



universität
wien

DISSERTATION / DOCTORAL THESIS

Titel der Dissertation / Title of the Doctoral Thesis

„The association of complex PTSD and post-migration
living difficulties in asylum seekers and refugees”

verfasst von / submitted by

Mag. Jennifer Schieß-Jokanović

angestrebter akademischer Grad / in partial fulfilment of the requirements for the degree of
Doktorin der Philosophie (Dr. phil.)

Wien, 2023/ Vienna, 2023

Studienkennzahl lt. Studienblatt /
degree programme code as it appears on the
student record sheet:

UA 792 298

Dissertationsgebiet lt. Studienblatt /
field of study as it appears on the student record
sheet:

Doktoratsstudium der Philosophie UG2002
(Dissertationsgebiet: Psychologie)

Betreut von / Supervisor:

Univ.-Prof. Dr. Brigitte Lueger-Schuster

Doctoral thesis

The association of complex PTSD and post-migration living difficulties in
asylum seekers and refugees

Mag. Jennifer Schieß-Jokanović

Faculty of Psychology, University of Vienna

Faculty of Psychology, Department of Clinical and Health Psychology,
University of Vienna, Wächtergasse 1, 1010 Vienna, Austria

E-Mail: jennifer.schiess-jokanovic@univie.ac.at

Supervisor: Univ.-Prof. Dr. Brigitte Lueger-Schuster

Danksagung

Mit großer Freude und unendlicher Dankbarkeit schließe ich meine Dissertation ab und möchte diesen besonderen Moment nutzen, um meinen aufrichtigen Dank auszusprechen. Auf meinem Weg hatte ich das Glück, von wunderbaren Menschen begleitet zu werden, die mir zur Seite standen, mich inspirierten und meine persönliche und berufliche Entwicklung förderten. Ohne eure Unterstützung und wertvollen Beiträge wäre diese Dissertation nicht möglich gewesen.

Von ganzem Herzen möchte ich meiner Betreuerin, Brigitte Lueger-Schuster, meinen aufrichtigen Dank aussprechen. Ihre verlässliche Supervision und konstruktive Kritik erwiesen sich in den letzten Jahren als unverzichtbar und halfen mir dabei, meine Gedanken in geordnete Bahnen zu lenken und den Manuskripten eine klare Struktur zu verleihen. Durch die von ihr gesetzten Meilensteine, Deadlines und ihre Geduld wurde ich kontinuierlich angespornt, Fortschritte zu erzielen, um letztendlich diese Dissertation vorlegen zu können.

Mit aufrichtiger Dankbarkeit möchte ich Matthias Knefel für seine wertvolle Unterstützung und inspirierende Zusammenarbeit danken. Durch seine Expertise, zahlreiche Ratschläge und spannende Gedanken konnte ich wissenschaftliche Herausforderungen bewältigen und neue Perspektiven gewinnen. Seine Leidenschaft für die Wissenschaft, seine ruhige Art und sein Humor sorgten für eine angenehme Atmosphäre und trugen dazu bei, mich zu motivieren.

Ein weiterer Dank gilt dem gesamten Team der PIAAS-Studie und allen weiteren Kollegen und Kolleginnen mit denen ich in den letzten Jahren zusammenarbeiten durfte, besonders Christine Gössling-Steirer, Alexander Haselgruber, Viktoria Kantor, Veronika Lubert, Doris Rittmannsberger, Katharina Sölva, Lucia Verginer, Dina Weindl und Irina Zrnic.

Wertvolle Gespräche und konstruktives Feedback, besonders jedoch Momente der Leichtigkeit und des gemeinsamen Lachens bereicherten, unterstützten und machten die Zeiten der Unsicherheit und sozialen Distanzierung erträglicher.

Ein besonderer Dank gebührt den Sprachmittlern, Fazel Rahmann, Malalai Stanikzai, Yama Heidary und Naweed Rassoly. Ihre engagierte Arbeit, Erfahrung und ihre Fähigkeit, als Brücke zwischen den Sprachen zu fungieren, ermöglichten mir Einblicke in die Lebenswelt von Menschen aus Afghanistan.

Unermüdliche Unterstützung und Ermutigung meiner Familie und meiner Freunde haben mich durch alle Höhen und Tiefen dieser Dissertation getragen. Ihr wart stets an meiner Seite, habt mir in herausfordernden Momenten Mut zugesprochen und Erfolge mit mir gefeiert. Speziell bedanken möchte ich mich bei meinem langjährigen Partner und Lebensmenschen, Daniel Jokanovic, der mir mit seiner Liebe und Zuversicht stets den Rücken stärkte. Meine tiefe Dankbarkeit gilt meiner Mutter, Josefina Gomez Schieß und meiner Schwester, Fabiola Schieß. Ohne sie wäre ich heute nicht die Person, die ich geworden bin. Es bereichert täglich mein Leben von so starken und wundervollen Menschen umgeben zu sein.

Nicht zuletzt möchte ich allen Teilnehmer:innen der PIAAS-Studie meinen aufrichtigen Dank aussprechen. Durch ihre Teilnahme haben sie dieses Projekt erst möglich gemacht und einen wertvollen Beitrag geleistet. Ihre geteilten Erfahrungen haben ein tiefergehendes Verständnis für die Folgen von Trauma und das tägliche Leben von Menschen aus Afghanistan in Österreich ermöglicht. Ihre Lebenserfahrungen haben mich berührt, und ihre Stärke hat mich zutiefst beeindruckt. Ich wünsche ihnen allen alles Gute auf ihrem weiteren Weg.

Abstract

Over 100 million individuals globally were displaced by armed conflict and human rights violations, with Afghans representing one of the largest refugee populations over several decades. Increased vulnerability to trauma exposure and encountering a multitude of post-migration living difficulties in the host country were associated with an increased prevalence of complex posttraumatic stress disorder (CPTSD). Despite growing awareness of the importance of post-migration living difficulties and their potential influence on the development and maintenance of CPTSD, there has been insufficient research specifically addressing this relationship.

The central aim of this doctoral thesis was to conduct a more in-depth investigation of the underlying dynamics of the relationship between CPTSD and post-migration living difficulties. Using a multimethod approach, we identified risk groups for increased exposure to specific forms of post-migration living difficulties, analysed the intercorrelations of individual components of both constructs, and examined the significance of CPTSD on the subjective experience of and coping with post-migration living difficulties.

The main results point to the importance of post-migration living difficulties associated with the foreign language of the host country. Although both identified homogeneous subgroups with heterogeneous profiles of CPTSD symptoms showed high exposure to various post-migration living difficulties, the 'CPTSD' cluster indicated significantly more difficulties due to language acquisition and resulting language barriers compared to the 'PTSD' cluster. A deeper examination of this association, revealed the link to the symptom cluster *re-experiencing*. Affective dysregulation was the most central factor across both constructs, exerting the subjective experience of and coping with post-migration living difficulties. Numerous differences in the use of coping strategies were found in individuals

with and without CPTSD. Notably, individuals with CPTSD reported a less frequent use of active coping strategies or positive self-verbalisation.

The current doctoral thesis provides initial insights into the relationship between post-migration living difficulties and CPTSD. First practical implications indicate numerous possibilities of incorporating post-migration living difficulties in the conceptualisation of psychological therapy and other forms of interventions for asylum seekers and refugees suffering from CPTSD. To reduce mental health problems and enhance overall quality of life, implementing targeted interventions that focus on promoting language acquisition and fostering adaptive coping strategies could be particularly promising. Additionally, further interventions to reduce language barriers would be urgently needed.

Keywords: complex posttraumatic stress disorder (CPTSD), post-migration living difficulties, refugees, trauma

Zusammenfassung

Über 100 Millionen Menschen befinden sich weltweit aufgrund von bewaffneten Konflikten und Verletzungen der Menschenrechte auf der Flucht, dabei stellen Afghanen seit Jahrzehnten eine der größten Flüchtlingspopulationen dar. Eine erhöhte Vulnerabilität für Traumaexposition und die Konfrontation mit einer Vielzahl von Postmigrationsstressoren im Aufnahmeland gehen mit einer erhöhten Prävalenz der komplexen posttraumatischen Belastungsstörung (KPTBS) einher. Trotz des wachsenden Bewusstseins für die Bedeutung von Postmigrationsstressoren und deren potenziellen Einfluss auf die Entwicklung und Aufrechterhaltung der komplexen PTBS gibt es bisher unzureichende Forschung, welche sich speziell mit diesem Zusammenhang befasst.

Das zentrale Ziel der vorliegenden Dissertation war eine tiefergehende Untersuchung der zugrundeliegenden Dynamik des Zusammenhangs zwischen der komplexen PTBS und Postmigrationsstressoren. Mittels eines multimethodischen Ansatzes wurden Risikogruppen für eine erhöhte Belastung durch Postmigrationsstressoren identifiziert und die Interkorrelationen einzelner Komponenten beider Konstrukte wurden analysiert. Anschließend wurde die Bedeutung der komplexen PTBS auf das subjektive Erleben von und Coping mit Postmigrationsstressoren tiefergehend untersucht.

Die Haupteergebnisse verweisen auf die Bedeutung von mit der Sprache des Aufnahmelandes verbundenen Postmigrationsstressoren. Wenngleich beide identifizierte homogenen Subgruppen mit heterogenen KPTBS Symptomprofilen eine hohe Belastung durch verschiedene Postmigrationsstressoren berichteten, wies der 'KPTBS' Cluster im Vergleich zum 'PTBS' Cluster signifikant mehr Probleme im Spracherwerb und dadurch resultierende Sprachbarrieren auf. Eine nähere Betrachtung dieses Zusammenhangs, enthüllte die Verbindung zum Symptomcluster *Wiedererleben*. Affektive Dysregulation positionierte sich als zentraler Faktor über beide Konstrukte hinweg und beeinflusste das

subjektiven Erleben von und Coping mit Postmigrationsstressoren. Es wurden zahlreiche Unterschiede in der Anwendung von Copingstrategien bei Menschen mit und ohne CPTSD festgestellt. Insbesondere berichteten Personen mit CPTSD seltener aktive Copingstrategien oder positive Selbstverbalisierung.

Die vorliegende Dissertation bietet erste Einblicke in den Zusammenhang zwischen Postmigrationsstressoren und KPTBS an. Die resultierenden praktischen Implikationen verweisen auf zahlreiche Möglichkeiten zur Inklusion von Postmigrationsstressoren in die Konzeptualisierung effektiver psychologischer Behandlungsansätze sowie weiterer Interventionen für Geflüchtete mit KPTBS. Zur Reduktion psychischer Gesundheitsprobleme und zur Förderung der allgemeinen Lebensqualität, könnten gezielte Interventionen zur Förderung von Spracherwerb und adaptiver Copingstrategien, besonders vielversprechend sein. Darüber hinaus wären Interventionen zur Reduktion von Sprachbarrieren dringend erforderlich.

Schlüsselwörter: Komplexe posttraumatische Belastungsstörung, Postmigrationsstressoren, Geflüchtete, Trauma

Contents

1. Introduction.....	12
1.1 Traumatic experiences	13
1.2 Post-migration living difficulties.....	13
1.3 PTSD and CPTSD in ASR.....	15
1.4 PMLDs & Mental health.....	18
1.5 PMLDs & C/PTSD	20
2. Aims.....	23
3. Methods.....	25
3.1 Participants and procedure	25
3.2 Measures.....	26
3.3 Quantitative data	27
3.3.1 Traumatic experiences	27
3.3.2 Posttraumatic stress symptoms.....	28
3.3.3 Post-migration living difficulties.....	28
3.4 Qualitative data.....	28
3.5 Analysis	28
4. Studies.....	30
4.1 Study 1: CPTSD symptom profiles associated to different types of PMLDs	30
4.2 Study 2: The interrelations between CPTSD symptom clusters and PMLDs.....	31
4.3 Study 3: Understanding the role of CPTSD on the subjective experience of PMLDs	32

5. General Discussion	34
5.1 Aim 1: CPTSD symptom profiles in treatment-seeking ASR.....	34
5.2 Aim 2: Exploration of the underlying structure of PMLDs.....	35
5.3 Aim 3: Predictors of the homogeneous CPTSD subgroups	36
5.4 Aim 4: Complex interplay of CPTSD symptom clusters and different types of PMLDs.....	37
5.5 Aim 5: Subjective experience of PMLDs and the meaning of PTEs	39
6. Strengths	42
7. Limitations	42
8. Future directions and implications	43
9. Conclusion.....	46
References	47
Appendix: Studies for the doctoral thesis	68
Curriculum Vitae	159

1. Introduction

More than 40 years ago, Afghans began to flee conflicts and human right violations of the Khalq government and the following Soviet invasion. The Taliban take-over in 2021 led to a further increase in the world's third largest refugee population including around 2.7 million recognised refugees, and 0.3 million asylum seekers (Amnesty International, 2019; UNHCR, 2022). In Austria, Afghanistan was the most common country of origin among asylum seekers (BMI, 2022). Overall, as one of the EU member states with the most asylum applications, more than 100,000 asylum applications were registered in Austria in 2022 for the first time since the Hungarian Revolution in 1956. With the task of supporting asylum seekers and refugees (ASR) and promoting successful inclusion and integration, Austria faces numerous challenges in the sectors of health care, education and labour market (Expertenrat für Integration, 2022).

However, Afghans should receive special attention not only because of the size of this ASR population, but also due to the fact that Afghans reported significantly worse health outcomes over time in Austria compared with other ASR populations (Georges et al., 2021). Marginalisation processes of ASR subpopulations and an interdependence of origin- and country-specific conditions may be reflected in this finding (Georges et al., 2021). These include various factors, such as poverty and a low level of education in the country of origin, but also longer waiting times and a higher rejection rate of asylum applications (Eggenhofer-Rehart et al., 2018; Grochtdreis et al., 2022). A better understanding of the impact of post-migration living difficulties on mental health may reveal important intervention targets and promote the development of evidence-based strategies. Interventions to reduce psychological burden and promote quality of life of ASR in Austria are urgently needed.

1.1 Traumatic experiences

A substantial number of the arriving ASR were faced with ongoing, repeated and mostly interpersonal potentially traumatic experiences (PTEs) before and/or during flight (Alemi et al., 2014; Bogic et al., 2015; Scoglio & Salhi, 2020). Common reported PTEs included the experience of combat, torture, forced separation of a family member or witnessing murder (Alemi et al., 2014; Scoglio & Salhi, 2020). Although rarely surveyed in studies, there is the presumption that numerous ASR continue experiencing adverse events in the host country (Scoglio & Salhi, 2020). PTEs may increase vulnerability to further future stressors through indirect effects (Schweitzer et al., 2006; Steel et al., 1999). Since the outbreak of the Corona pandemic and financial crisis, socio-economic challenges and mental health problems particularly increased among ASR in Austria, who already faced instability and hardship before (Ceccon & Moscardino, 2022; Júnior et al., 2020). This may further heighten the vulnerability for migration specific stressors in ASR.

1.2 Post-migration living difficulties

ASR were confronted with a variety of post-migration living difficulties (PMLDs) after arriving in the host country, and with the challenge to get along in a new environment with a foreign language and culture (Hou et al., 2019; Hynie, 2018; Li et al., 2016; Schweitzer et al., 2006). Flight and persecution are often accompanied by violations of the core pillars that constitute the basis for successful adaptation and psychosocial stabilisation in the host country. 'The Adaptation and Development After Persecution and Trauma' (ADAPT) model postulates the importance of the five core pillars: (1) security; (2) bonds/networks, (3) justice, (4) roles and identities, and (5) existential meaning (Silove, 2013).

Unlike expected, ASR often did not adapt and the mentioned core pillars did not stabilise over time, but the psychosocial stress and harmful effects of PMLDs increased

with a longer duration of stay. Longer waiting periods for asylum decision as well as other types of persisting PMLDs made social integration more difficult with time passing. For example, an analysis of the labour market integration regarding 17.360 asylum seekers in Switzerland between 1994-2004, indicated that the likelihood of future successful integration into the labour market decreased with a longer waiting period (Hainmueller et al., 2016).

Long asylum procedures with uncertain future prospects and associated work bans, but also PMLDs such as precarious housing situations and worries about family members left behind led to emotional strain and distress (Hou et al., 2019; Hynie, 2018; Li et al., 2016; Schweitzer et al., 2006). The concept of PMLDs exceeds the outlined domain of the labour market and encompasses a multitude of stressors on an individual (e.g. worries about family members, fears of deportation), interpersonal (e.g.: communication difficulties, conflicts), social (e.g.: socio-economic conditions, discrimination) and cultural (e.g.: asylum law, culture) dimension (Droždek, 2015).

Although the term PMLD encompasses numerous heterogeneous, migration-specific stressors, associations with mental health problems have so far mostly been examined using checklist-based sum scores (Silove et al., 2018) or individual PMLDs (Liddell et al., 2019). These findings lack the necessary information to gain a comprehensive understanding of the connections between different types of PMLDs and mental health problems. Consequently, specific implications for interventions cannot be derived from these findings (Mootoo et al., 2019). More in-depth investigations that consider different types of PMLDs would be necessary to provide more differentiated insights into the relationship between PMLDs and mental health problems. Therefore, there have been a few individual attempts to summarise the high number of PMLDs into superior factors, which illustrates the underlying structure of the patterns of correlations within PMLDs. Partially overlapping

results were observed, for example asylum procedure and family concerns were identified as superior factors in all studies (Haumeder et al., 2019; Laban et al., 2005; Silove et al., 1998). Numerous studies pointed out that the harmful impact of PMLDs exceeded beyond the impact of PTEs experienced in the country of origin or during flight, and were associated with various health problems (Hou et al., 2019; Hynie, 2018; Li et al., 2016; Schweitzer et al., 2006; Silove, 2013). Despite the recognised importance, limited evidence exists regarding the relationships between different types of PMLDs and mental disorders specifically associated with stress, such as CPTSD.

1.3 PTSD and CPTSD in ASR

In addition to the increased risk of developing depression or anxiety disorders (Henkelmann et al., 2020; Turrini et al., 2017), the high prevalence rates of PTEs in ASR unsurprisingly resulted in strongly increased prevalence rates of PTSD and CPTSD (Henkelmann et al., 2020; Silva et al., 2021; Turrini et al., 2017).

The PTSD diagnosis as the most established disorder specifically associated with stress and was more narrowly formulated in the ICD-11 compared to the DSM-5 diagnosis, omitting for example unspecific symptoms, such as concentration problems (American Psychiatric Association, 2013; World Health Organization, 2019). The broader definition in the DSM-5 had brought with it numerous shortcomings such as a high degree of overlap with other disorders, and a highly heterogeneous group of individuals within this diagnosis. The calculation of several possible symptom variations of PTSD resulted in 636.120 combinations (Brewin et al., 2017; Galatzer-Levy & Bryant, 2013). In order to reduce the high heterogeneity within this diagnosis, the ICD-11 PTSD diagnosis now consists of only three characteristic symptom clusters associated to PTSD, namely re-experiencing, avoidance, and sense of current threat (World Health Organization, 2019).

Based on Herman's (1992) delineation of the complex consequences of traumatic experiences, a sister diagnosis to PTSD, the complex posttraumatic stress disorder (CPTSD) was introduced in the ICD-11. This diagnosis replaced the ICD-10 diagnosis "Enduring personality change after catastrophic experience" (EPCACE; World Health Organization, 2019), and the "Disorders of Extreme Stress Not Otherwise Specified" (DESNOS) included in the appendix to DSM-IV (American Psychiatric Association, 2000). The diagnosis of CPTSD requires meeting the three symptom clusters of PTSD, along with three additional symptom clusters associated to disturbances in self-organisation (DSO) and functional impairment. The DSO symptom clusters include, affective dysregulation, negative self-concept, and difficulties in relationships (World Health Organization, 2019).

Compared to the prevalence rates of an epidemiological study from Germany (Maercker et al., 2018), ASR were at least twice as likely to suffer from CPTSD or PTSD as the general population (Bogic et al., 2015; Giacco & Priebe, 2018; Scoglio & Salhi, 2020). A systematic review recorded a prevalence of 29-39% for PTSD in the general ASR population in high-income countries (Henkelmann et al., 2020). Due to the paucity of studies of CPTSD to date, an estimate of the prevalence of CPTSD is not yet sufficiently certain; an initial systematic review calculated a prevalence of 2.2-9.3% in ASR populations. Similar to other mental disorders, CPTSD (16-38%) showed strongly increased prevalence in treatment-seeking samples compared to the general ASR population, which was even more frequent than PTSD in most studies (Silva et al., 2021). Similar to PMLDs, the PTSD symptomatology did not decrease over time in all individuals. Only a few studies indicated a decrease in symptomatology (Mollica, 2001); several studies showed an increase (Laban et al., 2005; Li et al., 2016) or no changes (Cooper et al., 2019; Kaltenbach et al., 2018; Mahmood et al., 2022) over time.

A growing number of studies investigated various PTSD and CPTSD symptom profiles in traumatised individuals to examine the validity of the diagnosis and the individual characteristics of the homogeneous subgroups (Brewin et al., 2017). The most common findings were the identification of three or four homogeneous subgroups with heterogeneous symptom profiles. These studies referred to subgroups of traumatised individuals suffering from CPTSD, PTSD, and low levels of symptoms and confirmed cross-cultural validity (Hyland et al., 2018). Additionally, Liddell et al. (2019) identified a subgroup with increased affective dysregulation. Lower numbers of subgroups have rarely been reported (Barbieri et al., 2019; Palic et al., 2016).

Parallel to the examination of the validity of the PTSD and CPTSD diagnosis for ASR, the ontology of mental disorders has been discussed in the field of psychopathology for several years. The question of whether mental disorders are the consequence of a common cause or arise from the interaction of individual symptoms has been explored in recent years. For example, the network approach has provided valuable insights into the complex interplay of individual symptoms in PTSD (Birkeland et al., 2020) and CPTSD (Knefel et al., 2019; Knefel et al., 2020b), with the former re-experiencing and the latter feelings of worthlessness as most central symptoms (Birkeland et al., 2020; Knefel et al., 2019). This approach significantly enhances our understanding of the development and persistence of PTSD and CPTSD, sheds light on comorbidities, and identified relevant treatment targets (McNally, 2021). Hybrid models integrated both theoretical approaches (Fried & Cramer, 2017). These hybrid models assume that PTEs or PMLDs operate as a common cause provoking symptoms, which in turn can lead to further symptoms resulting in a self-perpetuating network (Fried & Cramer, 2017; Fried et al., 2018; McNally, 2021). For example, nightmares were associated to increased flashbacks and trauma-associated avoidance, which in turn heightened the probability of nightmares in the following

night. Such feedback loops in networks have been studied primarily for psychopathology, but may extend beyond the interplay of psychopathology and also interact with sociocultural factors and context (Droždek, 2015; Miller & Rasmussen, 2017; Yuval et al., 2020). However, there is a lack of knowledge to date on how external variables influence network structure and dynamics in psychopathology (Cramer et al., 2016; McNally, 2021; Wicki et al., 2021).

1.4 PMLDs & Mental health

For almost 20 years, research findings have pointed to the need for mental health professionals to recognise the importance of PMLDs alongside PTEs and to integrate them into treatment approaches (Bogic et al., 2015; Hou et al., 2019; Hynie, 2018; Laban et al., 2005; Li et al., 2016; Miller & Rasmussen, 2017; Schweitzer et al., 2006; Silove, 2013; Silove et al., 1997). An association between PMLDs and various mental health problems, such as depression, anxiety disorders (Laban et al., 2005; Schweitzer et al., 2006; Silove et al., 1997; Tinghög et al., 2017), somatic symptoms (Schweitzer et al., 2006), PTSD (Kaltenbach et al., 2018; Li et al., 2016; Tinghög et al., 2017) and CPTSD (Tay et al., 2018) have been reported. Consistent with the dose-response effect, higher levels of experienced PTEs and PMLDs have been associated with higher levels of mental health problems (Alemi et al., 2014; Bogic et al., 2015; Scoglio & Salhi, 2020). PMLDs have been linked directly and indirectly to mental health problems. Some studies suggested that PMLDs may act as mediators in the relationship between PTEs and mental health problems (Dangmann et al., 2021; Hou et al., 2019; Housen et al., 2019; Newnham et al., 2019; Tinghög et al., 2017).

As already mentioned, numerous studies pointed to the associations between PMLDs and mental health problems, however due to the lack of longitudinal studies, the

directionality of this relationship remains unclear. The literature describes three competing models on the nature of the relationship between PTEs/stressors and mental health problems (Keles et al., 2017). First, the stress exposure model assumes that stress causes mental health problems (Hammen, 2005). For example, experiencing language barriers can lead to increased depressive and anxiety symptoms. Second, the stress generation model, in contrast to the first model, posits that higher levels of mental health problems influence the behaviour of individuals in a manner that contributes to the increase or even generation of additional stressors (Hammen, 2005; Liu & Alloy, 2010). Third, the bidirectional model integrates both described models and assumes a mutual interplay between stressors and mental health problems (Droždek, 2015). Keles et al. (2017) examined the validity of the three models, the stress exposure model and the bidirectional model best explained the nature of the relationship depending on the type of stressor in ASR and depression. The findings of the study provided support for the stress exposure model in relation to acculturation hassles, such as perceived discrimination. However, the relationship between depression and daily stressors, such as economic hardship, were mutual and thus the bidirectional model was supported (Keles et al., 2017).

The integrative contextual model (Droždek, 2015) assumes that ASR are embedded in multiple and interconnected dimensions of a social environment. As already mentioned, PMLDs are localised on each of these dimensions along with other promoting and risk factors. In line with the hybrid model (McNally, 2021), mental health problems result as a consequence of an imbalance between promoting and risk factors localised on the different dimensions, and simultaneously act as risk factors, which in turn interact with other risk and promoting factors (Droždek, 2015). Bidirectional relationships are assumed within and between mental health problems and PMLDs; these factors and their interplay

may change over time (Blanchard & Heeren, 2020; Droždek, 2015; Neal & Neal, 2013). The interrelationships may set in motion a gain or loss spiral, such that the loss of resources is accompanied by a loss of further resources and vice versa, for example the work permit associated with the eligibility for asylum may reduce social isolation, which in turn positively influences well-being and language acquisition (Hobfoll, 2001). Some authors assume that the loss of resources may increase sensitivity to other PMLDs and daily stressors (Hammen, 2005; Hobfoll, 2001) and impair adaptive coping mechanisms (Miller & Rasmussen, 2017).

Overall, initial studies investigating the relationship between PMLDs and mental health problems of ASR indicated associations between the constructs (de Schryver et al., 2015; Jayawickreme et al., 2017; Mootoo et al., 2019). In addition to other symptoms, sleep disturbances and feelings of hopelessness revealed associations within the psychopathology cluster, as well as with daily stressors like day-to-day work or problems in dealing with strangers (Mootoo et al., 2019). To date there is little evidence on the interplay between CPTSD and PMLDs. Gaining a better understanding may be crucial to promote mental health care and enhanced quality of life for ASR with targeted interventions, which additionally may reduce health care costs. For example, Hainmueller et al. (2016) demonstrated with their model that the reduction of the length of asylum processes of only 10% (66 days) was associated with a cost saving of 5.6 million in a single year in Switzerland. Further, the reduction of PMLDs may increase the likelihood of individuals engaging in positive psychological adjustment processes and thus promote a gain spirals (Laban et al., 2005; Ungar, 2011).

1.5 PMLDs & C/PTSD

Several studies employing checklist-based sum scores, which only captured the overall severity of PMLDs or C/PTSD, have identified positive relationships of PMLDs

with PTSD (Kaltenbach et al., 2018; Li et al., 2016; Tinghög et al., 2017) and CPTSD (Hecker et al., 2018; Tay et al., 2018). Taking into account individual PMLDs, individuals with PTSD were at higher risk for various problems associated with for example language acquisition (Kartal et al., 2019; Söndergaard & Theorell, 2004), employment, and access to social and health services (Hou et al., 2019).

Qualitative studies provided deeper insights into the subjective experience of PMLDs in ASR with low and high PTSD symptomatology and identified some differences between the groups (Haumeder et al., 2019; McGregor et al., 2015). ASR with lower levels of PTSD were more likely to express feeling comfortable in their new community. They were satisfied with their housing conditions and had sufficient money for their daily needs, as well as access to health or educational services (Haumeder et al., 2019). In addition, those with lower levels of PTSD depicted a clearer sense of identity and subjective meaning in their experiences as ASR (McGregor et al., 2015). In comparison, ASR with higher levels of PTSD were less likely to report attachment to the home and host country (Haumeder et al., 2019; McGregor et al., 2015) or future plans. They suffered from higher levels of stress, relationship problems, conflict and social isolation and were more likely to use avoidance strategies in dealing with problems (Haumeder et al., 2019). Consistent with this finding, an association of maladaptive coping strategies, such as avoidance or mental rumination with PTSD were reported several times (Seguin & Roberts, 2017; Stensveghagen et al., 2022).

In some studies examining the characteristics of people with higher levels of CPTSD, conflicting results were found regarding the demographics of individuals with higher levels of CPTSD. While some studies identified no associations to demographic variables (Barbieri et al., 2019; Hyland et al., 2018), other studies reported a higher risk for females (Liddell et al., 2019), people with lower education levels or singles to belong

to the most burdened CPTSD subgroup (Perkonigg et al., 2015). A repeatedly reported risk factor to develop CPTSD were a higher exposure to PTEs (Liddell et al., 2019). Overall, ASR with CPTSD reported more comorbid mental disorders (Murphy et al., 2016), as well as PMLDs (Tay et al., 2018).

A closer examination of the association between CPTSD and PMLDs by Hecker et al. (2018) pointed out that PTEs were predominantly associated with PTSD, and PMLDs were related with DSO. Further examinations of the relationship of CPTSD and/or PTSD (C/PTSD) with PMLDs has so far only been conducted for individual PMLDs, for example a positive association was found between insecure asylum status and CPTSD (Liddell et al., 2019).

Merely establishing a general relationship between CPTSD and PMLDs (Tay et al., 2018) provides insufficient insight for a deeper understanding of the dynamics underlying the relationship between CPTSD and PMLDs. It remains uncertain whether there are specific subgroups within traumatised Afghan ASR who are particularly vulnerable to certain types of PMLDs. The specific types of PMLDs that may be associated with CPTSD, as well as the symptoms that specially influence this interaction, remain unknown, thereby impeding the identification of appropriate targets for intervention. Furthermore, there is a limited understanding of the subjective meaning and perceived consequences of PTEs on the daily lives of ASR. Differentiated insights into the complex interplay of different types of PMLDs with CPTSD are required for identifying and developing theory-driven interventions for ASR.

2. Aims

The main aim of this doctoral thesis was to gain a deeper understanding of the relationship between PMLDs and CPTSD. A more profound knowledge of this relationship should be promoted by investigating high-risk groups for increased burden caused by specific forms of PMLDs, the underlying relationships of CPTSD symptom clusters and various forms of PMLDs, as well as the subjective experience of PMLDs in ASR with and without CPTSD. The resulting extended comprehension could contribute to the development of targeted interventions aimed at reducing emotional distress and improving quality of life in ASR. Accordingly, the following objectives arise in this doctoral thesis:

- (1) To investigate homogenous subgroups of CPTSD in a treatment-seeking traumatised sample of ASR who is characterised by different symptom profiles,
- (2) To explore the underlying structure of PMLDs to identify superior factors,
- (3) To examine the associations of the CPTSD subgroups with the PMLD factors, PTEs in childhood/ adulthood and demographic variables,
- (4) To investigate the associations between CPTSD symptom clusters and distinct types of PMLDs, and
- (5) To further explore the subjective experience of and coping with PMLDs considering CPTSD and PTSD symptoms and the meaning of traumatic experiences for today's life.

An assignment of the aims to the respective papers can be found in Table 1.

Table 1. Study aims

Paper		Aims
1	Complex post-traumatic stress disorder and post-migration living difficulties in traumatised refugees and asylum seekers: the role of language acquisition and barriers	1, 2, 3
2	The boundaries between complex posttraumatic stress disorder symptom clusters and post-migration living difficulties in traumatised Afghan refugees: A network analysis	4
3	My brain freezes and I am blocked again: The subjective experience of post-migration living difficulties influenced by complex posttraumatic stress disorder	5

3. Methods

This doctoral thesis was part of a randomised controlled trial evaluating a psychological intervention for Afghan ASR, conducted between June 2019 and March 2021 (PIAAS-Study; Knefel et al., 2020a). The PIAAS-Study was prospectively registered online (DRKS00016538; UTN: U1111-1226-3285) and ethically approved by the ethics committee of the University of Vienna (reference numbers: 00356 and 00445).

3.1 Participants and procedure

Adult Afghan ASR with Dari as first language were recruited in cooperation with Non-Governmental Organisations and mental health facilities specialised on ASR in Vienna. After providing initial information by the mental health facilities, the participants were contacted by phone in case of an expression of interest and invited to the baseline assessment at the “Outpatient Unit Research, Teaching, and Practice” of the Faculty of Psychology at the University of Vienna. Prior to the baseline assessment conditions of participation were thoroughly discussed and orally and written informed consent was obtained. Subsequently, the clinical psychologist who conducted the assessment checked the inclusion and exclusion criteria.

The participants met the inclusion criteria when they reported increased psychological distress (total score ≥ 12 or Distress Scale score ≥ 5) assessed with the Refugee Health Screener (RHS-15; Hollifield et al., 2013) and sought psychological treatment in a specialised institution. The majority of the participants were already on the waiting list for psychological therapy or agreed to be put on it. The exclusion criteria were screened at the baseline assessment and comprised 1) current health conditions requiring other treatment approaches and/or interfered with participation such as severe mental health disor-

ders (e.g., substance dependence, acute suicidality, psychotic symptoms), 2) severe cognitive impairment (moderate to severe intellectual disability or dementia), and 3) ongoing trauma-focused psychological therapy. In case that predefined exclusion criteria were met, the baseline assessment was not conducted and the person was given contact addresses of appropriate institutions to ensure that the person received psychosocial support.

A sample size of 120 participants were estimated calculating a power analysis for the PIAAS-Study, expecting 25% drop-out rate and assuming an α error of .05 and a power of .80 (Knefel et al., 2020a; Knefel et al., 2022). However, due to the Corona pandemic, the planned sample size could not be reached. Thus, the quantitative data collected in the baseline assessment from a total of 93 participants was analysed in Study 1 and 2. After completion of the post-assessment, participants from the intervention group were invited for a qualitative interview. Almost all participants agreed to take part in the qualitative interview and a total sample of 24 individuals was reached for Study 3. The qualitative interviews were conducted by a clinical psychologist together with an interpreter and took place face-to-face or via telephone conference due to the COVID-19 pandemic. In order to reduce the financial burden and thus possible barriers to study participation, participants were reimbursed for travel costs. Further information of the sample characteristics for the quantitative and qualitative studies are provided in the published papers (see appendix).

3.2 Measures

In the course of the baseline assessment, the quantitative data was collected using a fully structured interview format conducted by a clinical psychologist together with an interpreter. Due to the high illiteracy rate, each individual item of the questionnaires was first read out in German and then in Dari. German and Dari versions of the Harvard

Trauma Questionnaire (HTQ; Mollica et al., 1992), the International Trauma Questionnaire (ITQ; Cloitre et al., 2018) and the Post-Migration Living Difficulties Checklist (PMLDC; Silove et al., 1997) were administered. To support illiterate participants and to better represent the graduations of the answer options, Likert scales were additionally depicted visually (Figure 1). The qualitative data was collected with a qualitative interview using a semi-structured interview guide.

Figure 1. Example item

					1P. دیدن خواب های پریشان کننده که بخشی از تجربه را نشان می دهند یا به وضوح مربوط به تجربه هستند؟ P1. Aufwühlende Träume, in denen Teile des Erlebnisses wieder passierten oder die einen klaren Bezug zu dem Erlebnis hatten.
بسیار زیاد sehr stark	زیاد ziemlich	تا حدودی mittelmäßig	کم ein bisschen	مجموعاً نه gar nicht	
☐	☐	☐	☐	☐	

3.3 Quantitative data

3.3.1 Traumatic experiences

We used an adapted version of Harvard Trauma Questionnaire (HTQ), originally developed to assess potentially traumatic experiences and validated across different ASR populations (Kleijn et al., 2001; Mollica et al., 1992). The adaptations encompassed the inclusion of items and the incorporation of a specifier for childhood or adult trauma. Participants were asked to indicate whether they had personally experienced or witnessed the 29 events (e.g. danger during flight, murder of a family member or friend).

3.3.2 Posttraumatic stress symptoms

We assessed the six symptom clusters of CPTSD and functional impairment in relation to the level of symptom distress experienced in the past month using the International Trauma Questionnaire (ITQ; Cloitre et al., 2018). The Cronbach's alpha coefficient in the PIAAS-Study was .89. For a representation of the CPTSD symptom clusters and the corresponding items, see Figure 2.

3.3.3 Post-migration living difficulties

The PMLD Checklist (PMLDC) was used to assess the multitude of PMLDs (e.g. language barriers, discrimination) in the last month in ASR (Silove et al., 1997). The Checklist was adapted for Austria and contained in its final version 26 items (Knefel et al., 2020a). For an overview of the items and adaptations, see Study 1. The Cronbach's alpha coefficient in the PIAAS-Study was .77.

3.4 Qualitative data

The qualitative interview consisted of the exploration of the subjective experience of and coping with significant experiences in Austria as well as the subjective meaning of traumatic experiences. The semi-structured interview guide comprised open questions regarding various thematic areas and a face sheet for notes on the behavioural observation. The questions relevant to Study 3 are presented in full in the appendix.

3.5 Analysis

All analytical strategies were selected in accordance with the respective study aims. Due to the Corona pandemic and the resulting smaller sample size, the planned statistical methods (Latent Class Analysis, Factor Analysis) could not be applied in Study 1. Instead, we applied a cluster analysis and a regularised factor analysis (REFA; Jung & Lee, 2011), which are particularly suitable for small samples (Jung & Lee, 2011; McNeish, 2017).

Statistical analysis was performed using R (version 4.1.0; R Core Team, 2021). The qualitative analysis for Study 3 was conducted with MAXQDA (VERBI Software, 2021). A comprehensive overview of the analytical strategies employed in each individual study can be found below or in the appendix.

4. Studies

4.1 Study 1: CPTSD symptom profiles associated to different types of PMLDs

The first study was entitled „Complex post-traumatic stress disorder and post-migration living difficulties in traumatised refugees and asylum seekers: the role of language acquisition and barriers” and was published in 2021 in the European Journal of Psychotraumatology (EJPT; IF: 5.783; Schiess-Jokanovic et al., 2021). This study addressed the lack of knowledge regarding high-risk groups of traumatised Afghan ASR for different types of PMLDs. A growing body of research has investigated homogeneous subgroups of ASR characterised by different CPTSD symptom profiles (Barbieri et al., 2019; Hyland et al., 2018; Liddell et al., 2019), and examined the high number of PMLDs to summarise them into superior factors (Haumeder et al., 2019; Laban et al., 2005; Silove et al., 1998). First evidence referred to the positive relationship between higher levels of CPTSD and higher distress due to PMLDs overall (Hecker et al., 2018; Tay et al., 2018); the specific contribution of different types of PMLDs to this relationship has not yet been explored.

This study aimed (1) to investigate homogeneous subgroups of CPTSD symptoms, (2) to determine the factor structure of PMLDs, and (3) to examine the relationship of CPTSD subgroups with distinct PMLD factors, PTEs in childhood or adulthood, and demographic variables. Data from the final sample (N = 93) regarding the symptomatology of CPTSD, PMLDs, and PTEs was collected during the baseline assessment. Therefore we used the International Trauma Questionnaire (ITQ; Cloitre et al., 2018), the PMLD checklist (PMLDC; Silove et al., 1997), and the Harvard Trauma Questionnaire (HTQ; Mollica et al., 1992). We adapted the PMLDC to capture PMLDs that are specifically relevant for ASR in Austria, additionally we included a specifier to capture PTEs before and after the age of 18 in the HTQ. With a special consideration of the small sample, the analytical strategy included (1) a cluster analysis to identify meaningful, homogenous

subgroups, (2) regularised exploratory factor analysis (REFA; Jung & Lee, 2011) to summarise the assessed PMLDs in superior factors, and (3) a multivariate analysis of variance (MANOVA) to compare the subgroups regarding the PMLDs, PTEs in childhood/adulthood, and demographic variables. Data analysis were conducted using R (R Core Team, 2021).

The present data yielded two homogeneous subgroups with distinct symptom profiles, the CPTSD Cluster and the PTSD Cluster. We summarised the PMLDs into four superior factors, which were termed (1) *discrimination & socio-economic living conditions*, (2) *language acquisition & barriers*, (3) *residence insecurity*, and (4) *family concerns*. In comparison, individuals of the CPTSD Cluster reported a higher number of PTEs in childhood and more difficulties in *language acquisition & barriers*. The results suggested that not PMLDs in general, but rather *language acquisition & barriers* as specific types of PMLDs were associated with CPTSD. Overall, a person-centred and comprehensive examination of the CPTSD symptom profiles in traumatised ASR is highly relevant to identify high-risk groups for distress associated with specific types of PMLDs and allow targeted intervention strategies to improve mental health and successful adaptation of ASR in Austria.

4.2 Study 2: The interrelations between CPTSD symptom clusters and PMLDs

The second study was entitled “The boundaries between complex posttraumatic stress disorder symptom clusters and post-migration living difficulties in traumatised Afghan refugees: a network analysis” and was published in 2022 in the journal *Conflict and Health* (IF:4.554; Schiess-Jokanovic et al., 2022). PTSD and CPTSD are among the most common mental health disorders in ASR (Henkelmann et al., 2020; Silva et al., 2021), and were related to higher levels of PMLDs (Hyland et al., 2018). While several studies have already investigated the complex interplay of PTSD (Birkeland et al., 2020) and complex PTSD (Knefel et al., 2019; Knefel et al., 2020b), there have been only a few

studies exploring the interconnections between psychopathology and external factors (de Schryver et al., 2015; Mootoo et al., 2019).

The main aim of the study was to promote a better understanding of the underlying associations between CPTSD symptom clusters and distinct types of PMLDs. In the course of the baseline assessment, the CPTSD symptoms and PMLDs were surveyed using the International Trauma Questionnaire (ITQ; Cloitre et al., 2018), and the PMLD Checklist (Silove et al., 1997). The network structure, robustness, and bridge centrality of the CPTSD symptom clusters and the PMLD factors were estimated using R (R Core Team, 2021).

Except for one isolated node (family concerns), all other CPTSD symptom clusters and PMLD factors were interconnected within and/or beyond the constructs. *Affective dysregulation*, *re-experiencing*, and *negative self-concept* were the nodes with the highest strength centrality and thus the highest expected influence. The bridge centrality indicated the strongest link between the two constructs between *re-experiencing* and *language acquisition & barriers*. This results were consistent with previous studies (de Schryver et al., 2015; Mootoo et al., 2019) delineating an interconnection between psychopathology and external factors. In conclusion, the results of Study 2 pointed to some potentially important targets for interventions on different dimensions of action.

4.3 Study 3: Understanding the role of CPTSD on the subjective experience of PMLDs

The third study was entitled “My brain freezes and I am blocked again: The subjective experience of post-migration living difficulties influenced by complex posttraumatic stress disorder” and is in press in PLOS ONE (IF: 2.740, Schiess-Jokanovic et al., 2023).

Initial studies have demonstrated associations beyond the constructs of psychopathology (e.g. depression, CPTSD) and PMLDs, pointing out distinct ways of interaction

between individual symptoms and different types of PMLDs (de Schryver et al., 2015; Jayawickreme et al., 2017; Keles et al., 2017; Mootoo et al., 2019). Nonetheless, the 'unique features' of psychological phenomena cannot be sufficiently explored using quantitative methods, the dynamic of the association remain unclear (Correia, 2017; Stanghellini & Ballerini, 2008). In Study 3, we aimed to contribute to a better understanding of the relationship between CPTSD and PMLD. Using a qualitative approach, we examined the subjective experience and coping with PMLD by Afghan ASR with/without C/PTSD, as well as the experienced consequences of potentially traumatic experiences and their meaning for their daily lives.

Therefore, we developed an interview guide and conducted semi-structured, interpreter-assisted qualitative interviews exploring the subjective experience of significant experiences in Austria (e.g. PMLDs, daily stressors). The qualitative interviews were transcribed verbatim and then analysed using content-structuring qualitative content analysis (QCA; Kuckartz & Rädiker, 2022). Additionally, the CPTSD symptoms were collected using the International Trauma Questionnaire (ITQ; Cloitre et al., 2018) at the baseline and/or the post-assessment. We assigned the participants to the C/PTSD group if the criteria for probable CPTSD or PTSD were met at least at one time point.

The study results pointed to numerous differences, but also similar themes in the subjective experience of and coping with PMLDs in individuals with or without probable CPTSD or PTSD diagnosis. Considering psychopathology and PMLDs in psychological treatments has been recommended several times (Miller & Rasmussen, 2017). A better understanding of the influence of C/PTSD on the experience and coping of PMLDs may contribute to the development of trauma-sensitive interventions for ASR with particular attention to PMLDs. In particular, consideration of the interactions between C/PTSD and PMLD and associated downward/upward spirals may be profitable.

5. General Discussion

The aim of this doctoral thesis was to examine the link between Complex PTSD and PMLDs in ASR. Each study was designed to provide a more thorough understanding of this relationship. Table 1 provides a comprehensive summary of the individual studies. This doctoral thesis focused on identifying high-risk groups for increased PMLD burden, exploring the complex interplay between symptom clusters and superior PMLD factors, and investigating the subjective experience of and coping with PMLDs among treatment-seeking ASR with and without C/PTSD diagnosis.

5.1 Aim 1: CPTSD symptom profiles in treatment-seeking ASR

In the data, two homogeneous subgroups of CPTSD with distinct symptom profiles were identified. The best-fitting model was assumed to be the 2-cluster solution, which included a *CPTSD cluster* characterised by consistently elevated symptom levels, and a *PTSD cluster* with elevated PTSD symptoms and a specific deficits in *affective dysregulation*, namely under-regulation of emotional responses. This finding is in line with Liddell et al. (2019), who found elevated scores in affective dysregulation not only in the CPTSD subgroup but also in another fourth subgroup with otherwise low to moderate scores. These findings contrast with the commonly reported identification of three to four subgroups, each characterised by a distinct symptom profile (Brewin et al., 2017). Most of these studies identified another CPTSD subgroup with consistently low symptomatology in the three-class solution (e.g. Hyland et al., 2018). To date, only few studies have identified the 2-cluster solution as the best-fitting model. First evidence points to a PTSD and a CPTSD subgroup in samples of treatment-seeking individuals (Barbieri et al., 2019; Karatzias et al., 2017). Similar to these studies, the PIAAS-Study included treatment-seeking Afghan ASR, who reported at least moderately elevated distress as an inclusion

criterion (RHS Distress Score ≥ 5 ; Hollifield et al., 2013). Long waiting periods for psychological treatment and the increased burden of Afghan ASR in Austria may be further explanations for this result (Georges et al., 2021). Overall, the results confirm the validity of CPTSD and PTSD as two separate diagnoses in Afghan ASR.

5.2 Aim 2: Exploration of the underlying structure of PMLDs

Overall, there has been limited attention given to addressing the high number of PMLDs and identifying superior factors that could provide insights into their individual relationships with psychopathology or other factors (Haumeder et al., 2019; Silove et al., 1998). The second objective of this doctoral thesis aimed to fill this research gap by identifying superior factors among the 26 types of PMLDs. Therefore, the frequency of experiencing different types of PMLDs was assessed using the adapted PMLDC (Knefel et al., 2020a; Silove et al., 1997). The four identified PMLD factors were *discrimination & socio-economic living conditions*, *language acquisition & barriers*, *family concerns*, and *residence insecurity*.

These superior factors are partially consistent with previous findings, as almost all studies conducted so far have identified the domains of family concerns (Haumeder et al., 2019; Laban et al., 2005; Silove et al., 1998) and residence insecurity (Haumeder et al., 2019; Jannesari et al., 2020; Laban et al., 2005; Silove et al., 1998). Although some studies have identified separate factors associated with poor socio-economic living conditions and discrimination (Haumeder et al., 2019; Laban et al., 2005; Malm et al., 2020), our study found that these domains loaded onto the same factor. It is worth noting that there was only one study that explicitly listed *language acquisition and barriers* as an independent domain (Haumeder et al., 2019), while Laban et al. (2005) included it as a stand-alone item. Furthermore, there were content overlaps between the "Lack of host country specific competences" scale from the recently developed PMLD questionnaire

(Malm et al., 2020) and the *language acquisition & barriers* factor identified in this thesis. The identification of superior PMLD factors serve as a starting point for a more differentiated exploration of the relationship between different types of PMLDs and CPTSD.

5.3 Aim 3: Predictors of the homogeneous CPTSD subgroups

Within the scope of the third objective of this doctoral thesis, we explored the hypothesised links between the identified homogeneous subgroups (*CPTSD*-, *PTSD cluster*) and various PMLD factors, PTEs in childhood/ adulthood and gender. The findings indicated that the *CPTSD cluster* exhibited significantly higher scores than the *PTSD cluster* in *childhood PTEs* and *language acquisition & barriers*. In the remaining domains, both subgroups exhibited comparable and elevated frequencies of experiencing different types of PMLDs or PTEs in adulthood. The finding that PTEs in childhood may be particularly associated with CPTSD is consistent with previous research, which suggests that developmental tasks (e.g. secure attachment, affect regulation) may be disrupted by such experiences (Cloitre et al., 2019; Cloitre et al., 2009; Palic et al., 2016). In line with the dose-response effect, a tendency for higher values in the *CPTSD cluster* becomes evident when taking the average values into account. This phenomenon could potentially be attributed to a heightened sensitivity to stressors (Glaser et al., 2006), resulting in an increased likelihood of experiencing PMLDs and hampered abilities to effectively cope with PTEs and PMLDs (Nickerson et al., 2015).

However, it is worth noting that only the *language acquisition & barriers* factor of PMLDs was found to be predictive of *CPTSD cluster* membership. Although there are limited studies examining language-associated PMLDs in ASR, language is an essential tool for navigating new environments and establishing social connections (Haumeder et al., 2019). Proficient language skills are crucial in facilitating the ability to address basic needs such as finding suitable housing or obtaining essential health care services

(Haumeder et al., 2019). The ability to express oneself in the language of the receiving country may reduce the risk of discrimination (Dangmann et al., 2021). A recent study revealed that the impact of PTEs on the development of PTSD and anxiety symptoms was mediated by difficulties in language acquisition (Kartal et al., 2019). We assume a bidirectional association between CPTSD and distress due to *language acquisition and barriers*. Cognitive deficits, such as decreased concentration and memory impairment, have been associated with trauma sequelae and other mental health problems (Etkin et al., 2013; Gathercole & Baddeley, 2014; Lansing et al., 2019; Samuelson, 2011). Furthermore, higher levels of re-experiencing or dissociative symptoms in a classroom setting may pose a further challenge to language acquisition, leading to a downward spiral of decreased social inclusion and support, more language barriers hindering daily life and a higher risk of experiencing discrimination, which may exacerbate mental health problems. This example illustrates just one among countless potential manifestations of the intricate relationship between the language of the receiving country and CPTSD. In general, the findings point to the importance of language acquisition and barriers for ASR with CPTSD, underscoring the need for a comprehensive analysis to identify influential CPTSD symptoms.

5.4 Aim 4: Complex interplay of CPTSD symptom clusters and different types of PMLDs

Aligned with prior research that has already demonstrated connections between environmental factors and psychopathology (de Schryver et al., 2015; Mootoo et al., 2019), the investigation of the fourth objective within this doctoral thesis has revealed links between different PMLD factors and CPTSD symptom clusters. The results yielded insights regarding the individual dynamics of the different PMLD factors with the CPTSD symptom clusters. The network displayed associations within and between the CPTSD

symptom clusters and the majority of the PMLD factors, *discrimination & socioeconomic living conditions*, *language acquisition & barriers*, and *residence insecurity*. The PMLD factor *family concerns* exhibited a divergence as it depicted no significant associations with either other PMLD factors or CPTSD symptom clusters. This unexpected result is in line with the findings of Dangmann et al. (2021), who reported that missing family members had only a minor connection to quality of life and emotional distress. Contrary to the results of Hecker et al. (2018), who found the strongest associations between PMLDs and higher levels of DSO, the strongest link between the constructs was identified between the PTSD symptom cluster of *re-experiencing* and the PMLD factor of *language acquisition & barriers*.

Initial research has already reported an association between PTSD and greater difficulty in language acquisition. Consistent with these findings, our results revealed that *affective dysregulation* mediated the relationship between *language acquisition & barriers* and *re-experiencing*. To date, the impact of CPTSD on language acquisition has been poorly studied, but first evidence indicate that PTSD might impair the ability to learn and use the language of the host country, which in turn would be a prerequisite for successful adaptation to a new environment and thus may be more challenging for ASR with PTSD (Kartal et al., 2019). One reason for this could be deficits in cognitive resources and verbal learning, which were associated with an under-regulation of intrusive memories and affective dysregulation. The under-regulation of intrusive memories may contribute to the consolidation of neural networks that become increasingly sensitive to stressful stimuli and can generalise response sensitivity to a broader range of stimuli (Lansing et al., 2019). In general, there is the presumption that individuals with low language skills experience a higher level of daily stressors that contribute to feelings of anxiety and helplessness. Moreover, these individuals may face an increased risk of encountering further

stressful experiences linked to discrimination and stigmatisation (Wicki et al., 2021), and have limited opportunities to effectively defend themselves. Avoidance could be further reinforced by such experiences.

Residency insecurity emerged as an additional factor, wherein a chronic sense of uncertainty and its association with PTSD symptoms may impede the psychosocial stabilisation and processing of past PTEs (Liddell et al., 2019; Mootoo et al., 2019). Consistent with previous evidence emphasising the importance of affective dysregulation in ASR (Koch et al., 2020; Nickerson et al., 2015), *affective dysregulation* played the most central role in the estimated network. Furthermore, *negative self-concept and difficulties in relationships* also demonstrated high centrality and demonstrated the strongest association across the network in our study. Negative self-concept has already been reported as central symptom in previous studies examining the interplay of CPTSD symptomatology (Knefel et al., 2019), and is associated with an increased risk of an unfavourable prognosis of PTSD (Bryant & Guthrie, 2007; Dunmore et al., 2001).

5.5 Aim 5: Subjective experience of PMLDs and the meaning of PTEs

The in-depth examination of subjective experience of and coping with post-migration living difficulties, a maladaptive and a less frequent use of adaptive coping strategies were reported more frequently by ASRs with suspected C/PTSD. While the more frequent use of maladaptive coping strategies is well known (Stensvehaugen et al., 2022), the results are inconsistent with the previously reported uncorrelated relationship between PTSD and adaptive coping strategies (Demir et al., 2020; Stensvehaugen et al., 2022).

Regarding cognitive responses and coping strategies in dealing with PMLDs, ASR with suspected C/PTSD more frequently reported trauma-associated, but also non-trauma-associated intrusive memories and thought avoidance (Moulds et al., 2020). Increased anxiety reactivity (Spiller et al., 2019) may contribute to increased triggering of

intrusive memories by various PMLDs and everyday situations. Additionally, a significant number of participants reported experiencing dissociative symptoms, which hindered their ability to stay grounded and engaged in various situations (e.g. language course, court hearing). Dissociative experiences are commonly observed in traumatised ASR, although not included in the ICD-11 CPTSD diagnosis (Hyland et al., 2020; World Health Organization, 2019). Furthermore, ASR with suspected C/PTSD also expressed disappointed expectations and the resulting feelings of hopelessness, helplessness, and inner resignation. Conversely, only a minority of individuals with suspected C/PTSD reported positive personal growth or development. It remains uncertain whether the lack of favourable adaptation is due to the immense emotional burden and associated functional impairment or if it might be a result of an attention bias that prevents them from recognising potential progress (Joyal et al., 2019). Consistent with previous findings, ASR with suspected C/PTSD were also more likely to report negative emotions and less likely to report positive emotions such as hope, gratitude or joy in this study (Santangelo et al., 2016).

Overall, lower emotional clarity (Doolan et al., 2017), positive self-verbalisation and self-efficacy in dealing with their own emotions (Post et al., 2021) were found in ASR with suspected C/PTSD, contributing to the already known under-regulation of emotional hyper-activation in people with CPTSD (Van Dijke et al., 2018). Interestingly, physical reactions and complaints were reported less frequently compared with cognitive, emotional, or behavioural reactions and included mostly general sleep disturbances (e.g. nightmares), which were associated with increased stress the following day and an increased risk for renewed nightmares (Garcia et al., 2021; Renner et al., 2020; Spiller et al., 2016). ASR with suspected C/PTSD reported more frequently physical weakness and pain linked to specific PMLDs (Spiller et al., 2016).

Consistent with previous evidence, the most common coping strategies at the behavioural level in both groups were seeking and accepting social support, social withdrawal and inactivity (Haumeder et al., 2019; Seguin & Roberts, 2017; Siriwardhana et al., 2014; Walther et al., 2021). However, it remained unclear whether social support was associated with feelings of connectedness and emotional relief (Seguin & Roberts, 2017), as feelings of pressure from expectations and conflicts were repeatedly reported to be associated with social support, which in turn reinforced social withdrawal. Data indicates that social withdrawal initially brings relief when coping with negative emotions and intrusive memories. Subsequently, it is linked to higher levels of psychosocial distress, depression, and rumination (Seguin & Roberts, 2017). Along with the reduced use of active, solution-focused coping strategies the reduction of PMLDs may be hindered (Weindl et al., 2018).

Overall, few subjective consequences of trauma were reported. Most responses were limited to naming physical and psychological complaints, such as sleep disturbances or intrusive memories (Aarethun et al., 2021; Choudhry et al., 2016). CPTSD or other mental health problems were accordingly mentioned only in the form of individual symptoms, but not declared as mental disorder. Only a few ASR from both groups reported an influence of past experiences in the form of behaviour patterns (e.g. low self-care, aggressive reactions). We suggest that health literacy and mentalising abilities might impact the perception and understanding of mental health problems associated to PTEs. However, the specific influence that a lack of perception regarding the consequences of PTEs has on coping with PMLDs and the utilisation of health care services remains unclear at this point.

6. Strengths

This doctoral thesis provides insights into the intricate relationship between CPTSD and PMLDs in a sample of treatment-seeking Afghan ASR in Austria. A key strength of this study is its investigation of a hard-to-reach and vulnerable subpopulation of Afghan ASR, who require effective and tailored psychological interventions that consider both, CPTSD and PMLDs. In order to ensure inclusivity, the study employed fully structured face-to-face interviews conducted by clinical psychologists and interpreters. This interpreter-assisted assessment aimed to address language barriers and facilitate the participation of individuals who were illiterate. Moreover, this approach also allowed to implement interventions to minimise psychological distress during the assessment. The multi-method approach facilitated a more profound exploration of the relationship between CPTSD and PMLDs. The person-centred approach enabled the investigation of homogeneous subgroups with distinct CPTSD profiles and its associations with different PMLD factors, to examine whether there are high-risk groups for higher distress due to certain PMLD types. The network approach further examined the complex interplay between individual CPTSD symptom clusters and PMLD factors. Additionally, the qualitative approach provided a deeper understanding of the subjective experiences of PMLDs in individuals with and without suspected C/PTSD and thus revealed further important influencing factors.

7. Limitations

This doctoral thesis were conducted during the COVID-19 pandemic, which might have exacerbated mental health problems and functional impairments among already burdened ASR (Rees & Fisher, 2020). The findings must be interpreted with caution be-

cause the pandemic-related changes in daily activities and social contacts may have affected the exposure and distress associated with various PMLDs. For example, social isolation and loneliness could have increased. Additionally, the assessment process was interrupted, and recruitment was stopped before the planned sample size could be reached. The small quantitative sample and the selection of a widely used but to date insufficiently evaluated assessment instrument for PMLDs may have reduced statistical power and increased likelihood of a Type II error. The cross-sectional design also precluded the establishment of directionality. Moreover, the studies solely included Afghan treatment-seeking ASR, thus requiring cautious interpretation of the results and limiting generalisability to ASR populations of diverse ethnic backgrounds. Finally, it is worth noting that the interpreter-assisted baseline assessments and qualitative interviews might have introduced translation-related misunderstandings and socially desirable responding.

8. Future directions and implications

This doctoral thesis contributes to a better understanding of certain facets of the complex interplay between PMLD and CPTSD, while raising new questions that require further investigation. For example, although the symptom cluster *re-experiencing* and the PMLD factor *language acquisition and barriers* have been identified as particularly relevant in linking the two constructs, the underlying mechanisms of these connections remain speculative. Additionally, it may be particularly relevant for mental health professionals to examine whether trauma-informed language courses and/or targeted psychological interventions have a positive impact on CPTSD symptoms and *language acquisition and barriers*. Longitudinal studies with direct assessment measures, such as ecological momentary assessments, might provide a deeper understanding of the dynamics and immediacy of outcomes. Given that comorbidities are common among individuals with

CPTSD (Murphy et al., 2016) and numerous participants reported further symptoms beyond CPTSD, it would be crucial to incorporate other forms of psychopathology (e.g. depression, dissociation, anxiety) in future studies. A crucial area of investigation would be to explore the longitudinal relationship between psychopathology and PMLD, as it appears to evolve negatively over time in some ASR (Blanchard & Heeren, 2020; Droždek, 2015; Neal & Neal, 2013). This might aid in identifying risk groups with a poor prognosis in terms of future integration and mental health. In order to enhance generalisability, future studies may expand their sample size to encompass a more diverse population. This entails including treatment-seeking ASR and individuals from a wider spectrum of ethnic backgrounds within the general ASR population. Another research goal for future studies could be to compare the effectiveness of interventions that focus on central symptoms with conventional interventions in intervention studies (Fried et al., 2018; Knefel et al., 2020b; McNally, 2021).

This dissertation's findings and implications may support to develop targeted interventions for promoting mental health, quality of life, and psychosocial adaptation of treatment-seeking, traumatised ASR. The findings emphasise the necessity for targeted interventions that address various dimensions of action (Renner et al., 2020), and the inclusion of PMLDs in psychological assessment and treatment of ASR (Minihan et al., 2018). Political measures on the cultural or societal dimension have proven insufficient in facilitating psychosocial integration and healthcare for ASR so far. Transparent and accelerated asylum processes (Newnham et al., 2019; van Loenen et al., 2018), policies to reduce stigmatisation and discrimination, and provision of financial and other resources (Renner et al., 2020) appear urgently necessary.

Expanding the availability of (online) interpreters could contribute effectively overcome language barriers and improve access to health care (Boettcher et al., 2021; Dumke et al., 2023). Additionally, fostering cultural and trauma sensitivity among mental health professionals and other professionals, such as teachers can reduce stigma and facilitate language acquisition (Kartal et al., 2019; van Loenen et al., 2018).

While interventions on the cultural and societal dimensions aim to promote overall health and inclusion for all ASR, identifying high-risk groups enables the assessment of further personalised interventions on interpersonal and intrapersonal dimensions. Study 1 indicates more problems due to *language acquisition and barriers* among ASR with elevated levels of CPTSD. This subgroup may particularly benefit from additional interpersonal interventions such as community-based interventions, group therapy, or interest groups to mitigate isolation and enhance social inclusion. The strong association between *difficulties in relationship* and *negative self-concept* found in study 2, might indicate that enhancing interpersonal relationships can initiate a positive cycle and counteract the perpetuation effect associated with negative self-concept (Bryant & Guthrie, 2007; Dunmore et al., 2001).

In line with the recommendations of the established guidelines for PTSD (Schäfer et al., 2019), this doctoral thesis underscores the need for trauma-focused and non-trauma-focused interventions. The lack of knowledge concerning the psychosocial consequences of trauma shown in study 3, point to psychoeducation that provide information about the trauma sequelae and its potential influence on today's emotional experience and behaviour associated with PMLDs. Lastly, Study 2 identifies key symptom clusters such as *re-experiencing* and *affective dysregulation*, which can enhance the effectiveness of psychological therapies.

9. Conclusion

Increased distress due to PMLDs come along with a higher risk for developing mental health problems, pointing out the importance in considering PMLDs in the conceptualisation of interventions to promote psychosocial wellbeing and successful integration of ASR. Beyond this general link, we found that different forms of PMLD differed in the nature of their association with CPTSD. Specifically, PMLDs related to *language acquisition and barriers* demonstrated a particularly remarkable association with higher levels of CPTSD. Our findings emphasise the significance of addressing not only trauma sequelae in psychological treatment but also focusing on specific PMLDs that show strong associations with CPTSD in traumatised ASR. Regarding the symptom clusters of CPTSD, *re-experiencing* and *affective dysregulation* emerged as the domains most strongly linked to PMLDs. To gain a more comprehensive understanding of the underlying dynamic, it is crucial to consider how CPTSD symptoms influence individuals' experience and coping facing PMLDs. Consequently, treatment approaches may prioritise these domains to enhance treatment outcomes and alleviate the distress related with CPTSD and PMLDs. Numerous questions are raised by this thesis and further investigation is needed to better understand the complex relationships between psychopathology and PMLDs in ASR. Nonetheless, tailored interventions may establish personalised trauma-focused and transdiagnostic treatment goals to enhance mental health and facilitate psychosocial adaptation in treatment-seeking ASR, considering the unique experiences of each individual.

References

- Aarethun, V., Sandal, G. M., Guribye, E., Markova, V., & Bye, H. H. (2021). Explanatory models and help-seeking for symptoms of PTSD and depression among Syrian refugees. *Social Science & Medicine*, 277, 113889. <https://doi.org/10.1016/j.socscimed.2021.113889>
- Alemi, Q., James, S., Cruz, R., Zepeda, V., & Racadio, M. (2014). Psychological distress in Afghan refugees: A mixed-method systematic review. *Journal of Immigrant and Minority Health*, 16(6), 1247–1261. <https://doi.org/10.1007/s10903-013-9861-1>
- American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders (4th ed., text rev.)*.
- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders (5th ed.)*. <https://doi.org/10.1176/appi.books.9780890425596>
- Amnesty International. (2019, June 20). *Afghanistan's refugees: forty years of dispossession*. <https://www.amnesty.org/en/latest/news/2019/06/afghanistan-refugees-forty-years/>
- Barbieri, A., Visco-Comandini, F., Alunni Fegatelli, D., Schepisi, C., Russo, V., Calò, F., Dessì, A., Cannella, G., & Stellacci, A. (2019). Complex trauma, PTSD and complex PTSD in African refugees. *European Journal of Psychotraumatology*, 10(1), 1700621. <https://doi.org/10.1080/20008198.2019.1700621>
- Birkeland, M. S., Greene, T., & Spiller, T. R. (2020). The network approach to posttraumatic stress disorder: A systematic review. *European Journal of Psychotraumatology*, 11(1), 1700614. <https://doi.org/10.1080/20008198.2019.1700614>

- Blanchard, M. A., & Heeren, A. (2020). Ongoing and Future Challenges of the Network Approach to Psychopathology: From Theoretical Conjectures to Clinical Translations. In *Comprehensive Clinical Psychology* (2th ed., pp. 32-46). Elsevier.
<https://doi.org/10.1016/b978-0-12-818697-8.00044-3>
- Bundesministerium für Inneres (2022). ASYL-STATISTIK 2021.
https://www.bmi.gv.at/301/Statistiken/files/Jahresstatistiken/Jahresstatistik_2021_v2.pdf
- Boettcher, V. S., Nowak, A. C., & Neuner, F. (2021). Mental health service utilization and perceived barriers to treatment among adult refugees in Germany. *European Journal of Psychotraumatology*, 12(1), 1910407.
<https://doi.org/10.1080/20008198.2021.1910407>
- Bogic, M., Njoku, A., & Priebe, S. (2015). Long-term mental health of war-refugees: A systematic literature review. *BMC International Health and Human Rights*, 15, 29.
<https://doi.org/10.1186/s12914-015-0064-9>
- Brewin, C. R., Cloitre, M., Hyland, P., Shevlin, M., Maercker, A., Bryant, R. A., Humayun, A., Jones, L. M., Kagee, A., & Rousseau, C. (2017). A review of current evidence regarding the ICD-11 proposals for diagnosing PTSD and complex PTSD. *Clinical Psychology Review*, 58, 1–15.
<https://doi.org/10.1016/j.cpr.2017.09.001>
- Bryant, R. A., & Guthrie, R. M. (2007). Maladaptive self-appraisals before trauma exposure predict posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, 75(5), 812–815. <https://doi.org/10.1037/0022-006X.75.5.812>
- Ceccon, C., & Moscardino, U. (2022). Impact of COVID-19 and lockdown on mental health and future orientation among young adult asylum seekers in Italy: A

- mixed-methods study. *Transcultural Psychiatry*, 13634615221098306.
<https://doi.org/10.1177/13634615221098306>
- Choudhry, F. R., Mani, V., Ming, L. C., & Khan, T. M. (2016). Beliefs and perception about mental health issues: A meta-synthesis. *Neuropsychiatric Disease and Treatment*, 12, 2807–2818. <https://doi.org/10.2147/NDT.S111543>
- Cloitre, M., Hyland, P., Bisson, J. I., Brewin, C. R., Roberts, N. P., Karatzias, T., & Shevlin, M. (2019). ICD-11 Posttraumatic Stress Disorder and Complex Posttraumatic Stress Disorder in the United States: A Population-Based Study. *Journal of Traumatic Stress*, 32(6), 833–842. <https://doi.org/10.1002/jts.22454>
- Cloitre, M., Shevlin, M., Brewin, C. R., Bisson, J. I., Roberts, N. P., Maercker, A., Karatzias, T., & Hyland, P. (2018). The International Trauma Questionnaire: Development of a self-report measure of ICD-11 PTSD and complex PTSD. *Acta Psychiatrica Scandinavica*, 138(6), 536–546. <https://doi.org/10.1111/acps.12956>
- Cloitre, M., Stolbach, B. C., Herman, J. L., van der Kolk, B. A., Pynoos, R., Wang, J., & Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of Traumatic Stress*, 22(5), 399–408. <https://doi.org/10.1002/jts.20444>
- Cooper, S., Enticott, J. C., Shawyer, F., & Meadows, G. (2019). Determinants of Mental Illness Among Humanitarian Migrants: Longitudinal Analysis of Findings From the First Three Waves of a Large Cohort Study. *Frontiers in Psychiatry*, 10, 545. <https://doi.org/10.3389/fpsy.2019.00545>
- Correia, D. T. (2017). Different perspectives of validity in psychiatry. *Journal of Evaluation in Clinical Practice*. 23:988-93. <https://doi.org/10.1111/jep.12766>
- Cramer, A. O. J., van Borkulo, C. D., Giltay, E. J., van der Maas, H. L. J., Kendler, K. S., Scheffer, M., & Borsboom, D. (2016). Major depression as a complex dynamic

- system. *Plos One*, 11(12), e0167490. <https://doi.org/10.1371/journal.pone.0167490>
- Dangmann, C., Solberg, Ø., & Andersen, P. N. (2021). Health-related quality of life in refugee youth and the mediating role of mental distress and post-migration stressors. *Quality of Life Research : An International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation*, 30, 2287-2297. <https://doi.org/10.1007/s11136-021-02811-7>
- de Schryver, M., Vindevogel, S., Rasmussen, A. E., & Cramer, A. O. J. (2015). Unpacking Constructs: A Network Approach for Studying War Exposure, Daily Stressors and Post-Traumatic Stress Disorder. *Frontiers in Psychology*, 6, 1896. <https://doi.org/10.3389/fpsyg.2015.01896>
- Demir, Z., Böge, K., Fan, Y., Hartling, C., Harb, M. R., Hahn, E., Seybold, J., & Bajbouj, M. (2020). The role of emotion regulation as a mediator between early life stress and posttraumatic stress disorder, depression and anxiety in Syrian refugees. *Translational Psychiatry*, 10(1), 371. <https://doi.org/10.1038/s41398-020-01062-3>
- Doolan, E. L., Bryant, R. A., Liddell, B. J., & Nickerson, A. (2017). The conceptualization of emotion regulation difficulties, and its association with posttraumatic stress symptoms in traumatized refugees. *Journal of Anxiety Disorders*, 50, 7–14. <https://doi.org/10.1016/j.janxdis.2017.04.005>
- Droždek, B. (2015). Challenges in treatment of posttraumatic stress disorder in refugees: Towards integration of evidence-based treatments with contextual and culture-sensitive perspectives. *European Journal of Psychotraumatology*, 6, 24750. <https://doi.org/10.3402/ejpt.v6.24750>

- Dumke, L., Wilker, S., Kotterba, A., & Neuner, F. (2023). The role of psychotherapists' perceived barriers in providing psychotherapy to refugee patients. *Clinical Psychology & Psychotherapy*, 1–12. <https://doi.org/10.1002/cpp.2859>
- Dunmore, E., Clark, D. M., & Ehlers, A. (2001). A prospective investigation of the role of cognitive factors in persistent Posttraumatic Stress Disorder (PTSD) after physical or sexual assault. *Behaviour Research and Therapy*, 39(9), 1063–1084. [https://doi.org/10.1016/S0005-7967\(00\)00088-7](https://doi.org/10.1016/S0005-7967(00)00088-7)
- Eggenhofer-Rehart, P. M., Latzke, M., Pernkopf, K., Zellhofer, D., Mayrhofer, W., & Steyrer, J. (2018). Refugees' career capital welcome? Afghan and Syrian refugee job seekers in Austria. *Journal of Vocational Behavior*, 105, 31–45. <https://doi.org/10.1016/j.jvb.2018.01.004>
- Etkin, A., Gyurak, A., & O'Hara, R. (2013). A neurobiological approach to the cognitive deficits of psychiatric disorders. *Dialogues in Clinical Neuroscience*, 15(4), 419–429. <https://doi.org/10.31887/DCNS.2013.15.4/aetkin>
- Expertenrat für Integration. (2022). *Integrationsbericht 2022*. <https://www.bundeskanzleramt.gv.at/agenda/integration/integrationsbericht.html>
- Fried, E. I., & Cramer, A. O. J. (2017). Moving Forward: Challenges and Directions for Psychopathological Network Theory and Methodology. *Perspectives on Psychological Science*, 12(6), 999–1020. <https://doi.org/10.1177/1745691617705892>
- Fried, E. I., Eidhof, M. B., Palic, S., Costantini, G., Huisman-van Dijk, H. M., Bockting, C. L. H., Engelhard, I., Armour, C., Nielsen, A. B. S., & Karstoft, K.-I. (2018). Replicability and generalizability of Posttraumatic Stress Disorder (PTSD) networks: A cross-cultural multisite study of PTSD symptoms in four trauma patient samples. *Clinical Psychological Science*, 6(3), 335–351. <https://doi.org/10.1177/2167702617745092>

- Galatzer-Levy, I. R., & Bryant, R. A. (2013). 636,120 ways to have posttraumatic stress disorder. *Perspectives on Psychological Science*, 8(6), 651–662.
<https://doi.org/10.1177/1745691613504115>
- Garcia, O., Slavish, D. C., Dietch, J. R., Messman, B. A., Contractor, A. A., Haynes, P. L., Pruiksma, K. E., Kelly, K., Ruggero, C., & Taylor, D. J. (2021). What goes around comes around: Nightmares and daily stress are bidirectionally associated in nurses. *Stress and Health*, 37(5), 1035–1042. <https://doi.org/10.1002/smi.3048>
- Gathercole, S. E., & Baddeley, A. D. (2014). *Working Memory and Language*. Essays in Cognitive Psychology. Taylor and Francis.
- Georges, D., Buber-Enns, I., Rengs, B., Kohlenberger, J., & Doblhammer, G. (2021). Health determinants among refugees in Austria and Germany: A propensity-matched comparative study for Syrian, Afghan, and Iraqi refugees. *Plos One*, 16(4), e0250821. <https://doi.org/10.1371/journal.pone.0250821>
- Giacco, D., & Priebe, S. (2018). Mental health care for adult refugees in high-income countries. *Epidemiology and Psychiatric Sciences*, 27(2), 109-116.
[doi:10.1017/S2045796017000609](https://doi.org/10.1017/S2045796017000609)
- Glaser, J.-P., van Os, J., Portegijs, P. J. M., & Myin-Germeys, I. (2006). Childhood trauma and emotional reactivity to daily life stress in adult frequent attenders of general practitioners. *Journal of Psychosomatic Research*, 61(2), 229–236.
<https://doi.org/10.1016/j.jpsychores.2006.04.014>
- Grochtdreis, T., König, H.-H., Riedel-Heller, S. G., & Dams, J. (2022). Health-Related Quality of Life of Asylum Seekers and Refugees in Germany: a Cross-Sectional Study with Data from the German Socio-Economic Panel. *Applied Research in Quality of Life*, 17, 109-127. <https://doi.org/10.1007/s11482-020-09877-4>

- Hainmueller, J., Hangartner, D., & Lawrence, D. (2016). When lives are put on hold: Lengthy asylum processes decrease employment among refugees. *Science Advances*, 2(8), e1600432. <https://doi.org/10.1126/sciadv.1600432>
- Hammen, C. (2005). Stress and depression. *Annual Review of Clinical Psychology*, 1, 293–319. <https://doi.org/10.1146/annurev.clinpsy.1.102803.143938>
- Haumeder, A. von, Ghafoori, B., & Retaillieu, J. (2019). Psychological adaptation and posttraumatic stress disorder among Syrian refugees in Germany: A mixed-methods study investigating environmental factors. *European Journal of Psychotraumatology*, 10(1), 1686801. <https://doi.org/10.1080/20008198.2019.1686801>
- Hecker, T., Huber, S., Maier, T., & Maercker, A. (2018). Differential Associations Among PTSD and Complex PTSD Symptoms and Traumatic Experiences and Post-migration Difficulties in a Culturally Diverse Refugee Sample. *Journal of Traumatic Stress*, 31(6), 795–804. <https://doi.org/10.1002/jts.22342>
- Henkelmann, J.-R., Best, S. de, Deckers, C., Jensen, K., Shahab, M., Elzinga, B., & Molendijk, M. (2020). Anxiety, depression and post-traumatic stress disorder in refugees resettling in high-income countries: Systematic review and meta-analysis. *BJPsych Open*, 6(4), e68. <https://doi.org/10.1192/bjo.2020.54>
- Herman, J. L. (1992). Complex PTSD: A syndrome in survivors of prolonged and repeated trauma. *Journal of Traumatic Stress*, 5(3), 377–391. <https://doi.org/10.1002/jts.2490050305>
- Hobfoll, S. E. (2001). The Influence of Culture, Community, and the Nested-Self in the Stress Process: Advancing Conservation of Resources Theory. *Applied Psychology*, 50(3), 337–421. <https://doi.org/10.1111/1464-0597.00062>
- Hollifield, M., Verbillis-Kolp, S., Farmer, B., Toolson, E. C., Woldehaimanot, T., Yamazaki, J., Holland, A., St Clair, J., & SooHoo, J. (2013). The Refugee Health

- Screeners-15 (RHS-15): Development and validation of an instrument for anxiety, depression, and PTSD in refugees. *General Hospital Psychiatry*, 35(2), 202–209. <https://doi.org/10.1016/j.genhosppsych.2012.12.002>
- Hou, W. K., Liu, H., Liang, L., Ho, J., Kim, H., Seong, E., Bonanno, G. A., Hobfoll, S. E., & Hall, B. J. (2019). Everyday life experiences and mental health among conflict-affected forced migrants: A meta-analysis. *Journal of Affective Disorders*, 264, 50–68. <https://doi.org/10.1016/j.jad.2019.11.165>
- Housen, T., Lenglet, A., Shah, S., Sha, H., Ara, S., Pintaldi, G., & Richardson, A. (2019). Trauma in the Kashmir Valley and the mediating effect of stressors of daily life on symptoms of posttraumatic stress disorder, depression and anxiety. *Conflict and Health*, 13, 58. <https://doi.org/10.1186/s13031-019-0245-6>
- Hyland, P., Ceannt, R., Daccache, F., Abou Daher, R., Sleiman, J., Gilmore, B., Byrne, S., Shevlin, M., Murphy, J., & Vallières, F. (2018). Are posttraumatic stress disorder (PTSD) and complex-PTSD distinguishable within a treatment-seeking sample of Syrian refugees living in Lebanon? *Global Mental Health (Cambridge, England)*, 5, e14. <https://doi.org/10.1017/gmh.2018.2>
- Hyland, P., Shevlin, M., Fyvie, C., Cloitre, M., & Karatzias, T. (2020). The relationship between ICD-11 PTSD, complex PTSD and dissociative experiences. *Journal of Trauma & Dissociation*, 21(1), 62–72. <https://doi.org/10.1080/15299732.2019.1675113>
- Hynie, M. (2018). The Social Determinants of Refugee Mental Health in the Post-Migration Context: A Critical Review. *Canadian Journal of Psychiatry*, 63(5), 297–303. <https://doi.org/10.1177/0706743717746666>

- Jannesari, S., Hatch, S., Prina, M., & Oram, S. (2020). Post-migration Social-Environmental Factors Associated with Mental Health Problems Among Asylum Seekers: A Systematic Review. *Journal of Immigrant and Minority Health*, 22(5), 1055–1064. <https://doi.org/10.1007/s10903-020-01025-2>
- Jayawickreme, N., Mootoo, C., Fountain, C., Rasmussen, A., Jayawickreme, E., & Bertuccio, R. F. (2017). Post-conflict struggles as networks of problems: A network analysis of trauma, daily stressors and psychological distress among Sri Lankan war survivors. *Social Science & Medicine*, 190, 119–132. <https://doi.org/10.1016/j.socscimed.2017.08.027>
- Joyal, M., Wensing, T., Levasseur-Moreau, J., Leblond, J., T Sack, A., & Fecteau, S. (2019). Characterizing emotional Stroop interference in posttraumatic stress disorder, major depression and anxiety disorders: A systematic review and meta-analysis. *PLOS One*, 14(4), e0214998. <https://doi.org/10.1371/journal.pone.0214998>
- Jung, S., & Lee, S. (2011). Exploratory factor analysis for small samples. *Behavior Research Methods*, 43(3), 701–709. <https://doi.org/10.3758/s13428-011-0077-9>
- Júnior, J. G., Sales, J. P. de, Moreira, M. M., Pinheiro, W. R., Lima, C. K. T., & Neto, M. L. R. (2020). A crisis within the crisis: The mental health situation of refugees in the world during the 2019 coronavirus (2019-nCoV) outbreak. *Psychiatry Research*, 288, 113000. <https://doi.org/10.1016/j.psychres.2020.113000>
- Kaltenbach, E., Schauer, M., Hermenau, K., Elbert, T., & Schalinski, I. (2018). Course of Mental Health in Refugees-A One Year Panel Survey. *Frontiers in Psychiatry*, 9, 352. <https://doi.org/10.3389/fpsy.2018.00352>
- Karatzias, T., Shevlin, M., Fyvie, C., Hyland, P., Efthymiadou, E., Wilson, D., Roberts, N., Bisson, J. I., Brewin, C. R., & Cloitre, M. (2017). Evidence of distinct profiles

- of Posttraumatic Stress Disorder (PTSD) and Complex Posttraumatic Stress Disorder (CPTSD) based on the new ICD-11 Trauma Questionnaire (ICD-TQ). *Journal of Affective Disorders*, 207, 181–187.
<https://doi.org/10.1016/j.jad.2016.09.032>
- Kartal, D., Alkemade, N., Eisenbruch, M., & Kissane, D. (2018). Traumatic exposure, acculturative stress and cultural orientation: The influence on PTSD, depressive and anxiety symptoms among refugees. *Social Psychiatry and Psychiatric Epidemiology*, 53(9), 931–941. <https://doi.org/10.1007/s00127-018-1532-z>
- Kartal, D., Alkemade, N., & Kiropoulos, L. (2019). Trauma and Mental Health in Resettled Refugees: Mediating Effect of Host Language Acquisition on Posttraumatic Stress Disorder, Depressive and Anxiety Symptoms. *Transcultural Psychiatry*, 56(1), 3–23. <https://doi.org/10.1177/1363461518789538>
- Keles, S., Idsøe, T., Friborg, O., Sirin, S., & Oppedal, B. (2017). The Longitudinal Relation between Daily Hassles and Depressive Symptoms among Unaccompanied Refugees in Norway. *Journal of Abnormal Child Psychology*, 45(7), 1413–1427. <https://doi.org/10.1007/s10802-016-0251-8>
- Kleijn, W. C., Hovens, J. E., & Rodenburg, J. J. (2001). Posttraumatic Stress Symptoms in Refugees: Assessments with the Harvard Trauma Questionnaire and the Hopkins Symptom Checklist–25 in Different Languages. *Psychological Reports*, 88(2), 527–532. <https://doi.org/10.2466/pr0.2001.88.2.527>
- Knefel, M., Kantor, V., Schiess-Jokanovic, J., Weindl, D., Schäfer, I., & Lueger-Schuster, B. (2020a). A brief transdiagnostic psychological intervention for Afghan asylum seekers and refugees in Austria: A randomized controlled trial. *Trials*, 21(1), 57. <https://doi.org/10.1186/s13063-019-3839-9>

- Knefel, M., Kantor, V., Weindl, D., Schiess-Jokanovic, J., Nicholson, A. A., Verginer, L., Schäfer, I., & Lueger-Schuster, B. (2022). A brief transdiagnostic psychological intervention for Afghan asylum seekers and refugees in Austria: a randomized controlled trial. *European Journal of Psychotraumatology*, 13(1), Article 2068911. <https://doi.org/10.1080/20008198.2022.2068911>
- Knefel, M., Karatzias, T., Ben-Ezra, M., Cloitre, M., Lueger-Schuster, B., & Maercker, A. (2019). The replicability of ICD-11 complex post-traumatic stress disorder symptom networks in adults. *The British Journal of Psychiatry*, 214(6), 361–368. <https://doi.org/10.1192/bjp.2018.286>
- Knefel, M., Lueger-Schuster, B., Bisson, J. I., Karatzias, T., Kazlauskas, E., & Roberts, N. P. (2020b). A Cross-Cultural Comparison of ICD-11 Complex Posttraumatic Stress Disorder Symptom Networks in Austria, the United Kingdom, and Lithuania. *Journal of Traumatic Stress*, 33(33), 41–51. <https://doi.org/10.1002/jts.22361>
- Koch, T., Ehring, T., & Liedl, A. (2020). Effectiveness of a transdiagnostic group intervention to enhance emotion regulation in young Afghan refugees: A pilot randomized controlled study. *Behaviour Research and Therapy*, 132, 103689. <https://doi.org/10.1016/j.brat.2020.103689>
- Kuckartz, U., & Rädiker, S. (2022). *Qualitative Inhaltsanalyse : Methoden, Praxis, Computerunterstützung* (5. Auflage). *Grundlagentexte Methoden*. Beltz.
- Laban, C. J., Gernaat, H. B. P. E., Komproe, I. H., van der Tweel, I., & Jong, J. T. V. M. de (2005). Postmigration living problems and common psychiatric disorders in Iraqi asylum seekers in the Netherlands. *The Journal of Nervous and Mental Disease*, 193(12), 825–832. <https://doi.org/10.1097/01.nmd.0000188977.44657.1d>

- Lansing, A. E., Plante, W. Y., Golshan, S., Fenemma-Notestine, C., & Thuret, S. (2019). Emotion regulation mediates the relationship between verbal learning and internalizing, trauma-related and externalizing symptoms among early-onset, persistently delinquent adolescents. *Learning and Individual Differences*, 70, 201–215. <https://doi.org/10.1016/j.lindif.2017.01.014>
- Li, S. S. Y., Liddell, B. J., & Nickerson, A. (2016). The Relationship Between Post-Migration Stress and Psychological Disorders in Refugees and Asylum Seekers. *Current Psychiatry Reports*, 18(9), 82. <https://doi.org/10.1007/s11920-016-0723-0>
- Liddell, B. J., Nickerson, A., Felmingham, K. L., Malhi, G. S., Cheung, J., Den, M., Askovic, M., Coello, M., Aroche, J., & Bryant, R. A. (2019). Complex Posttraumatic Stress Disorder Symptom Profiles in Traumatized Refugees. *Journal of Traumatic Stress*, 32(6), 822-832. <https://doi.org/10.1002/jts.22453>
- Liu, R. T., & Alloy, L. B. (2010). Stress generation in depression: A systematic review of the empirical literature and recommendations for future study. *Clinical Psychology Review*, 30(5), 582–593. <https://doi.org/10.1016/j.cpr.2010.04.010>
- Maercker, A., Hecker, T., Augsburger, M., & Kliem, S. (2018). ICD-11 Prevalence Rates of Posttraumatic Stress Disorder and Complex Posttraumatic Stress Disorder in a German Nationwide Sample. *The Journal of Nervous and Mental Disease*, 206(4), 270-276. <https://doi.org/10.1097/NMD.0000000000000790>
- Mahmood, H. N., Ibrahim, H., Ismail, A. A., & Neuner, F. (2022). Does Time Heal Trauma? 18 Month Follow-Up Study of Syrian Refugees' Mental Health in Iraq's Kurdistan Region. *International Journal of Environmental Research and Public Health*, 19(22), 14910. <https://doi.org/10.3390/ijerph192214910>

- Malm, A., Tinghög, P., Narusyte, J., & Saboonchi, F. (2020). The refugee post-migration stress scale (RPMS) - development and validation among refugees from Syria recently resettled in Sweden. *Conflict and Health*, 14, 2.
<https://doi.org/10.1186/s13031-019-0246-5>
- McGregor, L. S., Melvin, G. A., & Newman, L. K. (2015). Differential accounts of refugee and resettlement experiences in youth with high and low levels of posttraumatic stress disorder (PTSD) symptomatology: A mixed-methods investigation. *American Journal of Orthopsychiatry*, 85(4), 371–381.
<https://doi.org/10.1037/ort0000076>
- McNally, R. J. (2021). Network Analysis of Psychopathology: Controversies and Challenges. *Annual Review of Clinical Psychology*, (17), 1–23.
<https://doi.org/10.1146/annurev-clinpsy-081219-092850>
- McNeish (2017). Exploratory Factor Analysis With Small Samples and Missing Data. *Journal of Personality Assessment*, 99(6), 637–652.
<https://doi.org/10.1080/00223891.2016.1252382>
- Miller, K. E., & Rasmussen, A. (2017). The mental health of civilians displaced by armed conflict: An ecological model of refugee distress. *Epidemiology and Psychiatric Sciences*, 26(2), 129–138. <https://doi.org/10.1017/S2045796016000172>
- Minihan, S., Liddell, B. J., Byrow, Y., Bryant, R. A., & Nickerson, A. (2018). Patterns and predictors of posttraumatic stress disorder in refugees: A latent class analysis. *Journal of Affective Disorders*, 232, 252–259.
<https://doi.org/10.1016/j.jad.2018.02.010>
- Mollica, R. F. (2001). Longitudinal Study of Psychiatric Symptoms, Disability, Mortality, and Emigration Among Bosnian Refugees. *JAMA*, 286(5), 546–554.
[doi:10.1001/jama.286.5.546](https://doi.org/10.1001/jama.286.5.546)

- Mollica, R. F., Caspi-Yavin, Y., Bollini, P., Truong, T., Tor, S., & Lavelle, J. (1992). The Harvard Trauma Questionnaire: Validating a cross-cultural instrument for measuring torture, trauma, and posttraumatic stress disorder in Indochinese refugees. *The Journal of Nervous and Mental Disease*, 180(2), 111–116.
- Mootoo, C., Fountain, C., & Rasmussen, A. (2019). Formative psychosocial evaluation using dynamic networks: Trauma, stressors, and distress among Darfur refugees living in Chad. *Conflict and Health*, 13, 30. <https://doi.org/10.1186/s13031-019-0212-2>
- Moulds, M. L., Bisby, M. A., Wild, J., & Bryant, R. A. (2020). Rumination in posttraumatic stress disorder: A systematic review. *Clinical Psychology Review*, 82, 101910. <https://doi.org/10.1016/j.cpr.2020.101910>
- Murphy, S., Elklit, A., Dokkedahl, S., & Shevlin, M. (2016). Testing the validity of the proposed ICD-11 PTSD and complex PTSD criteria using a sample from Northern Uganda. *European Journal of Psychotraumatology*, 7, 32678. <https://doi.org/10.3402/ejpt.v7.32678>
- Neal, J. W., & Neal, Z. P. (2013). Nested or Networked? Future Directions for Ecological Systems Theory. *Social Development*, 22(4), 722-737. <https://doi.org/10.1111/sode.12018>
- Newnham, E. A., Pearman, A., Olinga-Shannon, S., & Nickerson, A. (2019). The mental health effects of visa insecurity for refugees and people seeking asylum: A latent class analysis. *International Journal of Public Health*, 64(5), 763–772. <https://doi.org/10.1007/s00038-019-01249-6>
- Nickerson, A., Bryant, R. A., Schnyder, U., Schick, M., Mueller, J., & Morina, N. (2015). Emotion dysregulation mediates the relationship between trauma exposure, post-migration living difficulties and psychological outcomes in traumatized refugees.

- Journal of Affective Disorders*, 173, 185–192.
<https://doi.org/10.1016/j.jad.2014.10.043>
- Palic, S., Zerach, G., Shevlin, M., Zeligman, Z., Elklit, A., & Solomon, Z. (2016). Evidence of complex posttraumatic stress disorder (CPTSD) across populations with prolonged trauma of varying interpersonal intensity and ages of exposure. *Psychiatry Research*, 246, 692–699. <https://doi.org/10.1016/j.psychres.2016.10.062>
- Perkonig, A., Höfler, M., Cloitre, M., Wittchen, H.-U., Trautmann, S., & Maercker, A. (2015). Evidence for two different ICD-11 posttraumatic stress disorders in a community sample of adolescents and young adults. *European Archives of Psychiatry and Clinical Neuroscience*, 266, 317–328. <https://doi.org/10.1007/s00406-015-0639-4>
- Post, L. M., Youngstrom, E., Connell, A. M., Zoellner, L. A., & Feeny, N. C. (2021). Transdiagnostic emotion regulation processes explain how emotion-related factors affect co-occurring PTSD and MDD in relation to trauma. *Journal of Anxiety Disorders*, 78, 102367. <https://doi.org/10.1016/j.janxdis.2021.102367>
- R Core Team. (2021). *R: A Language and Environment for Statistical Computing*. R Foundation for Statistical Computing. <http://www.R-project.org/>
- Rees, S., & Fisher, J. (2020). Covid-19 and the Mental Health of People From Refugee Backgrounds. *International Journal of Health Services : Planning, Administration, Evaluation*, 50(4), 415–417. <https://doi.org/10.1177/0020731420942475>
- Renner, A., Hoffmann, R., Nagl, M., Roehr, S., Jung, F., Grochtdreis, T., König, H.-H., Riedel-Heller, S., & Kersting, A. (2020). Syrian refugees in Germany: Perspectives on mental health and coping strategies. *Journal of Psychosomatic Research*, 129, 109906. <https://doi.org/10.1016/j.jpsychores.2019.109906>

- Samuelson, K. W. (2011). Post-traumatic stress disorder and declarative memory functioning: A review. *Dialogues in Clinical Neuroscience*, 13(3), 346–351.
<https://doi.org/10.31887/DCNS.2011.13.2/ksamuelson>
- Santangelo, P. S., Limberger, M. F., Stiglmayr, C., Houben, M., Coosemans, J., Verley-
sen, G., Kuppens, P., Tuerlinckx, F., Vanpaemel, W., & Ebner-Priemer, U. W.
(2016). Analyzing subcomponents of affective dysregulation in borderline person-
ality disorder in comparison to other clinical groups using multiple e-diary da-
taset. *Borderline Personality Disorder and Emotion Dysregulation*, 3, 5.
<https://doi.org/10.1186/s40479-016-0039-z>
- Satinsky, E., Fuhr, D. C., Woodward, A., Sondorp, E., & Roberts, B. (2019). Mental
health care utilisation and access among refugees and asylum seekers in Eu-
rope: A systematic review. *Health Policy (Amsterdam, Netherlands)*, 123(9),
851–863. <https://doi.org/10.1016/j.healthpol.2019.02.007>
- Schäfer, I., Gast, U., Hofmann, A., Knaevelsrud, C., Lampe, A., Liebermann, P., Lotzin,
A., Maercker, A., Rosner, R., & Wöller, W. (2019). *S3-Leitlinie Posttraumatische
Belastungsstörung*. Springer Berlin Heidelberg. [https://doi.org/10.1007/978-3-
662-59783-5](https://doi.org/10.1007/978-3-
662-59783-5)
- Schiess-Jokanovic, J., Knefel, M., Kantor, V., Weindl, D., Schäfer, I., & Lueger-Schus-
ter, B. (2021). Complex post-traumatic stress disorder and post-migration living
difficulties in traumatised refugees and asylum seekers: The role of language ac-
quisition and barriers. *European Journal of Psychotraumatology*, 12(1), 2001190.
<https://doi.org/10.1080/20008198.2021.2001190>
- Schiess-Jokanovic, J., Knefel, M., Kantor, V., Weindl, D., Schäfer, I., & Lueger-Schus-
ter, B. (2022). The boundaries between complex posttraumatic stress disorder

- symptom clusters and post-migration living difficulties in traumatised Afghan refugees: A network analysis. *Conflict and Health*, 16(1), 19.
<https://doi.org/10.1186/s13031-022-00455-z>
- Schiess-Jokanovic, J., Gössling-Steirer, C., Kantor, V., Knefel, M., Weindl, D., & Lueger-Schuster, B. (2023). My brain freezes and I am blocked again: The subjective experience of post-migration living difficulties influenced by complex posttraumatic stress disorder of Afghan asylum seekers and refugees in Austria. *PLOS ONE*, 18(7): e0288691. <https://doi.org/10.1371/journal.pone.0288691>
- Schweitzer, R., Melville, F., Steel, Z., & Lacherez, P. (2006). Trauma, post-migration living difficulties, and social support as predictor of psychological adjustment in resettled Sudanese refugees. *Australian and New Zealand Journal of Psychiatry*(40), 179–187. <https://doi.org/10.1080/j.1440-1614.2006.01766.x>
- Scoglio, A. A. J., & Salhi, C. (2020). Violence Exposure and Mental Health Among Resettled Refugees: A Systematic Review. *Trauma, Violence & Abuse*, 1524838020915584. <https://doi.org/10.1177/1524838020915584>
- Seguin, M., & Roberts, B. (2017). Coping strategies among conflict-affected adults in low- and middle-income countries: A systematic literature review. *Global Public Health*, 12(7), 811–829. <https://doi.org/10.1080/17441692.2015.1107117>
- Silove, D. (2013). The ADAPT model: a conceptual framework for mental health and psychosocial programming in post conflict settings. *Intervention*, 11(3), 237–248.
- Silove, D., Rees, S., Mohsin, M., Tam, N., Kareth, M., & Tay, A. K. (2018). Differentiating ICD-11 complex post-traumatic stress disorder from other common mental disorders based on levels of exposure to childhood adversities, the traumas of persecution and postmigration living difficulties among refugees from West Papua. *BJPsych Open*, 4(5), 361–367. <https://doi.org/10.1192/bjo.2018.49>

- Silove, D., Sinnerbrink, I., Field, A., Manicavasagar, V., & Steel, Z. (1997). Anxiety, depression and PTSD in asylum-seekers: Associations with pre-migration trauma and post-migration stressors. *The British Journal of Psychiatry*, 170, 351–357.
- Silove, D., Steel, Z., McGorry, P., & Mohan, P. (1998). Trauma exposure, postmigration stressors, and symptoms of anxiety, depression and post-traumatic stress in Tamil asylum-seekers: comparison with refugees and immigrants. *Acta Psychiatrica Scandinavica*, 97(3), 175–181. <https://doi.org/10.1111/j.1600-0447.1998.tb09984.x>
- Silva, U. de, Glover, N., & Katona, C. (2021). Prevalence of complex post-traumatic stress disorder in refugees and asylum seekers: Systematic review. *BJPsych Open*, 7(6), e194. <https://doi.org/10.1192/bjo.2021.1013>
- Siriwardhana, C., Sheik Ali, S., Roberts, B., Steward, R. (2014). A systematic review of resilience and mental health outcomes of conflict-driven adult forced migrants. *Conflict and Health*, 8, 13. <https://doi.org/10.1186/1752-1505-8-13>
- Söndergaard, H. P., & Theorell, T. (2004). Language acquisition in relation to cumulative posttraumatic stress disorder symptom load over time in a sample of re-settled refugees. *Psychotherapy and Psychosomatics*, 73(5), 320–323. <https://doi.org/10.1159/000078849>
- Spiller, T. R., Liddell, B. J., Schick, M., Morina, N., Schnyder, U., Pfaltz, M., Bryant, R. A., & Nickerson, A. (2019). Emotional Reactivity, Emotion Regulation Capacity, and Posttraumatic Stress Disorder in Traumatized Refugees: An Experimental Investigation. *Journal of Traumatic Stress*, 32(1), 32–41. <https://doi.org/10.1002/jts.22371>

- Spiller, T. R., Schick, M., Schnyder, U., Bryant, R. A., Nickerson, A., & Morina, N. (2016). Somatisation and anger are associated with symptom severity of post-traumatic stress disorder in severely traumatised refugees and asylum seekers. *Swiss Medical Weekly*, 146, w14311. <https://doi.org/10.4414/smw.2016.14311>
- Stanghellini, G., & Ballerini, M. (2008). Qualitative analysis. Its use in psychopathological research. *Acta Psychiatrica Scandinavica*, 117(3), 161–163. <https://doi.org/10.1111/j.1600-0447.2007.01139.x>
- Steel, Z., Silove, D., Bird, K., McGorry, P., & Mohan, P. (1999). Pathways from War Trauma to Posttraumatic Stress Symptoms Among Tamil Asylum Seekers, Refugees, and Immigrants. *Journal of Traumatic Stress*, 12(3), 421–435. <https://doi.org/10.1023/A:1024710902534>
- Stensvehagen, M. T., Bronken, B. A., Lien, L., & Larsson, G. (2022). Interrelationship of Posttraumatic Stress, Hassles, Uplifts, and Coping in Women With a History of Severe Sexual Abuse: A Cross-Sectional Study. *Journal of Interpersonal Violence*, 37(5-6), 2289–2309. <https://doi.org/10.1177/0886260520935479>
- Tay, A. K., Mohsin, M., Rees, S., Tam, N., Kareth, M., & Silove, D. (2018). Factor structures of Complex Posttraumatic Stress Disorder and PTSD in a community sample of refugees from West Papua. *Comprehensive Psychiatry*, 85, 15–22. <https://doi.org/10.1016/j.comppsy.2018.05.001>
- Tinghög, P., Malm, A., Arwidson, C., Sigvardsdotter, E., Lundin, A., & Saboonchi, F. (2017). Prevalence of mental ill health, traumas and postmigration stress among refugees from Syria resettled in Sweden after 2011: A population-based survey. *BMJ Open*, 7(12), e018899. <https://doi.org/10.1136/bmjopen-2017-018899>

- Turrini, G., Purgato, M., Ballette, F., Nosè, M., Ostuzzi, G., & Barbui, C. (2017). Common mental disorders in asylum seekers and refugees: Umbrella review of prevalence and intervention studies. *International Journal of Mental Health Systems*, 11, 51. <https://doi.org/10.1186/s13033-017-0156-0>
- Ungar, M. (2011). The social ecology of resilience: Addressing contextual and cultural ambiguity of a nascent construct. *American Journal of Orthopsychiatry*, 81(1), 1–17. <https://doi.org/10.1111/j.1939-0025.2010.01067.x>
- UNHCR (2022). Global Trends: Forced Displacement in 2021. <https://www.unhcr.org/globaltrends>
- Van Dijke, A., Hopman, J. A. B., & Ford, J. D. (2018). Affect dysregulation, psychoform dissociation, and adult relational fears mediate the relationship between childhood trauma and complex posttraumatic stress disorder independent of the symptoms of borderline personality disorder. *European Journal of Psychotraumatology*, 9(1), 1400878. <https://doi.org/10.1080/20008198.2017.1400878>
- van Loenen, T., van den Muijsenbergh, M., Hofmeester, M., Dowrick, C., van Ginneken, N., Mechili, E. A., Angelaki, A., Ajdukovic, D., Bakic, H., Pavlic, D. R., Zelko, E., Hoffmann, K., Jirovsky, E., Mayrhuber, E. S., Dückers, M., Mooren, T., Gouweloos-Trines, J., Kolozsvári, L., Rurik, I., & Lionis, C. (2018). Primary care for refugees and newly arrived migrants in Europe: A qualitative study on health needs, barriers and wishes. *European Journal of Public Health*, 28(1), 82–87. <https://doi.org/10.1093/eurpub/ckx210>
- VERBI Software. (2021). *MAXQDA 2022* [Computer software]. Berlin, Germany.
- Walther, L., Amann, J., Flick, U., Ta, T. M. T., Bajbouj, M., & Hahn, E. (2021). A qualitative study on resilience in adult refugees in Germany. *BMC Public Health*, 21(1), 828. <https://doi.org/10.1186/s12889-021-10817-6>

- Weindl, D., Knefel, M., Glück, T. M., Tran, U. S., & Lueger-Schuster, B. (2018). Motivational capacities after prolonged interpersonal childhood trauma in institutional settings in a sample of Austrian adult survivors. *Child Abuse & Neglect*, 76, 194–203. <https://doi.org/10.1016/j.chiabu.2017.11.001>
- Wicki, B., Spiller, T. R., Schick, M., Schnyder, U., Bryant, R. A., Nickerson, A., & Morina, N. (2021). A network analysis of postmigration living difficulties in refugees and asylum seekers. *European Journal of Psychotraumatology*, 12(1), 1975941. <https://doi.org/10.1080/20008198.2021.1975941>
- World Health Organization. (2016). International statistical classification of diseases and related health problems (10th ed.). <https://icd.who.int/browse10/2016/en>
- World Health Organization. (2019). *International statistical classification of diseases and related health problems. (11th ed.)*. <https://icd.who.int>
- Yuval, K., Aizik-Reebs, A., Lurie, I., Demoz, D., & Bernstein, A. (2020). A Functional Network Perspective on Posttraumatic Stress in Refugees: Implications for Theory, Classification, Assessment, and Intervention. *Transcultural Psychiatry*, 1363461520965436. <https://doi.org/10.1177/1363461520965436>

Appendix: Studies for the doctoral thesis

I was the first author of all published studies. See Appendix for the published studies and the submitted manuscript.

Study 1: Schiess-Jokanovic J., Knefel M., Kantor V., Weindl D., Schäfer I., & Lueger-Schuster B. (2021). Complex post-traumatic stress disorder and post-migration living difficulties in traumatised refugees and asylum seekers: the role of language acquisition and barriers. *European Journal of Psychotraumatology*, 12(1), 2001190. <https://doi.org/10.1080/20008198.2021.2001190>

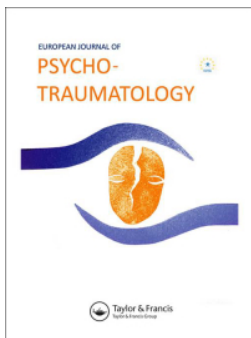
Status: published

Study 2: Schiess-Jokanovic, J., Knefel, M., Kantor, V., Weindl, D., Schäfer, I., & Lueger-Schuster, B. (2022). The boundaries between complex posttraumatic stress disorder symptom clusters and post-migration living difficulties in traumatised Afghan refugees: A network analysis. *Conflict and Health*, 16(1), 19. <https://doi.org/10.1186/s13031-022-00455-z>

Status: published.

Study 3: Schiess-Jokanovic, J., Knefel, M., Gössling-Steirer, C., Kantor, V., Weindl, D., Schäfer, I., & Lueger-Schuster, B. (2023). My brain freezes and I am blocked again: The subjective experience of post-migration living difficulties influenced by complex posttraumatic stress disorder. *PLOS One*, 18(7): e0288691. <https://doi.org/10.1371/journal.pone.0288691>

Status: published.



Complex post-traumatic stress disorder and post-migration living difficulties in traumatised refugees and asylum seekers: the role of language acquisition and barriers

Jennifer Schiess-Jokanovic, Matthias Knefel, Viktoria Kantor, Dina Weindl, Ingo Schäfer & Brigitte Lueger-Schuster

To cite this article: Jennifer Schiess-Jokanovic, Matthias Knefel, Viktoria Kantor, Dina Weindl, Ingo Schäfer & Brigitte Lueger-Schuster (2021) Complex post-traumatic stress disorder and post-migration living difficulties in traumatised refugees and asylum seekers: the role of language acquisition and barriers, *European Journal of Psychotraumatology*, 12:1, 2001190, DOI: [10.1080/20008198.2021.2001190](https://doi.org/10.1080/20008198.2021.2001190)

To link to this article: <https://doi.org/10.1080/20008198.2021.2001190>



© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



Published online: 07 Dec 2021.



[Submit your article to this journal](#)



Article views: 1708



[View related articles](#)



[View Crossmark data](#)



Citing articles: 2 [View citing articles](#)



CLINICAL RESEARCH ARTICLE



Complex post-traumatic stress disorder and post-migration living difficulties in traumatised refugees and asylum seekers: the role of language acquisition and barriers

Jennifer Schiess-Jokanovic^a, Matthias Knefel^{id a}, Viktoria Kantor^{id a}, Dina Weindl^a, Ingo Schäfer^{id b} and Brigitte Lueger-Schuster^{id a}

^aDepartment of Clinical and Health Psychology, Faculty of Psychology, University of Vienna, Vienna, Austria; ^bDepartment of Psychiatry and Psychotherapy, University Medical Centre Hamburg-Eppendorf, Hamburg, Germany

ABSTRACT

Background: Numerous traumatic experiences and post-migration living difficulties (PMLDs) increase the risk of developing symptoms of complex post-traumatic stress disorder (CPTSD) among Afghan refugees and asylum seekers, living in Austria. Research has repeatedly associated higher levels of CPTSD with higher levels of PMLDs. Summarizing PMLDs into empirically derived factors might facilitate a further understanding of their interaction with symptom presentation within distinct clusters of CPTSD.

Objective: The current study aimed to investigate homogeneous subgroups of ICD-11 CPTSD and their association with demographic variables, traumatic experiences, and empirically derived factors of PMLDs.

Method: Within a randomized controlled trial (RCT) CPTSD, PMLDs, and traumatic experiences were assessed in a sample of 93 treatment-seeking Afghan refugees and asylum seekers through a fully structured face-to-face and interpreter-assisted interview using the ITQ, the PMLDC, and a trauma checklist. Underlying clusters of CPTSD, superior factors of PMLDs, and their associations were investigated.

Results: In total, 19.4% of the sample met the diagnostic criteria for PTSD and 49.5% for CPTSD. We identified a 2-cluster solution consisting of two distinct subgroups as best fitting: (1) a CPTSD cluster and (2) a PTSD cluster. The multitude of PMLDs was summarized into four superior factors. CPTSD cluster membership was associated with childhood potentially traumatic experience types, and one of four PMLD factors, namely 'language acquisition & barriers'.

Conclusions: The results suggest that not PMLDs in general, but rather specific types of PMLDs, are associated with CPTSD. An assumed bidirectional relationship between these PMLD factors and CPTSD symptoms might lead to a downward spiral of increasing distress, and could be considered in treatment strategies.

ARTICLE HISTORY

Received 2 July 2021
Revised 25 October 2021
Accepted 25 October 2021

KEYWORDS

Complex post-traumatic stress disorder (CPTSD); refugees; post-migration living difficulties (PMLDs); post-migration stress; language acquisition; childhood trauma

PALABRAS CLAVE

Trastorno de estrés postraumático complejo (TEPT-C); refugiados; dificultades de vida post-migración (DVPM); estrés post-migración; adquisición del lenguaje; trauma infantil

关键词

复杂性创伤后应激障碍 (CPTSD); 难民; 移民后生活困难 (PMLDs); 移民后应激; 语言习得; 童年创伤

HIGHLIGHTS

- Two homogeneous subgroups of CPTSD symptoms were identified (CPTSD, PTSD).
- Only the PMLD factor 'language acquisition & barriers', and childhood potentially traumatic experience types were associated with the CPTSD cluster.

Trastorno de estrés postraumático complejo y dificultades de vida post-migración en refugiados y solicitantes de asilo traumatizados: el rol de la adquisición del idioma y las barreras

Antecedentes: Numerosas experiencias traumáticas y dificultades de vida post-migración (DVPM) aumentan el riesgo de desarrollar síntomas de trastorno de estrés postraumático complejo (TEPT-C) entre los refugiados y solicitantes de asilo afganos que viven en Austria. La investigación ha asociado repetidamente niveles más altos de TEPT-C con niveles más altos de DVPM. Resumir las DVPM en factores derivados empíricamente podría facilitar una mayor comprensión de su interacción con la presentación de síntomas dentro de distintos grupos de TEPT-C.

Objetivo: El presente estudio tuvo como objetivo investigar subgrupos homogéneos de TEPT-C según la CIE-11 y su asociación con variables demográficas, experiencias traumáticas y factores derivados empíricamente de DVPM.

Método: Dentro de un estudio controlado aleatorizado (ECA), se evaluaron TEPT-C, DVPM y experiencias traumáticas en una muestra de 93 pacientes, refugiados afganos y solicitantes de asilo, a través de una entrevista cara a cara totalmente estructurada y asistida por un intérprete utilizando el ITQ, el PMLDC y una lista de verificación de traumas. Se investigaron los grupos subyacentes de TEPT-C, los factores superiores de DVPM y sus asociaciones.

Resultados: En total, el 19,4% de la muestra cumplió los criterios de diagnóstico de TEPT y el 49,5% de TEPT-C. Identificamos 2 grupos que constan de dos subgrupos distintos: (1) un grupo de TEPTC y (2) un grupo de TEPT. Las distintas DVPM se resumieron en cuatro factores superiores. La pertenencia al grupo de TEPT-C se asoció con tipos de experiencias

potencialmente traumáticas en la infancia y uno de los cuatro factores de DVPM, denominada, 'adquisición y barreras del lenguaje'.

Conclusiones: Los resultados sugieren que no las DVPM en general, sino los tipos específicos de DVPM, están asociados con el TEPT-C. Una supuesta relación bidireccional entre estos factores de DVPM y los síntomas de TEPT-C podría conducir a una espiral de angustia creciente, y podría considerarse en las estrategias de tratamiento.

遭受创伤的难民和寻求庇护者的复杂性创伤后应激障碍和移民后生活困难: 语言习得和障碍的作用

背景: 许多创伤经历和移民后生活困难 (PMLD) 增加了居住在奥地利的阿富汗难民和寻求庇护者出现复杂性创伤后应激障碍 (CPTSD) 症状的风险。研究反复将更高水平的 CPTSD 与更高水平的 PMLD 联系起来。将 PMLD 归纳为经历衍生因素可能有助于进一步了解其与不同 CPTSD 簇中症状表现的相互作用。

目的: 本研究旨在考查 ICD-11 CPTSD 的同质亚组及其与人口统计学变量, 创伤经历和 PMLD 经历衍生因素的关联。

方法: 在一项随机对照试验 (RCT) 中, 通过一个使用 ITQ 的完全结构化的面对面和口译辅助访谈, PMLDC 和创伤检查表, 对一个 93 名寻求治疗的阿富汗难民和寻求庇护者样本中进行了 CPTSD, PMLD 和创伤经历评估。考查了 CPTSD 的潜在簇, PMLD 的高阶因素及其关联。

结果: 共有 19.4% 的样本符合 PTSD 诊断标准, 49.5% 的样本符合 CPTSD 诊断标准。我们确定了一个由两个不同亚组组成的 2 簇解决方案作为最佳拟合: (1) CPTSD 簇和 (2) PTSD 簇。众多 PMLD 被总结为四个高阶因素。CPTSD 簇所属与童年潜在创伤经历类型以及四个 PMLD 因素之一有关, 即 '语言习得和障碍'。

结论: 结果表明, 不是一般的 PMLD, 而是特定类型的 PMLD, 与 CPTSD 相关。这些 PMLD 因素和 CPTSD 症状之间假设的双向关系可能导致精神痛苦增加的恶性循环, 并且可以在治疗策略中加以考虑。

1. Introduction

Since the 1980s, ongoing and renewed conflicts, human rights violations, and unstable security conditions have forced numerous individuals to flee from Afghanistan. As the third most common country of origin, the UN Refugee Agency (UNHCR) recorded around 2.7 million Afghan refugees recognized under international law, and 0.3 million asylum seekers currently awaiting legal recognition, in 2019 (UNHCR, 2020). Compared to refugee populations from other countries of origin in Austria, Afghans report particularly low health (Georges, Buber-Ennsner, Rengs, Kohlenberger, & Doblhammer, 2021). Prolonged, repeated, and/or interpersonal traumatic experiences in the country of origin or during flight are highly prevalent among refugees (Bogic, Njoku, & Priebe, 2015), with between 40 and 90% reporting at least one traumatic experience, depending on the sample and location (Scoglio & Salhi, 2020). Thus the diagnosis of complex post-traumatic stress disorder (CPTSD), introduced in the ICD-11, is especially suitable to capture the more far-reaching psychological consequences following complex trauma. In addition to traumatic experiences, it is important to consider post-migration living difficulties (PMLDs) in Austria in order to understand better the mental health problems in refugees. However, it is not yet clear how CPTSD and PMLDs relate to one another.

1.1. Post-migration living difficulties

Traumatic exposure has been shown to severely impact mental health (Bogic et al., 2015; Cloitre

et al., 2009). In recent years, increasing attention has been paid to the influence of the multiple, heterogeneous stressors associated with facing a foreign country, language, and culture following migration on mental health (Hynie, 2018; Li, Liddell, & Nickerson, 2016). The term post-migration living difficulties (PMLDs) subsumes various different constructs, including interpersonal stressors (e.g. discrimination, social isolation), emotional stress (e.g. feelings of loneliness), stressors associated with the asylum process (e.g. work permit, insecure visa), or migration-related aspects (e.g. family separation, language barriers) (Li et al., 2016; Schweitzer, Melville, Steel, & Lacherez, 2006). Despite this heterogeneity, however, most previous studies used single sum scores to capture a potentially common entity (Silove et al., 2018), or selected specific individual PMLDs (Liddell et al., 2019) to investigate their association with mental health problems. So far, these studies have shown that while stress and feelings of anxiety may be part of a normal response associated with PMLDs, chronic exposure to PMLDs increases the risk of developing serious mental health problems at least to the same extent as traumatic experiences (Bogic et al., 2015; Li et al., 2016).

Different PMLDs might have distinct effects on mental health, and an empirical subdivision would therefore allow for a more differentiated investigation of the effects. To date, there have only been a small number of attempts to categorize the high number of PMLDs and to analyse their common effects without merely using a single sum score. Silove (1998) first subsumed the individual PMLDs into five underlying

factors using exploratory factor analysis. Further efforts to categorize the total number of PMLDs resulted in partly similar domains depending on the sample, host country, and PMLDs assessed, with mostly separate groups concerning the asylum procedure, socio-economic living conditions, discrimination, and family concerns (Laban, Gernaat, Komproe, Van Der Tweel, & de Jong, 2005; von Haumeder, Ghafoori, & Retailliau, 2019). Due to the small number of studies in this regard, and the influence of regional differences, no consensus on the subdivision of PMLDs has yet been reached. Based on the aforementioned assumption that the multitude of heterogeneous PMLDs could have different impacts on mental health, researchers have emphasized the importance of further investigating the effects of different types of PMLD on mental health (Hou et al., 2019).

1.2. Complex post-traumatic stress disorder

In order to better capture the complex consequences of traumatic experiences, the diagnosis of complex post-traumatic stress disorder (CPTSD) was introduced in the ICD-11, comprising in total six symptom clusters. Three symptom clusters (re-experiencing, avoidance, sense of current threat) are shared with post-traumatic stress disorder (PTSD) and the remaining three symptom clusters are linked to disturbances in self-organization (DSO; affect dysregulation, negative self-concept, difficulties in interpersonal relationships). In addition, both diagnoses require functional impairment to be considered fulfilled (WHO, 2019).

A growing body of research has examined groups of trauma survivors characterized by different CPTSD symptom presentations as well as various variables associated with these different presentations (Brewin et al., 2017). While several studies investigated CPTSD in various samples (Knefel, Garvert, Cloitre, & Lueger-Schuster, 2015), only a few of them took into account refugee samples (e.g. Barbieri et al., 2019). Nonetheless, the initial evidence supports the suitability of the diagnosis of CPTSD in refugee populations and indicates cross-cultural validity (Hyland et al., 2018). Most refugee studies identified three homogeneous subgroups including CPTSD, PTSD, and a low symptom group (Hyland et al., 2018), or four subgroups with an additional group characterized by elevated affective dysregulation (Liddell et al., 2019). A lower number of homogeneous subgroups of individuals with CPTSD has rarely been identified (Barbieri et al., 2019; Palic et al., 2016). Investigations of demographic variables associated with membership of the CPTSD subgroup have yielded inconsistent findings. While some studies reported no associations with demographic variables (Barbieri et al., 2019; Hyland et al.,

2018), others found that variables such as female gender (Liddell et al., 2019), lower educational attainment, or living alone (Perkonig et al., 2015) were associated with membership of the CPTSD subgroup. Further results indicated associations of CPTSD with functional impairment (Hyland et al., 2018; Palic et al., 2016; Perkonig et al., 2015), cumulative trauma (Liddell et al., 2019), and a higher number of comorbidities (Murphy, Elklit, Dokkedahl, & Shevlin, 2016). While the characteristics of CPTSD subgroups in refugee samples have been sparsely investigated, to the best of our knowledge, there is no study with a focus on the even more burdened treatment-seeking population of refugees from Afghanistan who have a long history of war and violence.

1.3. Associations between CPTSD and PMLDs

While PMLDs overall have been found to predict CPTSD symptom severity (Hecker, Huber, Maier, & Maercker, 2018), the specific contribution of different aspects of PMLDs to CPTSD symptom presentation has not yet been investigated. A study using the aforementioned single sum score of PMLDs found first evidence suggesting an association between elevated CPTSD and an overall higher degree of PMLDs in refugees (Tay et al., 2018). Another study also found a positive relationship of individual PMLDs, such as insecure asylum status, with CPTSD in refugees and asylum seekers (Liddell et al., 2019). As the ICD-11 CPTSD is a rather new diagnosis, studies utilizing this classification are only just beginning to emerge, although there is more research suggesting an association between individual PMLDs and the symptoms of PTSD. For example, language learning difficulties (Kartal, Alkemade, & Kiropoulos, 2019; Söndergaard & Theorell, 2004), occupational problems, and difficulties in accessing social and health services (Hou et al., 2019) were found to be associated with increased PTSD symptoms. The results of a mediator analysis conducted within a meta-analysis indicated a positive association between prior traumatic experiences and PTSD, which was mediated by different forms of PMLDs such as interpersonal daily stressors (Hou et al., 2019).

Taken together, to date, findings on CPTSD and its association with PMLDs in refugees are scarce, and the assumed complex and possibly varying relationships of different types of PMLDs with CPTSD remain unclear (Barbieri et al., 2020). We aimed to contribute to a better understanding of the patterns of CPTSD symptom presentation and their associations with traumatic experiences, distinct types of PMLDs, and demographic variables in treatment-seeking Afghan refugees and asylum seekers. Specifically, the present study aimed to (1) examine emerging subgroups of CPTSD symptoms, (2) explore the factor structure of

PMLDs, and (3) investigate the associations of different CPTSD symptom subgroups with demographic variables, traumatic experiences, and PMLD factors.

2. Methods

Data were collected as part of the baseline assessment of a randomized controlled trial (RCT; PIAAS-Study; Knefel et al., 2020) between July 2019 and December 2020. All participants provided full informed consent, and the study was approved by the ethics committee of the University of Vienna (reference numbers: 00356 and 00445).

2.1. Participants

The final sample comprised 93 treatment-seeking, Dari-speaking adult Afghan refugees or asylum seekers in Austria. Inclusion criteria were: (a) psychological treatment-seeking in specific institutions (b) increased mental distress based on a screening questionnaire (RHS-15). Exclusion criteria were (a) a current condition that impeded participation and required other treatment (severe mental disorder such as psychotic disorders or substance dependence, acute suicidality), (b) severe cognitive impairment or (c) current psychological treatment (Figure 1). Due to the low literacy rate, the conditions of participation were thoroughly discussed with each participant before consent was obtained. Participants were reimbursed for travel expenses. Sample size calculations and power analysis were conducted for the RCT and can be found in the published study protocol (Knefel et al., 2020). Sample characteristics are reported in Table 1.

2.2. Measures

Sociodemographic data were assessed at the baseline assessment, including general and specific information relevant to the research question.

German and Dari versions of the International Trauma Questionnaire (ITQ), Post-Migration Living Difficulties Checklist (PMLDC) and Harvard Trauma Questionnaire (HTQ) were provided. The assessment was conducted as a fully structured interview with a trained psychologist and a specifically trained interpreter. Additionally, all Likert scales were displayed visually to better represent the gradations in the response options.

The ITQ (Cloitre et al., 2018) measures six symptom clusters of CPTSD and additionally functional impairment in different contexts using 18 items. Participants were asked to indicate how often they had experienced post-traumatic symptoms in the last month on a 5-point Likert scale from 'not at all' (0) to 'extremely' (4). The criteria for the symptom cluster were considered to be fulfilled if at least one of the two respective items resulted in a value equal to or higher than 2. To meet the CPTSD criteria, all six symptom clusters had to be met and functional impairment due to PTSD and DSO had to be present. Initial validations of the ITQ have shown good psychometric properties. The Cronbach's alpha coefficient in the present study was .89.

The PMLD Checklist is a self-report questionnaire used to assess a wide range of PMLDs in refugees and asylum seekers (Silove, Sinnerbrink, Field, Manicava sagar, & Steel, 1997). The final version was adapted for Austria and contains 26 items (Knefel et al., 2020). Participants were asked to record the frequency of experiencing the different PMLDs in the last month on a 5-point Likert scale from 'not at all' (0) to 'extremely' (4). For an overview of the items and adaptations, see Table 2. The Cronbach's alpha coefficient in the present study was found to be .77.

Potentially traumatic experiences were assessed with an adapted version of the Trauma Checklist of the Harvard Trauma Questionnaire (HTQ) (Mollica et al., 1992) including 29 dichotomous items. Participants were asked to indicate whether they had experienced or witnessed the events personally. In addition, a specifier recorded when the trauma was experienced (childhood, adulthood, or both). The questionnaire was developed

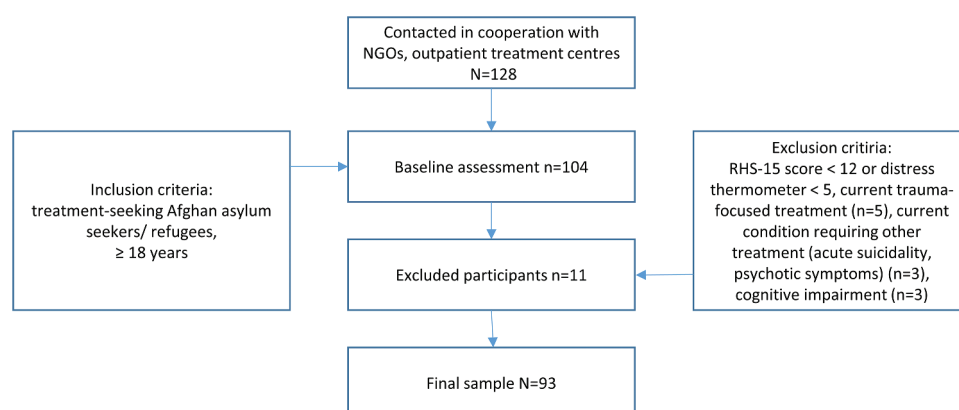


Figure 1. Participants flow chart.

Table 1. Sociodemographic characteristics.

Baseline Characteristic	Total (N = 93) n (%/SD)
Gender (%)	
Female	42 (45.2)
Male	51 (54.8)
Age (SD)	34.77 (13.84)
Marital status	
Single	37 (39.8)
Married/Cohabiting	48 (51.7)
Divorced/widowed	7 (7.6)
Highest educational achievement (%)	
No formal education	35 (37.6)
Elementary school	21 (22.6)
Secondary school	16 (17.2)
High school	16 (17.2)
University	4 (4.3)
Employment(%)	
Employed or in training	7 (7.5)
Student	11 (11.8)
Unemployed without work permit	21 (22.6)
Unemployed	36 (38.7)
Unable to work/ permanently ill	2 (2.2)
Retired	2 (2.2)
Unpaid housework, childcare	2 (2.2)
Other (e.g. community service)	7 (7.5)
Asylum Status (%)	
Granted asylum	40 (43.0)
Subsidiary protection	18 (19.4)
Asylum seeker/ asylum seeker appealing rejection	27 (29.0)
Austrian citizenship	3 (3.2)
Other	4 (4.3)

Note: Numbers may not sum to total N and percentages may not sum to 100 due to missing values.

for refugees and has been validated in various studies (Kleijn, Hovens, & Rodenburg, 2001).

3. Analysis

The analytical strategy for the current study included three steps, corresponding to the three study aims.

First, a cluster analysis was conducted for all 20 imputed data sets following the recommended steps (Basagaña, Barrera-Gómez, Benet, Antó, & Garcia-Aymerich, 2013) to cluster the six CPTSD symptom domains into meaningful, mutually exclusive subgroups based on similarities among the data. The resulting homogeneous subgroups exhibit high external (between-group) heterogeneity and internal (within-group) homogeneity (Balijepally, Mangalaraj, & Iyengar, 2011). Cluster analysis allows quantification of structural features of observations and is useful for simplifying data, describing taxonomies, and identifying relationships. The R package 'NbClust' was used to determine the relevant number of clusters in a dataset by evaluating 26 different indices, varying cluster size and distance measures (Charrad, Ghazzali, Boiteau, & Niknafs, 2014). After determining the relevant number of clusters, the k-means algorithm assigns each observation to exactly one of the k clusters. The k-means method is a centroid-based clustering and divides the observations into k clusters based on an iterative clustering algorithm. It was performed with the package 'stats' in R (R Core Team,

Table 2. Regularized exploratory factor analysis.

Items How often was the problem listed below true for you?	Factor	I	II	III	IV
13. Not having enough money to buy food, necessary clothing, or pay rent	DS	.76	-.02	-.12	.09
14. Difficulties in obtaining financial support	DS	.68	-.03	-.01	.15
2. Discrimination	DS	.47	-.01	-.14	-.23
17. Difficulties in obtaining adequate housing	DS	.46	.12	.25	-.09
22. Dependence on others due to language (loss of autonomy)*	LAB	-.05	.72	-.10	.13
1. Communication difficulties	LAB	-.26	.63	-.13	.05
24. Difficulties in understanding bureaucratic processes in Austria*	LAB	.18	.66	.11	-.30
16. Difficulties learning German	LAB	.00	.55	.02	.07
19. No contact with family and friends in the country of origin*	LAB	.19	.41	.16	.13
10. No recognition as a refugee	RI	-.09	-.22	.76	.01
11. Fear of future deportation to the homeland	RI	-.04	.16	.69	.08
21. Negative media reports about Afghan fellow citizens in Austria*	RI	.21	.10	.36	.05
4. Family separation	FC	-.02	.01	.30	.60
26. Homesickness*	FC	.20	.02	.00	.58
5. Concern for family members remaining in the home country or living far away	FC	.09	-.03	-.06	.47
3. Conflicts with own or other ethnic groups in Austria	X	.34	-.05	.20	.18
6. Impossibility to travel home in case of emergency	X	.12	.01	.06	.32
7. Difficulties with work (e.g.: work permit, working conditions)	X	.13	.08	.07	.25
8. Difficulties with official channels (e.g.: interview with asylum agency)	X	.35	.13	.30	-.27
9. Conflicts with authorities	X	.30	-0.05	.15	-.35
12. Worries about not receiving medical support or treatment for health problems	X	.29	.36	-.01	-.01
15. Loneliness, boredom or isolation	X	.15	.16	.30	.28
18. Family pressure, expectations which cannot be fulfilled*	X	.33	.03	-.18	.39
20. Stressful media reports and social media content*	X	.08	.15	.25	.27
23. Stigmatization due to origin*	X	.33	.04	.29	.08
25. Different social norms than in the country of origin*	X	.19	.03	.13	-.10

Note: N = 93. * Items added in the adapted checklist. The extraction method was regularized least squares estimation with an oblimin rotation. Factor loadings above .30 are in bold. X = excluded items. Missing data were handled with predictive mean matching was used.

2021). Further analysis of the cluster characteristics were used for cluster validation.

Second, regularized exploratory factor analysis (REFA) was applied to the first with predictive mean matching imputed data set (McNeish, 2016) to summarize the individual PMLDC items into a smaller number of superior factors. This method is especially suitable for small samples and can thus provide stable factor-loading estimates (Jung & Lee, 2011). We used the R package 'fungible' (Waller, 2021). In contrast to confirmatory factor analysis, EFA does not make any prior assumptions about the number of factors and the relevant relationships between the variables; we chose this approach

because it would not have been possible to proceed in a theory-based manner based on the current state of research. Due to non-normal distribution of the data, a principal factor method was chosen as recommended (Costello & Osborne, 2005), with an oblique (oblimin, direct) rotation. The number of factors to retain was based on several criteria: (1) a visual examination of the scree plot; (2) parallel analysis of Velicer's minimum average partial (MAP) test (O'Connor, 2000), and (3) considerations regarding the meaning and interpretability of the factor model. Items that loaded more than .30 on a primary factor and did not have any cross-loadings (O'Connor, 2000) with less than .2 difference (Gaskin, 2015) were summarized into sum scores.

Third, to examine the associations between CPTSD clusters and various variables (childhood potentially traumatic experience (PTE) types, adulthood PTE types, PMLD factors) which are assumed to characterize cluster membership, multivariate analysis of variance (MANOVA) and subsequent p -value pooling was applied (Finch, 2016). Pillai's Trace was applied as a multivariate statistic because this estimator is more robust and less sensitive to violations of multivariate normality. As a nonparametric alternative, multiple imputation student's t tests were applied for post-hoc analysis. The association between CPTSD clusters and gender was investigated with χ^2 tests. The MANOVA and post-hoc tests were calculated using 'stats' package in R (R Core Team, 2021).

3.1. Missing data

In the six symptom clusters for CPTSD and functional impairment, a total of 3.3% (3.2–4.3%) single data points were missing, stemming from four incomplete cases. For the PMLDC, 3.6% (3.2–5.4%) missing values were found from 10 incomplete cases. Due to a more than 50% high proportion of missing values, three cases were deleted completely. Missing values were estimated by multiple imputation ($m = 20$, method = 'predictive mean matching') using Fully Conditional Specifications (FCS; Van Buuren & Groothuis-Oudshoorn, 2011), an algorithm in the R package 'mice'.

Results

This section is organized according to the three aims of the study.

3.2. CPTSD symptom patterns

Cluster solutions from zero to nine were evaluated using 26 fit indices. Most fit indices favoured a two cluster solution (Figure 2).

Participants assigned to the first cluster (54.6%) reported higher average levels of symptoms across all items compared with participants in the second cluster (45.4%). Based on the symptom profiles (Figure 3), we labelled the clusters 'CPTSD cluster' and 'PTSD cluster'. The highest scores in the PTSD cluster were found in the items assessing PTSD symptoms and the first item of affective dysregulation (long time to calm down). The mean scores of the item on avoidance of internal

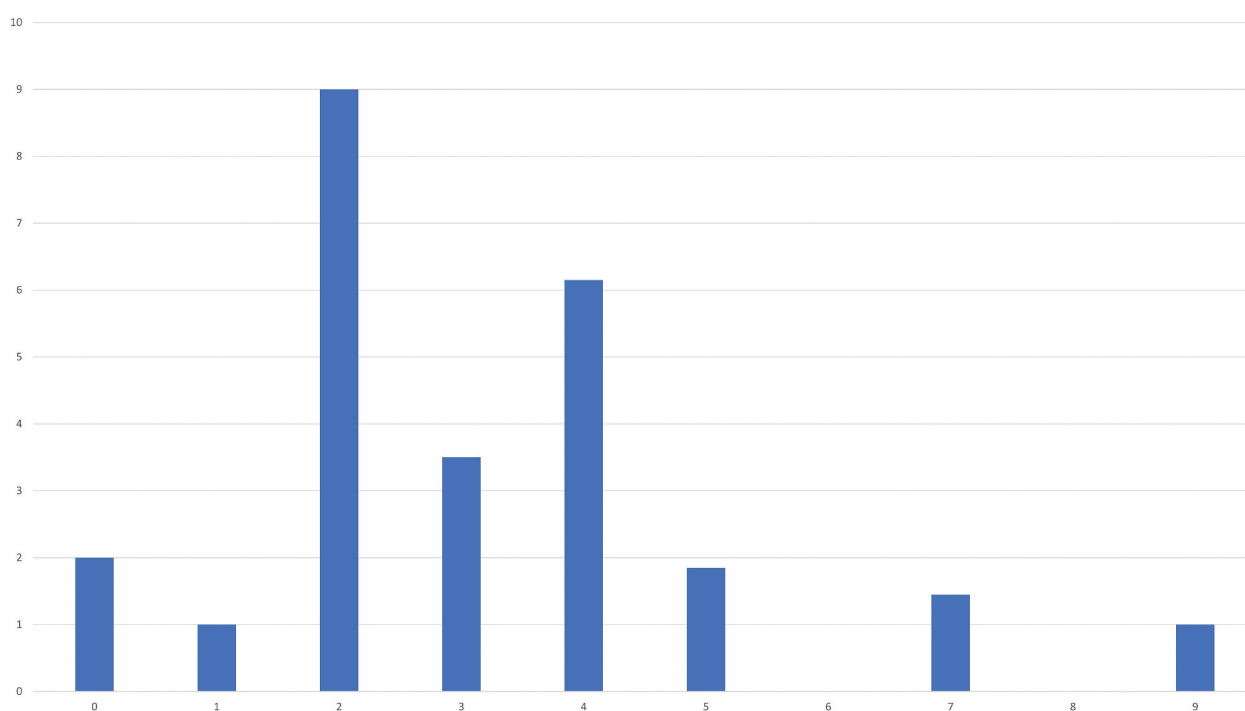


Figure 2. NbClust's optimal number of clusters. Note: Average best number of clusters determined with NbClust by evaluating 26 indices. A total of $m=20$ imputed data sets were considered.



Figure 3. Symptom patterns of CPTSD by cluster. Note: Mean values of ITQ item responses according to most frequent cluster membership within all imputed data sets ($m=20$): upsetting dreams (Re1), reexperiencing the event in the here and now (Re2), avoidance of internal reminders (Av1), avoidance of external reminders (Av2), hypervigilance (Th1), jumpy/startled (Th2), long time to calm down (AD1), numb (AD2), failure (NSC1), worthless (NSC2), cut-off from others (DR1), difficulties to stay close to others (DR2).

reminders yielded the smallest difference between the clusters. Individuals in the PTSD cluster reported lower levels of emotional numbing, negative self-concept, and difficulties in interpersonal relationships.

3.3. PMLD factors

Parallel analysis indicated a 4-factor solution across all PMLDC items. Specifically, the derived empirical eigenvalue for the fourth factor (1.99) was larger than its simulated counterpart (1.30), and the derived empirical eigenvalue for the fifth factor (1.47) was smaller than its simulated counterpart (1.73); hence, the 4-factor solution was accepted.

The factors corresponded to (1) discrimination & socioeconomic living conditions (DC), (2) language acquisition & barriers (LAB), (3) residence insecurity (RI), and (4) family concerns (FC). The 4-factor solution had the best fit to the data, accounting for 41.53% of the variance. Factor loadings are shown in Table 2. Since further investigation of the relationship to the CPTSD symptom clusters required factors that were as unambiguous as possible, the following items were deleted due to not loading adequately on their respective factors (≥ 0.3) or due to cross-loading with a difference lower than 0.2 as recommended (O'Connor, 2000) item no.: 3, 6, 7, 8, 9, 12, 15, 18, 20, 23, 25.

3.4. Characteristics of CPTSD cluster membership

The two clusters were compared in terms of the total number of childhood or adulthood PTE types and

PMLD factors. MANOVA results showed differences in the two clusters [$F = 2.35, p < .001, \eta^2 = 0.15$]. Individuals in the CPTSD cluster reported more problems language acquisition & barriers ($t(85.13) = 2.81, p = .006$). Overall, individuals in the CPTSD cluster reported a higher total number of childhood PTE types ($t(85.72) = 2.22, p = .029$). There were no differences in distress from the asylum process [$t(85.44) = 1.40, p = .165$, family concerns ($t(85.34) = .41, p = .684$) or discrimination & socioeconomic living conditions ($t(84.78) = 1.90, p = .061$). The clusters also did not differ in terms of reported adulthood PTE types ($t(85.80) = .42, p = .673$) or gender ($\chi^2 = .01, p = .906$). The overall results are presented in Table 3.

4. Discussion

In the present study, we identified two homogeneous subgroups of CPTSD symptom presentation: a PTSD cluster and a CPTSD cluster (aim 1). We subsumed the multitude of PMLDs into four superior factors: discrimination & socio-economical living conditions, language acquisition & barriers, family concerns, and residence insecurity (aim 2). In a third step, we investigated the relationship between CPTSD cluster membership and demographic variables, childhood & adulthood PTE types, and the PMLD factors, and found associations with childhood PTE types, and the PMLD factors discrimination & economical living conditions and language acquisition & barriers.

The study reached a total of 93 Afghan treatment-seeking refugees and asylum seekers in Austria, with an

Table 3. Association with trauma & PMLDs.

Predictor variable	CPTSD class M (SD)	PTSD class M (SD)	t(df)
Childhood PTE Types	7.54 (5.47)	5.06 (4.95)	2.26 (85.56)*
Adulthood PTE Types	8.26 (5.94)	7.74 (5.63)	0.41 (85.74)
PMLDs 1	11.34 (4.16)	9.68 (3.99)	1.87 (85.67)
Socio-economical living conditions & Discrimination			
PMLDs 2	17.10 (4.10)	14.45 (4.79)	2.78 (85.62)**
Language acquisition & barriers			
PMLDs 3	13.53 (4.02)	13.18 (4.02)	0.35 (85.56)
Family concerns			
PMLDs 4	10.24 (3.80)	9.15 (3.50)	1.42 (85.69)
Residence insecurity			

Note: * $p < .05$. ** $p < .01$. *** $p < 0.001$. Multiple imputation ($m = 20$) and p -value pooling was used.

unexpectedly high participation rate of women (45.2%). Almost half of the participants had a secure asylum status at the time of participation (granted asylum, Austrian citizenship). Consistent with other studies in treatment-seeking refugees, there was a high rate of individuals without a formal education (37.6%).

According to the first aim of the study, we investigated latent subgroups of CPTSD. The 2-cluster solution was identified as the best-fitting model, including a CPTSD cluster with a very high level across all symptoms and a PTSD cluster with increased PTSD symptoms and difficulties calming down. While the most commonly reported outcomes in studies examining CPTSD patterns were 3- and 4-subgroups (Brewin et al., 2017), one previous study in a treatment-seeking refugee sample identified the 2 subgroups as the best-fitting solution (Barbieri et al., 2019).

To address the second aim, the items of the PMLDC were subsumed into four factors, characterizing the domains of discrimination & socio-economic living conditions, family concerns, language acquisition & barriers, and residence insecurity. In previous studies, PMLDs associated with the asylum process and family concerns yielded separate factors (Laban et al., 2005; Silove, Steel, McGorry, & Mohan, 1998), while discrimination (Laban et al., 2005) and language (von Haumeder et al., 2019) were not consistently identified as separate domains. In contrast to Silove et al. (1998), discrimination and language resulted in two separate factors in our study, but discrimination formed a separate factor together with the frequently reported factor of socioeconomic life conditions (Laban et al., 2005).

Finally, in line with the third aim of the study, we examined the association of gender, traumatic experiences in childhood, discrimination & socio-economical living conditions, and difficulties in language acquisition & barriers with CPTSD cluster membership.

Consistent with previous studies (Cloitre et al., 2019; Palic et al., 2016), traumatic experiences in childhood were associated with the CPTSD cluster membership, whereas traumatic experiences in adulthood were not associated with the CPTSD cluster. Developmental theories emphasize that children and adults have to accomplish various developmental tasks at different time points. Traumatic experiences can hinder successful mastery of these tasks, such as the development of affect regulation

skills, secure attachment, or a stable, positive self-concept (Cloitre et al., 2009). Due to the overlap of DSO with other mental disorders, we assume that the CPTSD class reflects a group of highly distressed individuals with further psychopathology. This might lead to an increased sensitivity to new stressors (Glaser, Van Os, Portegijs, & Myin-Germeys, 2006), interfere with the processing of prior traumatic experiences, or hamper the subsequent handling of PMLDs (Nickerson et al., 2015).

Our results indicate that not all forms of PMLDs are equally related to the CPTSD cluster: Only the PMLD factor language acquisition & barriers showed an association. Language is a crucial tool for adapting to a new environment and connecting with people. Language skills support the fulfilment of basic needs and adaptive coping with PMLDs, and foster the understanding of current situations (von Haumeder et al., 2019). Overall, few studies have examined the relationship between language skills and trauma sequelae. Preliminary results showed that difficulties in acquiring the host language mediated the effect between traumatic experiences and PTSD (Kartal et al., 2019).

While our results do not allow for conclusions regarding directionality, we assume a bidirectional relationship between CPTSD symptoms and the associated PMLD factor, language acquisition & barriers. A reciprocal influence between CPTSD symptoms and PMLD factors could lead to a downward spiral of elevated CPTSD symptoms, increased distress caused by PMLDs, and greater difficulties in handling the mental disorder and PMLDs. For example, difficulties in language acquisition, language barriers, and CPTSD symptoms such as associated affective dysregulation, re-experiencing symptoms and deficits in social skills might not only increase the risk of experiencing overwhelming situations but also reduce the possibilities to actively cope with those, which in turn could lead to increased emotional distress. Affective dysregulation might result in a more intense response to emotional cues and increased difficulty in calming down. In the long term, these experiences of difficulties in language acquisition and repeated confrontation with language barriers as well as associated dependency on others, might lead to increased CPTSD symptomatology, such as further deterioration of the negative self-concept, more difficulties in relationships, or social withdrawal.

These dynamics and cognitive deficits associated with CPTSD (Etkin, Gyurak, & O'Hara, 2013) may further complicate language acquisition. In turn, the resulting problems in everyday life may increase the risk of social exclusion, and aggravate mental health problems (Kartal et al., 2019). Additionally, low trust in the health care system can impede access to health care services (Ben, Cormack, Harris, & Paradies, 2017).

4.1. Strengths and limitations

The major strength of the present study lies in the investigation of the research questions in an extremely psychologically strained, hard-to-reach population of refugees and asylum seekers. The face-to-face, interpreter-assisted, fully structured interview conducted by a trained clinical psychologist allowed for the participation of illiterate individuals and enabled the implementation of preventive interventions to reduce stress and/or concentration problems during the assessment. Moreover, the person-centred approach enabled us to examine homogeneous subgroups of CPTSD symptoms and their different associations with various PMLD factors.

Nevertheless, some limitations of the study should be noted. All subjects in our sample were Afghan refugees in Austria and it cannot be excluded that different findings would have emerged in other ethnic groups or cultural contexts. Due to the cross-sectional study design, it is not possible to establish directionality. Although special attention was given to the selection of measures, and statistical methods suitable for small samples, the small sample size and the selection of a widely used but insufficiently evaluated test instrument without established subscales to assess PMLDs could still reduce the statistical power and increased the likelihood of a Type II error. It should also be noted that the study was not preregistered and Covid-19 pandemic interrupted the assessment process. As daily activities and social contacts have been limited in recent months, this might have influenced symptom severity and the experience of PMLDs. However, given the strengths of our study, the results mirrored the psychological distress in treatment-seeking traumatized refugees and asylum seekers and its association with PMLDs. Thus, future post-pandemic replications of the study with larger samples and a longitudinal design are recommended to further investigate the generalizability and the directionality of the results.

4.2. Clinical implications

The present findings underline the importance of understanding mental health problems while taking into account traumatic experiences and PMLDs (Nickerson, Bryant, Silove, & Steel, 2011). Childhood PTE types and PMLDs in the form of difficulties in language acquisition and language barriers, should be especially considered in

individuals with high CPTSD symptomatology and integrated into diagnostic and treatment strategies. A reduction of the psychological strain associated with PMLDs could be achieved by promoting, for example, affect regulation, social skills, and a positive self-concept, which are acknowledged elements of the psychological treatment of CPTSD (Schäfer et al., 2019). Trauma-focused treatment strategies could reduce potential re-experiencing symptomatology. Individual difficulties in language acquisition and distress due to language barriers should be reduced by personalized psychological interventions to counter the particular problem, such as stress management to improve cognitive deficits associated with CPTSD. The establishment of trauma-sensitive language courses might be a further interdisciplinary task for pedagogues and psychologists (Kartal et al., 2019).

4.3. Conclusion

Our findings highlight that different CPTSD symptom clusters are associated to varying degrees with different trauma histories and forms of PMLDs. Programmes addressing the mental health needs of refugees and asylum seekers should include interventions at various levels, including psychological therapy, trauma-sensitive language courses, and measures to facilitate inclusion in the host society.

Data availability statement

The data that supports the findings of this study are openly available in 'Zenodo' at <https://doi.org/10.5281/zenodo.5054032>. Further information and R Scripts are available from the corresponding author upon reasonable request.

Disclosure statement

The authors declare that they have no competing financial or personal interests.

Funding

The project was funded by the Austrian Science Fund (FWF) Grant No. KLI 755-B.

ORCID

Matthias Knefel  <http://orcid.org/0000-0003-0632-0673>
 Viktoria Kantor  <http://orcid.org/0000-0003-1485-8123>
 Ingo Schäfer  <http://orcid.org/0000-0002-9711-3559>
 Brigitte Lueger-Schuster  <http://orcid.org/0000-0003-0784-8437>

References

Balijepally, V., Mangalaraj, G., & Iyengar, K. (2011). Are we wielding this hammer correctly? A reflective review of the

- application of cluster analysis in information systems research. *Journal AIS*, 12(5). doi:10.17705/1jais.00266
- Barbieri, A., Visco-Comandini, F., Alunni Fegatelli, D., Dessi, A., Cannella, G., Stellacci, A., & Pirschio, S. (2020). Patterns and predictors of PTSD in treatment-seeking African refugees and asylum seekers: A latent class analysis. *International Journal of Social Psychiatry*, 002076402095909. doi:10.1177/0020764020959095
- Barbieri, A., Visco-Comandini, F., Alunni Fegatelli, D., Schepisi, C., Russo, V., Calò, F., ... Stellacci, A. (2019). Complex trauma, PTSD and complex PTSD in African refugees. *European Journal of Psychotraumatology*, 10(1), 1700621. doi:10.1080/20008198.2019.1700621
- Basagaña, X., Barrera-Gómez, J., Benet, M., Antó, J. M., & Garcia-Aymerich, J. (2013). A framework for multiple imputation in cluster analysis. *American Journal of Epidemiology*, 177(7), 718–725. doi:10.1093/aje/kws289
- Ben, J., Cormack, D., Harris, R., & Paradies, Y. (2017). Racism and health service utilisation: A systematic review and meta-analysis. *PloS One*, 12(12), e0189900. doi:10.1371/journal.pone.0189900
- Bogic, M., Njoku, A., & Priebe, S. (2015). Long-term mental health of war-refugees: A systematic literature review. *BMC International Health and Human Rights*, 15(1), 29. doi:10.1186/s12914-015-0064-9
- Brewin, C. R., Cloitre, M., Hyland, P., Shevlin, M., Maercker, A., Bryant, R. A., ... Rousseau, C. (2017). A review of current evidence regarding the ICD-11 proposals for diagnosing PTSD and complex PTSD. *Clinical Psychology Review*, 58, 1–15. doi:10.1016/j.cpr.2017.09.001
- Charrad, M., Ghazzali, Boiteau, V., & Niknafs, A. (2014). NbClust: An R package for determining the relevant number of clusters in a data set. *Journal of Statistical Software*, 61(6), 1–36. doi:10.18637/jss.v061.i06
- Cloitre, M., Hyland, P., Bisson, J. I., Brewin, C. R., Roberts, N. P., Karatzias, T., & Shevlin, M. (2019). ICD-11 Posttraumatic stress disorder and complex posttraumatic stress disorder in the United States: A population-based study. *Journal of Traumatic Stress*, 32(6), 833–842. doi:10.1002/jts.22454
- Cloitre, M., Shevlin, M., Brewin, C. R., Bisson, J. I., Roberts, N. P., Maercker, A., ... Hyland, P. (2018). The international trauma questionnaire: Development of a self-report measure of ICD-11 PTSD and complex PTSD. *Acta Psychiatrica Scandinavica*, 138(6), 536–546. doi:10.1111/acps.12956
- Cloitre, M., Stolbach, B. C., Herman, J. L., van der Kolk, B., Pynoos, R., Wang, J., & Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of Traumatic Stress*, 22(5), 399–408. doi:10.1002/jts.20444
- Costello, A. B., & Osborne, J. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research, and Evaluation*, 10(7). doi:10.7275/JYJ1-4868
- Etkin, A., Gyurak, A., & O'Hara, R. (2013). A neurobiological approach to the cognitive deficits of psychiatric disorders. *Dialogues in Clinical Neuroscience*, 15(4), 419–429. doi:10.31887/DCNS.2013.15.4/aetkin
- Finch, W. H. (2016). Missing data and multiple imputation in the context of multivariate analysis of variance. *The Journal of Experimental Education*, 84(2), 356–372. doi:10.1080/00220973.2015.1011594
- Gaskin, J. (2015). *Exploratory factor analysis*. Gaskination's StatWiki. Retrieved from <http://statwiki.kolobkreations.com>
- Georges, D., Buber-Enns, I., Rengs, B., Kohlenberger, J., & Doblhammer, G. (2021). Health determinants among refugees in Austria and Germany: A propensity-matched comparative study for Syrian, Afghan, and Iraqi refugees. *PloS One*, 16(4), e0250821. doi:10.1371/journal.pone.0250821
- Glaser, J.-P., Van Os, J., Portegijs, P. J. M., & Myin-Germeys, I. (2006). Childhood trauma and emotional reactivity to daily life stress in adult frequent attenders of general practitioners. *Journal of Psychosomatic Research*, 61(2), 229–236. doi:10.1016/j.jpsychores.2006.04.014
- Hecker, T., Huber, S., Maier, T., & Maercker, A. (2018). Differential associations among PTSD and complex PTSD symptoms and traumatic experiences and postmigration difficulties in a culturally diverse refugee sample. *Journal of Traumatic Stress*, 31(6), S. 795–804. doi:10.1002/jts.22342
- Hou, W. K., Liu, H., Liang, L., Ho, J., Kim, H., Seong, E., ... Hall, B. J. (2019). Everyday life experiences and mental health among conflict-affected forced migrants: A meta-analysis. *Journal of Affective Disorders*, 264, 50–68. doi:10.1016/j.jad.2019.11.165
- Hyland, P., Ceannt, R., Daccache, F., Abou Daher, R., Sleiman, J., Gilmore, B., ... Vallières, F. (2018). Are post-traumatic stress disorder (PTSD) and complex-PTSD distinguishable within a treatment-seeking sample of Syrian refugees living in Lebanon? *Global Mental Health (Cambridge, England)*, 5, e14. doi:10.1017/gmh.2018.2
- Hynie, M. (2018). The social determinants of refugee mental health in the post-migration context: A critical review. *Canadian Journal of Psychiatry. Revue Canadienne De Psychiatrie*, 63(5), 297–303. doi:10.1177/0706743717746666
- Jung, S., & Lee, S. (2011). Exploratory factor analysis for small samples. *Behavior Research Methods*, 43(3), 701–709. doi:10.3758/s13428-011-0077-9
- Kartal, D., Alkemade, N., & Kiroopoulos, L. (2019). Trauma and mental health in resettled refugees: Mediating effect of host language acquisition on posttraumatic stress disorder, depressive and anxiety symptoms. *Transcultural Psychiatry*, 56(1), 3–23. doi:10.1177/1363461518789538
- Kleijn, W. C., Hovens, J. E., & Rodenburg, J. J. (2001). Posttraumatic stress symptoms in refugees: Assessments with the Harvard Trauma Questionnaire and the Hopkins symptom checklist-25 in different languages. *Psychological Reports*, 88(2), 527–532. doi:10.2466/pr0.2001.88.2.527
- Knefel, M., Garvert, D. W., Cloitre, M., & Lueger-Schuster, B. (2015). Update to an evaluation of ICD-11 PTSD and complex PTSD criteria in a sample of adult survivors of childhood institutional abuse by Knefel & Lueger-Schuster (2013). A latent profile analysis. *European Journal of Psychotraumatology*, 6(1), 25290. doi:10.3402/ejpt.v6.25290
- Knefel, M., Kantor, V., Nicholson, A. A., Schiess-Jokanovic, J., Weindl, D., Schäfer, I., & Lueger-Schuster, B. (2020). A brief transdiagnostic psychological intervention for Afghan asylum seekers and refugees in Austria: A randomized controlled trial. *Trials*, 21(1), 57. doi:10.1186/s13063-019-3839-9
- Laban, C. J., Gernaat, H. B. P. E., Komproe, I. H., Van Der Tweel, I., & de Jong, J. T. V. M. (2005). Postmigration living problems and common psychiatric disorders in Iraqi asylum seekers in the Netherlands. *The Journal of Nervous and Mental Disease*, 193(12), 825–832. doi:10.1097/01.nmd.0000188977.44657.1d
- Li, S. S. Y., Liddell, B. J., & Nickerson, A. (2016). The relationship between post-migration stress and psychological disorders in refugees and asylum seekers. *Current Psychiatry Reports*, 18(9), 82. doi:10.1007/s11920-016-0723-0
- Liddell, B. J., Nickerson, A., Felmingham, K. L., Malhi, G. S., Cheung, J., Den, M., ... Bryant, R. A. (2019). Complex

- posttraumatic stress disorder symptom profiles in traumatized refugees. *Journal of Traumatic Stress*, 32(6), Advance online publication, 822–832. doi:10.1002/jts.22453.
- McNeish, D. (2016). Exploratory factor analysis with small samples and missing data. *Journal of Personality Assessment*, 99(6), 637–652. doi:10.1080/00223891.2016.1252382
- Mollica, R. F., Caspi-Yavin, Y., Bollini, P., Truong, T., Tor, S., & Lavelle, J. (1992). The Harvard Trauma Questionnaire: Validating a cross-cultural instrument for measuring torture, trauma, and posttraumatic stress disorder in Indochinese refugees. *The Journal of Nervous and Mental Disease*, 180(2), 111–116. doi:10.1097/00005053-199202000-00008
- Murphy, S., Elklit, A., Dokkedahl, S., & Shevlin, M. (2016). Testing the validity of the proposed ICD-11 PTSD and complex PTSD criteria using a sample from Northern Uganda. *European Journal of Psychotraumatology*, 7(1), 32678. doi:10.3402/ejpt.v7.32678
- Nickerson, A., Bryant, R. A., Schnyder, U., Schick, M., Mueller, J., & Morina, N. (2015). Emotion dysregulation mediates the relationship between trauma exposure, post-migration living difficulties and psychological outcomes in traumatized refugees. *Journal of Affective Disorders*, 173, 185–192. doi:10.1016/j.jad.2014.10.043
- Nickerson, A., Bryant, R. A., Silove, D., & Steel, Z. (2011). A critical review of psychological treatments of posttraumatic stress disorder in refugees. *Clinical Psychology Review*, 31(3), 399–417. doi:10.1016/j.cpr.2010.10.004
- O'Connor, B. P. (2000). SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test. *Behavior Research Methods*, 32, 396–402. doi:10.3758/BF03200807
- Palic, S., Zerach, G., Shevlin, M., Zeligman, Z., Elklit, A., & Solomon, Z. (2016). Evidence of complex posttraumatic stress disorder (CPTSD) across populations with prolonged trauma of varying interpersonal intensity and ages of exposure. *Psychiatry Research*, 246, 692–699. doi:10.1016/j.psychres.2016.10.062
- Perkonig, A., Höfler, M., Cloitre, M., Wittchen, H.-U., Trautmann, S., & Maercker, A. (2015). Evidence for two different ICD-11 posttraumatic stress disorders in a community sample of adolescents and young adults. *European Archives of Psychiatry and Clinical Neuroscience*. Advance online publication. doi:10.1007/s00406-015-0639-4.
- R Core Team. (2021). *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing. Retrieved from <https://www.R-project.org/>
- Schäfer, I., Gast, U., Hofmann, A., Knaevelsrud, C., Lampe, A., Liebermann, P., ... Wöller, W. (2019). *S3-Leitlinie Posttraumatische Belastungsstörung*. Springer Berlin Heidelberg. doi:10.1007/978-3-662-59783-5
- Schweitzer, R., Melville, F., Steel, Z., & Lacherez, P. (2006). Trauma, post-migration living difficulties, and social support as predictor of psychological adjustment in resettled Sudanese refugees. *Australian and New Zealand Journal of Psychiatry*, 40(2), 179–187. doi:10.1080/j.1440-1614.2006.01766.x
- Scoglio, A. A. J., & Salhi, C. (2020). Violence exposure and mental health among resettled refugees: A systematic review. *Trauma, Violence & Abuse*, 1524838020915584. doi:10.1177/1524838020915584
- Silove, D., Rees, S., Mohsin, M., Tam, N., Kareth, M., & Tay, A. K. (2018). Differentiating ICD-11 complex post-traumatic stress disorder from other common mental disorders based on levels of exposure to childhood adversities, the traumas of persecution and post-migration living difficulties among refugees from West Papua. *BJPsych Open*, 4(5), 361–367. doi:10.1192/bjo.2018.49
- Silove, D., Sinnerbrink, I., Field, A., Manicavasagar, V., & Steel, Z. (1997). Anxiety, depression and PTSD in asylum-seekers: Associations with pre-migration trauma and post-migration stressors. *The British Journal of Psychiatry*, 170(4), 351–357. doi:10.1192/bjp.170.4.351
- Silove, D., Steel, Z., McGorry, P., & Mohan, P. (1998). Trauma exposure, postmigration stressors, and symptoms of anxiety, depression and post-traumatic stress in Tamil asylum-seekers: Comparison with refugees and immigrants. *Acta Psychiatrica Scandinavica*, 97(3), 175–181. doi:10.1111/j.1600-0447.1998.tb09984.x
- Söndergaard, H. P., & Theorell, T. (2004). Language acquisition in relation to cumulative posttraumatic stress disorder symptom load over time in a sample of re-settled refugees. *Psychotherapy and Psychosomatics*, 73(5), 320–323. doi:10.1159/000078849
- Tay, A. K., Mohsin, M., Rees, S., Tam, N., Kareth, M., & Silove, D. (2018). Factor structures of complex posttraumatic stress disorder and PTSD in a community sample of refugees from West Papua. *Comprehensive Psychiatry*, 85, 15–22. doi:10.1016/j.comppsy.2018.05.001
- UNHCR. (2020). *Global trends: Forced displacement in 2019*. Retrieved from <http://www.unhcr.org/refugee-statistics>
- van Buuren, S., & Groothuis-Oudshoorn, K. (2011). Mice: Multivariate Imputation by Chained Equations in R. *Journal of Statistical Software*, 45(3), 1–67. doi:10.18637/jss.v045.i03
- von Haumeder, A., Ghafoori, B., & Retaillieu, J. (2019). Psychological adaptation and posttraumatic stress disorder among Syrian refugees in Germany: A mixed-methods study investigating environmental factors. *European Journal of Psychotraumatology*, 10(1), 1686801. doi:10.1080/20008198.2019.1686801
- Waller, N. G. (2021). *fungible: Psychometric functions from the Waller lab*. version 1.98.
- WHO. (2019). *The 11th revision of the international classification of diseases*. World Health Organization. Retrieved from <http://who.int/classifications/icd/revision/en/>

RESEARCH

Open Access



The boundaries between complex posttraumatic stress disorder symptom clusters and post-migration living difficulties in traumatised Afghan refugees: a network analysis

Jennifer Schiess-Jokanovic^{1*}, Matthias Knefel¹, Viktoria Kantor¹, Dina Weindl¹, Ingo Schäfer² and Brigitte Lueger-Schuster¹

Abstract

Background: Psychological distress due to the ongoing war, violence, and persecution is particularly common among Afghan asylum seekers and refugees. In addition, individuals face a variety of post-migration living difficulties (PMLDs). Complex posttraumatic stress symptoms are among the most common mental health problems in this population, and were associated with the overall burden of PMLDs. The complex interplay of posttraumatic symptoms has been investigated from a network perspective in previous studies. However, individuals are embedded in and constantly react to the environment, which makes it important to include external factors in network models to better understand the etiology and maintaining factors of posttraumatic mental health problems. PMLDs are a major risk factor for posttraumatic distress and considering their impact in interventions might improve response rates. However, the interaction of these external factors with posttraumatic psychopathological distress is not yet fully understood. Thus, we aimed to illuminate the complex interaction between PMLDs and CPTSD symptom clusters.

Objective: The main objective is the exploration of the network structure and the complex interplay of ICD-11 CPTSD symptom clusters and distinct forms of PMLDs.

Method: The symptom clusters of CPTSD and PMLDs were collected within a randomised controlled trial among 93 treatment-seeking Afghan asylum seekers and refugees via a fully structured face-to-face and interpreter assisted interview. Using a network analytical approach, we explored the complex associations and network centrality of the CPTSD symptom clusters and the PMLD factors: discrimination & socio-economical living conditions, language acquisition & barriers, family concerns, and residence insecurity.

Results: The results suggest direct links within and between the constructs (CPTSD, PMLD). Almost all PMLD factors were interrelated and associated to CPTSD, family concerns was the only isolated variable. The CPTSD symptom cluster re-experiencing and the PMLD factor language acquisition & barriers connected the two constructs. Affective dysregulation had the highest and avoidance the lowest centrality.

*Correspondence: jennifer.schiess-jokanovic@univie.ac.at

¹ Department of Clinical and Health Psychology, Faculty of Psychology, University of Vienna, Wächtergasse 1, 1010 Vienna, Austria
Full list of author information is available at the end of the article



© The Author(s) 2022. **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.

Conclusions: Re-experiencing and affective dysregulation have the strongest ties to PMLDs. Thus, these domains might explain the strong association of posttraumatic psychopathology with PLMDs and, consequently, prioritization of these domains in treatment approaches might both facilitate treatment response and reduce burden caused by PMLDs.

Keywords: Complex posttraumatic stress disorder (CPTSD), Refugees, Post-migration stressors, Emotion regulation, Language acquisition, Re-experiencing, Integration, Network analysis

Introduction

The long-awaited serenity after arrival in the host country in Europe can often not be achieved, as many Asylum seekers and refugees (AS&R) are confronted with the physical and mental consequences of exposures to the ongoing war, human rights violations, and persecution [1–3]. Compared to AS&R from other countries of origin, individuals from Afghanistan in Austria reported particularly poor health trajectories over time. The authors suggested that these findings might reflect marginalization processes of subgroups of AS&R and an interdependence of origin- and country-specific conditions [4], such as a lower level of education, longer waiting periods for positive asylum decisions [5], and a higher rejection rate of asylum applications compared to Syrian refugees [6]. In addition to the challenge of dealing with health problems and potentially traumatic experiences [7], those affected have to adapt to a new environment and face various postmigration living difficulties (PMLDs) [8–10].

Drożdżek [11] postulated the integrative contextual model for AS&R, which assumes that an individual is embedded in multiple, interconnecting dimensions in which individuals operate and constantly respond to their environment. Risk factors, such as the broad construct of PMLDs are considered as dynamic system localised on each of these dimensions: intraindividual (e.g. loneliness, homesickness), interpersonal (e.g. conflicts, family separation), societal (e.g. discrimination, housing conditions), and cultural (e.g. language, asylum law; [11]). The development and psychopathological expression of mental health problems is assumed to be bidirectionally related to these dimensions and might change over time [7, 11, 12].

Along with depression and anxiety disorders, post-traumatic stress disorder (PTSD) is one of the most commonly reported mental disorders among refugees in high-income countries [13, 14]. Prevalence rates, while highly heterogeneous, are significantly higher than in the non-refugee population or among people living in conflict and war zones [14]. In ICD-11, the PTSD diagnosis is more narrowly defined compared to DSM-5 and comprises three symptom clusters (re-experiencing, avoidance, sense of current threat). Additionally, ICD-11 introduced a twin diagnosis, complex post-traumatic

stress disorder (CPTSD), which is intended to better encompass the sequelae of complex traumatic experiences and includes all PTSD symptom clusters and additionally three symptom clusters related to disturbances of self-organization (DSO; affect dysregulation, negative self-concept, difficulties in interpersonal relationships). The diagnoses must be associated with functional impairments in various domains of life [15]. Treatment-seeking AS&R samples report higher prevalence rates of CPTSD (16–38%) than the general refugee population [16].

Overall, the negative effect of PMLDs on mental health and quality of life was found to be at least equal to or even exceeding that of potentially traumatic experiences [9, 17]. Accordingly, higher distress due to PMLDs overall [18], but also due to individual PMLDs such as uncertain visa status [19], was associated with higher levels of complex posttraumatic stress disorder (CPTSD). Deeper investigations of this relationship point out that while potentially traumatic experiences were related with posttraumatic stress disorder (PTSD), total distress due to PMLDs showed an relationship with disturbances of self-organisation (DSO) [20]. An analysis of the associations of various PMLD factors with CPTSD suggested that while *language acquisition & barriers* predicted the membership to the CPTSD subgroup, the other PMLD factors were equally present in both investigated subgroups [21]. These findings suggest individual boundaries between the symptom clusters of CPTSD and different forms of PMLDs.

In recent years, the ongoing debate about the ontology of psychopathology and whether mental disorders are caused by a common cause (latent variable/common cause model) or rather by the interaction of individual symptoms (network approach) has led to the rejection of both extreme versions and the adoption of hybrid models [22]. Consistent with the integrative contextual model for AS&R [11], the hybrid models link both models and assume that potentially traumatic experiences or stressors act as a common cause that triggers multiple CPTSD and PTSD symptoms, which in turn may interact with each other and lead to additional symptoms until a self-perpetuating network emerges [22–24]. So-called feedback loops are already known from clinical observations. A stimulus and the related interpretation and

response, ultimately influence the further development of the original stimulus ($X > Y > Z > X$). An example would be a bodily sensation which, when misinterpreted, leads to increased anxiety and ultimately to an increased bodily sensation [23]. Such feedback loops in networks may involve not only intrapersonal processes but also interact with unique sociocultural factors and context that affect understanding, attribution, and response to potentially traumatic experiences and PMLDs [11, 25, 26]. As a consequence, resources and the ability of adaptive coping might be reduced [27].

While several studies have already examined the complex interplay of the individual symptoms of PTSD [28] and CPTSD [29–32], and generalisability has been examined in various samples with different characteristics and cultural backgrounds [29, 30], there is only one initial study investigating how individual PMLDs are related to each other [32]. Overall, there is a lack of knowledge on how external variables influence network structure and dynamics in psychopathology [23, 32, 33].

Only a few studies have considered the interaction between distinct symptom domains and external stressors when examining mental health problems in refugees [34–36]. De Schryver et al. [35] reported that although symptoms and potentially traumatic experiences/stressors formed different clusters in the network, they were directly connected. Overall, traumatic experiences, daily stressors, basic needs, safety [35, 36], and social problems [34] showed the highest centrality. Regarding symptoms, sleep, hopelessness, melancholy, and nightmares were central [36]. To our knowledge, there is no study investigating the interaction between PMLDs and CPTSD symptom clusters in AS&R so far.

The known association between CPTSD and PMLDs in general [18] provides insufficient insight into the underlying dynamics. The practice-oriented question of which types of PMLDs are associated with which CPTSD symptom clusters is so far unresolved. This study aimed to promote a better understanding of these dynamics and provide an initial contribution to the selection of intervention targets in order to improve AS&R health care. Therefore, the aim of this study was to explore the boundaries of the CPTSD symptom clusters with the external PMLD factors, and investigate their centrality indices in a cross-sectional sample of traumatised Afghan AS&R living in Austria. We presumed connections within and between the CPTSD and PMLD constructs.

Methods

Participants

We used data from baseline assessments of a randomised controlled trial evaluating a psychological intervention (PIAAS Study; [37]) conducted between July 2019 and

December 2020. The total sample included 93 adult, treatment-seeking AS&R from different areas of Afghanistan with Dari as their first language. Exclusion criteria were screening with an emotional distress score below the cut-off value (RHS-15 score < 12 or distress thermometer < 5), ongoing trauma-focused treatment, significant cognitive impairment, and current mental or physical conditions requiring other treatment and/or impeding participation (e.g. acute suicidality, psychotic symptoms). The ethics committee of the University of Vienna ethically approved the study (Reference Numbers: 00356 and 00445).

Measures

The fully structured interview was conducted with a trained psychologist and an interpreter. German and Dari versions of the International Trauma Questionnaire (ITQ) and the Post-migration living difficulties Checklist (PMLDC) were administered. Likert scales were additionally presented visually for better understanding and to support illiterate participants.

CPTSD symptoms

The six symptom clusters of CPTSD, comprising the three symptom clusters of PTSD (re-experiencing, avoidance, sense of current threat) and the three symptom clusters of the disturbances in self-organisation (DSO; affective dysregulation, negative self-concept, disturbances in relationships), were surveyed in relation to the level of symptom distress experienced in the past month using the ITQ. Participants answered two items per cluster, twelve items in total, on a five-point Likert scale (0 = "Not at all" to 4 = "Extremely"). Higher scores indicate higher levels of burden. The ITQ has good psychometric properties [38]. The Cronbach's alpha coefficient in this study was 0.89.

Post-migration living difficulties

The multitude of different PMLDs AS&R face in the host country were assessed with the support of the PMLD checklist [8]. We adapted and extended the already used Dari/German PMLDC version [20] to the Austrian context, finally containing a total of 26 items (see Additional file 1: Table S1). Additional items were translated and back-translated by trained interpreters following the golden standard of translation guidelines [39]. The frequency of experiencing the specific PMLDs in the past month was recorded on a five-point Likert scale (0 = "Not at all" to 4 = "Extremely"). The Cronbach's alpha coefficient in this study was 0.77.

Analysis

The network structure of the six CPTSD symptom clusters and the four PMLD factors was estimated (Fig. 1). To reduce the number of items, data-driven PMLD factors were calculated in a previous study ([15], see Additional file 1: Figure S1 for item assignment) using a regularised exploratory factor analysis developed specifically for small samples [40]. The network was estimated with the R package *qgraph* [41] and the robustness and bridge centrality of the network were examined using the R packages *bootnet* and *networktools* [42]. All analyses were performed using R (version 4.1.0; [43]).

Network estimation

The presented network was estimated using a Gaussian graphical model [44]. Partial correlations between the total of ten nodes (re-experiencing (Re), avoidance (Av), sense of current threat (Th), affective dysregulation (AD), negative self-concept (NSC), disturbances in relationships (DR), socio-economical living conditions & discrimination (SC), language acquisition & barriers (LAB), family concerns (FC), residence insecurity (RI)) are represented with edges. The line thickness of the edges represent the strength of the association. In a first step, a

correlation matrix based on polychoric correlations was calculated ([45]; see Additional file 1: Table S2). In a second step, the network was estimated using EBICglasso, an estimation method to minimise false positive detection of connections. To visualise the estimated network, the Fruchterman-Reingold algorithm [46] was used in the third step, which places nodes with more and/or stronger connections closer together. The higher the degree of a centrality (strength, predictability), the conceptually closer a node is to all other nodes in a network [47]. In addition bridge centrality (bridge strength, bridge predictability) were calculated. These parameters estimate the strength of each node in connecting the constructs CPTSD and PMLDs.

Network stability

Following the recommended three steps [45], the R package *bootnet* was used to estimate the stability of the network. Firstly, we calculated 95% confidence intervals using 1000 bootstrap iterations to test edge certainty and significance between edge weights. Secondly, to estimate the stability of the order of centrality indices, we used a node-dropping sub setting bootstrap technique and the correlation stability (CS-) coefficient, which is an index of the stability of centrality indices. Values above 0.25 indicate sufficient stability. In a final step, we calculated the bootstrapped edge-weight and centrality difference test for the networks to check whether these differ significantly from each other.

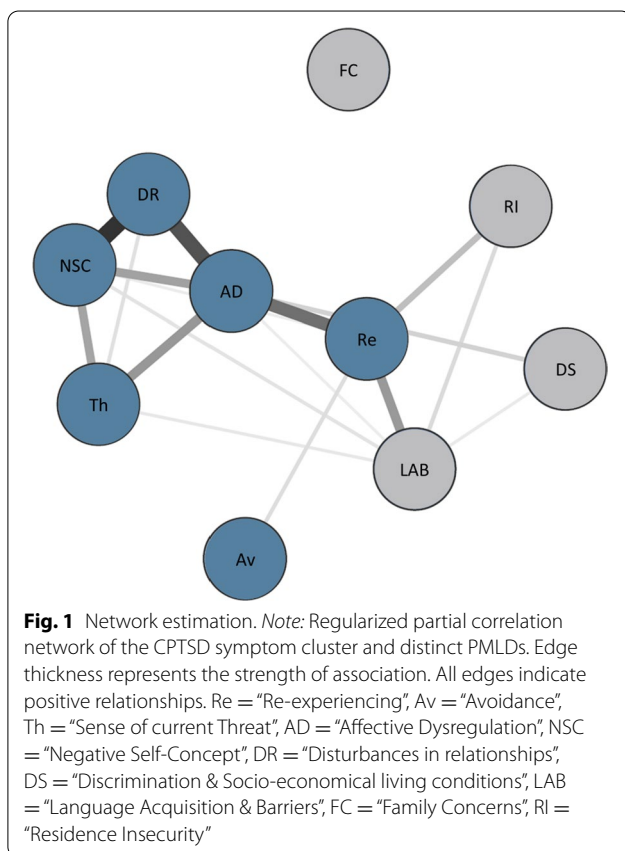
Missing data

For the CPTSD data, a total of 3.3% (3.2–4.3%) individual data points were missing stemming from four incomplete cases. A total of 10 incomplete cases resulted in 3.6% (3.2–5.4%) missing values in the PMLDC data. Three cases with more than 50% missing data were completely deleted. To deal with all other missing values, an algorithm from the R package "mice" was used, which estimates values by single imputation (predictive mean matching) using Fully Conditional Specifications [48].

Results

Descriptive statistics

Data from 93 treatment-seeking Afghan AS&R were included in the network analysis. The mean age was 34.77 years (SD=13.84), with 45.2% female participants. About half of the participants were married or living in a partnership (51.7%). A high illiteracy rate was found, with over 60% of participants having no formal education (37.6%) or having attended only elementary school (22.6%). The overall employment rate was 26.8%, the majority reported no employment (61.3%), including 22.6% due to lack of a work permit. On average,



participants had been in Austria for 5.9 years ($SD = 4.36$) and 52.7% reported uncertain asylum status. There were 12.07 ($SD = 5.03$) potentially traumatic experience types reported on average. 50% of the participants met criteria for CPTSD, while 17.78% individuals met criteria for PTSD only (see Additional file 1: Table S3 for further sociodemographic characteristics and the frequency of potentially traumatic experience types). The average scores in each symptom cluster and PMLD can be found in Table 1.

Network estimation

The structure of the network of the six symptom clusters of CPTSD and the four PMLD factors is shown in Fig. 1. 17 of 45 possible edges were estimated above zero. All associations were positive and there was only one isolated node (FC) in the network, i.e. all other nodes were directly or indirectly connected via other nodes. Three of the PMLD factors were interconnected: PMLD factor LAB was associated with DS and RI. LAB and RI showed the strongest connection to Re, other weaker connections could be found between LAB and NSC, DR and Th. DS was connected to AD. While the three symptom clusters of DSO were connected to each other, the three symptom clusters of PTSD were not interconnected. Re and Av were connected, Th was only connected to all DSO clusters. Since the strength centrality measure had the highest reliability and were closely related to the predictability, the interpretation was based on this centrality measure. Overall, the three nodes with the highest strength centrality were the three CPTSD clusters: AD, Re, and NSC. The connection between negative self-concept and disturbances in relationships was the strongest within the entire network. The nodes with the highest bridge expected influence and bridge strength were Re and LAB, which means that Re was the CPTSD symptom

cluster with the strongest average connection to the PMLDs, and LAB was the PMLD factor with the strongest average connection to CPTSD. The centrality and bridge centrality estimates for all nodes are presented in Fig. 2.

Network stability

The network showed large bootstrap confidence intervals around the edge weights, which partly overlapped (see Additional file 1: Figure S2), indicating that their order should be interpreted with caution. The CS-coefficient ($CS\text{-Coeff}_{(cor = 0.7)} = 0.44$) for the strength centrality metric exceeded the recommended minimum cut-off of 0.25 in the network suggesting a moderate stability [45]. In addition, we checked whether the edges or the node strength differed significantly (see Additional file 1: Figures S3, S4). The results showed that many of the nodes did not differ significantly in strength.

Discussion

To our knowledge, this is the first study investigating the boundaries between CPTSD symptom clusters and different forms of PMLDs in a highly distressed sample of treatment-seeking Afghan AS&R. In line with our hypothesis, the results clearly illustrate that there is an association between psychopathology and external factors, that differ among the various forms of PMLDs. Overall, we found that the PMLD factors *discrimination & socio-economical life conditions*, *language acquisition & barriers*, and *residence insecurity* were associated with each other and with individual CPTSD symptom clusters. *Family concerns* was isolated in the network and showed no associations. A further finding was that while all DSO clusters were interrelated, for PTSD symptom clusters, *avoidance* showed a relationship with *re-experiencing*, but *sense of current threat* was exclusively related to DSO symptom clusters. The strongest linkages between the CPTSD and PMLD constructs, seem to be the two PMLD factors *language acquisition & barriers* as well as *residence insecurity* and the CPTSD cluster *re-experiencing*. The latter was directly linked to the PMLD factors and mediated their relationship to each other and *affective dysregulation*. Which, as the most central CPTSD factor was also directly related to *discrimination & socioeconomical life conditions*.

Consistent with the integrative contextual model for AS&R [11] and previous investigations examining the associations between PMLDs and psychopathology [35, 36], almost all PMLD factors were connected to CPTSD symptom clusters. Although associations were found between PMLDs and DSO symptom clusters, in contrast to the findings of Hecker et al. [20], the strongest associations were found to a PTSD cluster.

Table 1 Means and standard deviations of the CPTSD symptom clusters & PMLDs

Variables	M (SD)
Re-experiencing (Re)	5.03 (2.15)
Avoidance (Av)	4.63 (2.03)
Sense of current threat (Th)	4.78 (2.05)
Affective dysregulation (AD)	4.63 (1.89)
Negative self-concept (NSC)	4.20 (2.54)
Disturbances in relationships (DR)	3.99 (2.24)
Discrimination & socio-economical living conditions (DS)	10.62 (4.00)
Language acquisition & barriers (LAB)	16.14 (4.05)
Family concerns (FC)	13.32 (3.99)
Residence insecurity (RI)	9.83 (3.69)

M, mean; SD, standard deviation

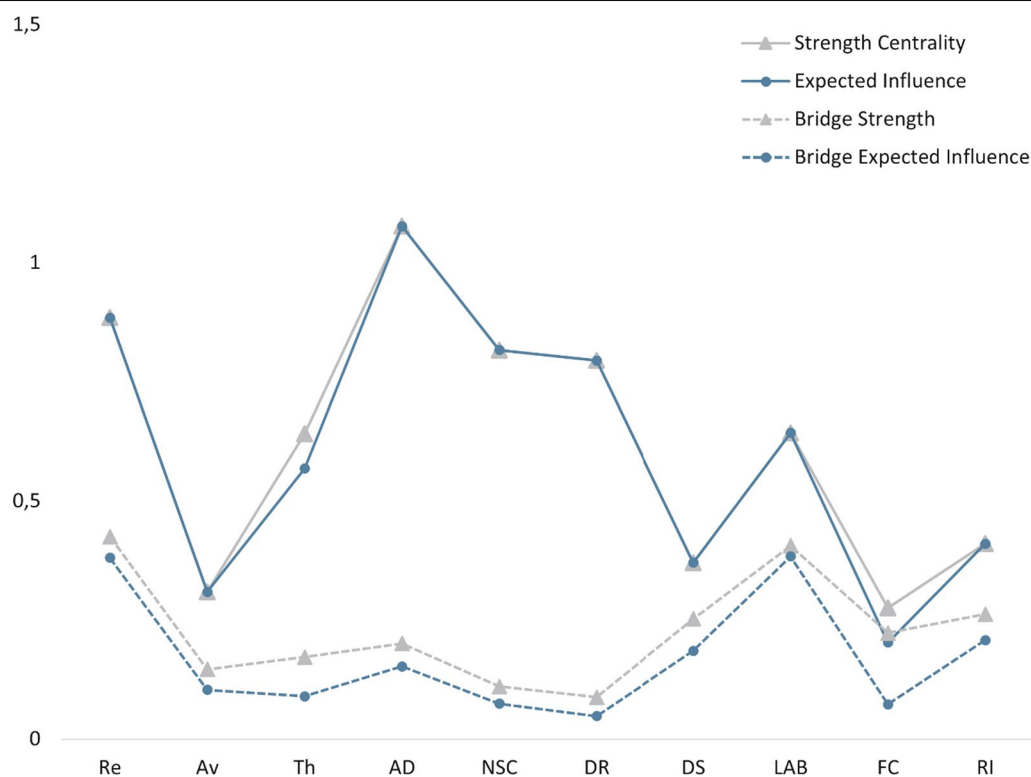


Fig. 2 Centrality indices. Note: Centrality and bridge centrality measures for each variable were estimated by standardised node strength and predictability. For definitions of abbreviations, see Fig. 1

One of the most compelling findings was the association between the CPTSD symptom cluster *re-experiencing* and the PMLD factor *language acquisition & barriers*. These two domains showed the strongest associations between the CPTSD and PMLD constructs. This finding confirms initial findings that demonstrated an association between the PTSD symptom cluster re-experiencing and language [49]. Intrusive re-experiencing, including trauma-associated flashbacks or nightmares, represents a core symptom of CPTSD and PTSD, which in investigations of PTSD symptom networks, has been repeatedly identified as particularly central [28].

Successful adaptation in the host country with participation in social life and access to various facilities is closely related to proficiency in the local language. The factor *language acquisition & barriers* included distress and dependence on others in various situations requiring language, such as health service utilization or official channels. This factor also revealed a link to *current sense of threat, negative self-concept, affective dysregulation, discrimination & socio-economical life conditions*, and *residence insecurity*, latter included higher stress due to insecure residence status as well as greater fear of future deportation. The persistent feeling of

insecurity [36], especially in the context of insecure residence associated with PTSD [19] has been reported several times and might hinder the calming and processing of potentially traumatic experiences.

Afghanistan has one of the highest illiteracy rates worldwide, numerous individuals do not have access to educational opportunities in their home country. Almost 60% of our participants had no formal education or had only completed elementary school. Those Afghan AS&R in Austria might be confronted with Western educational institutions and concepts of learning for the first time and face the challenge of having to start literacy right away with a foreign language.

Another aspect is that language acquisition is a complex process involving different cognitive abilities related to encoding and retrieval. Successful encoding depends on various executive skills (e.g., attention, working memory; [50]) [51]. Consistent with our findings, Lansing et al. [52] reported a positive association between re-experiencing and increased difficulties with verbal learning. In line with the found mediation effect of *re-experiencing* between *language acquisition & barriers* and *affective dysregulation*, deficits in cognitive resources lead to difficulties in calming down and thus reducing intrusions [52].

Anxiety, helplessness, and feelings of loss of control are common reactions associated with potentially traumatic experiences. These emotions may accompany many interpersonal situations in everyday life or during the asylum process in which language comprehension or the ability to express oneself as well as actively respond to the environment through language is limited. And, as previously reported, might be associated with an increased risk of discrimination [32]. We hypothesise that these mentioned feelings, combined with a reduced ability to respond actively, and reinforced by *affective dysregulation*, may trigger *re-experiencing*.

In addition to the important link between *re-experiencing* and *affective dysregulation*, links to various CPTSD clusters and *language acquisition & barriers to negative self-concept* have been found. A negative self-concept and reduced self-efficacy were found to be associated with potentially traumatic experiences [53]. The exposure of a variety of situations associated with language barriers or difficulties in language acquisition might further negatively impact self-concept, which in turn might promote avoidance of such situations, and further impeding language acquisition and social inclusion.

Affective dysregulation has been repeatedly reported as a key factor in traumatised AS&R [54, 55] and has been identified as a mediator in the relationship between potentially traumatic experiences and PTSD as well as PMLDs [54]. Consistent with these findings, as already mentioned *affective dysregulation* showed the highest centrality in our study and was associated directly with almost all CPTSD symptom clusters and the PMLD factor *discrimination and socioeconomic living conditions*.

Discrimination, as well as problems related to finances or housing, jeopardise human needs and might be accompanied by vast emotional distress. Furthermore, Santangelo et al. [56] found that people with PTSD in particular have an affective baseline with higher distress and less positive emotionality in comparison to healthy individuals. Affective variability indicated a more intense response to internal or external but less to positive processes or events and it took longer for regulatory or homeostatic processes to restore deviant affective fluctuations to baseline and allow emotional recovery. Following these results, we hypothesised that individuals with higher levels of affective dysregulation might respond stronger to existential concerns in addition to normal responses [56, 57]. Conversely, emotional outbursts and emotional numbing could further increase the risk for such stressful experiences. Lack of emotional clarity, difficulties with goal-directed behaviour, rumination and suppression may play a particularly important role [54, 55, 58, 59] and may also be a link to further psychopathology.

Following *affective dysregulation*, *re-experiencing*, and *negative self-concept* were symptom clusters with high strength centrality, and presented with the strongest connection within the network. This was in line with the findings of CPTSD networks [29]. Negative self-concept, especially feelings of worthlessness have an immense impact on the development, persistence and unfavourable prognosis of PTSD [60, 61]. There might be an interaction between these areas such as that a *negative self-concept* increases the risk of social withdrawal and in turn a lack of positive relational experiences reinforces *the negative self-concept*. Overall, refugees have a higher risk of loneliness and low social support, factors that have been repeatedly related to higher levels of mental distress [62], CPTSD [63] and lower quality of life [64]. Additionally, we suggest that numbness due to *affective dysregulation* and an associated reduced self-awareness or ability to engage in interpersonal relationships might further promote *disturbances in relationships* and a *negative self-concept*.

Interestingly, the PMLD factor *family concerns* was isolated in the network. Coming from a culture where social structures such as the family are of particular importance, longing for the family and the country of origin as well as worries about loved ones appear independent of CPTSD symptomatology in the estimated network. However, these reactions might be related to other psychopathologies, quality of family relationships or demographic variables, such as marital status or family separation. This is particularly interesting as different forms of PMLDs might be associated to varying degrees with mental disorders such as CPTSD and some PMLDs might be stressors independent of any psychopathology associated with normal situationally adequate distress of the challenging life situation.

Strengths and limitations

The major strength of the study lies in the examination of one of the most burdened, hard-to-reach population of treatment-seeking AS&R in Austria. Interpreter-assisted and face-to-face fully structured interviews conducted by a trained clinical psychologist reduced language barriers and psychological distress during the assessments.

Nevertheless, some limitations need to be considered. The results must be interpreted with caution, as the sample was relatively small and generalizability to other ethnic groups or regional differences cannot be guaranteed. Problems in understanding the meaning of particular symptoms might bias the results and could potentially explain some associations such as between *re-experiencing* and language barriers. The cross-sectional study design does not allow conclusions about directionality. We conclude, consistent with the integrative contextual

model for AS&R [11], that it is highly likely that central symptoms are reciprocally related to their neighbours. The question of whether interventions should address central symptoms to increase treatment success and achieve improved symptom relief has recently been debated [23, 24]. To date, there is no agreement; an important research goal would be to address this issue through intervention studies with longitudinal within-person networks. Until then, central symptoms should be considered as potentially important treatment targets when considering personalised diagnosis and intervention [23, 24, 29].

The Covid-19 pandemic interrupted the assessment process and might have influenced symptom severity. Therefore, future replications of the study with larger samples would be required, here the application of Latent Network Modelling (LNM) could contribute to an improved control of measurement errors [45]. In addition, inclusion of further psychopathologies, such as depression and anxiety, and a longitudinal design in refugee samples with different ethnic background are recommended to further investigate the generalizability and directionality of the results, thus relationships might change over time [7, 11, 12].

Clinical implications

The main findings of this study underline the crucial importance of including PMLDs and its complex interplay with CPTSD into AS&R assessment and treatment strategies [65]. Psychosocial interventions have already been shown to be effective in several studies [66]. An individual assessment of the burden due to specific PMLDs (e.g. *language acquisition & barriers*, *discrimination & socioeconomic living conditions*) and a according focus on these and their individual interaction with CPTSD symptoms, such as *affective dysregulation* or *re-experiencing*, might represent important treatment targets. Reducing the burden of PMLDs and improving symptom management in daily life might reduce the burden caused by PMLDs and CPTSD. Furthermore, interventions that promote social connectedness, such as community-based interventions or group therapy, might be additionally beneficial. A more precise assessment of trauma-associated re-experiencing, affective dysregulation, negative self-concept, and disturbances in relationships should be integrated into the psychological assessments and subsequently into the treatment strategies of traumatised AS&Rs. A combination of trauma-focused and non-trauma-focused treatment approaches might be beneficial [67]. Especially a focus on the reduction of trauma-associated nightmares and intrusive memories as well as to promote the ability to

cope with the symptoms and to stay present might be advantageous [68]. So far, there are few treatment recommendations addressing re-experiencing directly in CPTSD [69]. Establishing trauma-sensitive language courses and integrating interventions to promote cognitive receptivity and reduce stress could be another interdisciplinary task for educators and psychologists [49].

Conclusion

Our results provide initial evidence for various associations that might be important for a better understanding of the overall relationship between PMLDs and CPTSD. Psychological treatment to improve mental health, quality of life, functioning as well as adaptation in the host country appear to be particularly important. Due to the localisation of PMLDs at different levels, such as the cultural/governmental level, promoting trauma-sensitive language courses or policies to reduce discrimination or tedious asylum procedures might have a positive impact on mental and physical health.

Abbreviations

AS&R: Asylum seekers and refugees; CPTSD: Complex posttraumatic stress disorder; DSO: Disturbances in self-organisation; Re: Re-experiencing; Av: Avoidance; Th: Current sense of threat; AD: Affective dysregulation; NSC: Negative self-concept; DR: Disturbances in relationships; PMLDs: Post-migration living difficulties; DS: Discrimination & socio-economical living conditions; LAB: Language acquisition & barriers; FC: Family concerns; RI: Residence insecurity; PMLDC: Post-Migration Living Difficulties Checklist; ITQ: International Trauma Questionnaire.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s13031-022-00455-z>.

Additional file 1: Post-Migration Living Difficulties Checklist (PMLDC), Correlation Matrix, Sociodemographic characteristics, Item assignment to PMLD factors, Edge Accuracy Analysis, Edge weights difference test, Centrality Stability Analysis, Centrality difference Test.

Acknowledgements

We would like to express our sincere gratitude to all Afghan asylum seekers and refugees who participated in this study and shared their experiences with us. Further thanks to the supporting outpatient treatment centres, NGOs, and the Outpatient Unit for Research, Teaching and Practice at the Faculty of Psychology, University of Vienna. We would especially like to thank Maria Böttche for the helpful clinical supervision, as well as Alexandra Liedl, Naser Morina and Mahmoud Hemmo acting as external advisory consultants and clinical supervisors.

Author contributions

BLS, MK, DW, VK, and IS conceived the study and lead on protocol development and grant acquisition. JSJ and MK collected and analysed the data. JSJ wrote the first draft of the manuscript, and MK, BLS, and VK contributed to revising and finalizing the manuscript. All authors read and approved the final manuscript.

Funding

This study is funded by the Austrian Science Fund (FWF; Grant Number: KLI 755-B).

Availability of data and materials

The data that supports the findings of this study are openly available in "Zenodo" at <https://doi.org/10.5281/zenodo.5054032>.

Declarations

Ethics approval and consent to participate

The study was registered at the Internet Portal of the German Clinical Trials Register (DRKS; registration number: DRKS00016538) as demanded by the Declaration of Helsinki. Ethical approval was granted by the IRB of the University of Vienna (reference numbers 00356 and 00445). Furthermore, we obtained a Universal Trial Number (UTN) to facilitate the unambiguous identification of our trial (UTN: U1111-1226-3285). Information about the study was explained to participants prior to their participation in the study by a clinical psychologist at the baseline assessment using an information sheet (German and Dari versions) with the assistance of an interpreter. After ensuring understanding and clarifying open questions, written informed consent was obtained from participants who agreed to participate in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing financial or personal interests.

Author details

¹Department of Clinical and Health Psychology, Faculty of Psychology, University of Vienna, Wachtergasse 1, 1010 Vienna, Austria. ²Department of Psychiatry and Psychotherapy, University Medical Centre Hamburg-Eppendorf, Hamburg, Germany.

Received: 21 December 2021 Accepted: 10 April 2022

Published online: 27 April 2022

References

1. Aleami Q, James S, Cruz R, Zepeda V, Racadio M. Psychological distress in Afghan refugees: a mixed-method systematic review. *J Immigr Minor Health*. 2014;16(6):1247–61.
2. Bogic M, Njoku A, Priebe S. Long-term mental health of war-refugees: a systematic literature review. *BMC Int Health Hum Rights*. 2015;15:29.
3. Scoglio AAJ, Salhi C. Violence exposure and mental health among resettled refugees: a systematic review. *Trauma Violence Abuse*. 2020;1524838020915584.
4. Georges D, Buber-Ennsler I, Rengs B, Kohlenberger J, Doblhammer G. Health determinants among refugees in Austria and Germany: a propensity-matched comparative study for Syrian, Afghan, and Iraqi refugees. *PLoS ONE*. 2021;16(4):e0250821.
5. Eggenhofer-Rehart PM, Latzke M, Pernkopf K, Zellhofer D, Mayrhofer W, Steyrer J. Refugees' career capital welcome? Afghan and Syrian refugee job seekers in Austria. *J Vocat Behav*. 2018;105:31–45.
6. BMI. Asylstatistik: Bundesministerium fur Inneres; 2020 [cited 2021 Sep 16]. https://www.bmi.gv.at/301/Statistiken/files/Jahresstatistiken/Asyl_Jahresstatistik_2020.pdf.
7. Blanchard MA, Heeren A. Ongoing and future challenges of the network approach to psychopathology: from theoretical conjectures to clinical translations. In: Reference module in neuroscience and biobehavioral psychology. Elsevier; 2020.
8. Silove D, Sinnerbrink I, Field A, Manicavasagar V, Steel Z. Anxiety, depression and PTSD in asylum-seekers: associations with pre-migration trauma and post-migration stressors. *Br J Psychiatry*. 1997;170:351–7.
9. Li SSY, Liddell BJ, Nickerson A. The Relationship Between Post-Migration Stress and Psychological Disorders in Refugees and Asylum Seekers. *Curr Psychiatry Rep*. 2016;18(9):82.
10. Schweitzer R, Melville F, Steel Z, Lacherez P. Trauma, post-migration living difficulties, and social support as predictor of psychological adjustment in resettled Sudanese refugees. *Aust NZ J Psychiatry*. 2006;40:179–87.
11. Drożddek B. Challenges in treatment of posttraumatic stress disorder in refugees: towards integration of evidence-based treatments with contextual and culture-sensitive perspectives. *Eur J Psychotraumatol*. 2015;6:24750.
12. Neal JW, Neal ZP. Nested or networked? Future directions for ecological systems theory. *Soc Dev*. 2013;n/a–n/a.
13. Turrini G, Purgato M, Ballette F, Nosè M, Ostuzzi G, Barbui C. Common mental disorders in asylum seekers and refugees: Umbrella review of prevalence and intervention studies. *Int J Ment Health Syst*. 2017;11:51.
14. Henkelmann J-R, de Best S, Deckers C, Jensen K, Shahab M, Elzinga B, et al. Anxiety, depression and post-traumatic stress disorder in refugees resettling in high-income countries: systematic review and meta-analysis. *BJPsych Open*. 2020;6(4):e68.
15. World Health Organization. The 11th Revision of the International Classification of Diseases: World Health Organization; 2019 [cited March 3rd, 2017]. <https://icd.who.int/browse11/l-m/en>.
16. de Silva U, Glover N, Katona C. Prevalence of complex post-traumatic stress disorder in refugees and asylum seekers: systematic review. *BJPsych Open*. 2021;7(6):e194.
17. Hynie M. The social determinants of refugee mental health in the post-migration context: a critical review. *Can J Psychiatry*. 2018;63(5):297–303.
18. Tay AK, Mohsin M, Rees S, Tam N, Kareth M, Silove D. Factor structures of complex posttraumatic stress disorder and PTSD in a community sample of refugees from West Papua. *Compr Psychiat*. 2018;85:15–22.
19. Liddell BJ, Nickerson A, Felmingham KL, Malhi GS, Cheung J, Den M et al. Complex posttraumatic stress disorder symptom profiles in traumatized refugees. *J Trauma Stress*. 2019.
20. Hecker T, Huber S, Maier T, Maercker A. Differential associations among PTSD and complex PTSD symptoms and traumatic experiences and postmigration difficulties in a culturally diverse refugee sample. *J Trauma Stress*. 2018;31(6):795–804.
21. Schuess-Jokanovic J, Knefel M, Kantor V, Weindl D, Schafer I, Lueger-Schuster B. Complex post-traumatic stress disorder and post-migration living difficulties in traumatised refugees and asylum seekers: the role of language acquisition and barriers. *Eur J Psychotraumatol*. 2021;12(1):2001190.
22. Fried EI, Cramer AOJ. Moving forward: challenges and directions for psychopathological network theory and methodology. *Perspect Psychol Sci*. 2017;12(6):999–1020.
23. McNally RJ. Network analysis of psychopathology: controversies and challenges. *Annu Rev Clin Psychol*. 2021;17:1–23.
24. Fried EI, Eidhof MB, Palic S, Costantini G, Huisman-van Dijk HM, Bockting CLH, et al. Replicability and generalizability of Posttraumatic Stress Disorder (PTSD) networks: a cross-cultural multisite study of PTSD symptoms in four trauma patient samples. *Clin Psychol Sci*. 2018;6(3):335–51.
25. Yuval K, Aizik-Reebs A, Lurie I, Demoz D, Bernstein A. A functional network perspective on posttraumatic stress in refugees: implications for theory, classification, assessment, and intervention. *Transcult Psychiatry*. 2020;1363461520965436.
26. Miller KE, Rasmussen A. The mental health of civilians displaced by armed conflict: an ecological model of refugee distress. *Epidemiol Psychiatr Sci*. 2017;26(2):129–38.
27. Hou WK, Liu H, Liang L, Ho J, Kim H, Seong E, et al. Everyday life experiences and mental health among conflict-affected forced migrants: a meta-analysis. *J Affect Disord*. 2019;264:50–68.
28. Birkeland MS, Greene T, Spiller TR. The network approach to post-traumatic stress disorder: a systematic review. *Eur J Psychotraumatol*. 2020;11(1):1700614.
29. Knefel M, Karatzias T, Ben-Ezra M, Cloitre M, Lueger-Schuster B, Maercker A. The replicability of ICD-11 complex post-traumatic stress disorder symptom networks in adults. *Br J Psychiatry*. 2019;214(6):361–8.
30. Knefel M, Lueger-Schuster B, Bisson JI, Karatzias T, Kazlauskas E, Roberts NP. A cross-cultural comparison of icd-11 complex posttraumatic stress disorder symptom networks in Austria, the United Kingdom, and Lithuania. *J Trauma Stress*. 2020;33(33):41–51.

31. Knefel M, Tran US, Lueger-Schuster B. The association of posttraumatic stress disorder, complex posttraumatic stress disorder, and borderline personality disorder from a network analytical perspective. *J Anxiety Disord.* 2016;43:70–8.
32. Wicki B, Spiller TR, Schick M, Schnyder U, Bryant RA, Nickerson A, et al. A network analysis of postmigration living difficulties in refugees and asylum seekers. *Eur J Psychotraumatol.* 2021;12(1):1975941.
33. Cramer AOJ, van Borkulo CD, Giltay EJ, van der Maas HLJ, Kendler KS, Scheffer M, et al. Major depression as a complex dynamic system. *PLoS ONE.* 2016;11(12): e0167490.
34. Jayawickreme N, Mootoo C, Fountain C, Rasmussen A, Jayawickreme E, Bertuccio RF. Post-conflict struggles as networks of problems: a network analysis of trauma, daily stressors and psychological distress among Sri Lankan war survivors. *Soc Sci Med.* 2017;190:119–32.
35. de Schryver M, Vindevogel S, Rasmussen AE, Cramer AOJ. Unpacking constructs: a network approach for studying war exposure, daily stressors and post-traumatic stress disorder. *Front Psychol.* 2015;6:1896.
36. Mootoo C, Fountain C, Rasmussen A. Formative psychosocial evaluation using dynamic networks: trauma, stressors, and distress among Darfur refugees living in Chad. *Confl Heal.* 2019;13:30.
37. Knefel M, Kantor V, Schuess-Jokanovic J, Weindl D, Schäfer I, Lueger-Schuster B. A brief transdiagnostic psychological intervention for Afghan asylum seekers and refugees in Austria: a randomized controlled trial. *Trials.* 2020;21(1):57.
38. Cloitre M, Shevlin M, Brewin CR, Bisson JI, Roberts NP, Maercker A, et al. The international trauma questionnaire: development of a self-report measure of ICD-11 PTSD and complex PTSD. *Acta Psychiatr Scand.* 2018;138(6):536–46.
39. Bontempo R. Translation fidelity of psychological scales: an item response theory analysis of an individualism-collectivism scale. *J Cross Cult Psychol.* 1993;24(2):149–66.
40. Jung S, Lee S. Exploratory factor analysis for small samples. *Behav Res Methods.* 2011;43(3):701–9.
41. Epskamp S, Cramer AOJ, Waldorp LJ, Schmittmann VD, Borsboom D. qgraph: network visualizations of relationships in psychometric data. *J Stat Softw.* 2012;48(4).
42. Epskamp S. Package 'bootnet': Bootstrap Methods for Various Network Estimation Routines; 2015. <https://cran.r-project.org/web/packages/bootnet/index.html>.
43. R Core Team. R: A Language and Environment for Statistical Computing. Vienna, Austria: R Foundation for Statistical Computing; 2020. <http://www.R-project.org/>.
44. Lauritzen SL. Graphical models, Oxford statistical science series, vol. 17. Oxford: Clarendon Press; 1996.
45. Epskamp S, Kruijs J, Marsman M. Estimating psychopathological networks: be careful what you wish for. *PLoS ONE.* 2017;12(6): e0179891.
46. Fruchterman TMJ, Reingold EM. Graph drawing by force-directed placement. *Softw Practice Exp.* 1991;21(11):1129–64.
47. Opsahl T, Agneessens F, Skvoretz J. Node centrality in weighted networks: generalizing degree and shortest paths. *Soc Netw.* 2010;32(3):245–51.
48. van Buuren S, Groothuis-Oudshoorn K. mice: multivariate imputation by chained equations in R. *J Stat Softw.* 2011;45(3).
49. Kartal D, Alkemade N, Kiropoulos L. Trauma and mental health in resettled refugees: mediating effect of host language acquisition on post-traumatic stress disorder, depressive and anxiety symptoms. *Transcult Psychiatry.* 2019;56(1):3–23.
50. Gathercole SE, Baddeley AD. Working Memory and Language Processing. Hoboken: Taylor and Francis; 2014. ((Essays in Cognitive Psychology)).
51. Samuelson KW. Post-traumatic stress disorder and declarative memory functioning: a review. *Dialogues Clin Neurosci.* 2011;13(3):346–51.
52. Lansing AE, Plante WY, Golshan S, Fenemore-Notestine C, Thurel S. Emotion regulation mediates the relationship between verbal learning and internalizing, trauma-related and externalizing symptoms among early-onset, persistently delinquent adolescents. *Learn Individ Differ.* 2019;70:201–15.
53. Weindl D, Knefel M, Glück TM, Tran US, Lueger-Schuster B. Motivational capacities after prolonged interpersonal childhood trauma in institutional settings in a sample of Austrian adult survivors. *Child Abuse Negl.* 2018;76:194–203.
54. Nickerson A, Bryant RA, Schnyder U, Schick M, Mueller J, Morina N. Emotion dysregulation mediates the relationship between trauma exposure, post-migration living difficulties and psychological outcomes in traumatized refugees. *J Affect Disord.* 2015;173:185–92.
55. Koch T, Ehring T, Liedl A. Effectiveness of a transdiagnostic group intervention to enhance emotion regulation in young Afghan refugees: a pilot randomized controlled study. *Behav Res Ther.* 2020;132: 103689.
56. Santangelo PS, Limberger MF, Stiglmayr C, Houben M, Coosemans J, Verleyen G, et al. Analyzing subcomponents of affective dysregulation in borderline personality disorder in comparison to other clinical groups using multiple e-diary datasets. *Borderline Personal Disord Emot Dysregul.* 2016;3:5.
57. Graham JR, Calloway A, Roemer L. The buffering effects of emotion regulation in the relationship between experiences of racism and anxiety in a Black American Sample. *Cogn Ther Res.* 2015;39(5):553–63.
58. Karatzias T, Shevlin M, Hyland P, Brewin CR, Cloitre M, Bradley A, et al. The role of negative cognitions, emotion regulation strategies, and attachment style in complex post-traumatic stress disorder: implications for new and existing therapies. *Br J Clin Psychol.* 2018;57(2):177–85.
59. Doolan EL, Bryant RA, Liddell BJ, Nickerson A. The conceptualization of emotion regulation difficulties, and its association with posttraumatic stress symptoms in traumatized refugees. *J Anxiety Disord.* 2017;50:7–14.
60. Bryant RA, Guthrie RM. Maladaptive self-appraisals before trauma exposure predict posttraumatic stress disorder. *J Consult Clin Psychol.* 2007;75(5):812–5.
61. Dunmore E, Clark DM, Ehlers A. A prospective investigation of the role of cognitive factors in persistent Posttraumatic Stress Disorder (PTSD) after physical or sexual assault. *Behav Res Ther.* 2001;39:1063–84.
62. Wang J, Mann F, Lloyd-Evans B, Ma R, Johnson S. Associations between loneliness and perceived social support and outcomes of mental health problems: a systematic review. *BMC Psychiatry.* 2018;18(1):156.
63. Fox R, Hyland P, Coogan AN, Cloitre M, McHugh PJ. Posttraumatic stress disorder, complex PTSD and subtypes of loneliness among older adults. *J Clin Psychol.* 2022;78(2):321–42.
64. Belau MH, Becher H, Kraemer A. Loneliness as a mediator of social relationships and health-related quality of life among refugees living in North Rhine-Westphalia, Germany. *BMC Public Health.* 2021;21(1):2233.
65. Minihan S, Liddell BJ, Byrow Y, Bryant RA, Nickerson A. Patterns and predictors of posttraumatic stress disorder in refugees: a latent class analysis. *J Affect Disord.* 2018;232:252–9.
66. Turrini G, Purgato M, Acarturk C, Anttila M, Au T, Ballette F, et al. Efficacy and acceptability of psychosocial interventions in asylum seekers and refugees: systematic review and meta-analysis. *Epidemiol Psychiatr Sci.* 2019;1–13.
67. Schäfer I, Gast U, Hofmann A, Knaevelsrud C, Lampe A, Liebermann P, et al. S3-Leitlinie Posttraumatische Belastungsstörung. Berlin: Springer; 2019.
68. Brewin CR, Gregory JD, Lipton M, Burgess N. Intrusive images in psychological disorders: characteristics, neural mechanisms, and treatment implications. *Psychol Rev.* 2010;117(1):210–32.
69. Iyadurai L, Visser RM, Lau-Zhu A, Porcheret K, Horsch A, Holmes EA, et al. Intrusive memories of trauma: a target for research bridging cognitive science and its clinical application. *Clin Psychol Rev.* 2019;69:67–82.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Ready to submit your research? Choose BMC and benefit from:

- fast, convenient online submission
- thorough peer review by experienced researchers in your field
- rapid publication on acceptance
- support for research data, including large and complex data types
- gold Open Access which fosters wider collaboration and increased citations
- maximum visibility for your research: over 100M website views per year

At BMC, research is always in progress.

Learn more biomedcentral.com/submissions



Supplementary Material:

The boundaries between complex posttraumatic stress disorder and post-migration living difficulties in traumatised Afghan refugees: a network analysis

Jennifer Schiess-Jokanovic^{*a}, Matthias Knefel^a, Viktoria Kantor^a, Dina Weindl^a,
Ingo Schäfer^b, and Brigitte Lueger-Schuster^a

Author Note

^a Department of Clinical and Health Psychology, Faculty of Psychology, University of Vienna, Vienna, Austria.

^b Department of Psychiatry and Psychotherapy, University Medical Centre Hamburg-Eppendorf, Hamburg, Germany.

*Correspondence concerning this article should be addressed to Jennifer Schiess-Jokanovic, Department of Clinical and Health Psychology, Faculty of Psychology, University of Vienna, Wächtergasse 1, 1010 Vienna, Austria. E-Mail: jennifer.schiess-jokanovic@univie.ac.at

Table S1

Post-Migration Living Difficulties Checklist (PMLDC)

Items
1. Communication difficulties
2. Discrimination
3. Conflicts with own or other ethnic groups in Austria
4. Family separation
5. Concern for family members remaining in the home country or living far away
6. Impossibility to travel home in case of emergency
7. Difficulties with work (e.g.: work permit, working conditions)
8. Difficulties with official channels (e.g.: interview with asylum agency)
9. Conflicts with authorities
10. No recognition as a refugee
11. Fear of future deportation to the homeland
12. Worries about not receiving medical support or treatment for health problems
13. Not having enough money to buy food, necessary clothing, or pay rent
14. Difficulties in obtaining financial support
15. Loneliness, boredom or isolation
16. Difficulties learning German
17. Difficulties in obtaining adequate housing
18. Family pressure, expectations which cannot be fulfilled ^a
19. No contact with family and friends in the country of origin ^a
20. Stressful media reports and social media content ^a
21. Negative media reports about Afghan fellow citizens in Austria ^a

22. Dependence on others due to language (loss of autonomy)^a

23. Ethnic stigmatization^a

24. Difficulties in understanding bureaucratic processes in Austria^a

25. Different social norms than in the country of origin^a

26. Homesickness^a

Note. The post-migration living difficulties checklist was adapted for the study. ^a additional item.

Table S2

Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10
1. Re										
2. Av	.258									
3. Th	.182	.188								
4. AD	.467	.196	.441							
5. NSC	.320	.078	.425	.506						
6. DR	.269	.091	.376	.570	.599					
7. DS	.0778	.172	.206	.285	.125	.108				
8. LAB	.387	.142	.271	.304	.288	.168	.245			
9. FC	.201	.139	-.084	-.030	-.027	.033	.135	.083		
10. RI	.317	.004	.130	.229	.131	.217	.119	.279	.160	

Note. Polychoric correlations were used

Table S3
Sociodemographic characteristics

Sample Characteristics	n (%)
Female	42 (45.2)
Educational Level	
No formal education	35 (37.6)
Elementary school	21 (22.6)
Secondary school	16 (17.2)
High school	16 (17.2)
University	4 (4.3)
Marital status	
Single	37 (39.8)
Married/Cohabiting	48 (51.7)
Divorced/widowed	7 (7.6)
Employment	
Employed or in training	7 (7.5)
Unemployed/ Unemployed without work permit	57 (61.3)
Student	11 (11.8)
Unable to work/ permanently ill	2 (2.2)
Retired	2 (2.2)
Unpaid housework, childcare	2 (2.2)
Other (e.g., community service)	7 (7.5)
Asylum Status	
Granted asylum	40 (43.0)
Subsidiary protection	18 (19.4)

Asylum seeker/ asylum seeker appealing rejection	27 (29.0)
Austrian citizenship	3 (3.2)
Other	4 (4.3)
Presumptive diagnosis	
Presumptive ICD-11 CPTSD diagnosis	45 (50)
Presumptive ICD-11 PTSD diagnosis	16 (17.78)
	Mean (SD)
Age	34.77 (13.84)
Potentially traumatic experience types	12.07 (SD=5.03)
Potentially traumatic experience type	n (%)
Lack of food or water	46 (51.69)
Ill health without access to medical care	43 (48.31)
Life-threatening disease	31 (34.83)
Lack of shelter	40 (44.94)
Serious accident (for example industrial, agricultural or traffic accident)	40 (44.94)
Fire or explosion	47 (52.81)
Exposure to toxic substances (for example, hazardous chemical radiation)	11 (12.36)
Imprisonment	27 (30.34)
Serious injury	39 (43.82)
Combat situation	50 (56.18)
Staying in a war zone as a civilian	63 (70.79)
Brain washing	9 (10.11)
Violent attack by a family member or a known person (e.g.: assaulted, physically attacked, shot or threatened with a weapon).	42 (47.19)
Violent attack by an unknown person	50 (56.18)

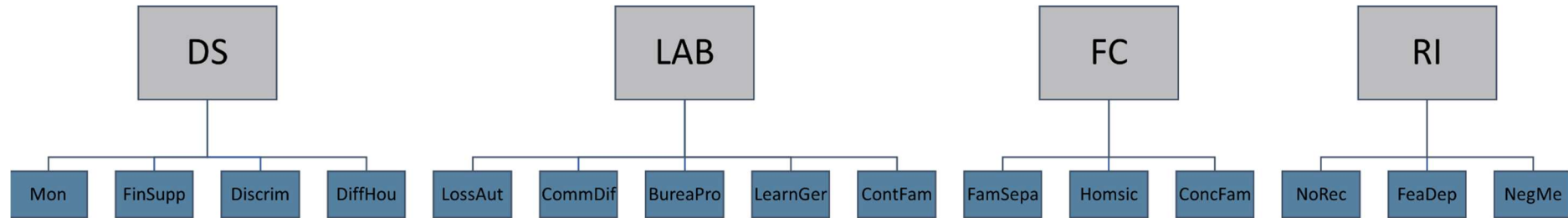
(e.g.: assaulted, physically attacked, shot or threatened with a weapon).

Rape or sexual abuse	12 (13.48)
Other unwanted or undesired sexual experience	20 (22.47)
Natural disaster (e.g.: flood, hurricane, tornado or strong earthquake)	42 (47.19)
Stay in a refugee camp	59 (66.29)
Being exposed to danger during flight (sea, boat, border)	76 (85.39)
Forced isolation from others	30 (33.71)
Being close to death	49 (55.06)
Forced separation of family members	35 (39.33)
Murder of a family member or friend	54 (60.67)
Unnatural death of family members or friends	50 (56.18)
Murder of one or more unknown persons	45 (50.56)
Disappear or be abducted	25 (28.09)
Torture	36 (40.45)
Serious injury, damage or death you have caused to someone else	7 (7.87)
Another situation that was very scary or where you felt your life was in danger (e.g. domestic violence)	45 (50.56)

Note. $N = 93$. Numbers may not sum to total N and percentages may not sum to 100 due to missing values.

Figure S1

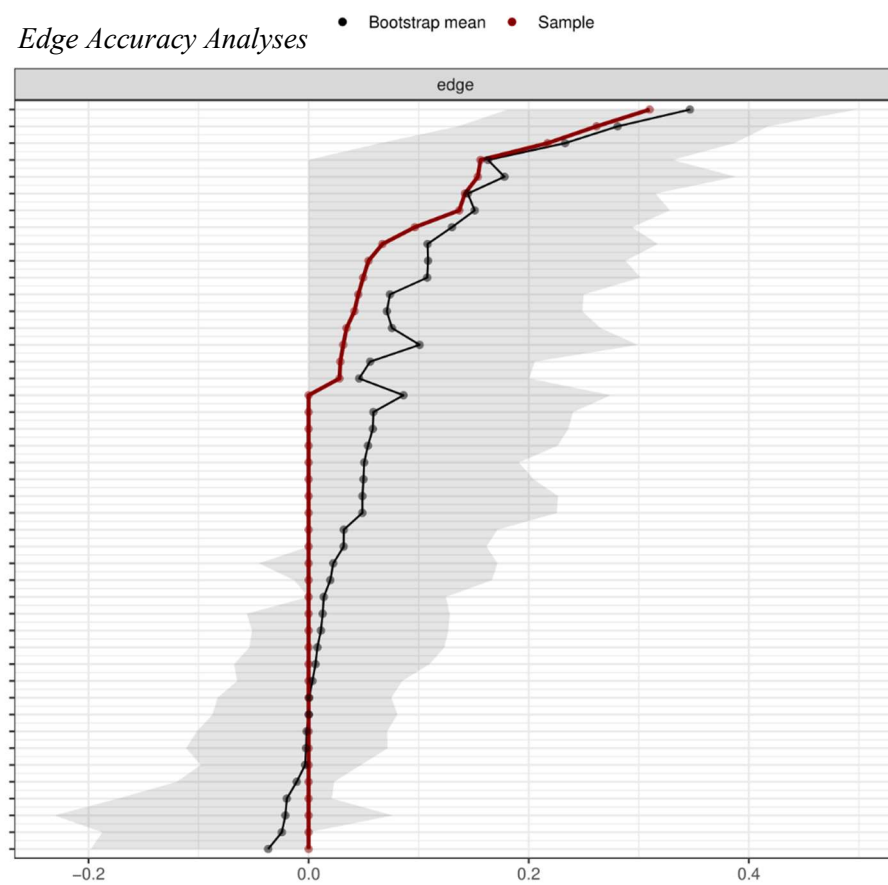
Item assignment to PMLD factors



Note. Mon = Not having enough money to buy food, necessary clothing, or pay rent, FinSupp = Difficulties in obtaining financial support, Discrim = Discrimination, DiffHou = Difficulties in obtaining adequate housing, LossAut = Dependence on others due to language (loss of autonomy)^a, CommDif = Communication difficulties, BureaPro = Difficulties in understanding bureaucratic processes in Austria^a, LearnGer = Difficulties learning German, ContFam = No contact with family and friends in the country of origin^a, FamSepa = Family separation, Homsic = Homesickness^a, ConcFam = Concern for family members remaining in the home country or living far away, NoRec = No recognition as a refugee, FeaDep = Fear of future deportation to the homeland, NegMe = Negative media reports about Afghan fellow citizens in Austria^a.

Figure S2

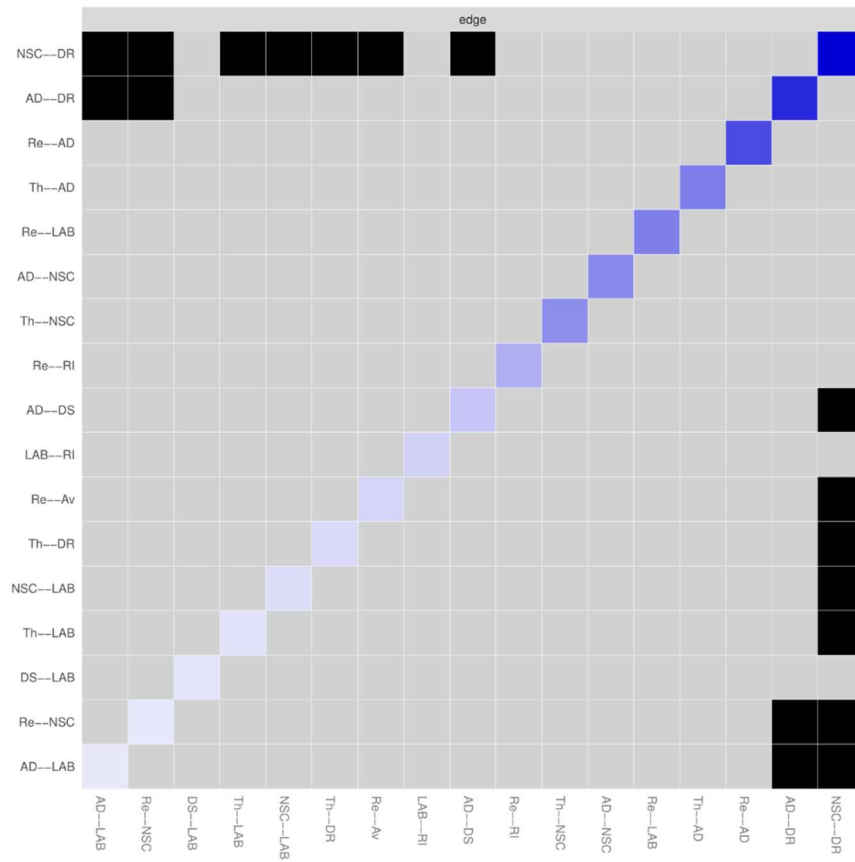
Edge Accuracy Analyses



Note. The grey regions indicate the 95% confidence intervals and the red line represents edge values.

Figure S3

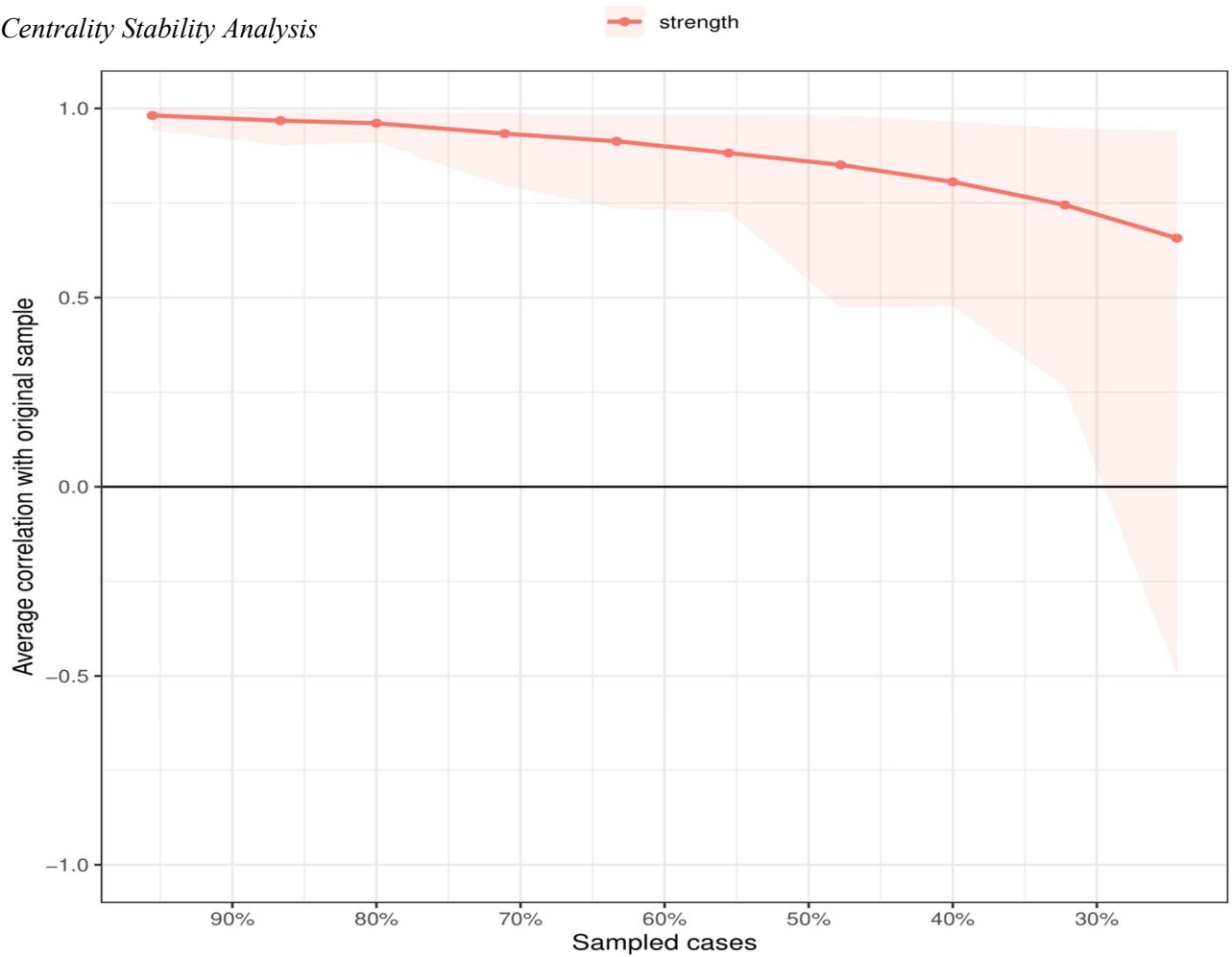
Edge weights difference test



Note. Black boxes represent significant differences between edge weights.

Figure S4

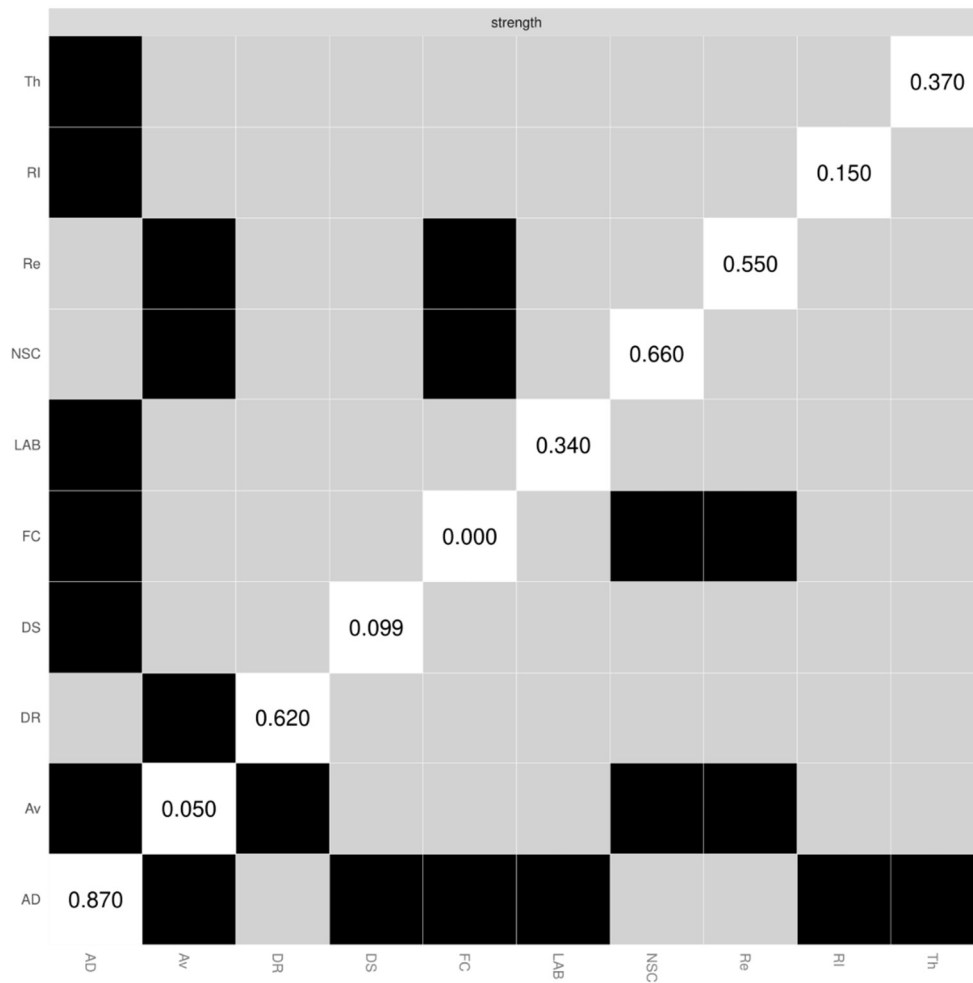
Centrality Stability Analysis



Note. Average correlations between the original and centrality indices of network sampled with persons dropped sample. The red line indicate the means and areas indicate the range from the 2.5th to the 97.5th quantile.

Figure S5

Centrality difference test



Note. The diagonal show standardized strength centrality values, black boxes represent significant differences in centrality estimates.

Table S4
Codebook

Position	Variable Name	Variable Label	Value	Value Label	Value indicating missing data	Question
1	TN	Participant	1-102	ID number	-99	-
2	PMLD01_t0	Communication difficulties	1	not at all	-99	In the last month I have experienced in Austria....
3	PMLD02_t0	Discrimination	2	a little bit		
4	PMLD03_t0	Conflicts with own or other ethnic groups in Austria	3 4	moderately strongly		
5	PMLD04_t0	Family separation	5	very strongly		How much was the problem below true for you?
6	PMLD05_t0	Concern for family members remaining in the home country or living far away				
7	PMLD06_t0	Impossibility to travel home in case of emergency				
8	PMLD07_t0	Difficulties with work (e.g.: work permit, working conditions)				
9	PMLD08_t0	Difficulties with official channels (e.g.: interview with asylum agency)				

10	PMLD09_t0	Conflicts with authorities
11	PMLD10_t0	No recognition as a refugee
12	PMLD11_t0	Fear of future deportation to the homeland
13	PMLD12_t0	Worries about not receiving medical support or treatment for health problems
14	PMLD13_t0	Not having enough money to buy food, necessary clothing, or pay rent
15	PMLD14_t0	Difficulties in obtaining financial support
16	PMLD15_t0	Loneliness, boredom or isolation
17	PMLD16_t0	Difficulties learning German
18	PMLD17_t0	Difficulties in obtaining adequate housing
19	PMLD18_t0	Family pressure, expectations which cannot be fulfilled ^a
20	PMLD19_t0	No contact with family and friends in the country of origin ^a
21	PMLD20_t0	Stressful media reports and social media content ^a

22	PMLD21_t0	Negative media reports about Afghan fellow citizens in Austria ^a				
23	PMLD22_t0	Dependence on others due to language (loss of autonomy) ^a				
24	PMLD23_t0	Ethnic stigmatization ^a				
25	PMLD24_t0	Difficulties in understanding bureaucratic processes in Austria ^a				
26	PMLD25_t0	Different social norms than in the country of origin ^a				
27	PMLD26_t0	Homesickness ^a				
28	ITQP01_t0	Upsetting dreams	0	not at all	-99	P1. Having upsetting dreams that replay part of the experience or are clearly related to the experience?
			1	a little bit		
			2	moderately		
29	ITQP02_t0	Flashbacks	3	quite a bit		P2. Having powerful images or memories that sometimes come into your mind in which you feel the
			4	extremely		

experience is happening again in the here and now?

P3. Avoiding internal reminders of the experience (for example, thoughts, feelings, or physical sensations)?

P4. Avoiding external reminders of the experience (for example, people, places, conversations, objects, activities, or situations)?

P5. Being “super-alert”, watchful, or on guard?

P6. Feeling jumpy or easily startled?

P7. Affected your relationships or social life?

P8. Affected your work or ability to work?

30	ITQP03_t0	Internal-Avoidance
31	ITQP04_t0	External-Avoidance
32	ITQP05_t0	Being on guard
33	ITQP06_t0	Startled
34	ITQP07_t0	Functional impairment in relationships
35	ITQP08_t0	Functional impairment at work

36	ITQP09_t0	Functional impairment in other parts of life	P9. Affected any other important part of your life such as parenting, or school or college work, or other important activities?
37	ITQC01_t0	Long time to calm down	C1. When I am upset, it takes me a long time to calm down.
38	ITQC02_t0	Numb	C2. I feel numb or emotionally shut down.
39	ITQC03_t0	Failure	C3. I feel like a failure.
40	ITQC04_t0	Worthless	C4. I feel worthless.
41	ITQC05_t0	Cut-off from others	C5. I feel distant or cut off from people.
42	ITQC06_t0	Difficult to stay close to others	C6. I find it hard to stay emotionally close to people.
43	ITQC07_t0	Functional impairment in relationships	C7. Created concern or distress about your relationships or social life?

44	ITQC08_t0	Functional impairment at work	C8. Affected your work or ability to work?
45	ITQC09_t0	Functional impairment in other parts of life	C9. Affected any other important parts of your life such as parenting, or school or college work, or other important activities?

Table S5
R Code

```
#####
#
# The boundaries between complex posttraumatic stress disorder symptom clusters and #
# post-migration living difficulties in traumatised Afghan refugees: a network analysis #
#
# Jennifer Schiess-Jokanovic, Matthias Knefel, Viktoria Kantor, Dina Weindl, #
# Ingo Schäfer, and Brigitte Lueger-Schuster #
# submitted to Conflict & Health #
#
#####

#.....
# Table of Contents
#.....
# 1. Load libraries
# 2. Data preparation
# 3. Descriptive statistics
# 4. Network estimation
# 5. Stability and accuracy
# 6. Centrality estimates

#.....
# 1. Load libraries
#.....
library("haven")
library("misty")
library("openxlsx")
library("foreign")
library("psych")
library("ggplot2")
library("bootnet")
library("qgraph")
library("mice")
library("mgm")
library("networktools")
#.....
# 2. Data preparation
#.....

## Load Data

## Check total file
dim(dat)
names(dat)
head(dat)
tail(dat)

descript(dat)
names(dat)
na.descript(dat)

dat[dat==-99] <- NA
percentmissing = function(x){sum(is.na(x))/length(x) * 100}
```

```
missing = apply(dat, 1, percentmissing)
table(missing)
```

Assign and name variables to the questionnaire

PMLDC

```
PMLD_t0 <- cbind(dat$PMLD01_t0, dat$PMLD02_t0, dat$PMLD03_t0, dat$PMLD04_t0,
dat$PMLD05_t0, dat$PMLD06_t0, dat$PMLD07_t0, dat$PMLD08_t0, dat$PMLD09_t0,
dat$PMLD10_t0, dat$PMLD11_t0, dat$PMLD12_t0, dat$PMLD13_t0, dat$PMLD14_t0,
dat$PMLD15_t0, dat$PMLD16_t0, dat$PMLD17_t0, dat$PMLD18_t0, dat$PMLD19_t0,
dat$PMLD20_t0, dat$PMLD21_t0, dat$PMLD21_t0, dat$PMLD23_t0, dat$PMLD24_t0,
dat$PMLD25_t0, dat$PMLD26_t0)
```

```
colnames(PMLD_t0) <- c("PMLD01_t0", "PMLD02_t0", "PMLD03_t0", "PMLD04_t0",
"PMLD05_t0", "PMLD06_t0", "PMLD07_t0", "PMLD08_t0", "PMLD09_t0", "PMLD10_t0",
"PMLD11_t0", "PMLD12_t0", "PMLD13_t0", "PMLD14_t0", "PMLD15_t0", "PMLD16_t0",
"PMLD17_t0", "PMLD18_t0", "PMLD19_t0", "PMLD20_t0", "PMLD21_t0", "PMLD22_t0",
"PMLD23_t0", "PMLD24_t0", "PMLD25_t0", "PMLD26_t0")
```

ITQ

```
ITQ_t0 <- cbind(dat$ITQP01_t0, dat$ITQP02_t0, dat$ITQP03_t0, dat$ITQP04_t0,
dat$ITQP05_t0, dat$ITQP06_t0, dat$ITQC01_t0, dat$ITQC02_t0, dat$ITQC03_t0,
dat$ITQC04_t0, dat$ITQC05_t0, dat$ITQC06_t0)
```

```
colnames(ITQ_t0) <- c("Re1", "Re2", "Av1", "Av2", "Th1", "Th2", "AD1", "AD2", "Nsc1",
"Nsc2", "Dr1", "Dr2")
```

Handle missing values

```
descript(PMLD_t0)
PMLD_imp <- mice(PMLD_t0, method = "pmm")
PMLD_mice <- complete(PMLD_imp)
descript(PMLD_mice)
PMLD_mice
```

```
ITQ_imp <- mice(ITQ_t0, method = "pmm")
ITQ_mice <- complete(ITQ_imp)
descript(ITQ_mice)
ITQ_mice
```

Assign to CPTSD Symptom Cluster & PMLD Factor

CPTSD Symptom Cluster

Re-experiencing

```
Re_sum <- ITQ_mice$Re1 + ITQ_mice$Re2
```

Avoidance

```
Av_sum <- ITQ_mice$Av1 + ITQ_mice$Av2
```

Sense of current threat

```
Th_sum <- ITQ_mice$Th1 + ITQ_mice$Th2
```

Affective Dysregulation

```
AD_sum <- ITQ_mice$AD1 + ITQ_mice$AD2
```

Negative Self-Concept

```
Nsc_sum <- ITQ_mice$Nsc1 + ITQ_mice$Nsc2
```

Disturbances in relationships

```
Dr_sum <- ITQ_mice$Dr1 + ITQ_mice$Dr2
```

PMLD Factors

Discrimination & social-economical living conditions

```
fac1_PMLD <- cbind(PMLD_mice$PMLD02_t0, PMLD_mice$PMLD13_t0,  
PMLD_mice$PMLD14_t0,PMLD_mice$PMLD17_t0)
```

Language acquisition & barriers

```
fac2_PMLD <- cbind(PMLD_mice$PMLD01_t0, PMLD_mice$PMLD16_t0,  
PMLD_mice$PMLD19_t0, PMLD_mice$PMLD22_t0, PMLD_mice$PMLD24_t0)
```

Family concerns

```
fac3_PMLD <- cbind(PMLD_mice$PMLD05_t0, PMLD_mice$PMLD26_t0,  
PMLD_mice$PMLD04_t0, PMLD_mice$PMLD06_t0)
```

Residence Insecurity

```
fac4_PMLD <- cbind(PMLD_mice$PMLD10_t0, PMLD_mice$PMLD11_t0,  
PMLD_mice$PMLD21_t0)
```

```
fac1_PMLD_sum <-rowSums(fac1_PMLD, na.rm = TRUE)
```

```
fac2_PMLD_sum <-rowSums(fac2_PMLD, na.rm = TRUE)
```

```
fac3_PMLD_sum <-rowSums(fac3_PMLD, na.rm = TRUE)
```

```
fac4_PMLD_sum <-rowSums(fac4_PMLD, na.rm = TRUE)
```

```
#.....
```

3. Descriptive statistics

```
#.....
```

CPTSD Cluster

```
descript(Re_sum)
```

```
descript(Av_sum)
```

```
descript(Th_sum)
```

```
descript(AD_sum)
```

```
descript(NSC_sum)
```

```
descript(DR_sum)
```

PMLD Factors

```
descript(fac1_PMLD_sum)
```

```
descript(fac2_PMLD_sum)
```

```
descript(fac3_PMLD_sum)
```

```
descript(fac4_PMLD_sum)
```

```
#.....
```

4. Network estimation

```
#.....
```

Preparation

```
Data_Study2_model3 <- cbind(Re_sum, Av_sum, Th_sum, AD_sum, Nsc_sum, Dr_sum,
```

```
fac1_PMLD_sum, fac2_PMLD_sum, fac3_PMLD_sum, fac4_PMLD_sum)
```

```
as.data.frame(Data_Study2_model3)
```

```
colnames(Data_Study2_model3)<- c("Re", "Av", "Th", "AD", "NSC", "DR", "DS", "LAB", "FC",  
"RI")
```

```
colnames(Data_Study2_model3)
```

```
as.data.frame(Data_Study2_model3)
```

```
Names <- c("Re-experiencing", "Avoidance", "Sense of current threat", "Affective Dysregulation",
```

```
"Negative Self-Concept", "Disturbances in Relationships", "Discrimination & Socio-econom.",
```

```
"Language Acquisition & Barriers", "Family Concerns", "Residence Insecurity")
```

Correlation Matrix

```
study2_model3.cor <- cor_auto(Data_Study2_model3)
study2_model3.cor
graph_model3.g <- qgraph(study2_model3.cor, label=colnames, graph="EBICglasso",
layout="spring", cut=0, sampleSize= nrow(Data_Study2_model3), tuning=0, details=TRUE)
```

Network estimation

```
network_model3 <- estimateNetwork(Data_Study2_model3, default = "EBICglasso", tuning=0,
corMethod = c("cor_auto"))
plot(network_model3, layout = "spring", cut = 0, filename = "network_model1")
network_model3
```

##Network visualization

```
Network_plot1 <- qgraph(study2_model3.cor, graph = "EBICglasso", layout = "spring", tuning = 0,
sampleSize = nrow(Data_Study2_model3), legend.cex = 0.4, vsize = 10, esize = 15, palette =
"rainbow", posCol = "grey20", color = "lightsteelblue", negCol = "orange", borders = TRUE,
border.color = "grey20", border.width = 1.5, vTrans = 250, details = FALSE, label.cex = 0.9,
nodeNames = Names, filename = "Model_withoutgrouping", filetype = "pdf")
```

```
#.....
```

5. Stability and accuracy

```
#.....
```

Robustness analysis

```
Boot1_model3 <- bootnet(network_model3, nBoots = 1000, nCores = 4) # ncores 4 oder 8?
plot(Boot1_model3, labels = FALSE, order = "sample")
plot(Boot1_model3, statistics = "edge", plot = "difference", onlyNonZero = TRUE, order =
"sample")
save(Boot1_model3, file = "boot1_model1.Rdata")
summary(Boot1_model3)
```

Plot edge weight CI

```
pdf("FigS1.pdf")
par(mfrow=c(2,2))
plot(Boot1_model3, labels = FALSE, order="sample")
par(mfrow=c(1,1))
dev.off()
```

Plot edge weight difference test

```
pdf("FigS2.pdf")
par(mfrow=c(2,2))
plot(Boot1_model3, statistics = "edge", plot = "difference", onlyNonZero = TRUE, order =
"sample")
par(mfrow=c(1,1))
dev.off()
```

```
Boot2_model3 <- bootnet(network_model3, nBoots = 1000, nCores = 5, type = "case")
plot(Boot2_model3)
save(Boot2_model3, file = "boot2_model3.Rdata")
corStability(Boot2_model3)
summary(Boot2_model3)
```

Plot Centrality stability

```
pdf("FigS3.pdf")
par(mfrow=c(2,2))
```

```

plot(Boot2_model3)
par(mfrow=c(1,1))
dev.off()

# Significant differences
differenceTest(Boot1_model3, 1, 2,"strength") # Note:sign. diff. only between 3,4;
plot(Boot1_model3, "edge", plot = "difference", onlyNonZero = TRUE, order = "sample")
plot(Boot1_model3, "strength")

#Plot sign. diff test
pdf("FigS4.pdf")
par(mfrow=c(2,2))
plot(Boot1_model3, "edge", plot = "difference", onlyNonZero = TRUE, order = "sample")
par(mfrow=c(1,1))
dev.off()

pdf("FigS5.pdf")
par(mfrow=c(2,2))
plot(Boot1_model3, "strength")
par(mfrow=c(1,1))
dev.off()

#.....
# 6. Centrality estimates
#.....
centrality_auto(graph_model3.g)
centralityPlot(graph_model3.g, include = c("Strength", "Closeness", "Betweenness"))

bridge_model3 <- bridge(graph_model3.g, communities = c("1", "1", "1", "1", "1", "1", "2", "2",
"2", "2"))
bridge_model3
plot(bridge_model3)

caseDroppingBoot <- bootnet(network_model3,boots=1000,type="case", statistics="all",
communities = c("1", "1", "1", "1", "1", "1", "2", "2", "2", "2"))
summary(caseDroppingBoot)

nonParametricBoot <- bootnet(network_model3,boots=1000,type="nonparametric", statistics="all",
communities = c("1", "1", "1", "1", "1", "1", "2", "2", "2", "2"))
summary(nonParametricBoot)

corStability(caseDroppingBoot)
plot(caseDroppingBoot, statistics="bridgeExpectedInfluence")
plot(nonParametricBoot, statistics="bridgeExpectedInfluence")

plot(nonParametricBoot, statistics="bridgeExpectedInfluence", plot="difference")

summary_bridgeExpectedInfl <- summary(nonParametricBoot,
statistics="bridgeExpectedInfluence")
save(summary_bridgeExpectedInfl, file = "pdf")

summary_bridgestrenght <- summary(nonParametricBoot, statistics = "bridgeStrength")
save(summary_bridgestrenght, file = "pdf")

```

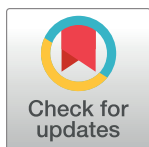
RESEARCH ARTICLE

“My brain freezes and I am blocked again”: The subjective experience of post-migration living difficulties influenced by complex posttraumatic stress disorder of Afghan asylum seekers and refugees in Austria

Jennifer Schiess-Jokanovic¹*, Christine Gössling-Steirer, Viktoria Kantor, Matthias Knefel, Dina Weindl¹, Brigitte Lueger-Schuster*

Department of Clinical and Health Psychology, Faculty of Psychology, University of Vienna, Vienna, Austria

* jennifer.schiess-jokanovic@univie.ac.at



Abstract

OPEN ACCESS

Citation: Schiess-Jokanovic J, Gössling-Steirer C, Kantor V, Knefel M, Weindl D, Lueger-Schuster B (2023) “My brain freezes and I am blocked again”: The subjective experience of post-migration living difficulties influenced by complex posttraumatic stress disorder of Afghan asylum seekers and refugees in Austria. PLoS ONE 18(7): e0288691. <https://doi.org/10.1371/journal.pone.0288691>

Editor: Giuseppe Marano, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Università Cattolica del Sacro Cuore, ITALY

Received: December 13, 2022

Accepted: July 3, 2023

Published: July 26, 2023

Copyright: © 2023 Schiess-Jokanovic et al. This is an open access article distributed under the terms of the [Creative Commons Attribution License](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Data Availability Statement: The data that supports the findings of this study are openly available in “Zenodo” at <https://doi.org/10.5281/zenodo.5054032>. Relevant excerpts of the qualitative data can be found within the paper.

Funding: This study was funded by the Austrian Science Fund (FWF; Grant number: KLI 755-B). The funders had no role in study design, data

Background

Potentially traumatic experiences and post-migration living difficulties (PMLDs) undoubtedly leave marks on mental health and psychosocial functioning. While PMLDs are recognised as a risk factor for posttraumatic stress disorder and complex posttraumatic stress disorder (described together here as C/PTSD), recent investigations have found that C/PTSD symptoms might also influence the experience of PMLDs. The subjective experience of and coping with PMLDs in the context of C/PTSD symptoms has not yet been explored.

Methods

Semi-structured, interpreter-assisted interviews exploring the subjective experience of post-migration living difficulties were conducted with treatment-seeking Afghan refugees and asylum seekers (N = 24) and transcribed verbatim. Participants were screened using the International Trauma Questionnaire (ITQ) and allocated to a C/PTSD group or non-C/PTSD group. We analysed the qualitative interviews using content analysis and then compared the results of the two groups.

Results

Over half of the participants (58.3%) met the criteria for C/PTSD. While the two groups addressed numerous similar themes, the C/PTSD group more frequently mentioned themes associated with C/PTSD symptoms (e.g., intrusions, avoidance, sleep disturbances, affective dysregulation) that influenced their responses to PMLDs. The non-C/PTSD group more often experienced positive emotions such as gratitude and optimism, and showed more active, solution-oriented behaviour as well as positive self-verbalisation.

collection and analysis, decision to publish, or preparation of the manuscript.

Competing interests: The authors have declared that no competing interests exist.

Abbreviations: ASR, asylum seekers and refugees; CPTSD, complex posttraumatic stress disorder; C/PTSD, CPTSD and/or PTSD; DSO, disturbances in self-organisation; HTQ, Harvard Trauma Questionnaire Checklist; ITQ, International Trauma Questionnaire; PMLDs, post-migration living difficulties; PTSD, posttraumatic stress disorder; QCA, Qualitative Content Analysis.

Conclusion

To achieve a deeper understanding of PMLDs, post-traumatic psychopathology should be taken into account, as C/PTSD symptoms influence the experience of and coping with PMLDs. The specifics of individual experiences need to be considered in order to promote adaptive coping with PMLDs and to set individual trauma-focused and transdiagnostic treatment targets. In addition, psychological interventions should incorporate psychoeducation to improve the understanding of the impact of C/PTSD on the current experience of PMLDs.

Introduction

Afghans represent the third largest refugee population in the world [1]. Since the Taliban take-over in 2021, the number of Afghan asylum seekers and refugees (ASR) has increased for the 15th consecutive year [1]. The following year, Afghanistan was the most common country of origin of asylum seekers in Austria [2]. The Afghan population comprises over 45,000 individuals in Austria, making this ASR population one of the largest in this country [3]. Numerous asylum seekers and refugees (ASR) from Afghanistan have been affected by high rates of potentially traumatic experiences (PTEs) before and during their flight [4, 5] and also have to deal with a multitude of migration-specific stressors [6].

The construct of so-called post-migration living difficulties (PMLDs) includes intrapersonal (e.g., worries about the future, homesickness), interpersonal (e.g., isolation, conflicts), societal (e.g., discrimination, asylum law, mass media), and cultural stressors (e.g., culture, foreign language) [7–9]. Research has revealed that the impact of PMLDs on mental health problems and reduced quality of life is comparable to the impact of potentially traumatic experiences [4, 10].

Since the outbreak of the COVID-19 pandemic, socio-economic challenges and mental health problems have become increasingly common among the Austrian population [11, 12] and particularly among ASR in Austria, who already faced instability and crises before [13, 14]. Accordingly, ASR show a higher prevalence of mental health problems, which is higher still in treatment-seeking ASR populations [4, 15, 16]. Compared to ASR from other countries of origin, individuals from Afghanistan in Austria were found to have lower levels of education, longer waiting periods for asylum decisions, poorer health and lower quality of life [17–19].

Stress-related disorders such as posttraumatic stress disorder (PTSD) and complex post-traumatic stress disorder (CPTSD) are among the most commonly reported mental health problems among ASR in high-income countries [20, 21]. In the ICD-11, the diagnostic criteria for CPTSD encompass the symptom clusters of PTSD (re-experiencing, avoidance, sense of threat) and three additional symptom clusters associated with disturbances in self-organisation (affective dysregulation, negative self-concept, disturbances in relationships) as well as functional impairment [22]. Besides the general functional impairments associated with PTSD or CPTSD (C/PTSD) [23, 24], ASR with C/PTSD have been found to suffer from higher levels of distress associated with PMLDs [25, 26]. However, using the sum of PMLDs as predictor of psychopathological distress is problematic [27, 28], providing little insight into the underlying mechanisms of action and limited guidance for psychological therapy for ASR [29].

To better capture the complex interplay between PMLDs and mental health in ASR, ecological models have suggested mutual relationships between and within different forms of protective and risk factors (e.g., PMLDs) [7, 30, 31]. Moreover, according to these models, an experienced loss of resources might increase the risk of further loss and set in motion a spiral

of loss [31]. For example, prior to migration, a variety of satisfying social relationships might stabilise a vulnerable self-esteem. After migration, traumatic experiences and a loss of social resources might contribute to a destabilisation of self-esteem and increase the risk of developing CPTSD. Low self-esteem might make it harder to establish new contacts in the host country and increase mental health problems, which may in turn further diminish self-esteem and exacerbate, for instance, social withdrawal, difficulties acquiring the language of the host country, and psychopathology.

In parallel to the postulated ecological models, research on various forms of psychopathology has investigated the complex interplay of individual symptoms [32], but has rarely included external factors [33, 34]. Accordingly, the interplay between different forms of PMLDs and psychopathology at the symptom level has rarely been examined so far. However, initial studies have reported associations beyond the constructs of PMLDs and psychopathology, supporting the assumption that individual symptoms might interact in distinct ways with different forms of PMLDs [29, 35–37]. Studies comparing the associations between PMLDs and anxiety disorders, depression, and PTSD have indicated the strongest associations between PTSD and almost all forms of PMLDs [26, 38]. Therefore, it seems especially important to examine this relationship in depth.

Further analyses of the associations between different forms of PMLDs and CPTSD symptom clusters have revealed an important role of re-experiencing and affective dysregulation [39]. This finding is consistent with previous evidence that people with C/PTSD use more maladaptive coping strategies such as rumination or avoidance [40, 41]. The recognition of these associations represents important information per se. However, the question of how CPTSD symptoms influence the subjective experience of and coping with PMLDs in daily life among ASR cannot be sufficiently investigated using checklist-based quantitative methods [42].

Initial qualitative investigations reported differences in the experience of PMLDs between ASR with low and high levels of PTSD symptoms [8, 43]. ASR with high PTSD showed lower levels of attachment to both the home and host country [8, 43] and had fewer future plans. Moreover, they experienced higher levels of distress, social isolation, relationship problems and conflict, used more avoidance-based strategies to deal with these problems [8] and reported poorer self-reflection [43]. In comparison, ASR with lower levels of PTSD were more likely to feel comfortable in their new community. They were pleased with their housing conditions and had sufficient money for their daily needs as well as access to health care services, education, skills training, and employment programs [8]. Furthermore, individuals with low PTSD reported a clearer sense of identity and subjective meaning in the refugee experience [43]. To the best of our knowledge, hardly any research has employed a qualitative approach to explore how ASR experience and cope with PMLDs while taking into account CPTSD symptoms beyond the classic symptoms of PTSD [8, 43].

To promote better mental health care for ASR in the future, the main aim of this study was to explore the subjective experience of and coping with PMLDs under consideration of C/PTSD symptoms. Based on previous empirical studies, we hypothesised that individuals with C/PTSD might differ from those without C/PTSD in terms of cognitive, emotional, physical and/or behavioural responses and coping strategies to PMLDs. The more frequent use of maladaptive coping strategies, such as rumination or avoidance, among ASR with C/PTSD was expected to contribute to increased distress related to PMLDs and potentially generate additional stressors. By conducting an in-depth examination of the differences in responses to PMLDs between ASR with and without C/PTSD, valuable insights might be gained into the underlying characteristics of these reactions and the influencing role of C/PTSD. Furthermore, we examined the subjectively experienced consequences of potentially traumatic experiences among Afghan ASR and their influence on daily life. These findings may offer initial guidance

for the development of interventions that integrate approaches to reduce C/PTSD and address the distress due to PMLDs. By incorporating these insights into mental health care, we can strive for improved support and well-being for ASR in the future.

Materials and methods

This study was part of the research project “A brief transdiagnostic psychological intervention for Afghan asylum seekers and refugees” (PIAAS-Study) [44, 45].

Study procedure

The study was approved by the Ethics Committee of the University of Vienna (reference numbers: 00356 and 00445). A study protocol was published for quality assurance and to provide a detailed description of the study procedure [45]. Recruitment took place mainly in cooperation with two non-governmental organisations and outpatient treatment centres in Vienna, but also with numerous smaller cooperation partners and disseminators. The staff informed potential participants on the waiting list about the PIAAS-Study and handed out information material in Dari. If the person were interested, they had the possibility to personally contact the research team or the institution forwarded contact details with the consent of the persons. The research team then contacted the individuals and arranged appointments. Which were all conducted with a clinical psychologist trained in psychological counselling skills together with an interpreter. Regular supervision took place for quality assurance, cultural sensitivity, and prevention of risks to the mental health of the research team.

At baseline participants were provided with detailed information, and written informed consent was obtained. Subsequently, the demographic data and the PTEs were collected during the baseline assessment. C/PTSD symptoms were captured over the course of the baseline and post-assessment. Due to the high number of illiterate Afghan ASR, the German and Dari versions of the self-report questionnaires were administered in a fully structured interview format. The German-speaking psychologist read out the German version of each item and an interpreter read out the Dari equivalent. An adapted version of the transdiagnostic psychological intervention “Problem Management Plus” with a total of six 90-minute sessions was offered to the participants [44].

Following the intervention and the post-assessment, we contacted participants of the intervention arm ($N = 26$) and asked them to take part in a qualitative interview about their subjective experiences in Austria. In total, 24 (92.3%) individuals agreed to participate. Of the other two participants, one participant was not reachable and the other declined to participate without giving a reason. The qualitative interviews took place between November 2020 and March 2021. The initial semi-structured interviews were conducted face-to-face in the “Outpatient Unit Research, Teaching, and Practice” of the Faculty of Psychology at the University of Vienna, while subsequent interviews were conducted via telephone conference due to the COVID-19 lockdown in Austria beginning on the 17th November 2020. The participants were asked to go to a quiet place where they could speak openly and undisturbed. All participants gave consent for the interview to be recorded for further analysis. Technical glitches or interruptions were rare and included brief connection problems, a one-time call interruption, and a one-time interruption by a child. Subsequently, all recordings were transcribed verbatim.

Participants

Inclusion criteria for study participation were 1) treatment-seeking adult Afghan ASR, 2) Dari as native language, 3) elevated psychological distress on the Refugee Health Screener-15 (RHS-15) questionnaire (total score ≥ 12 or Distress Scale score ≥ 5), and 4) participants of the

intervention arm after completed post-assessment. The exclusion criteria, which were observed and asked during the interview at the baseline assessment, were 1) severe cognitive impairment (moderate to severe intellectual disability or dementia) which hinders the necessary understanding of study-relevant contents and questions, 2) ongoing trauma-focused therapy, and 3) current physical or mental health conditions that require other treatment and/or interfere with participation (e.g., acute suicidality, psychotic symptoms). Each participant was assigned a pseudonym. An overview of the sociodemographic characteristics of the total sample (N = 24) is provided in Table 1.

Measures

C/PTSD was surveyed using the International Trauma Questionnaire (ITQ). The ITQ is an 18-item measure comprising six items on the PTSD subscale (symptom clusters of re-experiencing, avoidance, sense of current threat), and for CPTSD six additional items on the Disturbances in Self-Organisation subscale (DSO; symptom clusters of affective dysregulation, negative self-concept, disturbances in relationships). A further three items on each subscale measure functional impairment. The severity of C/PTSD symptoms was assessed referring to the last month using a five-point Likert scale (0 = "Not at all" to 4 = "Extremely"). The C/PTSD diagnosis was considered as fulfilled if a participant scored at least 2 ("moderately") on one of the items in each symptom cluster and functional impairment. The ITQ has good psychometric properties [46]. In the current study the Cronbach's alpha coefficient was .89.

PTEs were assessed using an adapted version of the Harvard Trauma Questionnaire (HTQ) Checklist with 29 dichotomous items (yes/no) [47]. The adaptations of the questionnaire included additional items and a specifier for childhood or adulthood trauma. The HTQ was developed and validated in ASR samples [48].

Table 1. Sample characteristics for each group.

	C/PTSD (n = 15)	non-C/PTSD (n = 9)
Gender (female) n (%)	5 (33.3)	7 (77.8)
Age Mean (SD)	32.3 (12.9)	40 (14.2)
Marital status n (%)		
Single	7 (46.7)	1 (11.1)
Married	6 (40.0)	6 (66.7)
In a relationship	1 (6.7)	-
Divorced	1 (6.7)	1 (11.1)
Widowed	-	1 (11.1)
Asylum status n (%)		
Secure asylum status ^a	10 (66.7)	8 (88.9)
Insecure asylum status	5 (33.3)	1 (11.1)
Trauma events ^b Mean (SD)		
Childhood trauma	6 (4.4) ^c	4.2 (6.2)
Adulthood trauma	7.6 (6.0) ^c	6.9 (4.3)

Note. N = 24.

^a secure asylum status includes unconditional residence permits with a long-term perspective (>1 year) and free access to the labour market in Austria.

^b Total of self-experiences PTEs

^c n = 14 due to missing data in the HTQ.

<https://doi.org/10.1371/journal.pone.0288691.t001>

A semi-structured interview guide was developed [49, 50] to investigate the participants' subjective experience of and coping with PMLDs. The interview guide comprised of a cover sheet for notes on the behavioural observation and included open questions. The qualitative interview consisted of three sections: 1) general questions about life in Austria, 2) exploration of the subjective experience and coping with significant experiences (e.g., PMLDs, daily stressors) in Austria as well as the meaning of traumatic experiences in daily life, and 3) experiences with the intervention offered. Only section 2 was relevant for this study. Further details on this section are provided in the interview guide (see [S1 Table](#)).

Data analysis

All research steps were conducted in accordance with the consolidated criteria for reporting qualitative studies (COREQ) [51]. The open-ended questions were analysed using content-structuring qualitative content analysis (QCA) [52], which is a systematic, rule-based method of text analysis. At the beginning of the analysis, the main thematic categories were deductively derived from the interview guide. First, we coded the cognitive, emotional, physical and behavioural reactions to the reported experiences. Second, we coded the reported traumatic experiences and their subjective meaning for the participants' life. In the next step, we used an inductive approach for the coding system. To increase the quality of the analysis, two of the authors (JSJ and CGS) coded the main thematic categories for the entire interviews separately. The inductive subcategories were developed in a collaborative discourse and were coded independently by JSJ and CGS. Coding was then compared and any discrepancies were discussed with the last author (BLS) until consensus was reached. Intra/inter-coder agreement testing took place once 20% of the individual coding was complete. The agreement lay at 87.67%, which is considered acceptable according to intercoder reliability guidelines [53]. MAXQDA 2020 [54] was used for data management and analysis. Following the coding of all material with the entire category system, the quantitative data were analysed for the group allocation using the recommended diagnostic scoring for C/PTSD [46]. Participants were assigned to the C/PTSD group if a diagnosis of PTSD or CPTSD was met at the baseline and/or post-assessment.

Results

Aim 1: Subjective experience of and coping with PMLDs

When asked to describe subjectively meaningful experiences in Austria, each participant reported between one and ten different experiences occurring individually or jointly (e.g. discrimination during a job interview). These 16 identified themes are presented in [Table 2](#). The most frequently reported cognitive, emotional, physical and behavioural reactions to these experiences in a comparison between the C/PTSD group and the non-C/PTSD group are described in more detail below. For all themes and their corresponding frequencies, see [Table 3](#).

Cognitive reactions and coping strategies

Eight themes were identified in the analysis of reported cognitive responses and coping strategies. The most prominent themes were recurrent thoughts, expectancies, staying present, and development.

Recurrent thoughts. This theme was divided into three subthemes: intrusive memories & rumination, worries about the future, and thought avoidance. While both groups were concerned about the future, 80% of the C/PTSD group reported intrusive memories & rumination

Table 2. Themes related to post-migration living difficulties & daily stressors.

Major Themes	Themes	C/PTSD n (%)	non-C/PTSD n (%)
Post-migration living difficulties	Health service utilisation	9 (60.0)	6 (66.6)
	Occupation ^a	11 (73.3)	3 (33.3)
	Language barriers	5 (33.3)	6 (66.6)
	Discrimination	6 (40.0)	5 (55.5)
	Asylum procedure	6 (40.0)	3 (33.3)
	Initial time in Austria	5 (33.3)	4 (44.4)
	Basic needs ^b	7 (46.4)	2 (22.2)
Daily stressors	Daily duties	3 (20.0)	4 (44.4)
	Parenting	4 (26.6)	4 (44.4)
	Relationship problems	9 (60.0)	6 (66.6)
	COVID-19 pandemic	2 (13.3)	3 (33.3)
	Health problems	5 (33.3)	1 (11.1)
Anticipated stressors	Appointments ^c	5 (33.3)	4 (44.4)
	Interrogation (Asylum procedure)	3 (20.0)	1 (11.1)
	Social events	1 (6.6)	2 (22.2)
	Performance situations	1 (6.6)	1 (11.1)

Note. N = 24 (n = 15 for C/PTSD group, n = 9 for non-C/PTSD group).

^a Occupation is defined as commitment to training or work activities

^b Basic needs refer to housing or financial problems

^c Appointments include different types of dates (e.g., medical appointments or official channels).

<https://doi.org/10.1371/journal.pone.0288691.t002>

about traumatic or stressful experiences as well as unsuccessful attempts at thought avoidance to deal with these memories.

Intrusive memories & rumination were repeatedly triggered by a variety of events (e.g., discrimination, conversations with others). Some participants emphasised that intrusive memories & rumination were stronger during the night or during inactive days and were associated with negative emotionality. While the non-C/PTSD group was less likely to report intrusive memories, two participants of this group nevertheless reported infrequent intrusive memories, triggered for example by common conversations.

"...sometimes I hear someone say, "the Taliban killed my uncle or killed my brothers", and then it all comes back. . . . Those memories come back. THAT all comes back and I think to myself that it is happening right now. . . that my husband is just being killed." (Zahra, non-C/PTSD group, age 57)

Participants in both groups expressed many different worries about the future, referring to numerous issues (e.g., worries about relatives, uncertain future). Worries due to an insecure asylum status and fear of being deported to Afghanistan were mentioned more frequently in the C/PTSD group. "Life is not safe because of the residence permit. And because I don't know if I can stay here or what will happen then." (Qualid, C/PTSD group, age 27)

In dealing with rumination and worries about the future, thought avoidance was mentioned by over 70% of the C/PTSD group but only 33.3% of the non-C/PTSD group. As one female participant stated, "It's hard to forget the past. But I have to forget the past because otherwise it eats me up inside if I keep thinking about the past." (Nabila, non-C/PTSD group, age 59).

Expectancies. In the analysis of expectancies, two divergent subthemes, more frequently reported by the C/PTSD group, were identified: fulfilled and disappointed expectations about

Table 3. Themes related to reactions and coping strategies.

Major themes	Themes	Subthemes	C/PTSD n (%)	Non-C/PTSD n (%)
Cognitive reactions and coping strategies	Recurrent thoughts	Intrusive memories and rumination	12 (80.0)	6 (66.6)
		Worries about the future	9 (60.0)	6 (66.6)
		Thought avoidance	11 (73.3)	3 (33.3)
	Expectancies	Fulfilled expectations	10 (66.6)	4 (44.4)
		Disappointed expectations	12 (80.0)	5 (55.5)
	Staying present	Problems in staying present	8 (53.3)	3 (33.3)
	Self-verbalisation	Positive self-verbalisation	3 (20.0)	8 (88.8)
		Self-devaluation	5 (33.3)	2 (22.2)
	Evaluation of the situation	Reappraisal	3 (20.0)	6 (66.6)
		Acceptance	4 (26.6)	3 (33.3)
	Low self-esteem		1 (6.6)	5 (55.5)
	Development	Positive development	10 (66.6)	8 (88.8)
		Stagnation	6 (40.0)	3 (33.3)
	Suicidality		3 (20.0)	0 (0)
	Relationship with others	Identification with others	6 (40.0)	3 (33.3)
		Devaluation of others	5 (33.3)	3 (33.3)
		Independence	4 (26.6)	4 (44.4)
		Sufferance	7 (46.6)	6 (66.6)
Emotional reactions and complaints	Anxiety		7 (46.6)	8 (88.8)
	Gratitude		2 (13.3)	4 (44.4)
	Loneliness		2 (13.3)	1 (11.1)
	Depression		6 (40.0)	1 (11.1)
	Feeling safe		2 (13.3)	2 (22.2)
	Helplessness		4 (26.6)	1 (11.1)
	Optimism		2 (13.3)	4 (44.4)
	Shame, guilt		4 (26.6)	2 (22.2)
	Stress		11 (73.3)	7 (77.7)
	Sadness		9 (60.0)	5 (55.5)
	Anger		3 (20.0)	1 (11.1)
	Non-specific good feelings		5 (33.3)	4 (44.4)
	Non-specific bad feelings		11 (73.3)	5 (55.5)
Physical reactions and complaints	Sleep disturbances		8 (53.3)	3 (33.3)
	Stress-related somatic problems		2 (13.3)	2 (22.2)
	Physical restlessness		3 (20.0)	3 (33.3)
	Stress-related pain		7 (46.6)	3 (33.3)
	Body weakness		7 (46.6)	3 (33.3)
Behavioural reactions and coping strategies	Distraction		7 (46.6)	4 (44.4)
	Aggressive behaviour		5 (33.3)	1 (11.1)
	Substance use		5 (33.3)	1 (11.1)
	Supporting others		3 (20.0)	3 (33.3)
	Avoidance		9 (60.0)	5 (55.5)
	Active, solution-oriented behaviour		8 (53.3)	7 (77.7)
	Seeking and accepting social support		12 (80.0)	8 (88.8)
	Social withdrawal, inactivity		11 (73.3)	7 (77.7)

Note. N = 24 (n = 15 for C/PTSD, n = 9 for non-C/PTSD group).

<https://doi.org/10.1371/journal.pone.0288691.t003>

life in Austria. The first subtheme included, for example, the availability of education for one-self and one's children, the subjective experience of safety due to protective laws and authorities, the importance of human rights, especially of women and children.

"Here, women have more rights, they are equal to men. In Afghanistan it is not like that. In Afghanistan women were without rights, especially when I was young. I was 13 years old when I was told that I had to marry this man." (Aliyah, C/PTSD group, age 54)

As an example of the second, contrasting subtheme, one participant stated that:

"You come to Europe to have a better life. I came to live a better life (sighs). But later you think to yourself—Okay, I'm 23 years old, I'm lying in bed and I am not able get up." (Bashir, non-C/PTSD group, age 26)

Numerous participants reported that plans had repeatedly failed. The lengthy asylum process and rejection of the asylum application experienced by some led to unbearable psychological distress and feelings of injustice. Further disappointed expectations were also associated with the inability to acquire the language, fulfil social roles or meet one's own or others' expectations.

Staying present. While mild confusion and poor concentration were reported by three individuals in the non-C/PTSD group, such as a less structured proceeding than usual when preparing for a social event or lack of concentration when studying. Over 50% of the C/PTSD group reported severe difficulties in staying present. Dissociative experiences occurred in stressful situations or when confronted with trauma-associated triggers.

"At some point in the middle of the interview (within the asylum procedure) I got lost. I mean by that I didn't understand at all what the interpreter was saying or the judge was asking me. I didn't know anything anymore at all." (Nasim, C/PTSD group, age 40)

Some participants shared their experiences of recurrent memory gaps, derealisation, and absentmindedness in everyday life.

Development. This theme was divided into the two subthemes positive developments and stagnation. Almost all participants in the non-C/PTSD group, but only two thirds of the C/PTSD group, reported positive developments over time. These included an improvement in physical and mental health. Important influencing factors were for example finding a job, acquiring the language, and improved coping strategies, which led to greater strength and self-confidence.

"I was finished at that time. I thought it was over. But now I have improved a lot. Because now I have a flat, I have a job. I'm taking a German course now. And I go to the gym and play football. I am EVERYWHERE now (laughs)." (Bashir, non-C/PTSD group, age 26)

However, negative or a lack of developments were reported several times in both groups. Some participants reported deteriorating mental and physical health and increasing challenges as well as lack of support in various areas.

"In Afghanistan, the difficulty was that there is war. You get killed . . . Yeah, you're just done. But here it's like you're just breathing. And you get mentally and physically broken here. Here people (ASR) are like corpses." (Nasim, C/PTSD group, age 40)

Emotional reactions

We identified a total of 13 different emotional reactions, which were reported with different levels of frequency between the two groups. While the non-C/PTSD group reported more positive emotions (e.g., hope, gratitude), the C/PTSD group more frequently experienced depression or non-specific bad feelings. The main four emotional reactions (stress, anxiety, sadness, and non-specific bad feelings) are discussed further in the following.

Stress. The majority of participants (>70%) in both groups reported stress in response to a variety of PMLDs (e.g., asylum procedures, search for housing, discrimination), physical pain, and anticipatory stress. One participant noted that stress increased in situations without an interpreter or on so-called 'bad days', which were characterised by inactivity and rumination.

Anxiety. Similar to the above-mentioned stress reactions, almost all participants in the non-C/PTSD group (88.8%) reported anxiety, mostly associated with upcoming events. A few participants reported anxiety during their initial time in Austria, which usually passed after a short period. Nevertheless, one participant in this group reported seven years of persistent anxiety, "I was constantly afraid that I would get lost on the road (in the city). This fear sometimes . . . when I remember that now. I also get anxious again." (Fatima, non-C/PTSD group, age 37). Of these, the anxiety mostly referred to existential issues such as insecure residency and financial problems in the C/PTSD group. Suddenly occurring anxiety without a definable reason was also reported.

Sadness. Participants in the C/PTSD group commonly reacted with sadness to various situations (e.g. discrimination), but also during overall "bad days." Participants in both groups reported sadness linked to intrusive memories and rumination, "And sometimes I even cry. Tears come to my eyes and even though I don't want to think about it, it all comes back to my mind anyway." (Mustafa, C/PTSD group, age 57).

Non-specific bad feelings. Along with stress, non-specific bad feelings represented the most common emotional reaction in the C/PTSD group. This reaction was most often mentioned in the context of general life, but also arose over the course of the qualitative interview together with the impulse of avoidance. For instance, one participant reasoned, "I don't feel comfortable thinking about it (traumatic experiences) or talking about it because then it still lingers. And I dwell on this story for some time afterwards." (Samira, C/PTSD group, age 36). In the non-C/PTSD group, non-specific bad feelings mainly occurred following concrete events (e.g., bad news from Afghanistan or discrimination).

Physical reactions and complaints

Overall, few participants mentioned physical reactions and complaints compared to other types of reaction compared to other types of reactions. Only sleep disturbances were mentioned by more than 50% of the C/PTSD group.

Sleep disturbances. Sleep disturbances (e.g., nightmares) were reported more frequently by the C/PTSD group, with the distress induced by these disturbances often lasting until the next day. Only one participant from the non-C/PTSD group reported trauma-related nightmares, which had occurred directly after a recent terrorist attack in Vienna.

Stress-related pain. Stressful situations and persistent strain were linked to headaches as well as other types of pain in the interviewed participants. For example, following an unsuccessful search for accommodation, a participant who had been in a homeless shelter stated that

"I had a lot of pain. You know, when I am worried or angry, the pain comes. I also said to my doctor: 'This is pain that goes from my head to my back.'" (Karim, C/PTSD group, age 34).

Behavioural reactions and coping strategies

ASR in the C/PTSD group were more likely to react with aggressive behaviour or substance use, whereas those in the non-C/PTSD group more frequently reported active, solution-oriented behaviour.

Actively seeking and accepting support

Over 80% of the participants of both groups stated that they actively sought and/or accepted social support, or more rarely practical support, to cope with stressful situations. Social support by professionals, but also by family members or strangers provided the participants with confidence, reassurance, and encouragement. One participant described how a stranger actively intervened during a discrimination situation, "And there was this woman, and this old lady came and said what I would have wanted to say, and it felt very good." (Zaira, non-CPTSD group, age 40). Numerous participants also reported experiencing disappointment due to a lack of support or an inaccessibility of support due to language barriers.

Social withdrawal and inactivity. Across both groups, over 70% of participants reported social withdrawal and inactivity as a short-term response to their currently experienced event or when dealing with ongoing difficult situations or emotions. One participant recalled his behaviour when waiting for the asylum decision, "I spent five years in a room. I was only in this room. The wall . . . I have had no contact with anyone, it was very difficult. For five years!" (Nasim, CPTSD group, age 40).

Active, solution-oriented coping behaviour. About 80% of the non-C/PTSD group, but only about 50% of the C/PTSD group, reported active, solution-oriented coping behaviour. Both groups reported this kind of reaction to different experiences, but also when preparing for upcoming events. As an example, participants prepared for upcoming appointments or used active coping behaviour to reduce stress, such as breathing techniques. Several participants in the C/PTSD group predominantly actively sought training opportunities, a job or legal advice.

Avoidance. Over 50% of the participants of both groups reported avoiding stressful situations. For instance, some stopped searching for a job following repeated rejections, while others avoided social contact due to conflicts, unfulfilled family expectations, or simply because of emotional stress triggered by human contact. Some participants avoided conversations about the past, which triggered concentration problems or non-specific bad feelings.

Aim 2: The subjective consequences of traumatic experiences for daily life

In the second part of the interview, the participants were asked about the subjective consequences of traumatic experiences for their daily life. While we did not specifically ask about traumatic experiences, they were mentioned repeatedly in the narratives and were therefore entered into the analysis. For the full list of identified themes, see [Table 4](#).

Most frequently, participants in the C/PTSD group (53.3%) reported individual psychological and physical consequences of potentially traumatic experiences, such as persistent anxiety despite now being in a safe environment. For instance, one participant reported, "That didn't happen here, it all happened in Afghanistan, that's where this pain I got came from." (Mustafa, C/PTSD group, age 57).

Table 4. Themes related to traumatic experiences and subjective consequences of trauma.

Major Themes	Themes	C/PTSD n (%)	non-CPTSD n (%)
Traumatic experiences ^a	Murder of loved ones	2 (13.3)	1 (11.1)
	Danger during flight	6 (40.0)	5 (55.5)
	Intrafamilial trauma	6 (40.0)	2 (22.2)
	War-associated trauma	6 (40.0)	6 (66.6)
	Persecution	-	1 (11.1)
Subjective consequences of trauma	Societal consequences of war	1 (6.6)	4 (44.4)
	Mental and physical consequences	8 (53.3)	3 (33.3)
	Behavioural pattern	3 (20.0)	1 (11.1)
	Strength	1 (6.6)	2 (22.2)
	No consequences	3 (20.0)	3 (33.3)

Note. N = 24 (n = 15 for C/PTSD, n = 9 for non-C/PTSD group).

^a Traumatic experiences mentioned during the qualitative interview.

<https://doi.org/10.1371/journal.pone.0288691.t004>

By contrast, participants in the non-C/PTSD group more often did not report personal consequences of PTEs, but rather societal consequences of war and flight for people from Afghanistan.

"I think that because there has been war in Afghanistan for so many years, for 30–40 years and so. They (Afghans) were all struggling before with the war, yes with this situation and so . . . But now, I think they are all psychologically burdened. And yeah, if just a little thing happens, they explode." (Fatima, non-C/PTSD group, age 37)

Fewer ASR reported emotional and behavioural patterns shaped by their past. Some described aggressive reactions, mistrust, avoidance of other people, and constantly caring for others while neglecting one's own needs. One participant reported being constantly closed to others, "I can't trust anyone anymore because the people I trusted betrayed me . . . I don't talk about these things with anyone anyway." (Amar, C/PTSD Group, age 25). Several participants described positive consequences associated with a feeling of inner strength and increased self-confidence.

"After some time, I had to do something every day to somehow get ahead. Then I did that. . . I managed that. I said to myself, "I can do it on my own." And I started to feel stronger and stronger." (Samira, C/PTSD group, age 36).

Overall, three participants from each group reported that they had not observed any consequences of potentially traumatic experiences, repeatedly answering this question simply with "no". One of the few explanations provided for this response was, "Because of the fact that I have come this far, I have not had any bad consequences." (Zaira, non-C/PTSD group, age 40).

Discussion

The current study aimed to explore the role of C/PTSD symptoms in the subjective experience of and coping with PMLDs among Afghan ASR in Austria. The results revealed remarkable differences in the frequency of reported different types of PMLDs and associated reactions as well as coping strategies between ASR with and without C/PTSD. In particular, individuals with C/PTSD were more likely to report problems associated with unmet basic needs,

occupation or asylum processes. Notably, distinct cognitive, emotional, physical, and behavioural responses were observed between the two groups. The C/PTSD group exhibited elevated levels of recurrent thoughts linked to PTEs and PMLDs. They also tended to employ cognitive and behavioural avoidance strategies more frequently. Moreover, individuals with C/PTSD reported more frequent and intense negative emotions, such as persistently depressed mood or pervasive non-specific bad feelings. Conversely, individuals without C/PTSD reported more frequent experiences of positive emotions, engaged in positive self-verbalisation, and perceived positive developments. It is noteworthy that despite recognizing numerous psychological and physical consequences of PTEs, few links have been made between these consequences of PTEs and their impact on perceptions of and responses to PMLDs.

Over half of the participants met the criteria for probable C/PTSD. In contrast to most previous research findings [17], a larger proportion of men met the criteria for probable C/PTSD in the present study. The majority of PMLDs reported by our participants reflected those that are already known from previous research [55–57]. Beyond the moderating effects of origin-related and country-specific factors [17, 55] as well as time spent in the host country [28], Afghan ASR with probable C/PTSD reported different types of PMLDs compared to those without. The lack of basic needs have previously been found to be particularly impactful among ASR and were associated with traumatic experiences and psychopathology [29]. In line with this, in the present study, Afghan ASR with probable C/PTSD were more likely to report unmet basic needs, occupational problems (e.g., unemployment), and an insecure asylum status. Along with previous research indicating a bidirectional relationship between PMLDs and psychopathology [36], we likewise suggest a reciprocal association. Many ASR experienced homelessness and financial hardship in their country of origin, and these potentially traumatic experiences might influence the subjective experience of unmet basic needs in the host country [28]. Indeed, in some cases PMLDs might act simultaneously as stressors and triggers [58]. Consistent with the assumption that not all forms of PMLDs have the same impact on mental health [28, 29], unmet basic needs might particularly exacerbate or even trigger C/PTSD symptoms. Moreover, the possibility to deal with these PMLDs might be further limited due to the insecure asylum status and associated prohibition to work, which was reported more frequently in ASR with probable C/PTSD.

Affective dysregulation is already recognised as a consequence of childhood trauma [59, 60] and is a criterion for a diagnosis of CPTSD in the ICD-11 [22]. In accordance with this, the present findings support the hypothesised differences in cognitive, emotional, physical and behavioural coping strategies between ASR with and without C/PTSD. In line with previous studies, our participants with probable C/PTSD reported a more frequent use of maladaptive coping strategies [40], which have been found to mediate the association of traumatic experiences with PTSD and with PMLDs [59, 61]. In contrast to previous research which found no associations between adaptive emotion regulation strategies and either traumatic experiences or PTSD [40, 59], participants with probable non-C/PTSD more frequently reported adaptive coping strategies in the present study. Nevertheless, it should be critically noted that the relationship between the different coping strategies and mental health is predominantly ambiguous [41]. Therefore, to ascertain whether adaptive coping strategies actually have the desired effect, further in-depth research might be necessary.

In terms of cognitive responses and coping strategies, participants with probable C/PTSD frequently mentioned intrusive memories and rumination [62], which were accompanied by further cognitive, emotional, physical and behavioural reactions and coping strategies. Spiller et al. pointed out that fear reactivity, which is often increased in individuals with PTSD, might increase the frequency and intensity of intrusive memories and rumination [58]. In this vein, our participants reported thought avoidance and trying to forget traumatic experiences, which

is a commonly used strategy to cope with triggers and distress among ASR [63, 64]. In line with previous research [65], about half of the ASR with probable C/PTSD in the present study described difficulties in staying present due to dissociative reactions or concentration problems, often related to rumination. Since dissociative symptoms, rumination and concentration problems are not included in the ICD-11 CPTSD diagnosis [22], few studies have examined these symptoms in individuals with CPTSD [65]. Overall, only three participants with probable C/PTSD in our study reported using reappraisal or positive self-verbalisation. Moreover, general positive aspects of life in Austria or positive personal developments were often mentioned only briefly by participants with probable C/PTSD, followed by more detailed reports of unmet expectations. By contrast, participants in the non-C/PTSD group reported concrete positive personal developments more frequently and in greater detail. We suggest that the high degree of stress might hinder positive adaptation while also increasing the likelihood of attentional bias, which might in turn reduce the perception of positive experiences and developments [66].

Several group differences emerged regarding emotional reactions and complaints. Overall, increased negative and reduced positive affectivity were associated with various psychopathologies, including PTSD [67]. Consistent with this finding, participants in the non-C/PTSD group more frequently reported positive emotions (e.g., gratitude, hope). The ASR with probable C/PTSD were more likely to report suffering from depression and non-specific bad feelings, which may indicate a lack of emotional clarity [68]. Many of the participants reported social withdrawal and inactivity in dealing their emotions as they did not believe they could change their own negative mood [69]. The resulting intense, persistent emotional reactions might point to an under-regulation of emotional hyperactivation already associated with C/PTSD [70].

Poor physical health has frequently been associated with C/PTSD [24]. Similar to findings from a study in Syrian refugees in Germany [71], sleep disturbances were the most commonly reported physical reaction and complaint among Afghan ASR in the present study. Indeed, over half of the ASR with probable C/PTSD reported sleep disturbances, which is unsurprising given that trauma-associated nightmares are a symptom of C/PTSD. As in other studies [72, 73], several participants reported increased stress and C/PTSD symptoms the day after suffering from nightmares. Additionally, in line with previous evidence [73], body weakness and stress-associated pain were also reported more frequently by the ASR with probable C/PTSD. These physical complaints, which often occurred spontaneously in response to PMLDs or were reported as chronic stressors, were associated with severe distress and, in rare cases, with suicidality.

In accordance with previous findings, the most commonly reported behavioural reactions and coping strategies in both groups were seeking and accepting social support, followed by social withdrawal and inactivity [8, 41, 74, 75]. Although social support has predominantly been considered as a protective factor, this strategy was repeatedly linked to increased mental health problems. In some cases, it remained unclear whether social support actually brought about emotional relief or a sense of connectedness. For instance, several participants addressed the psychosocial costs of social support, such as feeling pressure due to expectations or critique, in turn potentially leading to subsequent social withdrawal [41]. C/PTSD symptoms might lead to limited subjective experiences of interpersonal connectedness and social support [76]. Social withdrawal, inactivity and avoidance are often used to deal with negative emotions triggered, for example, by trauma-associated memories or PMLDs, and have been assumed to be interrelated with psychosocial distress (e.g., depression, rumination) [41]. Active, solution-oriented behaviour was reported less frequently by the ASR with probable C/PTSD [61]. Previous research has reported a positive relationship between lack of access to adaptive emotion regulation strategies and PTSD [68]. As emphasised by Perez et al. [77], it remains unclear whether access to adaptive emotion regulation strategies is actually lacking or whether this

phenomenon may be explained by the reduced self-efficacy associated with childhood trauma. Nevertheless, the lack of active, solution-oriented coping strategies might hinder the successful handling of PMLDs and intensify emerging problems [78].

Many of our participants reported subjective consequences of traumatic experiences for their daily life, mostly comprising physical or psychological complaints [79]. While none of the participants described C/PTSD and its influence on the experience of PMLDs as a result of traumatic experiences [80], intrusive memories were repeatedly mentioned. Overall, few subjective consequences or traumatic experiences were reported.

Strengths and limitations

The key strength of the present study lies in the examination of the role of C/PTSD symptoms in the subjective experience of PMLDs in a hard-to-reach, vulnerable treatment-seeking sample of traumatised Afghan ASR in Austria. The qualitative interviews allowed for a deeper understanding of the complex interplay between C/PTSD symptoms and PMLDs. Nevertheless, some limitations must be considered. One important limitation of the study is the limited generalisability of findings. Due to the small sample and the nature of the qualitative study, the in-depth understanding may not be applicable to the entire ASR population. Regional differences within or between countries can influence the prevalence, nature, perception, and handling of PMLDs among subpopulations of ASR. These variations should be considered for ASR from different countries of origin as well as different host countries. The sample included only participants from the intervention arm of a larger project, who had completed a psychological intervention and post-assessment. An influence of the psychological intervention can be assumed, as the interventions offered included strategies for calming down and problem solving and were thus used more often in the recent past than otherwise (44). The participants of this study proactively sought psychological therapy, indicating a potentially more receptive sample experiencing less stigma towards mental health problems. Although interpreter-assisted interviews enabled the participation of persons with low German-language skills, misunderstandings, socially desirable responding, and a loss of information in the translation process cannot be ruled out. Future studies might consider direct assessment (e.g., ecological momentary assessments; EMAs) of PMLDs and their psychosocial consequences in daily life. To increase the generalisability of the findings, it is recommended for future research to include larger samples of non-treatment-seeking Afghan ASR from different regions as well as to consider gender differences and comorbidities.

Conclusions

This study contributes to the growing body of knowledge on the influence of C/PTSD on the experience of and coping with PMLDs. C/PTSD influences the frequency of and responses to PMLDs among ASR. The symptoms associated with C/PTSD, such as recurrent thoughts and avoidance, not only exhibit an association to PTEs, but also exert a profound influence on the experienced distress and the effective coping with PMLDs. The findings highlight the importance of considering PMLDs in treatment approaches for ASR with C/PTSD and might support mental health practitioners and other professionals to develop targeted interventions on different dimensions to promote mental health and psychosocial adaptation among ASR.

On the intrapersonal dimension, a consideration of the influence of C/PTSD on the experience of and coping with PMLDs might provide important clues for individual therapy targets (e.g., reducing rumination or avoidance, promoting active, solution-oriented coping behaviour). A better understanding of the consequences of trauma and of the relationship between psychopathology and PMLDs should be addressed through psychoeducation [71, 81].

Interventions on the interpersonal dimension should focus on reducing social isolation and enhancing connectedness. Community-based interventions, group therapy and participation in interest groups should be encouraged [71].

On the societal dimension, measures should be taken to promote cultural and trauma sensitivity among professionals (e.g., mental health practitioners, teachers). Language barriers should be reduced to facilitate social inclusion and access to health services for ASR. Low-threshold services, increased use of (online) interpreters and the offer of trauma-sensitive language courses might be helpful in this regard [82]. Support in finding accommodation and employment might help overcome barriers such as opaque bureaucracies and discrimination.

Measures on the cultural dimension predominantly include subjects that policy makers have not yet sufficiently addressed. In addition to providing funding for the aforementioned interventions, it is especially important to establish accelerated and transparent asylum procedures [71, 83].

Supporting information

S1 Table. Interview guide is available online.
(DOCX)

Acknowledgments

The authors would like to express their sincere appreciation to all the participating ASR who provided us with insights and a deeper understanding of their personal experiences. We further acknowledge the efforts of our research project team including our interpreters as well as all other supporting colleagues and institutions.

Author Contributions

Conceptualization: Jennifer Schiess-Jokanovic, Viktoria Kantor, Matthias Knefel, Dina Weindl, Brigitte Lueger-Schuster.

Data curation: Jennifer Schiess-Jokanovic, Christine Gösling-Steirer, Viktoria Kantor, Matthias Knefel.

Formal analysis: Jennifer Schiess-Jokanovic, Christine Gösling-Steirer, Brigitte Lueger-Schuster.

Investigation: Jennifer Schiess-Jokanovic.

Methodology: Jennifer Schiess-Jokanovic, Brigitte Lueger-Schuster.

Project administration: Matthias Knefel, Brigitte Lueger-Schuster.

Supervision: Matthias Knefel, Brigitte Lueger-Schuster.

Writing – original draft: Jennifer Schiess-Jokanovic.

Writing – review & editing: Jennifer Schiess-Jokanovic, Matthias Knefel, Dina Weindl, Brigitte Lueger-Schuster.

References

1. UNHCR. Global Trends: Forced Displacement in 2021. 2022.
2. Bundesministerium für Inneres. ASYL-STATISTIK 2022. 2023. https://www.bmi.gv.at/301/Statistiken/files/Jahresstatistiken/Asylstatistik_Jahresstatistik_2022.pdf. Accessed 7 Jun 2023.

3. Österreichischer Integrationsfonds (OEIF). Afghanische Bevölkerung in Österreich: Integration in Zahlen 2022. 2022. https://www.integrationsfonds.at/fileadmin/user_upload/OEIF_Laender_Factsheet_Afghanistan.pdf. Accessed 7 Jun 2023.
4. Bogic M, Njoku A, Priebe S. Long-term mental health of war-refugees: a systematic literature review. *BMC Int Health Hum Rights*. 2015; 15:29. <https://doi.org/10.1186/s12914-015-0064-9> PMID: 26510473
5. Scoglio AAJ, Salhi C. Violence Exposure and Mental Health Among Resettled Refugees: A Systematic Review. *Trauma Violence Abuse*. 2020;1524838020915584. <https://doi.org/10.1177/1524838020915584> PMID: 32238052
6. Alemi Q, James S, Cruz R, Zepeda V, Racadio M. Psychological distress in Afghan refugees: A mixed-method systematic review. *J Immigr Minor Health*. 2014; 16:1247–61. <https://doi.org/10.1007/s10903-013-9861-1> PMID: 23784146
7. Droždek B. Challenges in treatment of posttraumatic stress disorder in refugees: towards integration of evidence-based treatments with contextual and culture-sensitive perspectives. *Eur J Psychotraumatol*. 2015; 6:24750. <https://doi.org/10.3402/ejpt.v6.24750> PMID: 25573504
8. von Haumeder A, Ghafoori B, Retaillieu J. Psychological adaptation and posttraumatic stress disorder among Syrian refugees in Germany: a mixed-methods study investigating environmental factors. *Eur J Psychotraumatol*. 2019; 10:1686801. <https://doi.org/10.1080/20008198.2019.1686801> PMID: 31762952
9. Laban CJ, Gernaat HBPE, Komproe IH, van der Tweel I, de Jong JTV. Postmigration living problems and common psychiatric disorders in Iraqi asylum seekers in the Netherlands. *J. Nerv. Ment. Dis.* 2005; 193:825–32. <https://doi.org/10.1097/01.nmd.0000188977.44657.1d> PMID: 16319706
10. Dangmann C, Solberg Ø, Andersen PN. Health-related quality of life in refugee youth and the mediating role of mental distress and post-migration stressors. *Qual Life Res* 2021. <https://doi.org/10.1007/s11136-021-02811-7> PMID: 33713322
11. Bundesministerium für Soziales, Gesundheit, Pflege und Konsumentenschutz. So geht's uns heute: die sozialen Krisenfolgen im ersten Quartal 2022. 2022.
12. Lueger-Schuster B, Zrnić Novaković I, Lotzin A. Two Years of COVID-19 in Austria-Exploratory Longitudinal Study of Mental Health Outcomes and Coping Behaviors in the General Population. *Int J Environ Res Public Health* 2022. <https://doi.org/10.3390/ijerph19138223> PMID: 35805882
13. Ceccon C, Moscardino U. Impact of COVID-19 and lockdown on mental health and future orientation among young adult asylum seekers in Italy: A mixed-methods study. *Transcultural Psychiatry*. 2022;13634615221098306. <https://doi.org/10.1177/13634615221098306> PMID: 35549951
14. Júnior JG, de Sales JP, Moreira MM, Pinheiro WR, Lima CKT, Neto MLR. A crisis within the crisis: The mental health situation of refugees in the world during the 2019 coronavirus (2019-nCoV) outbreak. *Psychiatry Res*. 2020; 288:113000. <https://doi.org/10.1016/j.psychres.2020.113000> PMID: 32353696
15. Blackmore R, Boyle JA, Fazel M, Ranasinha S, Gray KM, Fitzgerald G, et al. The prevalence of mental illness in refugees and asylum seekers: A systematic review and meta-analysis. *PLoS Med*. 2020; 17:e1003337. <https://doi.org/10.1371/journal.pmed.1003337> PMID: 32956381
16. Hoell A, Kourmpeli E, Salize HJ, Heinz A, Padberg F, Habel U, et al. Prevalence of depressive symptoms and symptoms of post-traumatic stress disorder among newly arrived refugees and asylum seekers in Germany: systematic review and meta-analysis. *BJPsych Open*. 2021; 7:e93. <https://doi.org/10.1192/bjo.2021.54> PMID: 33938425
17. Georges D, Buber-Ennsner I, Rengs B, Kohlenberger J, Doblhammer G. Health determinants among refugees in Austria and Germany: A propensity-matched comparative study for Syrian, Afghan, and Iraqi refugees. *PLoS ONE*. 2021; 16:e0250821. <https://doi.org/10.1371/journal.pone.0250821> PMID: 33909696
18. Eggenhofer-Rehart PM, Latzke M, Pernkopf K, Zellhofer D, Mayrhofer W, Steyrer J. Refugees' career capital welcome? Afghan and Syrian refugee job seekers in Austria. *Journal of Vocational Behavior*. 2018; 105:31–45. <https://doi.org/10.1016/j.jvb.2018.01.004>
19. Grochtdreis T, König H-H, Riedel-Heller S. G, Dams J. Health-Related Quality of Life of Asylum Seekers and Refugees in Germany: a Cross-Sectional Study with Data from the German Socio-Economic Panel. *Applied Research in Quality of Life*. 2022.
20. Turrini G, Purgato M, Ballette F, Nosè M, Ostuzzi G, Barbui C. Common mental disorders in asylum seekers and refugees: Umbrella review of prevalence and intervention studies. *Int J Ment Health Syst*. 2017; 11:51. <https://doi.org/10.1186/s13033-017-0156-0> PMID: 28855963
21. Henkelmann J-R, Best S de, Deckers C, Jensen K, Shahab M, Elzinga B, et al. Anxiety, depression and post-traumatic stress disorder in refugees resettling in high-income countries: systematic review and meta-analysis. *BJPsych Open*. 2020; 6:e68. <https://doi.org/10.1192/bjo.2020.54> PMID: 32611475

22. World Health Organization. The 11th Revision of the International Classification of Diseases. 2019. <https://icd.who.int/browse11/l-m/en>. Accessed March 3rd, 2017.
23. Jellestad L, Vital NA, Malamud J, Taeymans J, Mueller-Pfeiffer C. Functional impairment in Posttraumatic Stress Disorder: A systematic review and meta-analysis. *J Psychiatr Res*. 2021; 136:14–22. <https://doi.org/10.1016/j.jpsychires.2021.01.039> PMID: 33548826
24. Zerach G, Shevlin M, Cloitre M, Solomon Z. Complex posttraumatic stress disorder (CPTSD) following captivity: a 24-year longitudinal study. *Eur J Psychotraumatol*. 2019; 10:1616488. <https://doi.org/10.1080/20008198.2019.1616488> PMID: 31191830
25. Tay AK, Mohsin M, Rees S, Tam N, Kareth M, Silove D. Factor structures of Complex Posttraumatic Stress Disorder and PTSD in a community sample of refugees from West Papua. *Compr Psychiat*. 2018; 85:15–22. <https://doi.org/10.1016/j.comppsy.2018.05.001> PMID: 29936226
26. Solberg Ø, Vaez M, Johnson-Singh CM, Saboonchi F. Asylum-seekers' psychosocial situation: A diathesis for post-migratory stress and mental health disorders? *Journal of Psychosomatic Research*. 2020; 130:109914. <https://doi.org/10.1016/j.jpsychores.2019.109914> PMID: 31935528
27. O'Donnell ML, Schaefer I, Varker T, Kartal D, Forbes D, Bryant RAA, et al. A systematic review of person-centered approaches to investigating patterns of trauma exposure. *Clinical Psychology Review*. 2017; 57:208–25. <https://doi.org/10.1016/j.cpr.2017.08.009> PMID: 28919323
28. Byrow Y, Liddell B, O'Donnell M, Mau V, McMahon T, Bryant R, et al. Profiles of post-migration stressors and mental health in refugees: A latent class analysis. *Psychiatry Res*. 2022; 311:114494. <https://doi.org/10.1016/j.psychres.2022.114494> PMID: 35287045
29. Mootoo C, Fountain C, Rasmussen A. Formative psychosocial evaluation using dynamic networks: trauma, stressors, and distress among Darfur refugees living in Chad. *Conflict and Health*. 2019; 13:30. <https://doi.org/10.1186/s13031-019-0212-2> PMID: 31391864
30. Miller KE, Rasmussen A. The mental health of civilians displaced by armed conflict: an ecological model of refugee distress. *Epidemiol Psychiatr Sci*. 2017; 26:129–38. <https://doi.org/10.1017/S2045796016000172> PMID: 27040595
31. Hobfoll SE, Tirone V, Holmgren L, Gerhart J. Conservation of Resources Theory Applied to Major Stress. In: Fink G, editor. *Stress: Concepts, Cognition, Emotion, and Behavior*: Chapter 7: Conservation of Resources Theory Applied to Major Stress: Elsevier; 2016. p. 65–71. <https://doi.org/10.1016/B978-0-12-800951-2.00007-8>
32. Borsboom D, Cramer AOJ. Network analysis: An integrative approach to the structure of psychopathology. *Annu Rev Clin Psychol*. 2013; 9:91–121. <https://doi.org/10.1146/annurev-clinpsy-050212-185608> PMID: 23537483
33. McNally RJ. Network Analysis of Psychopathology: Controversies and Challenges. *Annu Rev Clin Psychol*. 2021:1–23.
34. Blanchard MA, Heeren A. Ongoing and Future Challenges of the Network Approach to Psychopathology: From Theoretical Conjectures to Clinical Translations. In: *Reference Module in Neuroscience and Biobehavioral Psychology*: Elsevier; 2020. <https://doi.org/10.1016/b978-0-12-818697-8.00044-3>
35. Jayawickreme N, Mootoo C, Fountain C, Rasmussen A, Jayawickreme E, Bertuccio RF. Post-conflict struggles as networks of problems: A network analysis of trauma, daily stressors and psychological distress among Sri Lankan war survivors. *Soc Sci Med*. 2017; 190:119–32. <https://doi.org/10.1016/j.socscimed.2017.08.027> PMID: 28858697
36. Keles S, Idsøe T, Friborg O, Sirin S, Oppedal B. The Longitudinal Relation between Daily Hassles and Depressive Symptoms among Unaccompanied Refugees in Norway. *J Abnorm Child Psychol*. 2017; 45:1413–27. <https://doi.org/10.1007/s10802-016-0251-8> PMID: 28025756
37. de Schryver M, Vindevogel S, Rasmussen AE, Cramer AOJ. Unpacking Constructs: A Network Approach for Studying War Exposure, Daily Stressors and Post-Traumatic Stress Disorder. *Front Psychol*. 2015; 6:1896. <https://doi.org/10.3389/fpsyg.2015.01896> PMID: 26733901
38. Tinghög P, Malm A, Arwidson C, Sigvardsdotter E, Lundin A, Saboonchi F. Prevalence of mental ill health, traumas and postmigration stress among refugees from Syria resettled in Sweden after 2011: a population-based survey. *BMJ Open*. 2017; 7:e018899. <https://doi.org/10.1136/bmjopen-2017-018899> PMID: 29289940
39. Schiess-Jokanovic J, Knefel M, Kantor V, Weindl D, Schäfer I, Lueger-Schuster B. The boundaries between complex posttraumatic stress disorder symptom clusters and post-migration living difficulties in traumatised Afghan refugees: a network analysis. *Conflict and Health*. 2022; 16:19. <https://doi.org/10.1186/s13031-022-00455-z> PMID: 35477465
40. Stensvehagen MT, Bronken BA, Lien L, Larsson G. Interrelationship of Posttraumatic Stress, Hassles, Uplifts, and Coping in Women With a History of Severe Sexual Abuse: A Cross-Sectional Study. *J Interpers Violence*. 2022; 37:2289–309. <https://doi.org/10.1177/0886260520935479> PMID: 32639850

41. Seguin M, Roberts B. Coping strategies among conflict-affected adults in low- and middle-income countries: A systematic literature review. *Glob Public Health*. 2017; 12:811–29. <https://doi.org/10.1080/17441692.2015.1107117> PMID: 26609735
42. Correia DT. Different perspectives of validity in psychiatry. *J Eval Clin Pract* 2017. <https://doi.org/10.1111/jep.12766> PMID: 28512760
43. McGregor LS, Melvin GA, Newman LK. Differential accounts of refugee and resettlement experiences in youth with high and low levels of posttraumatic stress disorder (PTSD) symptomatology: A mixed-methods investigation. *Am J Orthopsychiatry*. 2015; 85:371–81. <https://doi.org/10.1037/ort0000076> PMID: 26167806
44. Knefel M, Kantor V, Weindl D, Schiess-Jokanovic J, Nicholson AA, Verginer L, et al. A brief transdiagnostic psychological intervention for Afghan asylum seekers and refugees in Austria: a randomized controlled trial. *Eur J Psychotraumatol* 2022. <https://doi.org/10.1080/20008198.2022.2068911> PMID: 35957634
45. Knefel M, Kantor V, Schiess-Jokanovic J, Weindl D, Schäfer I, Lueger-Schuster B. A brief transdiagnostic psychological intervention for Afghan asylum seekers and refugees in Austria: a randomized controlled trial. *Trials*. 2020; 21:57. <https://doi.org/10.1186/s13063-019-3839-9> PMID: 31918760
46. Cloitre M, Shevlin M, Brewin CR, Bisson JI, Roberts NP, Maercker A, et al. The International Trauma Questionnaire: Development of a self-report measure of ICD-11 PTSD and complex PTSD. *Acta Psychiatr Scand*. 2018; 138:536–46. <https://doi.org/10.1111/acps.12956> PMID: 30178492
47. Mollica RF, Caspi-Yavin Y, Bollini P, Truong T, Tor S, Lavelle J. The Harvard Trauma Questionnaire: Validating a cross-cultural instrument for measuring torture, trauma, and posttraumatic stress disorder in Indochinese refugees. *J. Nerv. Ment. Dis*. 1992; 180:111–6.
48. Kleijn WC, Hovens JE, Rodenburg JJ. Posttraumatic Stress Symptoms in Refugees: Assessments with the Harvard Trauma Questionnaire and the Hopkins Symptom Checklist–25 in Different Languages. *Psychol Rep*. 2001; 88:527–32. <https://doi.org/10.2466/pr0.2001.88.2.527> PMID: 11351903
49. Boyce C, Neale P. Conducting In-Depth Interviews: A Guide for Designing and Conducting In-Depth Interviews for Evaluation Input. *International Pathfinder*. 2006.
50. Mack N, Woodsong C, MacQueen KM, Guest G, Namey E. *Qualitative Research Methods: A Data Collector's Field Guide*. United States: Family Health International; 2005.
51. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007; 19:349–57. <https://doi.org/10.1093/intqhc/mzm042> PMID: 17872937
52. Kuckartz U, Rädiker S. *Qualitative Inhaltsanalyse: Methoden, Praxis, Computerunterstützung*. 5th ed. Weinheim Basel, Beltz Verlagsgruppe Preselec.media GmbH; 2022.
53. O'Connor C, Joffe H. Intercoder Reliability in Qualitative Research: Debates and Practical Guidelines. *International Journal of Qualitative Methods*. 2020; 19:160940691989922. <https://doi.org/10.1177/1609406919899220>
54. VERBI Software. MAXQDA 2020. Berlin, Germany; 2019.
55. Hynie M. The Social Determinants of Refugee Mental Health in the Post-Migration Context: A Critical Review. *Can J Psychiatry*. 2018; 63:297–303. <https://doi.org/10.1177/0706743717746666> PMID: 29202665
56. Gleeson C, Frost R, Sherwood L, Shevlin M, Hyland P, Halpin R, et al. Post-migration factors and mental health outcomes in asylum-seeking and refugee populations: a systematic review. *Eur J Psychotraumatol*. 2020; 11:1793567. <https://doi.org/10.1080/20008198.2020.1793567> PMID: 33312450
57. Jannesari S, Hatch S, Prina M, Oram S. Post-migration Social-Environmental Factors Associated with Mental Health Problems Among Asylum Seekers: A Systematic Review. *J Immigr Minor Health*. 2020; 22:1055–64. <https://doi.org/10.1007/s10903-020-01025-2> PMID: 32430778
58. Spiller TR, Liddell BJ, Schick M, Morina N, Schnyder U, Pfaltz M, et al. Emotional Reactivity, Emotion Regulation Capacity, and Posttraumatic Stress Disorder in Traumatized Refugees: An Experimental Investigation. *J Trauma Stress*. 2019; 32:32–41. <https://doi.org/10.1002/jts.22371> PMID: 30729584
59. Demir Z, Böge K, Fan Y, Hartling C, Harb MR, Hahn E, et al. The role of emotion regulation as a mediator between early life stress and posttraumatic stress disorder, depression and anxiety in Syrian refugees. *Transl Psychiatry*. 2020; 10:371. <https://doi.org/10.1038/s41398-020-01062-3> PMID: 33139699
60. Dvir Y, Ford JD, Hill M, Frazier JA. Childhood maltreatment, emotional dysregulation, and psychiatric comorbidities. *Harvard Review of Psychiatry*. 2014; 22:149–61. <https://doi.org/10.1097/HRP.000000000000014> PMID: 24704784
61. Nickerson A, Bryant RA, Schnyder U, Schick M, Mueller J, Morina N. Emotion dysregulation mediates the relationship between trauma exposure, post-migration living difficulties and psychological outcomes

- in traumatized refugees. *J Affect Disord*. 2015; 173:185–92. <https://doi.org/10.1016/j.jad.2014.10.043> PMID: 25462415
62. Moulds ML, Bisby MA, Wild J, Bryant RA. Rumination in posttraumatic stress disorder: A systematic review. *Clinical Psychology Review*. 2020; 82:101910. <https://doi.org/10.1016/j.cpr.2020.101910> PMID: 32971312
63. Demazure G, Gaultier S, Pinsault N. Dealing with difference: a scoping review of psychotherapeutic interventions with unaccompanied refugee minors. *Eur Child Adolesc Psychiatry*. 2018; 27:447–66. <https://doi.org/10.1007/s00787-017-1083-y> PMID: 29214387
64. Wallin A-MM, Ahlström GI. Unaccompanied young adult refugees in Sweden, experiences of their life situation and well-being: a qualitative follow-up study. *Ethn Health*. 2005; 10:129–44. <https://doi.org/10.1080/13557850500071145> PMID: 15804660
65. Hyland P, Shevlin M, Fyvie C, Cloitre M, Karatzias T. The relationship between ICD-11 PTSD, complex PTSD and dissociative experiences. *J Trauma Dissociation*. 2020; 21:62–72. <https://doi.org/10.1080/15299732.2019.1675113> PMID: 31583967
66. Joyal M, Wensing T, Levasseur-Moreau J, Leblond J, T Sack A, Fecteau S. Characterizing emotional Stroop interference in posttraumatic stress disorder, major depression and anxiety disorders: A systematic review and meta-analysis. *PLoS One*. 2019; 14:e0214998. <https://doi.org/10.1371/journal.pone.0214998> PMID: 30964902
67. Santangelo PS, Limberger MF, Stiglmayr C, Houben M, Coosemans J, Verleysen G, et al. Analyzing subcomponents of affective dysregulation in borderline personality disorder in comparison to other clinical groups using multiple e-diary datasets. *Borderline Personal Disord Emot Dysregul*. 2016; 3:5. <https://doi.org/10.1186/s40479-016-0039-z> PMID: 27386138
68. Doolan EL, Bryant RA, Liddell BJ, Nickerson A. The conceptualization of emotion regulation difficulties, and its association with posttraumatic stress symptoms in traumatized refugees. *J Anxiety Disord*. 2017; 50:7–14. <https://doi.org/10.1016/j.janxdis.2017.04.005> PMID: 28505466
69. Post LM, Youngstrom E, Connell AM, Zoellner LA, Feeny NC. Transdiagnostic emotion regulation processes explain how emotion-related factors affect co-occurring PTSD and MDD in relation to trauma. *J Anxiety Disord*. 2021; 78:102367. <https://doi.org/10.1016/j.janxdis.2021.102367> PMID: 33592520
70. Van Dijke A, Hopman JAB, Ford JD. Affect dysregulation, psychoform dissociation, and adult relational fears mediate the relationship between childhood trauma and complex posttraumatic stress disorder independent of the symptoms of borderline personality disorder. *Eur J Psychotraumatol*. 2018; 9:1400878. <https://doi.org/10.1080/20008198.2017.1400878> PMID: 29410773
71. Renner A, Hoffmann R, Nagl M, Roehr S, Jung F, Grochtdreis T, et al. Syrian refugees in Germany: Perspectives on mental health and coping strategies. *Journal of Psychosomatic Research*. 2020; 129:109906. <https://doi.org/10.1016/j.jpsychores.2019.109906> PMID: 31884301
72. Garcia O, Slavish DC, Dietch JR, Messman BA, Contractor AA, Haynes PL, et al. What goes around comes around: Nightmares and daily stress are bidirectionally associated in nurses. *Stress and Health*. 2021; 37:1035–42. <https://doi.org/10.1002/smi.3048> PMID: 33749112
73. Spiller TR, Schick M, Schnyder U, Bryant RA, Nickerson A, Morina N. Somatisation and anger are associated with symptom severity of posttraumatic stress disorder in severely traumatised refugees and asylum seekers. *Swiss Med Wkly*. 2016; 146:w14311. <https://doi.org/10.4414/smw.2016.14311> PMID: 27153515
74. Siriwardhana C., Sheik Ali S., Roberts B., Steward R. A systematic review of resilience and mental health outcomes of conflict-driven adult forced migrants. *Conflict and Health*. 2014. <https://doi.org/10.1186/1752-1505-8-13> PMID: 25177360
75. Walther L, Amann J, Flick U, Ta TMT, Bajbouj M, Hahn E. A qualitative study on resilience in adult refugees in Germany. *BMC Public Health*. 2021; 21:828. <https://doi.org/10.1186/s12889-021-10817-6> PMID: 33931077
76. Rodriguez P, Holowka DW, Marx BP. Assessment of posttraumatic stress disorder-related functional impairment: a review. *J Rehabil Res Dev*. 2012; 49:649–65. <https://doi.org/10.1682/jrrd.2011.09.0162> PMID: 23015577
77. Perez J, Venta A, Garnaat S, Sharp C. The Difficulties in Emotion Regulation Scale: Factor Structure and Association with Nonsuicidal Self-Injury in Adolescent Inpatients. *J Psychopathol Behav Assess*. 2012; 34:393–404. <https://doi.org/10.1007/s10862-012-9292-7>
78. Weindl D, Knefel M, Glück TM, Tran US, Lueger-Schuster B. Motivational capacities after prolonged interpersonal childhood trauma in institutional settings in a sample of Austrian adult survivors. *Child Abuse Negl*. 2018; 76:194–203. <https://doi.org/10.1016/j.chiabu.2017.11.001> PMID: 29128740
79. Choudhry FR, Mani V, Ming LC, Khan TM. Beliefs and perception about mental health issues: a meta-synthesis. *Neuropsychiatr Dis Treat*. 2016; 12:2807–18. <https://doi.org/10.2147/NDT.S111543> PMID: 27826193

80. Aarethun V, Sandal GM, Guribye E, Markova V, Bye HH. Explanatory models and help-seeking for symptoms of PTSD and depression among Syrian refugees. *Soc Sci Med*. 2021; 277:113889. <https://doi.org/10.1016/j.socscimed.2021.113889> PMID: 33838449
81. Schäfer I, Gast U, Hofmann A, Knaevelsrud C, Lampe A, Liebermann P, et al., editors. S3-Leitlinie Post-traumatische Belastungsstörung. Berlin, Heidelberg: Springer Berlin Heidelberg; 2019.
82. Kartal D, Alkemade N, Kiropoulos L. Trauma and Mental Health in Resettled Refugees: Mediating Effect of Host Language Acquisition on Posttraumatic Stress Disorder, Depressive and Anxiety Symptoms. *Transcultural psychiatry*. 2019; 56:3–23. <https://doi.org/10.1177/1363461518789538> PMID: 30117781
83. van Loenen T, van den Muijsenbergh M, Hofmeester M, Dowrick C, van Ginneken N, Mechili EA, et al. Primary care for refugees and newly arrived migrants in Europe: a qualitative study on health needs, barriers and wishes. *European Journal of Public Health*. 2018; 28:82–7. <https://doi.org/10.1093/eurpub/ckx210> PMID: 29240907

Supplementary Material:

***“My Brain freezes and I am blocked again”*: The subjective experience of post-migration living difficulties influenced by complex posttraumatic stress disorder of Afghan asylum seekers and refugees in Austria**

Jennifer Schiess-Jokanovic^{*a}, Christine Gössling-Steirer, Viktoria Kantor^a, Matthias Knefel^a, Dina Weindl^a, Ingo Schäfer^b, and Brigitte Lueger-Schuster^a

Author Note

^a Department of Clinical and Health Psychology, Faculty of Psychology, University of Vienna, Vienna, Austria.

^b Department of Psychiatry and Psychotherapy, University Medical Centre Hamburg-Eppendorf, Hamburg, Germany.

*Correspondence concerning this article should be addressed to Jennifer Schiess-Jokanovic, Department of Clinical and Health Psychology, Faculty of Psychology, University of Vienna, Wächtergasse 1, 1010 Vienna, Austria. E-Mail: jennifer.schiess-jokanovic@univie.ac.at

Table S1

Interview guide

Items
• I would be interested in experiences from your life in Austria, things that you often experience as a refugee. Could you tell me about such an experience, maybe something you have experienced recently? ○ Are there also other experiences that you often experience... bad ones? (if something positive was told, otherwise go on to question ○ (if no interpersonal situations were reported) And are there also experiences with other people? (ev. Are there experiences that were similar but particularly bad for you?) ○ Optional questions for more detailed exploration of the situation (for questions 7-9 respectively): e.g.: Can you tell me a bit more about this? What did you do in the situation? How did you feel in this situation? Could you have done anything else? How did you feel after the situation? How long did the situation continue to bother you? How do you feel about it today? How often do such situations occur? Sometimes you know that a stressful situation is coming up in the near future. • How do you usually feel BEFORE stressful or difficult situations, when you know that such a situation is coming soon? ○ Optional questions for more detailed exploration of the situation: Do you have an example for me? How did you feel then? What did you do there? Would there have been other possibilities? Were there thoughts that preoccupied you? How long did you think about it? Does this often happen, that you get under pressure before such situations?

-
- How do your traumatic experiences from before influence your life in Austria today?
 - Do the experiences from before have an influence on your relationships with other people? Do they have an influence on other areas of your life?
-
-