	2	1.92%		
In Partnership	10	9.61%		
Residence status[b]				
Permanent Residence Permit	39	37.50%		
Temporary Residence Permit	34	32.69%		
Tolerance Permit	23	22.11%		
Other	6	5.76%		
Time since arrival in Germany (years)[b]			5.21	4.62
Formal education (years)[a]			8.94	4.27
Housing situation[b]				
Own apartment	40	38.46%		
Living with friends/family	3	2.88%%		
Community housing facility	48	46.15%		
Initial reception facility	4	3.84%		
Other	7	6.73%		
Currently employed[a]	34	32.69%		
Perception of financial situation[a]				
Very weak	26	25.00%		
Weak	37	35.57%		
Medium	26	25.00%		
Good	12	11.53%		
Wealthy	0	0.00%		
Index Traumatic Event[c]				
a- Combat or exposure to a war-zone (in the military or as a civilian)	19	18.26%		
b- Captivitiy (for example, being kidnapped, abducted, held hostage, prisoner of war)	4	3.84%		
c- Sudden violent death (for example, homicide, suicide)	13	12.50%		
d- Sudden accidental death	6	5.76%		
e- Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)	15	14.42%		
f- Other unwanted or uncomfortable sexual experience	2	1.92%		
g- Serious injury, harm, or death you caused to someone else	0	0.00%		
h- Natural disaster (for example, flood, hurricane, tornado, earthquake)	1	0.96%		
i- Fire or explosion	2	1.92%		
j- Transportation accident (for example, car accident, boat accident, train wreck, plane crash)	1	0.96%		
k- Serious accident at work, home, or during recreational activity	0	0.00%		
l- Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)	10	9.61%		
m- Exposure to toxic substance (for example dangerous chemicals, radiation)	0	0.00%		
n- Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)	5	4.80%		
o- Life-threatening illness or injury	3	2.88%		
p- Repeated childhood sexual abuse	2	1.92%		
q- Repeated childhood physical abuse	1	0.96%		
r- Prolonged domestic violence	3	2.88%		
s- Torture	4	3.84%		
t- Genocide campaigns	0	0.00%		
u- being enslaved	0	0.00%		
v- Repeated medical trauma during childhood	1	0.96%		
w- Severe human suffering	1	0.96%		
x- Any other prolonged event or series of events of an extremely threatening or horrific nature from which escape was difficult or impossible	6	5.76%		
y- Any other stressful event or experience	4	3.84%		
Post Migration Living Difficulties (PMLD sum)			39.73	18.58

(*Continued*)

Table 1. Continued.

Variable	*n*	%	*M*	*SD*
Total number of different traumatic events that meet the A-Criterion (LEC-5)			6.21	3.13
Clinician-rated $PTSD_{ICD-11}$ (CAPS & COPISAC)	66	63.46%	11.68	4.31
Clinician-rated cPTSD (CAPS & COPISAC)[c]	15	14.42%	17.35	6.85
Clinician-rated DSO (COPISAC)	17	16.34%	5.57	3.99
Severity of Comorbid Symptoms (GHQ-28)				
Somatic Symptoms[g]			12.52	4.46
Anxiety and Insomnia[g]			12.52	4.46
Social dysfunction[h]			13.07	4.22
Depression[i]			12.02	5.76
Dissociative Symptoms (ADES-8, mean score)[i]			3.25	2.51
Sleep disorders (PSQI global score)[h]			14.18	3.92

Note: LEC-5 = Life Event Checklist in the adapted version by Lechner-Meichsner and Steil (2021); CAPS = Clinician-Administered PTSD Scale for DSM-V; COPISAC = Complex PTSD Item Set additional to the CAPS; ITQ = International Trauma Questionnaire; GHQ-28 = General Health Questionnaire; ADES-8 = Adolescent Dissociative Experiences Scale; PSQI = Pittsburgh Sleep Quality Index. Patients had missing values on some measures and we used pairwise exclusion for all analyses.

[a] $n = 101$
[b] $n = 102$
[c] $n = 103$
[d] $n = 99$
[e] $n = 97$
[f] $n = 98$
[g] $n = 95$
[h] $n = 94$
[i] $n = 93$

Difficulties Questionnaire (PMLD; Silove et al., 1997). The interview was part of the sociodemographic assessment and was administered by trained clinician raters – and in some cases with the help of interpreters – during the baseline assessment. It explored legal and psychosocial factors (i.e. asylum status, living situation, employment, financial situation) in a structured manner. The PMLD assesses the current life stressors of refugees and asylum seekers such as problems with communication, discrimination, access to medical and social services, isolation, and safety. For the present study, an adapted version with the additional items 'Not being able to practice your religion' and 'Difficulties to adapt to the weather/climate' was used (Semmlinger & Ehring, o. J.). Participants are asked to indicate whether any of the items on the checklist had been a problem over the previous year. Responses are rated on a 5-point scale from 0 (*No problem at all*) to 4(*A very serious problem*). There is no formal scoring method or total cut-off score for the PMLD and for the purpose of this study, a total composite score was used. Total scores can range between 0 and 108. The PMLD showed good internal consistency in the present sample, with Cronbach's α = .87.

2.2.5. Dissociative symptoms

Dissociative symptoms were assessed with the eight-item version of the Adolescent Dissociative Experiences Scale (ADES-8; Martínez-Taboas et al., 2004). This self-report instrument focuses on problematic dissociative experiences. Participants can respond to the items from 0 (*never*) to 10 (*always*), which yields a possible range of 0–80 for the total score. Although originally developed for adolescents, the ADES-8 includes items conceptually aligned with the adult-focused Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986), but with simpler wording and shorter instructions. We selected the ADES-8 for use in our adult refugee sample given the wide variability in literacy levels and educational backgrounds in this population. A briefer and more accessible measure was chosen to reduce respondent burden and support comprehension. To our knowledge, the ADES-8 has not yet been validated specifically in refugee samples; however, its conceptual overlap with the DES and good internal consistency in the present sample (Cronbach's α = .87) support its use as a pragmatic tool in this context.

2.2.6. Sleep problems

The Pittsburgh Sleep Quality Index (PSQI; Buysse et al., 1989) is a 19-item self-report measure of sleep problems in the past month with good psychometric properties. It contains seven components (subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction). Each component is based on a 0–3 severity scale indicating the frequency of each problem yielding a total score ranging from 0–21. A total score of 5 or higher indicates clinically significant sleep problems. The PSQI showed excellent internal consistency in the current sample (Cronbach's α = .91).

2.2.7. General health questionnaire

The General Health Questionnaire (GHQ-28; El-Rufaie & Daradkeh, 1996; Goldberg et al., 1997; Klaiberg et al., 2004; Malakouti et al., 2007) is a screening instrument for general psychiatric symptoms,

consisting of four subscales (somatic symptoms, anxiety, depression, social impairment). Items are rated on a 4-point scale ranging from 0 (*not at all*) to 3 (*much more than usual*) and total scores can range between 0 and 84. In the present sample, the GHQ-28 showed excellent internal consistency (Cronbach's α = .90).

2.3. Data analysis

All analyses were conducted in R version 4.3.3 (R Core Team, 2022). Internal consistencies were calculated using the R-package psych version 2.4.1 (Revelle, 2023). Sample characteristics were evaluated using descriptive statistics. To determine frequencies of $PTSD_{ICD\text{-}11}$ and cPTSD in our sample (Aim 1), we applied the diagnostic algorithms to the CAPS-5 and COPISAC as described above. We used descriptive statistics to evaluate symptom severity of $PTSD_{ICD\text{-}11}$ and cPTSD according to the CAPS-5/COPISAC (Aim 2), and to assess severity and frequency of individual $PTSD_{ICD\text{-}11}$ and cPTSD-symptoms (Aim 3).

We used Wilcoxon Rank Sum Tests to compare patients with and without cPTSD regarding the frequency of all traumatic events as well as the frequency of sexual, interpersonal, and multiple traumatic events. To assess associations between symptom severity of cPTSD and frequency of traumatic events, we calculated Pearson Correlations between cPTSD symptom severity and frequency scores (Aim 4). To adjust for multiple testing, we used Bonferroni-corrected significance levels of $\alpha < .01$.

In the next step, we compared participants with and without cPTSD regarding post-migration stressors (i.e. asylum status, living situation, occupation, financial situation and PMLD sum score) using logistic regression analysis. We then used multiple regression analysis to assess the association between cPTSD symptom severity and post migration stressors (Aim 5). To compare participants with and without cPTSD regarding the severity of comorbid symptoms (i.e. dissociation, sleep problems, somatic symptoms, anxiety, depression, social impairment, depression), we used a logistic regression analysis. We investigated associations between cPTSD symptom severity and comorbid symptom severity with multiple regression analysis (Aim 6).

Missing data ranged between 0.7% and 11.5% per scale. To evaluate the assumption that data were missing completely at random (MCAR), we conducted Little's MCAR test using the R package naniar (version 1.1.0; Tierney & Cook, 2023). Due to the large number of variables across measures, we performed the test separately for each questionnaire. For the LEC, we further divided the items into two subsets. All resulting tests yielded non-significant *p*-values, except for one of the two LEC subsets, which returned a significant result. Given that only one test out of several showed significance and the overall proportion of missing data was low, we judged the data to be approximately MCAR. Therefore, pairwise deletion was deemed appropriate for the main analyses.

3. Results

3.1. Sample characteristics

We used data from $N = 104$ patients who had completed baseline assessments of the randomized controlled trial. Participants were between 18 and 62 years old ($M = 32.74$ years, $SD = 11.4$) and primarily male (64.4%, $n = 67$). Demographic and clinical sample characteristics are shown in Table 1.

3.2. Diagnostic rates and symptom severity of $PTSD_{ICD\text{-}11}$ and cPTSD

Prevalence of $PTSD_{ICD\text{-}11}$ and cPTSD was 63.46% ($n = 66$) and 14.42% ($n = 15$), respectively (see Table 1). Sixteen percent of patients ($n = 17$) met DSO criteria. The mean $PTSD_{ICD\text{-}11}$ symptom severity was 11.68

Table 2. Status and severity of $PTSD_{ICD\text{-}11}$ and cPTSD symptoms.

	CAPS-5 and COPISAC			
Symptom	*n* (symptom present)	%	*M*	*SD*
Re-experiencing				
Re-experiencing in the here and now	47	45.19	1.25	1.36
Nightmares	84	80.76	2.29	1.22
Avoidance				
Avoidance of thoughts and feelings	99	95.19	2.72	0.85
Avoidance of reminders	73	70.19	1.93	1.25
Persistent perception of heightened current threat				
Hypervigilance	69	66.34	1.80	1.27
Exaggerated startle response	66	63.46	1.70	1.27
Affect Dysregulation	49	47.11	1.35	1.26
Negative self-concept	38	36.53	1.23	1.40
Difficulties in relationships				
Difficulties sustaining relationships	47	45.19	1.33	1.27
Difficulties feeling close to others	57	54.80	1.62	1.45

(*SD* = 4.31, *range* = 1–24) and the mean cPTSD symptom severity was 17.35 (*SD* = 6.85, *range* = 1–40), respectively. The most frequent and severe $PTSD_{ICD-11}$ symptoms were avoidance of thoughts and feelings ($n = 99$ with scores ≥ 2, $M = 2.72$, $SD = 0.85$), followed by nightmares ($n = 84$ with scores ≥ 2, $M = 2.29$, $SD = 1.22$), while the most frequent and severe cPTSD symptoms were difficulties feeling emotionally close to others ($n = 57$ with scores ≥ 2, $M = 1.62$, $SD = 1.45$), followed by affect dysregulation ($n = 49$ with scores ≥ 2, $M = 1.35$, $SD = 1.26$; see Table 2).

3.3. Impact of trauma history

On average, patients had experienced 6.26 (*SD* = 3.14, *range* = 1-16) different traumatic events. There were no differences in patients with and without a diagnosis of cPTSD regarding the number of experienced traumatic events and the frequencies of total, interpersonal, sexual, or multiple traumatic events. However, the cPTSD symptom severity was positively associated with the number of different traumatic events experienced ($r = 0.40$, $p < .001$) and frequencies of total ($r = 0.43$, $p < .001$), interpersonal ($r = 0.44$, $p < .001$), sexual ($r = 0.28$, $p < .01$), and multiple ($r = 0.32$, $p < .01$) traumatic events.

3.4. Impact of postmigration stressors and comorbid symptoms

In the logistic regression analysis, patients with cPTSD differed from patients without cPTSD regarding asylum status, living situation, employment, financial situation and PMLD sumscore, $\chi^2(8) = 15.78$, $p = .04$ (as compared to the null model, see Table 3). However, none of the individual variables were significant predictors. The linear regression model examining the relationship between cPTSD symptom severity and post-migration stressors was significant, $F(8,64) = 2.36$, $p = .02$. The patient's perception of the financial situation was a significant predictor ($\beta = -2.5$ $p = .002$) indicating that for each step up in the perception of the financial situation, cPTSD severity is expected to decrease by 2.5 points.

Table 3. Logistic regression analyses predicting cPTSD diagnostic status.

Variables	χ^2(df)	*Estimate*	*SE*	*Z*	*p*
Postmigration stressors	15.78 (8)[1]				.04*[1]
Postmigration living difficulties (PMLD)		.03	.02	1.4	1.5
Secure Asylum Status		.86	.92	.93	.34
Living Situation with family/Friends		21.98	6522.63	.00	.99
Living Situation (own flat)		.85	1.6	.53	.59
Living Situation (community accommodation)		−.93	1.55	−.60	.54
Living Situation (other)		−16.51	2582.27	−.00	.99
Being employed		.30	.81	.37	.70
Financial Situation		−.77	.46	−1.6	.09
Comorbid Symptoms	12.85 (5)[1]				.02*[1]
Somatoform Symptoms (GHQ)		−.04	.11	−.36	.71
Anxiety and Insomnia[2] (GHQ)		NA	NA	NA	NA
Social Dysfunction (GHQ)		.20	.13	1.53	.12
Depression (GHQ)		.13	.10	1.29	.19
Dissociation (ADES-8)		.17	.18	.93	.34
Sleep Disorders (PSQI)		.00	.00	.12	.89

Note: [1]Compared to the null-model.
[2]There are no estimates for anxiety and insomnia due to perfect multicollinearity between Somatoform symptoms and symptoms of anxiety and insomnia.
*p<.05, **p<.01, ***p<.001.

Table 4. Linear regression analyses predicting cPTSD symptom severity.

Variables	R^2(adjusted)	F-statistic	*B*	*SE* B	*t*-value	*p*
Postmigration stressors	.22 (.13)	2.36				.02*
Postmigration living difficulties (PMLD)			.03	.05	.61	.54
Secure Asylum Status			1.88	1.83	1.03	.30
Living Situation with family/Friends			7.03	7.75	.90	.36
Living Situation (own flat)			−4.7	4.26	−1.1	.27
Living Situation (community accommodation)			−5.1	4.1	−1.2	.22
Living Situation (other)			−5.8	5.0	−1.1	.25
Being employed			−.39	1.6	−.23	.81
Financial Situation			−2.58	.82	−3.1	.002**
Comorbid Symptoms	.25 (.19)	4.67				.0009***
Somatoform Symptoms (GHQ)			−.12	.20	−.61	.54
Anxiety and Insomnia[1] (GHQ)			NA	NA	NA	NA
Social Dysfunction (GHQ)			.30	.22	1.35	.17
Depression (GHQ)			.36	.16	2.14	.03*
Dissociation (ADES-8)			.50	.34	1.46	.14
Sleep Disorders (PSQI)			−.00	.00	−.45	.64

Note: [1] There are no estimates for anxiety and insomnia due to perfect multicollinearity between somatoform symptoms and symptoms of anxiety and insomnia.
*p<.05, **p<.01, ***p<.001.

The logistic regression model to predict the diagnostic status of cPTSD based on the predictors of comorbid symptom severity (i.e. dissociation, sleep problems, somatic symptoms, anxiety, depression, social impairment, depression) was significantly better than the null model as indicated by the chi-squared test, $\chi^2(5) = 12.85$, $p = .02$. However, there was no significant predictor (see Table 3). The linear regression model testing the association between cPTSD symptom severity and comorbid symptom severity was significant, $F(5,69) = 4.67$, $p < .001$. In particular, we found depressive symptoms to be significantly associated with cPTSD ($\beta = 0.36$, $p = .03$), indicating that higher levels of depressive symptoms are associated with higher cPTSD symptom severity. Other comorbid symptoms were not significantly associated with cPTSD (see Table 4).

4. Discussion

The aim of this study was to investigate clinician-rated prevalences, symptom severity, and individual symptom expression of cPTSD and $PTSD_{ICD\text{-}11}$ in a treatment-seeking refugee sample. We also investigated the role of specific risk factors for cPTSD-diagnostic status and symptom severity, namely trauma history, post-migration stressors and comorbid symptoms.

We found clinician-rated prevalences of 14.42% and 63.46% for cPTSD and $PTSD_{ICD\text{-}11}$, respectively. Accordingly, the cPTSD prevalence in our sample was considerably lower than the pooled probable prevalence of 57.4% in treatment-seeking samples reported in the systematic review on prevalences in refugees by Lechner-Meichsner et al. (2024). However, there was great variability in the populations included in that review. In contrast, $PTSD_{ICD\text{-}11}$ prevalence in our sample exceeded that in the same review (29.8%; Lechner-Meichsner et al., 2024). This could be due to the methodology used to assess cPTSD and $PTSD_{ICD\text{-}11}$. Most studies to date used self-report questionnaires (e.g. ITQ; Cloitre et al., 2018) and were therefore only able to estimate probable prevalences (Maercker et al., 2022). The ITQ differs from the COPISAC interview used here. First, the ITQ allows participants to independently select their worst trauma, whereas COPISAC involves clinician guidance – a critical distinction when avoidance (a key symptom in our sample) may influence self-reported data in other ways than those gathered by an interviewer. Patients might be reluctant to select the worst trauma due to avoidance and rather select a less distressing traumatic event which could influence symptom endorsement. This is especially relevant in refugee populations, where cultural narratives around trauma disclosure may influence what participants are willing to disclose (Bäärnhielm & Mösko, 2015). Further, the ITQ captures symptom distress in the past month, while the CAPS-5 and COPISAC include frequency, detailed descriptions (e.g. the nature of nightmares), and symptom-context alignment. Finally, the criteria for disturbed relationships differ between the instruments: in the ITQ, a rating of 2 or higher on just one of two items is sufficient, whereas COPISAC requires both difficulties in sustaining relationships and in feeling close to others to be present. The ICD-11 criteria require both difficulties in sustaining close relationships and in feeling close to others (WHO, 2019) which is thus represented in the COPISAC scoring. The one study directly comparing the prevalences of PTSD and cPTSD as assessed by the clinician-administered ITI vs. the self-report ITQ also found consistently higher endorsements in self-reported symptoms as compared to clinician-rated symptoms (Gelezelyte et al., 2022). These differences were attributed to results by Kramer et al. (2023) who found that reminders of timeframe, comprehension of items or trauma-related attribution errors play a role in differences in self- vs. clinician rated PTSD symptoms.

Considering that the prevalence of cPTSD in this sample is lower than reported in recent systematic reviews, it is not surprising that the prevalence of $PTSD_{ICD\text{-}11}$ is higher. Because a patient cannot receive a diagnosis of both cPTSD and $PTSD_{ICD\text{-}11}$, a lower number of individuals meeting cPTSD criteria likely contributes to a higher prevalence of $PTSD_{ICD\text{-}11}$. For the clinical trial we also specifically recruited patients with $PTSD_{DSM\text{-}5}$. The mean symptom severity for cPTSD was 17.35 on a possible range of 0–40. The mean symptom severity for $PTSD_{ICD\text{-}11}$ was 11.68 on a possible range of 0–24. Accordingly, participants fall in the medium range of symptom severity of the disorders.

Notably, the most frequently endorsed DSO symptom was ‘difficulty feeling close to others’, and for $PTSD_{ICD\text{-}11}$ it was ‘avoidance of thoughts and feelings’. This is relevant because studies have shown that social disconnection is a risk factor for long-term poorer mental health in refugees (Berthold et al., 2019). One must note, that in some cultures, avoidance is not only common but associated with less distress than in other cultures (Yoon et al., 2024). This may have complicated the interview process, as clinician-administered assessments require revisiting traumatic events that participants may prefer to avoid. It has been suggested that different discourses about whether or when to talk about trauma can impact refugee mental health assessments (Bäärnhielm & Mösko, 2015). These factors may have led to either increased discomfort, abbreviated answers, or underreporting of cPTSD symptoms during interviews. While this interpretation remains cautious and somewhat speculative, it aligns with prior evidence suggesting cultural avoidance norms can

influence diagnostic processes (Hinton & Lewis-Fernández, 2011; McCall & Resick, 2003).

The substantial trauma exposure in our sample aligns with findings from other studies on the trauma load experienced by refugees (Nickerson et al., 2021). There were no differences in participants with and without cPTSD regarding number and frequency of traumatic events. This is in line with the findings of one study using a self-report assessment on an Isreali sample (Ben-Ezra et al., 2018), but contradicts those of a recent meta-analysis including both clinician and self-report assessments (Leiva-Bianchi et al., 2023) and another study on an Irish sample using self-reports (Mc Ginty et al., 2023). However, cPTSD symptom severity was positively associated with the number of different traumatic events, as well as the frequency of all traumatic events and sexual, interpersonal and multiple traumatic events. This is in line with the findings of a systematic review by Lechner-Meichsner et al. (2024). Therefore, the non-significant results in differences in traumatic events between participants with and without cPTSD could be due to the small sample size. The power of these analyses is rooted in the respective smaller group, and the number of patients with a cPTSD diagnosis was low in our sample. Another possible explanation for the lack of observed differences is the generally high trauma load in this sample (i.e. a ceiling effect). On average, participants reported experiencing 6.21 different traumatic events meeting the A-criterion, and the majority met the criteria for $PTSD_{ICD\text{-}11}$.

Post-migration stressors predicted cPTSD diagnostic status and symptom severity. This is in line with prior research identifying post-migration stressors as important risk factors for both self- and interviewer-rated cPTSD and $PTSD_{ICD\text{-}11}$ in refugee populations (Ipekci, 2023; Lechner-Meichsner et al., 2024; Mellor et al., 2021). The perception of the financial situation was a significant predictor in the linear regression model predicting cPTSD severity. It is unclear whether more severe cPTSD symptoms lead to a more negative view on the financial situation or make it harder to work and thus earn a living, or if a more precarious financial situation worsens cPTSD-symptoms. However, the sum of the PMLD was not a significant predictor in our regression models which contradicts prior research. Several contextual and methodological factors may help explain this discrepancy. First, the average time since arrival in Germany in our sample was approximately five years, therefore some post-migration stressors might not be as influential any more as they had been shortly after arrival. For example, one study found that loneliness stayed a stable predictor for PTSD severity over time, while the influence of economic stressors tended to decline (Wu et al., 2021). Another study also found that the PTSD severity decreased with every additional month spent in the host country (Barbieri et al., 2019). Additionally, an inclusion criterion for the clinical trial required participants to remain in the study location for at least six months, which likely selected individuals with greater residential security and lower levels of legal uncertainty. Indeed, 43.2% of participants had a secure residence status. In previous studies, specific associations between insecure legal status and (c)PTSD severity were observed (e.g. Schiess-Jokanovic et al., 2021). It is also possible that post-migration stressors play a more complex or indirect role in psychological outcomes. For instance, they may moderate or mediate the relationship between trauma exposure and symptom severity, or exert delayed effects not captured in cross-sectional analyses. Moreover, using a single sum score for post-migration stressors may oversimplify this heterogeneity – certain domains (e.g. loneliness) might be more predictive of mental health outcomes than others (Wu et al., 2021). These nuanced patterns may have been obscured in our aggregated approach. Future research should consider disaggregating PMLD scores by domain to examine which stressors are most salient at different stages of resettlement. Similarly, it is also likely that the post-migration stressors entered as precitors in our model (PMLD sumscore, asylum status, living situation, employment, financial situation), co-occur and interact. This can lead to shared variance which makes it difficult to disentangle stressors' individual contributions. These limitations notwithstanding, the results highlight the importance of considering the cumulative impact of postmigration stressors on mental health.

Comorbid symptoms predicted both cPTSD diagnostic status and symptom severity. Depressive symptoms were significantly associated with cPTSD symptom severity. This is in line with previous studies stating that cPTSD is a highly comorbid disorder and depression is frequently comorbid to cPTSD (Ho et al., 2024; Lechner-Meichsner et al., 2024; Leiva-Bianchi et al., 2023). The present study cannot determine whether increased depressive symptoms contribute to greater cPTSD severity or vice versa, as both possibilities are theoretically plausible. CPTSD may exacerbate depressive symptoms through difficulties in emotion regulation (Nickerson et al., 2015), which could heighten feelings of dejection. A systematic meta-analysis has found limited emotion regulation abilities in patients with depression (Visted et al., 2018). Similarly, a negative self-concept may intensify feelings of worthlessness (Sowislo & Orth, 2013), while difficulties feeling close to others and high avoidance could lead to social withdrawal (Yuan et al., 2022), thereby resulting in a loss of reinforcement (Lewinsohn & Graf, 1973) and further worsening both cPTSD and depressive symptoms in a vicious cycle. A network

analysis found strong associations between depressive symptoms accompanied by interpersonal impairment and DSO symptoms (Lin et al., 2025). However, these dynamics could also operate in the opposite direction. Furthermore, in the network analysis of cPTSD and depressive symptoms, the DSO- and depression cluster were distinct yet there were stronger connections between the DSO- and depressive symptom cluster than between PTSD and depression symptoms (Lin et al., 2025). There, *sadness, low mood, detachment and isolation, feelings of failure*, and *avoidance* were bridge symptoms between cPTSD and depression. While this sample was not comprised of refugees, one can assume that, e.g. detachment and isolation might be a domain that plays an important role especially in refugees (Nguyen et al., 2024) due to acculturation stress, separation from community networks, and disrupted cultural identity (Berthold et al., 2019). A third potential explanation for the observed association is methodological: There may be partial content overlap between items used to assess depression and DSO symptoms. The symptom of worthlessness is assessed in both the GHQ and the COPISAC. This overlap may artificially inflate associations between the constructs and should be considered when interpreting the strength of their relationship. Future studies may benefit from using non-overlapping instruments or applying statistical controls to account for item redundancy.

4.1. Strengths and limitations

This study has some limitations and strengths that need to be considered when interpreting the results. We studied a culturally diverse sample, which may have influenced the assessment of cPTSD due to potential differences in exposure to traumatic events, symptom expression, reporting styles, and cultural interpretations of distress. On the other hand, the sample size was relatively small which means that the power for some analyses was limited. Due to the cross-sectional nature of the study we cannot determine causal relationships, e.g. between depressive and cPTSD symptoms. Also, we only included refugees seeking treatment for PTSD in the study and consequently, our results cannot be generalized to all refugees. While we relied on the gold-standard in the assessment for PTSD, our measures were not culturally adapted. It is therefore possible that our assessments missed symptoms or expressions of distress that are relevant to some of the cultural groups included. Relatedly, the role of the interpreter might have influenced the results of our study. Self-report questionnaires were available in Farsi and Arabic and were thus identical for the majority of participants. In our interpreter-assisted clinical interview there might be slight differences in translations that could have introduced variability and thus also explain the relatively low internal consistencies. Moreover, the $PTSD_{ICD\text{-}11}$ construct is defined by three distinct symptom clusters (i.e. re-experiencing, avoidance, sense of threat). Because these clusters are conceptually diverse, a high Cronbach's α is not necessarily expected or required; a moderate α may simply reflect the intended heterogeneity of the construct. This is in line with the German validation of the ITI, where the PTSD items showed a lower internal consistency than the DSO items (Bachem et al., 2024). The four DSO-items might tap a more homogeneous domain of self-organization difficulties. Two other validation studies of the ITI used composite reliability scores instead of Cronbach's α to reflect the difficulties posed by the small number of items and heterogenous constructs (Bondjers et al., 2019; Gelezelyte et al., 2022). A major strength is that we used a clinical interview to assess cPTSD and $PTSD_{ICD\text{-}11}$ diagnostic status and symptom severity, because clinical interviews tend to be favorable in the diagnostic assessment (Kramer et al., 2023). Taken together, recruitment and diagnostic assessment was associated with great effort. This makes the data particularly valuable.

4.2. Implications

This study strengthens the evidence that cPTSD and $PTSD_{ICD\text{-}11}$ represent important mental health concerns in refugees. Routine screening for both disorders should be implemented in all refugees, not only those that actively seek treatment, to ensure early identification and intervention. This is especially important since refugees often face barriers in accessing health care such as language difficulties or stigma (Satinsky et al., 2019).

Given the discrepancies between prevalence estimates derived from self-report questionnaires and those based on clinical interviews, future research should prioritize the comparison and differential indication for the use of clinician-administered interviews in comparison to self-report questionnaires. Interviews might provide richer contextual information, allow for clarification of item content, and facilitate a more nuanced symptom evaluation (Kramer et al., 2023) – factors that may be particularly important in culturally diverse and trauma-exposed populations such as refugees. On the other side, self-report questionnaires are more time-efficient ways to assess this symptomatology. To improve comparability and interpretability, future studies should directly compare assessment modalities and investigate which instruments best capture prevalence, symptom severity, and treatment outcomes. Such research could also help reduce diagnostic uncertainty in clinical practice and lower barriers to treatment by increasing

practitioners' confidence in identifying and addressing cPTSD and $PTSD_{ICD\text{-}11}$. This is particularly important in refugee-serving contexts, where clinicians may face added complexity due to language differences, cultural idioms of distress, and systemic barriers (Satinsky et al., 2019).

Longitudinal studies are needed to examine whether specific risk factors vary in importance over different time points following arrival in the host country. For instance, some post-migration stressors, like the access to healthcare, may be particularly influential shortly after arrival but tend to decrease in significance over time, while others like discrimination or separation from one's family may remain more stable or even increase in their impact (Wu et al., 2021). Conversely, comorbid symptoms might increase as time passes if cPTSD or PTSD remains untreated. Understanding the evolving relationship between comorbid symptoms and cPTSD/PTSD over time is crucial for accurate diagnosis and effective treatment planning.

To conclude, cPTSD and $PTSD_{ICD\text{-}11}$ should be assessed and treated in refugees early upon arrival in the host country. Risk factors for cPTSD in refugees might play differential roles depending on the time since arrival in the host country. Longitudinal studies are needed to assess these complex interactions.

Note

1. The 'number of traumatic events' refers to the number of different traumatic events regardless of how often a person experienced a specific traumatic event. When using the term 'frequency of traumatic events', information on how often an event was experienced is also included.

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Author contributions

Regina Steil: conceptualization, data curation, funding acquisition, methodology, supervision, writing – review and editing; Hannah Preiss (nee Schumm): data curation, investigation, writing – original draft; Mirjam Sophie Rueger: data curation, formal analysis, methodology, project administration, writing – original draft; Thomas Ehring: funding acquisition, supervision, writing – review & editing; Nexhmedin Morina: funding acquisition, supervision, writing – review & editing; Sascha Kuck: investigation, writing – review & editing; Ricarda Mewes: writing – review & editing; Julia Giesebrecht: investigation, writing – review & editing; Johannes Johow: data curation, formal analysis, writing – review & editing; Cornelia Weise: writing – review & editing; Michael Wittenberg: data curation, formal analysis, writing – review & editing; Franziska Lechner-Meichsner: conceptualization, data curation, methodology, supervision, project administration, writing – review and editing.

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Data availability statement

Due to the sensitive nature of the questions asked in this study, study participants were assured raw data would remain confidential and would not be shared.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work the authors used ChatGPT 4o in order to improve readability and language. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

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