Aus der Klinik für Psychiatrie und Psychiatrie

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Clinical Validation of an Arabic Version of the Harvard Trauma Questionnaire-5 (HTQ-5) on a sample of Arabic speaking Refugees living in Germany

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Die klinische Validierung einer arabischen Version des Harvard Trauma Quiestionnaire-5 (HTQ-5) in einer Stichprobe von arabischsprechenden, in Deutschland lebenden Geflüchteten

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Zusammenfassung auf Deutsch

Obwohl die Mehrheit der Menschen zu einem bestimmten Zeitpunkt ihres Lebens einem Trauma ausgesetzt ist, ist die Art und Weise, wie Menschen auf traumatischen Stress reagieren, je nach Kultur sehr unterschiedlich. In westlichen Nationen entwickelte psychometrische Instrumente laufen daher Gefahr, dass kulturell spezifische Ausdrucksformen von Leiden nicht erfasst werden, wenn diese in nicht-westlichen Gemeinschaften zum Einsatz kommen. Nach den sogenannten Flüchtlingskrisen in den Jahren 2015 und 2016 entstand ein dringender Bedarf nach effizienten Screening-Instrumenten, die spezifisch auf Symptome posttraumatischer Belastungen bei arabischsprachigen Flüchtlingen aus dem Nahen Osten abzielen. Der Prozess der interkulturellen Anpassung und Übersetzung eines diagnostischen Instruments erfordert hierbei ein hohes Maß an Sorgfalt, da selbst geringfügige Ungenauigkeiten zu groben Verfälschungen in der Diagnosestellung führen können.

In dieser Studie wurde der Harvard Trauma Questionnaire nach DSM 5 (HTQ-5) ins Arabische übersetzt und kulturspezifisch adaptiert, wobei insbesondere darauf geachtet wurde, vorab festgelegte Richtlinien zur interkulturellen Validierung zu befolgen. Hierzu gehörte die Einrichtung eines Gremiums aus Fachleuten, sowie die Anfertigung zweier unabhängiger Rückübersetzungen. Dieser adaptierte und übersetzte HTQ-5 wurde in die Routine-Untersuchungen der Spezialambulanz der Klinik für Psychiatrie und Psychotherapie des Universitätsklinikums Mainz integriert. In der vorliegenden Studie wurden die Ergebnisse dieses übersetzten und adaptierten HTQ-5 von 37 arabischsprachigen Geflüchteten, die sich in der Spezialambulanz behandeln ließen, unter Zuhilfenahme einer Receiver Operating Classifier (ROC)-Analyse mit den Ergebnissen der Clinician Administered PTSD Scale (CAPS-5) retrospektiv verglichen.

Mit einer Fläche unter der Kurve (ROC-AUC) von 0,750 deuten die Daten darauf hin, dass dem übersetzten und adaptierten arabischen HTQ-5 eine zuverlässige Klassifizierung von PTSD- und Nicht-PTSD-Patienten in ihre jeweiligen Gruppen gelingt. Basierend auf den ROC-Analysen wurde die optimale Cut-off-Schwelle auf 2,0 festgelegt, was eine Sensitivität von 83,3 % und eine Spezifität von 52,6 % ergab. Die in dieser Arbeit vorgestellte adaptierte und übersetzte arabische Version des HTQ-5 stellt daher ein effizientes und sensitives Screening-Instrument für PTSD bei arabischsprachigen Flüchtlingen aus dem Nahen Osten dar.

Abbreviations

AOK	Allgemeine Ortskrankenkasse
APA	American Psychiatric Association
AUC	Area Under the Curve
BDI-II	Beck Depression Inventory – 2nd edition
BRS	Brief Resilience Scale
CAPS-5	Clinician Administered PTSD Scale according to DSM-5
cPTSD	Complex Posttraumatic Stress Disorder
DSM	Diagnostic and Statistical Manual
DSM-III	Diagnostic and Statistical Manual – 3rd edition
DSM-III-R	Diagnostic and Statistical Manual – revised 3rd edition
DSM-IV	Diagnostic and Statistical Manual – 4th edition
DSM-IV-TR	Diagnostic and Statistical Manual – 4th edition text revision
DSM-5	Diagnostic and Statistical Manual – 5th edition
FPR	Fals Positive Rate
HPRT	Harvard Program in Refugee Trauma
HTQ	Harvard Trauma Questionnaire
IBM	International Business Machines
ICD-10	International Classification of Diseases – 10th edition
ICD-11	International Classification of Diseases – 11th edition
PHQ-9	Patient Health Questionnaire (9 items)
PIA	Psychiatrische Institutsambulanz
PTSD	Posttraumatic Stress Disorder
ROC	Receiver Operating Characteristic
SAP	Systems, Applications, and Products in Data Processing
SD	Standarddeviation
SGB	Sozialgesetzbuch
SPIESS	Skills & talents, Physical functioning, Intellectual functioning, Emotional functioning, Social relationships, and Spiritual/existential concerns
SPSS	Statistical Product and Service Solutions
TKA	Transkulturelle Ambulanz
TPR	True Positive Rate
UNHCR	United Nations High Commission for Refugees
WHO	World Health Organisation
WMH Survey	World Mental Health Survey

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1 Introduction

1.1 Trauma

1.1.1 Epidemiology

Numerous studies have been conducted to assess the prevalence of trauma across different populations. Between 1967 and 1991 almost 7 million people were killed and another 3 billion were directly affected by disasters worldwide (International Federation of Red Cross and Red Crescent Societies, Sanderson and Sharma, 2018). According to the World Mental Health Survey Consortium out of the general population of 24 countries over 70% reported exposure to traumatic events and over 30% reported exposure to four or more events (Benjet 2016). In this survey, being witness to death or serious injury, the unexpected death of a loved one, being robbed, life-threatening automobile accidents and life-threatening illness accounted for over half of all exposures; however, the rate and type of traumatic events to which individuals are exposed varied according to country of residence and sociodemographic characteristics exposure. (Benjet 2016).

For example, in communities with low socioeconomic status, greater exposure to trauma was noted (Benjet 2016). Women were found to be more vulnerable to sexual assault and domestic violence and men more vulnerable to physical assault (Ghafoori *et al.*, 2012) Benjet 2016). Community, culture and the nature of communities is related and may even dictate rates of exposure to trauma (Roberts *et al.*, 2011). Higher rates of trauma exposure can be observed in refugees when compared to non-refugees (Keller *et al.*, 2006). Traumatic events that are prevalent in refugees are often connected to the reason of flight or the journey they were forced upon and include armed conflicts, torture and forced migration.

1.1.2 Armed Conflict

Since 1946 until 2017 the world saw a total of 285 different armed conflicts, including all organized military conflict (Dupuy and Rustad, 2018). An important trend over the past 70 years has been the decrease of colonial and interstate conflicts, giving rise to intrastate or civil conflicts that are internal to a state, although quite often involving external state actors (Dupuy and Rustad, 2018). A recent systematic review found the

rate of civilian casualties in armed conflicts to range from 13 to 87% of the total casualties, depending on the type of conflict with higher numbers to be expected in civil conflicts (Khorram-Manesh *et al.*, 2021). The same review asserts, that even if casualties were kept as low as 13% of the population, even a minor conflict, such as the one in Nagorno-Karabach, can result in over thousands injured, which alone can overwhelm any local healthcare system (Khorram-Manesh *et al.*, 2021). Similarly, with exposure rates to traumatic events related to an armed conflict reported as high as 90% and above, even relatively small conflicts can affect an absolute number of traumatized people, whose treatment would overstretch the finite resources of even advanced mental healthcare services (de Jong *et al.*, 2001).

1.1.3 Torture

The UNHCR defines torture as *any act by which severe pain or suffering, whether physical or mental, is intentionally inflicted on a person for such purposes as obtaining from him or a third person information or a confession, punishing him for an act he or a third person has committed or is suspected of having committed, or intimidating or coercing him or a third person, or for any reason based on discrimination of any kind […] (UNHCR, 1987)*. Of all refugees from war worldwide an estimate of up to 35% report being survivors of torture (Abu Suhaiban, Grasser, and Javanbakht, 2019).

1.1.4 Forced Migration

War and political violence not only affect individuals and societies within conflict areas but also lead to traumatising those who are fleeing from fights either within their country of origin becoming internally displaced or by seeking refuge in other countries. According to the United Nations High Commissioner for Refugees (UNHCR) there has been an estimate of 84 million forcibly displaced people worldwide as of Mid-2021, including 26.6 million refugees and 4.4 million asylum seekers (someone who flees his or her own country and seeks sanctuary in another country) and 48.0 million internally displaced persons (someone who has been forced to flee his or her home but never crossed an international border)(UNHCR, 2022).

1.2 **PTSD**

1.2.1 History of Conceptualization

For centuries before the appearance of diagnostic manuals such as the DSM or the ICD, trauma had already been a part of human existence and human experience since beginning of history. The psychological consequences of trauma gained special attention during the wars of the twentieth century with new terms, such as the *Shell Shock* of the first World War, coined in order to describe a previously overlooked phenomenon (Stein and Rothbaum, 2018).

The psychological impact of war on soldiers and civilians mandated the revision and change of existing diagnostic systems. In 1948 the WHO included mental disorders in the sixth revision of the International Statistical Classification of Diseases, Injuries and Causes of Death (ICD-6) (WHO, 1949). Prototypes of PTSD were labelled *Acute Situational Maladjustment*. Based on the ICD-6 and expert experiences with veterans, the American Psychological Association (APA) revised its diagnostic system to respond to the public mental health load post World War II (Stein and Rothbaum, 2018). The early editions of the Diagnostic and Statistical Manual of Mental Disorders (DSM) referred to stress reactions as *Transient Situational Personality Disturbance* or *Gross Stress Reaction* (American Psychiatric Association, 1952)

Later the DSM-IV described a cluster of symptoms that occur after experiencing a traumatic event, requiring that the event involved actual or threatened death or serious injury to self or others and that the person's immediate emotional response involved either intense fear, helplessness, or horror (American Psychiatric Association, 1994). The Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revision (DSM–IV–TR) required that the person has been exposed to a traumatic event that involved actual or threatened death or serious injury or threat to the physical integrity of self or others, and the persons response involved intense fear, helplessness or horror (criterion A) and meets at least one of five reexperiencing symptoms (Criterion B), at least three of seven symptoms of avoidance and emotional numbing of general responsiveness (Criterion C), and at least two of five hyperarousal symptoms (Criterion D). However, this model was challenged in a number of structural studies and a meta-

analysis has demonstrated its failure to capture the underlying dimensions of PTSD (Yufik and Simms, 2010; Elhai and Palmieri, 2011).

The question whether to classify PTSD as an anxiety or as a dissociation disorder has been controversial among the APA subcommittee members for over two decades (Brett, Spitzer and Williams, 1988) . It wasn't until the release of DSM-5 that PTSD was moved from the chapter of *Anxiety Disorders* to a newly created stand-alone chapter titled *Trauma and Stress-Related Disorders* (American Psychiatric Association, 2013). The stressor criterion was significantly changed, e.g. Criterion A2 that required that the individual must have reacted to the traumatic event with intense fear, helplessness, or horror was removed, and dissociative and preschool children subtypes were added.

1.2.2 Epidemiology of PTSD

1.2.2.1 The World Mental Health Survey and impact of mass trauma

The World Mental Health (WMH) Surveys from 24 countries found estimates for lifetime prevalence for PTSD in the overall population to be 3.9% with significant variation across countries. High income countries on average with 5.0% yielded twice the lifetime prevalence of PTSD as upper-middle income countries with an average of 2.3% (Koenen *et al.*, 2017). In this survey lifetime prevalence ranged from a minimum of 0.3% in China to a maximum of 8.8% in Northern Ireland (Koenen *et al.*, 2017). Notably, the WMH Surveys did not include many countries with recent mass violence and armed conflict. The data available from these countries suggest much higher rates of lifetime PTSD prevalence in communities exposed to mass violence, like for example 37.4% in Algeria (de Jong *et al.*, 2001). This is altogether unsurprising, since albeit exposure to trauma being a necessary but not sufficient precondition for the development of PTSD (i.e. there are people who suffer from trauma but do not develop PTSD), research in areas of mass traumatic events, such as terrorist attacks, or natural disasters, shows higher rates of PTSD (Qi, Gevonden and Shalev, 2016). For instance, 20 months after the December 2004 Indian Ocean tsunami the prevalence of PTSD among victims in Sri Lanka was 21% (Hollifield *et al.*, 2008). Similarly in a sample of U.S. rescue and recovery forces, who were active in the aftermath of the 9/11 attacks, 19.5% continued to screen positive for PTSD as much as five years later (Brackbill *et al.*, 2009). Despite finding major heterogeneities in between studies, a systematic

review on the prevalence of mental disorders in refugees showed that an overall of 31.46% of them suffered from PTSD (Blackmore *et al.*, 2020).

1.2.2.2 Influence of the diagnostic criteria applied

It is important to note that the methods used to collect data and the diagnostic criteria applied to evaluate trauma and PTSD (e.g., DSM-IV vs. DSM-5,, DSM-5 vs ICD-10) can have a tremendous impact on the rates of trauma and PTSD reported in the literature (Calhoun *et al.*, 2012; Kilpatrick *et al.*, 2013; Gentes *et al.*, 2014). Earlier studies depending on the old (DSM-III) conceptualization found PTSD to be a *rare* disorder with a prevalence of 1.8% (Helzer, Robins and McEvoy, 1987). A study conducted in a community sample in Wales revealed a prevalence of 14.3% according to DSM-IV criteria, but only 8% when DSM-5 criteria were applied (White *et al.*, 2015). A possible explanation for the change in prevalence is the exclusion of DSM-IV stressor criterion qualifying events such as life-threatening illnesses for DSM-5 (White *et al.*, 2015). Others attributed the changes in diagnostic rates to the splitting of avoidance and numbing symptoms into two distinct clusters (Gentes *et al.*, 2014).

Similarly given the significant differences between diagnostic criteria of the ICD and DSM, several studies were conducted to compare PTSD prevalence using the two systems. Results demonstrated that DSM-5 criteria yielded higher prevalence than ICD-11 among community samples (Wisco *et al.*, 2016), but also traumatic injury patients (O'Donnell *et al.*, 2014), survivors of childhood sexual abuse (Hyland *et al.*, 2016), and internally displaced people (Shevlin *et al.*, 2018). Stein et al. however reported similar prevalence rates comparing DSM-5 (3.0%) and ICD-11 criteria (3.2%) (Stein *et al.*, 2014). Moreover, some studies revealed a substantial proportion of cases that classified as PTSD in one diagnostic system but not the other (O'Donnell *et al.*, 2014; Hafstad *et al.*, 2017). It is thus crucial to keep these diagnostic differences in mind when interpreting results of epidemiological studies.

1.2.3 Current Definitions

Today the definition and classification of PTSD are mainly based on two systems worldwide: the Diagnostic and Statistical Manual of Mental Disorders (DSM) by the American Psychiatric Association (APA) and the International Classification of Diseases (ICD) by the World Health Organization (WHO).

1.2.3.1 DSM

The DSM-5 PTSD is characterised by a wide range of symptoms separated into symptom clusters. These symptom clusters, also known as factors, are used in diagnostic algorithms and thus determine - based on minimum symptom counts - in which instances a person does or does not meet the diagnostic criteria. Although a range of one- to seven-factor models have been proposed, the model that has received the most support in the literature is a four-factor conceptualization (Friedman, 2013). In addition to exposure to trauma (Criterion A) the DSM-5 model includes the following symptom clusters: intrusion (Criterion B: *recurrent, involuntary, and intrusive distressing memories of the traumatic event*, APA, 2013, p. 271), avoidance (Criterion C: *avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s)*, APA, 2013, p. 271), negative alterations in cognitions and mood (Criterion D: *feelings of detachment or estrangement from others*, APA, 2013, p. 272) and alterations in arousal and reactivity (Criterion E: *exaggerated startle response*, APA, 2013, p. 272). Six symptoms must be present to give the PTSD diagnosis (one intrusion symptom, one avoidance symptom, two negative alterations in cognitions and mood symptoms, and two alterations in arousal and reactivity symptoms). These symptoms must be accompanied by significant functional impairment and at least a one-month duration of the symptoms (APA, 2013). More recently, a seven-factor hybrid model that includes re-experiencing, avoidance, negative affect, anhedonia, externalizing behaviours, as well as a cluster of anxious and dysphoric arousal symptoms has been supported by preliminary evidence of being a superior fit as compared to all other models (Armour, Műllerová and Elhai, 2016)

The DSM-5 edition contains all the 17 symptoms of DSM-IV, however some descriptions have been revised and reworded to provide further clarification. Three new symptoms were also added. One example of an added item is “reckless or self-destructive behaviour” (APA, 2013, p. 272) in the Criterion E section. This is intended to reflect the fact that externalizing behaviours such as risk-taking and suicidal behaviours are common in individuals with PTSD (Miller et al., 2004; Nock et al., 2010). This increase in the number of symptoms expanded the number of possible symptom profiles to meet the diagnostic criteria for PTSD.

1.2.3.2 ICD

There are several differences regarding the diagnostic conceptualization of PTSD between the latest edition of ICD and DSM (American Psychiatric Association, 2013; Armour, Műllerová and Elhai, 2016; World Health Assembly, 2019). Specifically, DSM-5 includes 20 PTSD symptoms and requires at least one out of five intrusion symptoms, one out of two avoidance symptoms, two out of seven negative alterations in cognitions and mood symptoms, and two out of six alterations in arousal and reactivity symptoms to diagnose PTSD. In contrast to the broad definition of PTSD in DSM-5, ICD-11 defines PTSD in a narrow way by reducing the 'non-specific symptoms' that overlap with symptoms of other mental disorders, which aims at reducing psychiatric comorbidity and improving the clinical utility of the diagnosis (Maercker *et al.*, 2013). The ICD-11 includes only six PTSD symptoms belonging to intrusion, avoidance, and sense of threat symptom clusters, respectively, and requires at least one out of two intrusion symptoms, one out of two avoidance symptoms, and one out of two sense of threat symptoms. Apart from distinctions about symptoms, there is a 'sibling disorder' of PTSD named complex PTSD (cPTSD) in ICD-11 (Maercker *et al.*, 2013). The symptom profile of cPTSD includes the core PTSD symptoms and plus three additional 'disturbances in self-organization' symptom clusters: affective dysregulation, negative self-concept, and disturbances in relationships. cPTSD is typically associated with chronic, repeated, and multiple forms of interpersonal traumas during childhood (Resick *et al.*, 2012).

Table 1 illustrates different terms for traumatic stress sequalae within the DSM and the ICD throughout the history of conceptualization.

Table 1: Terminology of traumatic stress throughout different versions of the International and American Classification Systems (Van der Kolk, McFarlane and Weisæth, 2007)

International Classification of Diseases	Diagnostic and Statistical Manual
ICD-6 (1948) Acute situational maladjustment	**DSM-I (1952)** Transient situational personality disturbance Gross stress reaction Adult situational reaction Adjustment reaction of: Infancy/ Childhood/ Adolescence/ Late life
ICD-8 (1968)	**DSM-II (1968)**

Transient situational disturbance	Adjustment reaction of: Infancy/ Childhood/ Adolescence/ Adult life/ Late life
ICD-9 (1977) Acute reaction to stress: With predominant disturbance of emotions/ disturbance of consciousness/ psychomotor disturbance/ Other mixed	**DSM-III, DSM-III-R (1980, 1987)** Post-traumatic stress disorder
ICD-10 (1992) Acute stress reaction Posttraumatic stress disorder Enduring personality changes after catastrophic experience	**DSM-IV (1994)** Acute stress disorder Posttraumatic stress disorder
ICD-11 (2019) Acute stress reaction Posttraumatic stress disorder Complex Posttraumatic Stress Disorder	**DSM-5 (2013)** Acute stress disorder Posttraumatic stress disorder

1.2.4 Protective and Predisposing Factors

1.2.4.1 Intentionality of Trauma

Several studies have examined the different quantitative and qualitative ramifications of trauma when intentional vs. non-intentional, with intentional trauma being understood as the deliberate infliction of harm by other human beings (Grimm *et al.*, 2012; Santiago *et al.*, 2013). Following this differentiation, intentional trauma is often found associated with an increased severity of overall symptoms as well as the specific manifestation of particular symptoms of posttraumatic stress (Kelley *et al.*, 2009; Grimm *et al.*, 2012). Particularly in survivors of torture and armed conflict, high rates of PTSD and a dose-response relationship between exposure and symptom severity have been described (Johnson and Thompson, 2008; Abu Suhaiban, Grasser, and Javanbakht, 2019). Furthermore, evidence suggests that symptoms of posttraumatic stress after intentional trauma persists over longer time and my even aggravate, while symptom load after non-intentional trauma declines (Santiago *et al.*, 2013). In the case of trauma due to sexual assault, the temporal stability of PTSD symptoms is possibly an effect of perpetuation by narratives of self-blame, as cognitions of self-blame, while serving the function of reconciliation between the traumatic event and previously held beliefs about justice and trust, generate emotions like shame and guilt as well as avoidance behavior that maintain intrusive reminders of the trauma and perpetuate

PTSD symptoms (Kline *et al.*, 2021). In the case of refugees of torture or war, this observation has been largely attributed to the disruption of social contacts, loss of health and loss of culture with clear evidence of a dose-response relationship between exposure and long-term PTSD (Johnson and Thompson, 2008). Qualitative difference in symptom expression between intentional and non-intentional trauma is well documented in victims of sexual assault, who were shown to suffer from a greater degree of detachment, restricted range of affect for close ones, and avoidance of feelings than victims of motor vehicle accidents (Kelley *et al.*, 2009). Similarly torture survivors show particularly high levels of nightmares, memory impairment, social withdrawal, emotional numbing, problems of impulse control, autonomic reactivity or avoidance when confronted with trauma-relevant stimuli (Campbell, 2007).

1.2.4.2 Age

There is conflicting evidence regarding the mitigating effect of age in PTSD; while there is data to suggest that older age is a risk factor, a recent meta-analysis found a higher prevalence of PTSD in the young at one month post trauma (Abu Suhaiban, Grasser, and Javanbakht, 2019; Diamond *et al.*, 2022). Since the authors observed this difference at none of the following time-points of a two-year follow-up, they speculate whether this effect is because of a more intense initial emotional reaction to trauma in the young (Diamond *et al.*, 2022). They also caution that their sample of 78 studies included only one with an average age above 60 years, resulting in an over-representation of young to middle-aged participants (Diamond *et al.*, 2022). While studies in Afghan refugees have shown highest rates of PTSD in the above 60 year olds, a study investigating psychological outcomes in U.S. American geriatric patients after traumatic injury found old age to come with lower incidence of PTSD (Alemi *et al.*, 2014a; Culp *et al.*, 2019). The authors of the latter study suggest that higher rates of distress in the middle-aged control group can be attributed partly to the larger economic damages suffered, although significant demographic difference between the two groups extends factors such as ethnicity, education, and the rate of intentional vs. non-intentional trauma (Culp *et al.*, 2019).

Those studies that find a protective effect in the young, attribute this to social factors, such as better social (sometimes parental) support, or easier access to employment,

as well as biological factors, such as superior neural plasticity (Johnson and Thompson, 2008; Alemi *et al.*, 2014a; Garrett *et al.*, 2019).

1.2.4.3 Gender

Female gender has been identified not only as a risk factor for the development of PTSD but also as a mediating factor for the type of trauma (Abu Suhaiban, Grasser, and Javanbakht, 2019). Especially among Arab women from the Middle East, a high prevalence of gender-based oppression and discrimination, as well as forced-marriages and domestic violence has been reported (Farhood, Fares and Hamady, 2018a). Women also face larger risks during forced migration including sexual harassment and violence, or being coerced into sexual conduct in exchange for safe passage, protection or plain survival either for themselves or fellow migrants (Vereinte Nationen, 2006). In cases of domestic violence, refugee women who arrive in Europe with their spouses are oftentimes more vulnerable than in their countries of origin, since the social isolation that comes with living in a foreign culture forces them into a life of continuous trauma-exposure with the aggressor. (Freedman, Jamal, and Euro-Mediterranean Human Rights Network, 2008a). It is rather the exception than the rule, that such women file a complaint at the police against her husband. Women feel ashamed to make a complaint, as the traditional image of a male as head of the house should be respected. Domestic Violence must thus be kept a secret, particularly from other members of the community in the host countries. (Freedman, Jamal, and Euro-Mediterranean Human Rights Network, 2008a) Many factors increase the vulnerability of refugee women to violence including: (1) Legal Status, as many women depend on their spouses to obtain a residence permit, (2) Economic dependence, (3) Changing gender-roles in the family in the host country, (4) sectorized labor market, (5) racism and xenophobia, and (6) reluctance of state institutions to intervene in the “private sphere” of the family (United Nations Division for the Advancement of Women, 2004; Freedman, Jamal, and Euro-Mediterranean Human Rights Network, 2008a).

1.2.4.4 Education

It remains a matter of debate, if education is a protective or predisposing factor for the development of PTSD in refugees with some studies suggesting the former while others suggest the latter (Porter and Haslam, 2005; Johnson and Thompson, 2008; Renner *et al.*, 2021). In terms of prevalence of trauma, there has been a long

understanding that a higher degree of education as a proxy for higher socioeconomic status comes with a lesser degree of trauma exposure than experienced by disadvantaged groups (Hatch and Dohrenwend, 2007). More recent research however indicates that the relationship between education and trauma exposure varies trauma type, showing that those with less education are at higher risk of experiencing bodily harm, interpersonal violence and injuries, while those with more education had more automobile accidents, greater odds of being sexually assaulted and higher exposure than others in the same country to collective violence (Benjet *et al.*, 2016). When it comes to the development of PTSD in refugees, although higher levels of education and socioeconomic status before displacement have by some been considered to have protective effects, the data suggests the contrary; those of higher education seem to be at larger risk for the development of PTSD symptoms, possibly as greater pre-displacement educational and economic status comes with a greater feeling of subsequent loss of status (Porter and Haslam, 2005).

1.2.4.5 Family and Martial Status

Current literature suggests that in general as well as in particular in refugee populations marriage in itself but also as a proxy for family support is a major protective factor not only towards trauma exposure but also subsequent development of PTSD in case of trauma, possibly since married people have less risk of finding themselves unaccompanied in potentially dangerous situations; furthermore married couples tend to have more resources at their disposal and consequently face fewer stressors than singles (Roberts *et al.*, 2008; Benjet *et al.*, 2016; Koenen *et al.*, 2017). Although it has been hypothesized that marriage in female refugees might come with an increased risk towards trauma as in domestic violence or in the prioritization of the needs of husband and children before their own, data suggests that the influence of marriage on female refugees' trauma related mental health has a large overall beneficial effect, since marriage not only serves as a protective factor towards physical and sexual harassment from strangers but also offers social and family support (Brooks *et al.*, 2022).

1.2.4.6 Severity of Trauma

The overall severity of trauma represents a mitigating factor on the likelihood of development of PTSD; unsurprisingly the overwhelming consensus in current literature

is that with increased traumatic load (as in severity and frequency of trauma) comes a higher likelihood for the development of PTSD (Gorst-Unsworth and Goldenberg, 1998a; Alemi *et al.*, 2014a; Horn and Feder, 2018; Abu Suhaiban, Grasser, and Javanbakht, 2019).

1.2.5 Frequent Comorbidities

Studies show a high comorbidity between PTSD and other psychiatric disorders mainly depression and anxiety disorders (Katzman *et al.*, 2014; Flory and Yehuda, 2015; Dai *et al.*, 2017). It remains unclear, whether the observation of high rates of comorbidity are a result of shared risk factors and overlap in aetiology or stem from similarities in diagnostic criteria (Flory and Yehuda, 2015). This however shines light on the importance to investigate signs for Major Depression and anxiety in PTSD samples. Other studies reported that primary care patients with PTSD report higher levels of substance and alcohol abuse, somatic symptoms, pain, health complaints, and healthcare utilization, marking the overall hidden cost of PTSD (Roberts *et al.*, 2016; Bothe *et al.*, 2020).

1.2.6 Differential Diagnoses

Diagnosing PTSD has shown to be a challenging task even for the experienced clinician. This can be attributed to the frequency of comorbid disorders as well as a wide variety of differential diagnoses. These include anxiety disorders, which show diagnostic overlap in hypervigilance, avoidance, as well as negative alterations in cognition and mood, as well as psychotic disorders especially when psychotic symptoms are present (OConghaile and DeLisi, 2015; Auxéméry, 2018). A set of challenging differential diagnoses is presented by personality disorders particularly when characterised by avoidance behaviour, hyperarousal and extreme paranoia (Golier *et al.*, 2003; Cloitre *et al.*, 2014).

Since mistrust towards the helper system (including mental health professionals) among refugees can be a projection of persecution experiences made in countries of origin as well as negative experiences with the host country’s welfare system, symptoms of mistrust, fear, and hypervigilance deserve special consideration by the clinician (Estacio and Saidy-Khan, 2014; Place *et al.*, 2021)

1.3 Refugees in Germany

1.3.1 Demographics

According to the UNHCR, in 2021 Germany was the fifth largest host country for refugees in the world, with currently 1.2 million refugees (UNHCR, 2021b). The largest portions of these originate from the countries of Syria (562.168), Afghanistan (133.370) and Iraq (131.935) (UNHCR, 2021a).

In this study, the term *asylum seeker* is used as an umbrella term for both those who have received formal asylum (refugees) and those who have applied for refugee status in Germany. Since this work focuses on Arabic-speaking refugees, a brief overview of the Iraqi and Syrian situations is summarised in the following sections.

1.3.1.1 Syria

Syria is a country in western Asia and is home to diverse ethnic and religious groups. Among these, Arabs is the largest ethnic and Muslim Sunnis (74%) the largest religious group (U.S. Central Intelligence Agency, 2022). The main spoken and official language of Syria is Arabic (U.S. Central Intelligence Agency, 2022).

Since the beginning of the Civil War in 2011, Syria went from being a large refugee hosting country, with 568.730 Palestinian refugees inside of Syria as of 2020, to being itself the country that the largest number of refugees worldwide originated from (UNHCR, 2022; U.S. Central Intelligence Agency, 2022). During this ongoing crisis, 6.8 Million Syrians became refugees and another 6.6 million people were internally displaced within Syria (UNHCR, 2022). Most of the Syrian refugees resettled in neighbouring countries: Turkey (3.7 Million), Lebanon (851.718), and Jordan (668.332) (UNHCR, 2022). However, more than a million Syrian refugees reached Europe and around 642.558 of them now live in Germany (UNHCR, 2022). Many studies show that the prevalence of psychiatric disorders among Syrian refugees is alarming (Schröder, Zok and Faulbaum, 2018; Zbidat *et al.*, 2020, 2020). In Syrian refugee-camps in Jordan, PTSD prevalence rates of 38.7% were reported and 31% among school children (Basheti *et al.*, 2019; Beni Yonis *et al.*, 2020). In Turkish refugee camps studies showed PTSD in up to 33.5% of Syrian refugees with high rates of comorbidity of anxiety and depression (Alpak *et al.*, 2015; Acarturk *et al.*, 2021). As of December 31st, 2021 a total of 403.369 individuals from Syria were living in Germany after having

been granted asylum status with a number of 54.903 new applications throughout the year (Bundesamt für Migration und Flüchtlinge, 2022a, 2022b).

1.3.1.2 Iraq

Iraq is a country in western Asia. The official languages are Arabic and Kurdish (U.S. Central Intelligence Agency, 2022). Iraq is home to diverse ethnic groups including Arabs, Kurds, Assyrians, und Yazidis (U.S. Central Intelligence Agency, 2022). Iraq has been exposed to a series of armed conflicts in its recent past, including the Iraq-Iran war (1980-1988), the civil strife of early 1990s, and finally the American invasion of Iraq in 2003, which was followed by ongoing sectarian violence up to this day (U.S. Central Intelligence Agency, 2022). High rates of PTSD and other mental disorders were reported in studies conducted locally and internationally among Iraqi refugees (Söndergaard, Ekblad and Theorell, 2001; Laban *et al.*, 2005). For example, a study conducted 2014 among secondary school children in the Iraqi capital Baghdad showed that 92% of these students aged 16-19 were exposed to traumatic events and 61.5% fulfilled the criteria for PTSD according to DSM-IV (Al-Hadethe *et al.*, 2014). As of December 31st, 2021 a total of 109.073 individuals from Iraq were living in Germany after having been granted asylum status with a number of 15.604 new applications throughout the year (Bundesamt für Migration und Flüchtlinge, 2022a, 2022b).

1.3.2 Refugees in the German Healthcare System

Because of the refugee crisis in 2015, the influx of Syrian and Iraqi refugees has been noticeable in the every-day work of not only psychiatric hospitals but also emergency departments and primary health care facilities throughout Germany (Schröder, Zok and Faulbaum, 2018). Emergency admissions were largely due to psychiatric illness and likely avoidable by adequate outpatient care and prevention (Bauhoff and Göpffarth, 2018; Borgschulte *et al.*, 2018; Schröder, Zok and Faulbaum, 2018). Almost all of these patients do not have sufficient German language skills to successfully navigate the healthcare system (Borgschulte *et al.*, 2018). While the German health system offered these patients hospital admission for crisis intervention, it has struggled to offer patient-centred clinical approaches to the specific needs if this population, probably due to the complexity of refugee cases (Bauhoff and Göpffarth, 2018). Such an approach needs to strike a balance between the necessary aspects of medical assessment (the doctor's

agenda) and providing space for the patient's suffering (the patient's agenda), which at times can differ substantially (Hashim, 2017).

1.3.3 The Transcultural Outpatient Clinic at the University Hospital Mainz

In 2015 the specialised transcultural outpatient clinic (Transkulturelle Ambulanz, TKA) opened its doors at the Department of Psychiatry and Psychotherapy of Mainz University Hospital offering culturally sensitive psychiatric assessment and treatment for migrants and refugees. Given the inherent challenges of transcultural psychiatric work such as different or unrealistic expectations of clients towards what psychotherapy would offer them, challenges grounded in different illness explanatory models, increased work-burden for caregivers and communication barriers and after the so-called refugee crisis in 2015 there emerged a need for a culturally-sensitive specialized sub-division of the psychiatric outpatient clinic (Psychiatrische Institutsambulanz, PIA) (Asfaw *et al.*, 2020). According to German law (§ 118 Abs. 2 SGB V) patients are eligible to receive treatment at the PIA if they fulfill certain criteria that align with their psychiatric diagnosis, the severity of the diagnosis and the duration of the illness (Bundesministerium der Justiz, 1988).

After the TKA started receiving patients in late 2015, its structure underwent several changes throughout the years. During the time the data sets of this study were gathered, the TKA-team comprised an Arabic-German speaking psychiatrist, a Farsi-German speaking psychologist, 2-3 assistant scientists working in parttime often with foreign language competencies, a supervisor consultant psychiatrist as well as an external supervisor with extensive experience in the transcultural psychiatry field and a social worker. Assessment and treatment by bilingual native Arabic and Farsi speakers was offered to migrants and refugees using a systematic, holistic approach considering e.g. family relations, official registration status, pre-migration vs. post-migration mental health and current living situation. For languages other than Arabic and Farsi, trained translators were invited. Help was offered in collaboration with key non-governmental organisations in the region, social workers, primary health practitioners and lawyers. This way the unnecessary medicalization of social problems could often be avoided.

All patients who reported trauma exposure in their home countries filled in a psychometric battery of questionnaires. As most of the patients did not speak German,

translations of the psychometric instruments were used as needed. Depending on the results of the psychometric assessment further clinical assessment of PTSD by a licensed psychiatrist or psychologist was performed. Among the translated instruments used to assess burden of psychiatric disease was a version of the Harvard Trauma Questionnaire according to the criteria of PTSD of DSM-5 (HTQ-5), that had previously been adapted and translated for purpose of use in the TKA. The process of adaptation and translation is described in detail in the methods section.

1.4 Synopsis and Study Aims

The conceptualization of PTSD is a progress that is far from finished, with both DSM and ICD still aiming at increasing concept validity in their upcoming editions. Although well-established diagnostic instruments, such as the CAPS are available, it requires a certain degree of experience on behalf of the practitioner to reliably diagnose PTSD, due to a wide overlap in symptomatology and frequent comorbidity with other psychiatric diseases. Furthermore, not only PTSD but also the very concept Trauma itself are subject to strong intercultural variations, making the conceptualization of PTSD even more challenging and putting both practitioners and researchers before the enormous difficulty to assess PTSD in patients coming from a cultural background other than their own. The HTQ provides a valuable tool to screen for PTSD symptoms in refugee populations from a variety of different cultural backgrounds. However, the updated version of the HTQ has not yet been translated and validated for patients from the Middle East.

In this study the English version of the HTQ-5 was adapted and translated into Arabic (Modern Standard Arabic). It was then included into the standard battery of questionnaires for Arabic patients seeking treatment into our Transcultural Outpatient Clinic (TKA). It was the aim of this study to demonstrate that this translated version of the modified HTQ shows both high sensitivity and specificity in screening for PTSD in a Middle Eastern Arabic-speaking refugee population.

2 Literature discussion

2.1 Refugee Mental Health

2.1.1 Overall Mental Health of Refugees

Traumatic stress is a well-established risk factor for the development of psychiatric illness and resulting functional impairment (Schick *et al.*, 2016). Existing scientific literature addressing mental disorders in refugees is heterogeneous due to methodological issues. Recent data indicate a huge disease burden in refugees due to mental health problems. A meta-analysis showed prevalence rates of anxiety disorders, depression and PTSD that are much higher than in non-refugee populations around the world. Prevalence rates of anxiety ranged between 13 and 42%, 30% and 40% for diagnosed and self-reported depression, and 29% and 37% for diagnosed and self-reported PTSD (Henkelmann *et al.*, 2020). Refugee children showed PTSD rates that are 15 times higher than peers who are born in Germany (Ruf *et al.*, 2010).

Preliminary evidence shows that psychological impairment in refugees is associated with high levels of post-migration living difficulties, and with poor social and economic integration (Schick *et al.*, 2016). Despite that, it is expected, and sometimes is even legally required of refugees to function in the host community. The process of social integration mandates learning a new language, the whereabouts of the social system and work to achieve financial independence. This process requires high functional requirements in terms of cognitive and interpersonal capabilities, which refugees with psychological impairments are often not able to meet, at least not without adequate psychosocial support (Schick *et al.*, 2016).

2.1.2 Traumatic Processes during Forced Migration

There are three major paradigms in looking at the traumatic process: the psychiatric paradigm that focuses on conceptualizing PTSD as consequence of a life-threatening event being mitigated by biological and behavioral predisposition, the psychoanalytic, and developmental paradigm that addressed the effects of abandonment, early childhood and betrayal traumas and the intergroup paradigm as evidenced in studying discrimination, genocide, torture and other politically motivated micro and macro aggressions (Freyd, 2007; McNally, 2007; van der Kolk *et al.*, 2007; Williams and

Mohammed, 2009; Pieterse *et al.*, 2012; Hirschberger, 2018; Horn and Feder, 2018; Villagran *et al.*, 2021). All three paradigms are important to consider when understanding the complexity of refugee mental health work. Often the focus is on the war-related traumata and other aspects of the human experience is not considered or explored. For example middle-eastern refugees in particular report intergroup identity trauma of oppression, torture or genocide (Gorst-Unsworth and Goldenberg, 1998a; Kira *et al.*, 2014). Many of them experienced individual traumatic adversities before leaving their own countries, during the transition into their host countries, upon arrival and during resettlement (Alpak *et al.*, 2015; Bauhoff and Göpffarth, 2018; Morina, Kuenburg, Schnyder, Richard A Bryant, *et al.*, 2018). Research showed that not only the premigration traumata are of relevance but also the experiences made during and after migration are vital; the post-migratory stressors contribute to a “triple burden of disease“ which only worsens the longer the asylum process lasts (Laban *et al.*, 2005; Gäbel *et al.*, 2006; Zipfel, Nikendei and Junne, 2016).

2.1.3 Trauma and PTSD in Refugee Populations

A study by the German public health insurance *Allgemeine Ortskrankenkasse* (AOK) has demonstrated that around one third of asylum seekers from Syria, Iraq and Afghanistan in Germany were exposed to several traumata and/or repeated violence (Schröder, Zok and Faulbaum, 2018).

A common presentation of psychological suffering in traumatised adult and adolescent refugees is acute suicidal ideations. An estimate of 40% of traumatised adult refugees and around one third of the refugee children and adolescents were found to be suicidal at least once (Neuner *et al.*, 2010; Ruf *et al.*, 2010). Suicidal ideation is a serious symptom of depression. In the refugee population depression and PTSD are common comorbidities as a result to torture and war experiences (Rathke *et al.*, 2020). It is estimated that as a result to such traumatic experiences 40-50% of asylum seekers living in Germany develop a psychiatric disorder with prevalence levels of PTSD above 20% (Richter *et al.*, 2018; Renner *et al.*, 2021).

Although war, oppression and torture-related traumatic events are the initial causes of refugees’ hardships, findings suggest that the day-to-day challenges and concerns in the country of resettlement, as well as the exposure to discrimination and isolation,

mediate psychological distress associated with the original traumas (Kira *et al.*, 2010; Rasmussen *et al.*, 2010). Furthermore Middle-Eastern refugees in particular suffer from increased rates of felt stigmatization due to mental illness in the receiving countries (Kira *et al.*, 2014). These post-migratory stressors are shown to contribute more to the level of psychopathology than the original hardships, with an increase of disease burden the longer the asylum process lasts (Laban *et al.*, 2005, 2008; Rasmussen *et al.*, 2010; Kira *et al.*, 2014)

Certain factors were found to perpetuate psychiatric disorders – including PTSD – such as loss of social networks and separation from family members (Laban *et al.*, 2005). Social factors in exile, such as language proficiency, social and economic adversity, fear of repatriation, and situation in the home country, appeared to be influential in the chronification of PTSD and other trauma-related disorders (Söndergaard, Ekblad and Theorell, 2001; Laban *et al.*, 2005; Richter *et al.*, 2018). Factors that were found protective against adverse psychological reactions were support within families and social groups, religious faith, and psychological preparation for torture (Horn and Feder, 2018; Abu Suhaiban, Grasser, and Javanbakht, 2019).

One challenge to the diagnosis of PTSD in refugees is the observation that many traumatised individuals show symptoms that qualify for diagnosis only later in life. A 3-year Follow-Up study performed in Norway has found that psychopathology in refugees tend to increase after resettlement (Lie, 2002; Richter *et al.*, 2018). This phenomenon has been described in the literature as delayed or late-onset PTSD (Frommberger, Frommberger and Maercker, 2020).

Another challenge is that somatization symptoms were found to be common in traumatised refugees with PTSD (Rohlof, Knipscheer and Kleber, 2014; Zbidat *et al.*, 2020). For example it was demonstrated that more than 80% of traumatised refugees relocated to Norway show simultaneous symptoms of PTSD and chronic pain (Teodorescu *et al.*, 2015). Another study of treatment-seeking traumatised refugees in Switzerland has concluded that refugee populations presenting to general health care settings with somatic and pain symptoms could in many cases be suffering an underlying PTSD (Morina, Kuenburg, Schnyder, Richard A Bryant, *et al.*, 2018).

2.1.4 Trauma and PTSD in Refugees from the Middle East

The Middle East is a loosely defined geographic region that encompasses Southwestern and Central Asia, and parts of the Caucasus, North Africa, and Southern Europe. In this research, we focus to the narrower definition of the Middle East, which includes Bahrain, Egypt, the Gaza Strip, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, Turkey, the United Arab Emirates, West Bank, and Yemen.

The Middle East has greatly contributed to the collective global cultural heritage, including poetry and music, religions and mythologies, natural sciences, and sophisticated handcrafts. Yet, the Middle East has been torn with ruthless wars, political instability, and armed conflicts (Palik *et al.*, 2020). Although Western media was in recent years largely preoccupied with the most prominent conflicts in Syria, Iraq and Afghanistan since they resulted in an unprecedented influx of refugees, in the year 2019 there were a total of 15 different armed conflicts all taking place in the Middle East – in 10 of these at least one party was a state, and in 5 of these both parties were organisations that did not enjoy statehood (Palik *et al.*, 2020) In addition to the known economic, political and societal impacts of war; civilians suffered a huge burden of psychological distress following frequent episodes of violence, intra- and inter-group conflicts (Schröder, Zok and Faulbaum, 2018).

Studying the effects of mass trauma in the Middle East is extremely challenging since the Middle East is remarkably heterogeneous. It encompasses large variety of cultures, political systems, ethnicities, and religious beliefs, which limits the cross-cultural applicability of the instruments used and the generalization of the findings. Hence a large proportion of research found on refugees from the Middle East is performed on refugees living abroad (Abu Suhaiban, Grasser, and Javanbakht, 2019). Due to contextual and societal factors, findings from studies performed in Europe and North America are difficult to generalize onto people still living in their home countries. For example, interviews conducted with the victims and survivors of torture revealed that in their original communities they did not feel alone in the crisis and that the tragedies that befell them were not only personal but also communal (Söndergaard, Ekblad and Theorell, 2001; Laban *et al.*, 2005). This form of family and social support is prominent among Middle Eastern populations and might serve as a partial protective factor

against the development PTSD (Horn and Feder, 2018). Psychological distress was found to be closely associated with the long-term effects of being uprooted (Alemi *et al.*, 2014b).

2.2 Challenges in Transcultural Trauma Research

As culture influences the way individuals respond to and recover from adversity, symptoms of psychological trauma vary across cultures (López *et al.*, 2017; Morina, Kuenburg, Schnyder, Richard A Bryant, *et al.*, 2018) . The cross-cultural validity of western developed psychiatric diagnostic categories has been widely discussed in the literature (Watters, 2001). Some authors argue that PTSD is an illness that existed even before it was described and coded in modern classifications (Stein and Rothbaum, 2018). Other researchers argue that PTSD is a culturally bound phenomenon that is quite new (Summerfield, 2001).

2.2.1 Appraisal of Trauma

Whether an experience is perceived and internalised as *traumatic* is governed by a variety of societal and cultural norms (López *et al.*, 2017). What trauma is, and what is an adequate response to trauma are increasingly seen as culture-specific constructs and subject to the way the relationship between individuals and their environment is represented in a specific culture (López *et al.*, 2017; Morina, Kuenburg, Schnyder, Richard A. Bryant, *et al.*, 2018; Zbidat *et al.*, 2020).

Furthermore, the integration of a traumatic experience into an individual's identity is thought to be influenced by the meaning associated with the traumatic event (Hruska and Barduhn, 2021; Kelley *et al.*, 2021). For example, exposure to war can be seen as a heroic act, as war veterans would rather speak of their experiences with pride than with horror (Skopp *et al.*, 2011; Adams *et al.*, 2019). To cast traumatic events of the past in the light of duty and heroism can render a person less likely to suffer from adverse psychological reactions because of these events, which for others might qualify as traumatic (Skopp *et al.*, 2011).

Studies show that symptoms following traumatic exposure in different cultural groups seem to be influenced by the meaning associated with the traumatic event (Schnyder *et al.*, 2016). For example, some earlier studies conducted with adult war-affected

populations in Palestine/Israel, Lebanon, Iraq and Syria have shown that in spite of reported massive war trauma and torture experiences by the study participants, the rates of PTSD were neither high nor universal (Gorst-Unsworth and Goldenberg, 1998b; Karam *et al.*, 1998; Söndergaard, Ekblad and Theorell, 2001; Laban *et al.*, 2005). Shoeb et al. have interpreted this finding in the light of the participants' cultural and religious background, since in these studies, almost all subjects were Muslims whose religious view on death as a fate divinely ordained helped them cope with guilt and loss (Shoeb, Weinstein and Mollica, 2007). Moreover, Muslims believe that God will avenge an injustice that befalls the faithful and patience in the face of hardship (Al-Sabr) is a virtue praised and encouraged by Islamic practice (Shoeb, Weinstein and Mollica, 2007). Experts have therefore advised against defining traumatic symptomatology and designing effective interventions without first challenging the concept of trauma and even expressed hope that looking at how culture impacts the definition and emotional salience of traumatic events will enrich the scientific understanding of the construct of trauma (Schnyder *et al.*, 2016).

2.2.2 Bias and Equivalence in Transcultural Research

A crucial aspect of cross-cultural studies is the question of whether psychometric test scores can be interpreted the same way across various cultural groups. Thus, for a psychological assessment instrument to be used among different cultures and sub-groups, many elements need to be considered. Two concepts that are central to this issue are bias and equivalence (van de Vijver and Leung, 2001; Lee and Jung, 2006; van de Vijver, 2013).

Bias is a generic term for all elements and factors threatening the validity and accuracy of cross-cultural comparisons; as van de Vijver and Leung pointed out, three types of bias can be identified (van de Vijver and Leung, 2001):

1. *Construct bias* occurs when the construct measured is not identical across cultural groups,
2. *Method bias* can result from instrument characteristics or the method of administration, sampling procedures, or different response styles

3. *Item bias* refers to anomalies at the item level, such as poor translations, inapplicability of an item in a specific culture or different psychological meaning across cultures.

To corroborate cross-cultural equivalence between two versions of a psychometric instrument, five dimensions of equivalence have been suggested (Flaherty *et al.*, 1988):

1. *Content equivalence* is the degree of relevance of content regarding each item of the instrument to the phenomena of the culture being studied.
2. *Semantic equivalence* refers to the degree that the meaning of each item is identical after being translated into the desired language or idiom.
3. *Technical Equivalence* means that the method of assessment (e.g. pencil and paper, interview, etc.) is comparable in each culture with respect to the data that it yields.
4. *Criterion equivalence* demands that the interpretation of the measurement of the variable remains the same when compared with the norm within the studied culture.
5. *Conceptual equivalence* holds that the instrument is measuring the same theoretical construct in each culture.

The assessment of the quality of adapted instruments must consider the methods that were used to ensure these types of equivalencies, as well as verify the psychometric properties of the instrument.

2.2.3 Adaptation and Translation

Adaptation specifies that the underlying concept and hypotheses of the culturally adapted questionnaire are those of the original questionnaire (Epstein, Santo and Guillemin, 2015). A 2004 methodological review of 47 instrument translation studies revealed that there was great variability in the methods used to translate and validate instruments used for cross-cultural research (Maneesriwongul and Dixon, 2004). This might be the result of a multitude of different guidelines and recommendations for the cross-cultural adaptation of instruments, of which however very few have been empirically investigated. A more recent cross-disciplinary review of cross-cultural adaptation guidelines identified 31 of them and found no consensus in their

methodology (Epstein, Santo and Guillemin, 2015). Most of the guidelines reviewed included the recommendation of using committees, focus groups, and back translations. Although currently there is limited empirical support for these guidelines, using strategies to help minimize bias remains unquestionably essential in cross-cultural measurement, since an adaptation process that is not carefully implemented may easily lead to invalid results (Epstein, Santo and Guillemin, 2015). Special importance must be given to the validation of the adapted questionnaire by means of proper statistical tools (Epstein, 2015).

2.2.4 The Harvard trauma Questionnaire-5

The Harvard Trauma Questionnaire (HTQ) was developed by Mollica and colleagues at the Harvard Program in Refugee Trauma (HPRT) and the Indochinese Psychiatry Clinic in Massachusetts after years of extensive research and clinical experience with refugee populations (Richard F. Mollica *et al.*, 1992). It was adapted and validated originally for the Indochinese refugee populations due to the need for culturally sensitive instruments for trauma assessment in this population (R. F. Mollica *et al.*, 1992; Mollica, 2004). The HTQ originally followed the format of the Indochinese versions of the Hopkins Symptom Checklist-25, which is an instrument targeting anxiety and depression severity (Mollica *et al.*, 1987). When developing the HTQ, it was a main goal to provide a cross-cultural, clinician-administered instrument to assess trauma related to torture and mass violence (R. F. Mollica *et al.*, 1992). Evidence of good reliability of the original HTQ, comprising 16 items of PTSD criteria according to DSM and 14 culture specific Indochinese cultural items, was demonstrated, including interrater reliability (k = .98), test-retest reliability (r = .92), and internal consistency (Cronbach α = .96) (R. F. Mollica *et al.*, 1992). With respect to the DSM-III-R PTSD diagnosis based on semi- structured clinical interviews, sensitivity was found to be 78% and the specificity was 65% for the first 16 HTQ items; when the 14 culturally specific symptom items were added, the sensitivity remained the same, whereas the specificity increased to 72% (R. F. Mollica *et al.*, 1992). The inclusion of the cultural symptoms thus improved the ability of the scale in accurately detecting PTSD. Later, the HTQ was taken from its use in refugee populations to assess non-refugees (e.g., Silove et al., 2007). While the first versions of the HTQ were validated among three Indochinese refugee populations: Cambodian, Vietnamese, and Lao, the

HTQ was the first cross-cultural trauma assessment instrument and has been validated among various cultural and linguistic groups (Shoeb, Weinstein and Mollica, 2007).

Today, the HTQ is one of the most widely used screening tools for PTSD worldwide, when it comes to clinical work as well as research in refugee population (Sigvardsdotter *et al.*, 2016). The HTQ is relatively brief, easy to administer and score, easy to adapt and translate for different refugee populations and has been well received amongst bicultural professionals and refugee communities; it has been of use in settings where mental health professionals were scarce and in circumstances where large groups have suffered trauma, providing guidance to direct resources to those who require more comprehensive diagnostic assessments (Shoeb, Weinstein and Mollica, 2007; Rizkalla and Segal, 2018; Berthold *et al.*, 2019a).

However its developers warned early on against simply translating the HTQ into other languages in order to administer them to traumatized individuals (Berthold *et al.*, 2019a). What they recommended was a rigorous process of adaptation and revision specific for each distinct cultural group supported by in-depth knowledge of the culture, relevant life events of those who would complete the HTQ and symptoms that might be culture specific (R. F. Mollica *et al.*, 1992; Shoeb, Weinstein and Mollica, 2007; Berthold *et al.*, 2019a). The HTQ manual provides clinicians and researchers detailed evidence-based methods to the cross-cultural adaptation of the questionnaire according to specific cultural circumstances (Mollica, 2004). As part of this process, it was recommended the formation of a panel of experts and gathering qualitative information on cultural expressions of distress, translating the HTQ's items accordingly to then evaluate them for cross-cultural equivalency (Shoeb, Weinstein and Mollica, 2007; Berthold *et al.*, 2019a). The five dimensions of equivalence as described by Flaherty et al. in 1988 (i.e. content, semantic, technical, criterion and conceptual equivalence) were emphasized with particular importance (Flaherty *et al.*, 1988).

Most versions of the HTQ distinguish four general sections while others may vary between different versions of the HTQ. Variations of the content and number of items within each section can vary across versions to suit cultural differences.

Part 1 entails items describing a spectrum of traumatic experiences like "combat situation" or "forced separation from family members" asking the participant to indicate

their level of exposure to the trauma by choosing one of four possible answers regarding each different item: (a) experienced, (b) witnessed, (c) heard about, and (d) no.

Part 2 includes two open-ended questions regarding the subjective experience of the respondent's most traumatizing event.

Part 3 inquires about simultaneous events that might have directly or indirectly caused brain damage, such as head injury or suffocation.

Part 4 assesses symptoms of posttraumatic stress and refugee-specific expressions of functional distress.

Of the items of Part 4, the first 16 items in every version of the HTQ have been originally derived from the DSM-III-R and -IV criteria of PTSD (American Psychiatric Association, 1994). Hence the extensive modification of the diagnostic criteria for PTSD in the DSM-5 has necessitated the modification of Part 4 of the HTQ (American Psychiatric Association, 2013; Berthold *et al.*, 2019a). The main updates that were undertaken in 2019 by Berthold and colleagues were the addition of nine new items including two dissociative specifiers (items 17-25) and the modification of the culture-specific-functioning (formerly called the refugee-specific-functioning section) including six functioning domains, abbreviated as SPIESS: skills & talents, physical functioning, intellectual functioning, emotional functioning, social relationships, and spiritual/existential concerns (Berthold *et al.*, 2019a).

Despite this update, the previous version (HTQ-4) is still being used in Arabic speaking populations for lack of an Arabic version of the updated HTQ-5 (Karnouk *et al.*, 2021). It is to be expected that this outdated version of the HTQ will not yield a PTSD diagnosis compatible with the DSM-5, imposing limits to the ability of clinicians and researchers to screen for PTSD in refugee populations consistent with the new diagnostic criteria.

3 Methods

3.1 Ethics

The ethics approval to conduct this study was obtained from the ethical committee in Rheinland-Pfalz (Antragsnummer: 2021-15656 retrospektiv). The study took place in accordance with the declaration of Helsinki (World Medical Association, 2013).

3.2 Adaptation and Translation of the Harvard Trauma Questionnaire

The HTQ is an instrument designed to evaluate the impact of trauma, torture in different cultural contexts (Richard F. Mollica *et al.*, 1992). The process of adaptation and translation of the updated HTQ-5 (Berthold *et al.*, 2019b) was established in accordance with the author's recommendations (Mollica et al., 2004) and guided by the methodology described by van de Vijver and Flaherty regarding bias and equivalence (Flaherty *et al.*, 1988; van de Vijver, 2013)

3.2.1 Adaptation

A multilingual group of experts in the field of traumatic stress and refugee mental health was established to assess the content validity of the instrument. The group consisted of five healthcare professionals. Of these, four were medical doctors, two of which were board certified psychiatrists and two had extensive experience in dealing with mental health in refugee populations. One member of the group was an expert on public health in the field of trauma research. Two members of the group were women. Three members of the group were native Arabic speakers with cultural backgrounds in Syria, Palestine, and Egypt. All members of the group had fluency in English and German. This group went through the individual items of the original English Questionnaire and assessed for linguistic and cultural equivalence. Changes were made when deemed necessary.

3.2.2 Translation

The culturally adapted version of the HTQ-5 was translated from English into Arabic. One translation was by an outside professional translator. The other was by a native Arabic speaker and a medical professional, experienced in work with refugees. Both

translations were then merged into one. The two original translations were then back-translated into English by two independent translators. These backtranslations were discussed by the expert panel and informed alterations to the final translated version.

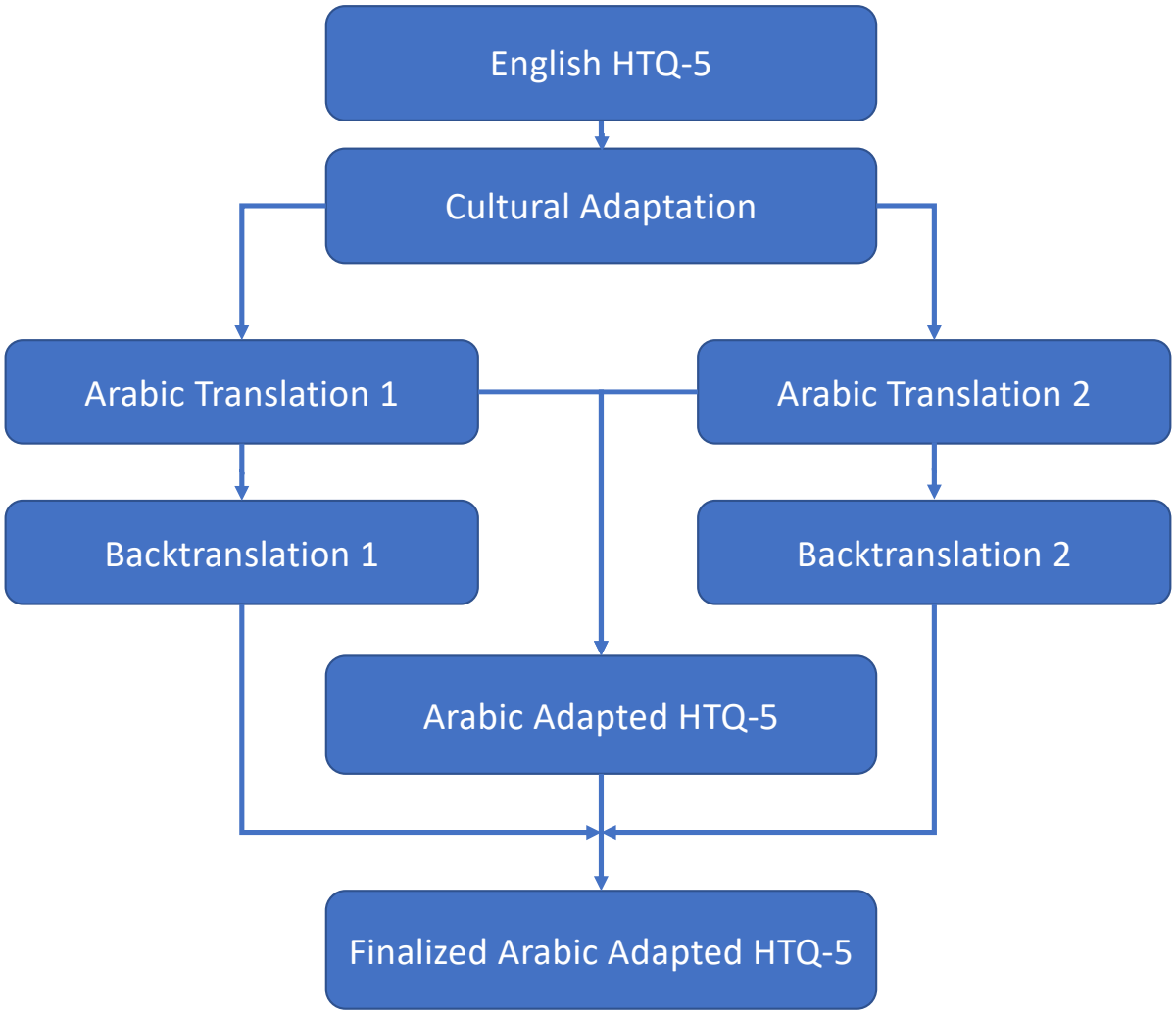

Figure 1: The Adaptation and Translation Process

3.3 Other Psychometric Instruments

3.3.1 Demographic data

General demographic data, such as gender, marital status and level of education were collected using a general demographic questionnaire designed for the work in the transcultural outpatient clinic.

3.3.2 Beck Depression Inventory (BDI-II)

Patients completed the self-rated Beck Depression Inventory-II (BDI-II; Beck, Steer & Brown, 1996) questionnaire in Arabic language. The BDI-II is an improved revision of the original BDI, one of the most widely used self-report instruments to measure depression severity (Richter *et al.*, 1998; Jackson-Koku, 2016). Numerous studies provide evidence for its reliability and validity across different populations and cultural groups. It has also been used in numerous treatment outcome studies and in numerous studies with trauma-exposed individuals. Each of the 21 items is being scored on a four-point scale from 0 to 3 with higher scores indicating more severe symptoms. The sum total of these items indicates global depression severity (Jackson-Koku, 2016).

3.3.3 Patient Health Questionnaire- 9 (PHQ-9)

Patients completed the self-rated Patient Health Questionnaire in Arabic as a screening instrument (Sawaya *et al.*, 2016). The PHQ-9 is a 9-question instrument and part of the Patient Health Questionnaire (PHQ) screening and assessing the presence and severity of depression. Responses for each of the nine items are given on a four point scale ranging from ‘0’ (*Not at all*) to ‘3’ (*Nearly every day*) (Kroenke, Spitzer and Williams, 2001).

3.3.4 Brief Resilience Scale (BRS)

Patients completed the self-rated questionnaire Brief Resilience Scale at the baseline visit. The brief resilience scale (BRS) was created to assess the ability to recover from stressful events or life circumstance (Smith *et al.*, 2008). The BRS consists of six items on a five-point Likert Scale with responses varying from 1 (’strongly disagree’) to 5 (‘strongly agree’). The sum of the item scores is divided by the number of questions answered to assess the participant’s resilience. A score from 1.00-2.99 indicates low resilience, 3.00-4.30 indicates normal resilience, 4.31-5.00 indicates high resilience.

3.3.5 The Clinician-Administered PTSD Scale (CAPS) for DSM 5

The Clinician-Administered PTSD Scale (CAPS) is a widely used structured diagnostic interview for posttraumatic stress disorder (PTSD). Following fundamental modifications in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), the CAPS was revised (Weathers *et al.*, 2018; Marx *et al.*, 2022). It has become the Gold Standard in the diagnosis of PTSD (U.S. Department of Veteran

Affairs, 2022). The CAPS-5 is a 30-item structured interview designed to enable a categorical PTSD diagnosis, as well as to provide a measure of PTSD symptom severity (Weathers *et al.*, 2018; Marx *et al.*, 2022). The structure of the interview corresponds to the DSM-5 criteria, with section A representing the traumatic event and sections B, C, D and E measuring symptoms rated for both frequency and intensity. Each item offers a rating on a five-point scale ranging from 0 (*symptom is absent*) to 4 (*symptom is extreme/incapacitating*). The scores of the single items are summed to provide severity ratings. Especially the CAPS-5 provides a metric for the overall severity of trauma. In addition to assessing the 20 *DSM-5* PTSD symptoms, questions target the onset and duration of symptoms, subjective distress, impact of symptoms on social and occupational functioning, improvement in symptoms since a previous CAPS administration, overall response validity, overall PTSD severity, and specifications for the dissociative subtype (depersonalization and derealization)(Weathers *et al.*, 2018; U.S. Department of Veteran Affairs, 2022).

3.4 Participants

We conducted a systemwide search of all patient entries in the electronic documentation system (SAP, Walldorf, Baden-Württemberg, Germany) of the TKA in the period between January 2016 and January 2020. Inclusion criteria were patient age 18 – 65 years, Arabic as mother tongue and lifetime exposition to armed conflict. Exclusion criteria were preexisting psychotic, neurodevelopmental or neurodegenerative disorders as well as incomplete datasets.

3.5 Data Acquisition

The adapted HTQ-5 was included into a battery of psychometric scales along with the BDI-II, PHQ-9, and BRS. This battery was handed out to all patients of the TKA. With each patient a CAPS-5 interview was conducted during one of the first sessions. The interview lasted 45-60 minutes and was led by a board-certified psychiatrist. To uphold rater blindness, the test battery including the adapted HTQ-5 was only handed out after completion of the CAPS-5 session. Data was gathered retrospectively from patient datasets, which had previously been identified according.

3.6 Data Analysis

All statistical analyses were conducted using IBM SPSS Statistics version 26 (International Business Machines Corporation, Armonk, NY/USA 2018).

3.6.1 The Receiver Operating Characteristic (ROC) curve

The receiver operating characteristic (ROC) curve has been established as a statistic method to determine sensitivity and specificity of a binary classifier system at different discrimination thresholds (Park, Goo and Jo, 2004). The ROC curve is created by plotting sensitivity, or true positive rate (TPR), against 1 – specificity, the false positive rate (FPR) at various threshold settings (Mandrekar, 2010).

The Area Under the Curve (AUC) of the ROC is a measure of the ability of the underlying classifier – in our case the adapted HTQ-5 – to discriminate between positives and negatives, with an AUC of 1 indicating a perfect performance and an AUC of 0 being equivalent of testing all negatives as positives, and all positives as negatives. When $0.5 < AUC < 1$, there is a higher than 50% chance that the classifier will distinguish the positives from the negatives (Mandrekar, 2010).

4 Results

4.1 Adaptation and Translation of the Harvard Trauma Questionnaire (HTQ) -5

4.1.1 Adaptation

The expert group validated the complete HTQ-5. In Part 1, two items were modified to reflect the Syrian war context:

- In item number 2 instead of *lack of water*, we added *lack of drinkable water,* as it was often reported by Syrian refugees that – as a method of persecution – they were exclusively offered unclean water to drink.
- In item 5 relevant examples for combat situations were added (such as explosions due to air strikes and mines).

In the novel Part 4 DSM-5 PTSD subscale, the expert panel agreed to keep the 25 items in a question format unlike the English version which was in sentence format. It was the expert panels experience with clinical assessment in the Arabic language that this makes the content easier to grasp for patients and comes with more natural responses.

No alterations were made in the items of culture specific functioning in the domains of Skills, Physical, Intellectual, Emotional, Social, and Spiritual/Existential functioning (SPIESS).

4.1.2 Translation

When deciding for the final translation, the expert group decided to replace the Arabic word for *Trauma* (صدمة, 'sadma') with the Arabic word for Traumatic Event (حدث صادم, 'hadath sadim'), because in the Arab culture the traumatic experience is seen as part of a person's fate (قدر, 'qadar'). Referring to traumatic events as *Trauma* might be misleading and could result in the respondent falsely interpreting and responding to the question.

4.2 Datasets

4.2.1 Acquisition

A search of all patient entries in the electronic documentation system of the TKA in the period between January 2016 and January 2020 yielded 91 results. For technical limitations of the electronic documentation system, these 91 results do not reflect the total number of patients who received treatment in the TKA during this period but give a fairly accurate coverage over those who came to seek out therapy on a regular basis. Of these 91 total patients, 36 Farsi-speaking patients were excluded, with 55 Arabic-speaking patients remaining. Of these 55 patient datasets, 37 met inclusion criteria as 7 were suffering from psychotic disorders, 9 provided only incomplete datasets and 2 had no direct exposure to armed conflict. The process of dataset acquisition is illustrated in Figure 2.

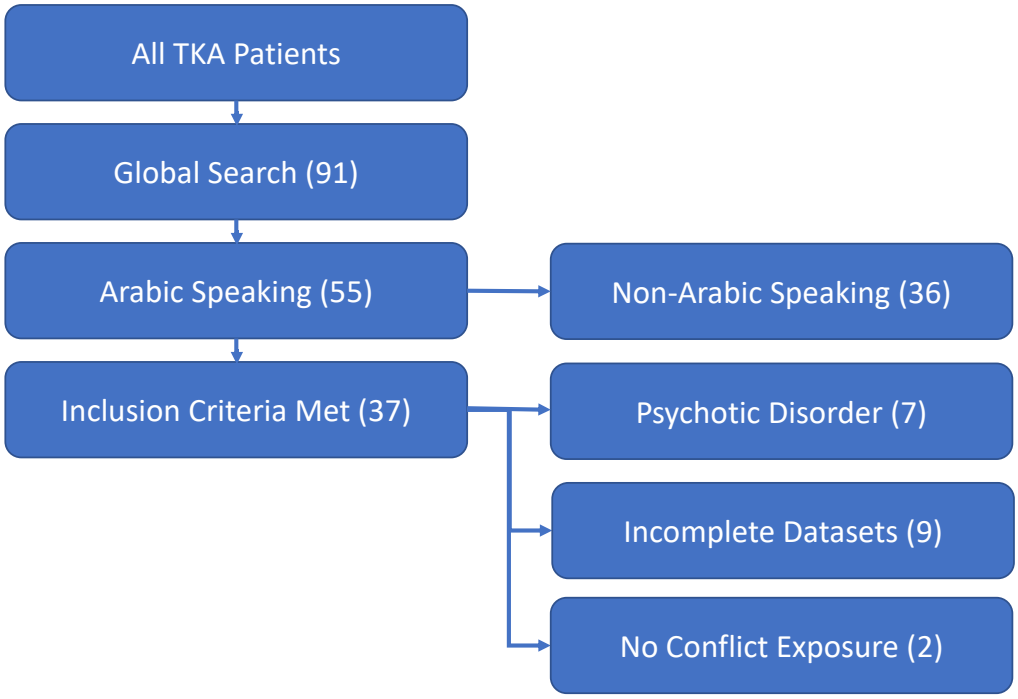

Figure 2: Acquisition of Datasets

4.2.2 Demographic Data

Of these 37 data sets, 18 belonged to patients that – according to the gold standard for diagnosing PTSD, the CAPS-5 interview – suffered from PTSD at the time of assessment and 19 did not meet criteria for PTSD diagnosis. Difference in demographic data is summarized in Table 1. A Pearson-Chi^2 test was performed to detect confounding demographic difference between PTSD and non-PTSD groups regarding qualitative parameters (gender, education, marital status) and Mann-Whitney U test for age and trauma severity according to the CAPS-5 interview. Demographic data showed no significant differences between PTSD and non-PTSD groups apart from trauma severity.

Table 2: Demographic data for non-PTSD and PTSD groups.

	Non-PTSD n = 19	**PTSD** n = 18	**p-value**
Age			.394
- Mean (SD)	38.11 (12.84)	29.06 (8.40)	
- Median	33	28.50	
Trauma Severity			<.001
- Mean (SD)	15 (10.33)	34.39 (10.34)	
Gender			.419
- Female	7 (36.8%)	9 (50%)	
- Male	12 (63.2%)	9 (50%)	
Education			.154
- None	1 (5.3%)	0	
- Primary school	3 (15.8%)	0	
- Preparatory School	1 (5.3%)	3 (16.7%)	
- high school	7 (36.8%)	4 (22.2%)	
- university	7 (36.8%)	11 (61.1%)	
Marital Status			.858
- Single	8 (42.1%)	6 (33.3%)	
- Married	10 (52.6%)	11 (61.1%)	
- Widowed	1 (5.3%)	1 (5.6%)	

4.3 Receiver Operating Classifier (ROC)

The Receiver Operating Classifier (ROC) curve of the adapted and translated HTQ-5 is depicted in Figure 3 as the blue graph, with the green diagonal representing a theoretical comparison classifier relying on a distribution by chance. The x-axis represents 1 – specificity, i.e. the rate of false positively classify non-PTSD patients into the PTSD-group. The y-axis represents the adapted and translated HTQ-5's sensitivity, i.e. the rate to correctly identify those patients who do suffer from PTSD.

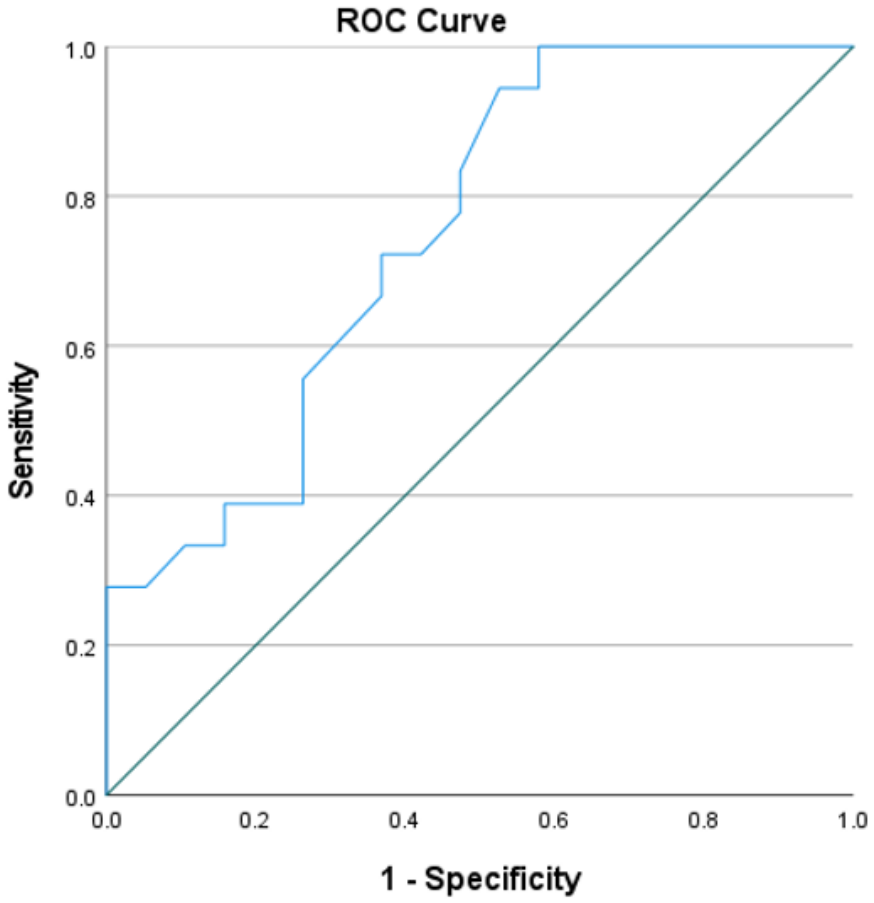

Figure 3: ROC Curve. The blue curve represents the Receiver Operating Classifier (ROC), whereas the green diagonal represents a classifier of a distribution by chance.

4.3.1 Area Under the Curve (AUC)

The Area under the the ROC curve was 0.75, denominating the overall power of the adapted and translated HTQ-5 to correctly classify both PTSD and non-PTSD patients into their respective groups.

4.3.2 Cut-Off

Mean HTQ-5 scores were calculated separately for the PTSD group (N=18) and the non-PTSD Group (N=19). The mean scores were 2.5 and 2.0 respectively. Giving preference to high sensitivity a cut-off of 2.0 was chosen to differentiate between groups. Sensitivity and specificity of the adapted and translated HTQ-5 for different cut-off values are illustrated in Figure 4 and listed in Table 3.

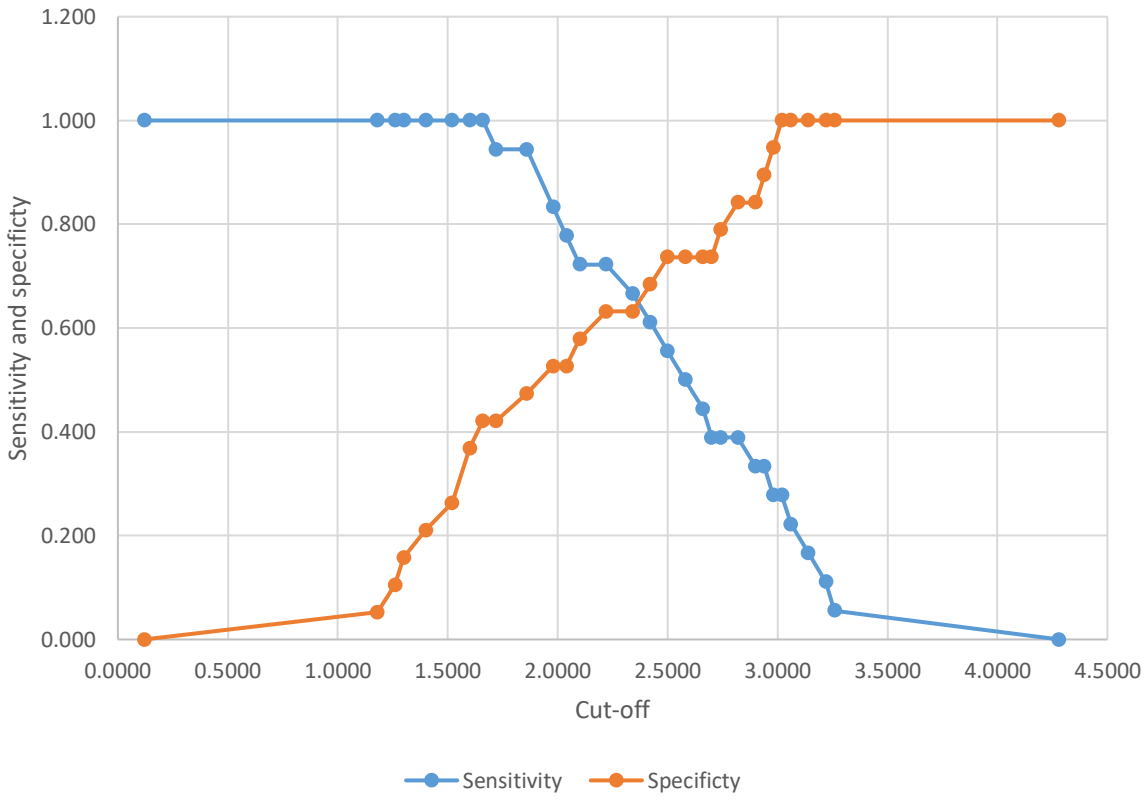

Figure 4: Sensitivity and Specificity. Plots of both sensitivity (blue) and specificity (red) of the adapted and translated Arabic HTQ-5 against possible cut-off values.

After choosing a cut-off of 2.0, the sensitivity of the HTQ was found to be 83.3% i.e. 15 out of 18 patients with PTSD were correctly classified into the PTSD group. Specificity was found to be 52.6% i.e. 10 out of 19 patients without PTSD were correctly classified into the non-PTSD group. The predictive value of the positive test was 62.6%, the predictive value of the negative test was 77%.

Table 3: HTQ-5 Specificity and Sensitivity for Cut-Off-Points

Cut-off points	Sensitivity	Specificity
0.1200	1.000	0.000
1.1800	1.000	0.053
1.2600	1.000	0.105
1.3000	1.000	0.158
1.4000	1.000	0.211
1.5200	1.000	0.263
1.6000	1.000	0.368
1.6600	1.000	0.421
1.7200	0.944	0.421
1.8600	0.944	0.474
1.9800	0.833	0.526
2.0400	0.778	0.526
2.1000	0.722	0.579
2.2200	0.722	0.632
2.3400	0.667	0.632
2.4200	0.611	0.684
2.5000	0.556	0.737
2.5800	0.500	0.737
2.6600	0.444	0.737
2.7000	0.389	0.737
2.7400	0.389	0.789
2.8200	0.389	0.842
2.9000	0.333	0.842
2.9400	0.333	0.895
2.9800	0.278	0.947
3.0200	0.278	1.000
3.0600	0.222	1.000
3.1400	0.167	1.000
3.2200	0.111	1.000
3.2600	0.056	1.000
4.2800	0.000	1.000

4.4 **Psychometric data**

4.4.1 Beck Depression Inventory (BDI-II)

Depressive symptoms between groups were assessed using the BDI-II. A Mann-Whitney Test revealed significantly higher load of depressive symptoms in the PTSD

group (mean = 27.83, SD = 11.99) than in the non-PTSD group (mean = 17.68, SD = 12.45, p = .023).

4.4.2 Patient Health Questionnaire- 9 (PHQ-9)

In addition to the BDI-II, depressive symptoms between groups were assessed using the PHQ-9. A Mann-Whitney Test revealed higher burden of disease in the PTSD group (mean = 18.56, SD = 5.23) than in the non-PTSD group (mean = 13.68, SD = 7.75) without findings to reach significance threshold (p = .051).

4.4.3 Brief Resilience Scale (BRS)

Group differences in general resilience were assessed using the BRS. A Mann-Whitney Test revealed no difference between PTSD group (mean = 3,20, SD = 0,52) than in the non-PTSD group (mean = 3,12, SD = 0.47, p = .794).

5 Discussion

To the author's best knowledge, this study created the first transculturally adapted Arabic translation of the latest version of HTQ-5, after the HTQ-4 has been modified in accordance with DSM-5 diagnostic criteria of PTSD. The HTQ, which was originally designed to provide a fast and reliable tool to screen for PTSD in low-resource settings, offers a valuable asset for clinicians' everyday work with refugees from Arabic speaking countries (Shoeb, Weinstein and Mollica, 2007; Berthold *et al.*, 2019a). Because of the high prevalence of trauma in Arabic-speaking refugees fleeing conflict in the Middle East, it is especially desirable to equip medical practitioners with an Arabic version of the instrument.

5.1 Study sample

5.1.1 Prevalance of PTSD

Of the 37 datasets included in this study a total of 18 patients was found to suffer from PTSD as assessed during an interview with an experienced clinician using the CAPS-5. There was found to be significant overlap between the PTSD-group and those who reported depressive symptoms, confirming the known phenomenon of high rates of comorbidity between these pathologies (Dai *et al.*, 2017; Henkelmann *et al.*, 2020). With all 37 patients of the final sample having experienced wartime and, in some cases, additional other trauma, roughly half did meet the criteria for PTSD, while the other half (19 of 37) did not. These findings align both with reports of high prevalence of trauma in refugees as well as observations that PTSD as a consequence of trauma is far from inevitable (Qi, Gevonden and Shalev, 2016).

5.1.2 Demographics

Among the analyzed datasets there were no significant demographic differences between the PTSD group and the non-PTSD group. Therefore, the demographical factors age, gender, education, and marital status could be safely assumed not to have had a relevant confounding effect on the statistical findings of this study. This is of particular interest especially for the factors gender, age, marital status, and education, which have oftentimes been implicated as mitigating the likelihood and severity of PTSD after trauma.

In this study sample, the overall median age of patients was 31 years, reflecting that most participants came to Germany as young adults and during the refugee movements that have been sparked by the political instabilities in the Middle East in the years 2011-2015. Testing revealed no statistically relevant age difference between groups ($p = .394$).

Because of the higher overall rate of PTSD among women and the mitigating effect of gender on the type of trauma especially during forced migration, a higher representation of women in one of the two study groups could have had a major confounding influence on the results (Freedman, Jamal, and Euro-Mediterranean Human Rights Network, 2008b; Farhood, Fares and Hamady, 2018b; Abu Suhaiban, Grasser, and Javanbakht, 2019). It thus speaks to the robustness of the data obtained that the distribution of gender in this study was nearly balanced in the overall data sets (16 female patients out of a total 37) and within both groups (9 of 18 among patients with PTSD, 8 of 19 among patients without PTSD). Unsurprisingly, statistical testing for gender distribution among both study groups (PTSD vs. non-PTSD) yielded no difference ($p = .419$).

In this study the level of education was measured using a semi-quantitative 5-point scale and as well revealed no statistically relevant difference between PTSD and non-PTSD group ($p = .154$). Whether or not education has a protective or predisposing effect on the development of PTSD, it is safe to assume that such effects did not affect the results of this investigation (Porter and Haslam, 2005; Hatch and Dohrenwend, 2007; Benjet *et al.*, 2016).

With family support and marriage being a major protective factor towards trauma and PTSD, in this study marital status was similar in both groups ($p = .858$) (Roberts *et al.*, 2008; Benjet *et al.*, 2016; Koenen *et al.*, 2017; Brooks *et al.*, 2022).

There was however, a highly significant difference in trauma severity between groups with the PTSD group having experienced a higher degree of trauma severity. This finding is not surprising, as trauma severity increases risk for development of PTSD (Horn and Feder, 2018; Abu Suhaiban, Grasser, and Javanbakht, 2019). It has to be noted though, that the mean trauma severity of the non-PTSD group was 15 of a maximum of 80, which still indicates the presence of traumatic experience, reflecting

that this study was conducted in a population with high trauma exposure (Weathers *et al.*, 2018; Marx *et al.*, 2022).

5.1.3 Depression

In this study, the sample of patients with PTSD was suffering from a high burden of depressive symptoms as found in elevated scores in the BDI-II and PHQ-9 when compared to the non-PTSD group. This finding is due to a high rate of comorbidity on one hand and overlap in diagnostic criteria on the other (Flory and Yehuda, 2015). This issue is to be discussed further in the limitations section.

5.2 Main Findings

The goal of this study was to create and validate an adapted and translated version of the modified version of the HTQ-4 (here: HTQ-5) for use in populations of refugees from the Arabic speaking countries of the Middle East. Datasets of patients who had previously filled out the adapted and translated HTQ-5 were obtained from the electronic documentation system of the transcultural outpatient clinic (TKA) of University Hospital Mainz and rating scores compared to results of their respective CAPS-5 interviews.

Plotting the rates of true positives against the rates of false positives in a Receiver Operating Characteristic (ROC) curve provided a measure of performance of the HTQ-5 to identify those Arabic speaking refugee patients, who were previously diagnosed with PTSD by an expert clinician during a CAPS-5 structured interview. The Area under the Curve (AUC) of the ROC curve was calculated and yielded an AUC of .750, which suggests a high overall performance of the adapted and translated HTQ-5 as a classifier.

When choosing a cut-off value for discrimination of a binary classifier, a higher sensitivity comes with lower specificity and vice versa (Park, Goo and Jo, 2004). Therefore, in order to maximize both sensitivity and specificity of the instrument, a balance needs to be struck to achieve good outcomes for each without disregarding the other. Based on the data obtained, this study proposes a threshold value of 2.0 to yield an estimated sensitivity of 83.3% and an estimated specificity of 52.6%. This is comparable with the cut-off values of other versions of the HTQ, as e.g. the HTQ-R for

Bosnia and Herzegovina has been found to yield optimal classification at a cut-off value of 2.06, an Italian version of the first 16 items of the HTQ-IV used a cut-off value of 2.0 and the preliminary cut-off value suggested for the English HTQ-5 is 2.5 (Berthold *et al.*, 2019a; Pino *et al.*, 2021). However it is recommended that any cut-off is also verified in community-based non-clinical samples (Berthold *et al.*, 2019a).

5.3 Other adaptation studies of the HTQ

In comparison to the performance of the Arabic version of the HTQ-5, other validation studies found similar results. A study on 52 French-speaking torture survivors, originally from sub-Saharan African countries, found an ROC-AUC of .830 using a French version of the HTQ-R and comparing results to SKID-IV interview (de Fouchier *et al.*, 2012a). Equally an ROC-AUC of .830 was found in an investigation using a Tibetan version of the HTQ-III to screen for PTSD in 57 Tibetan survivors of torture and human rights living in the New York City area when checked against PTSD diagnosis established by a specialist consultation according to DSM-IV (Lhewa *et al.*, 2007a). A study conducted on 281 survivors of the 2016 earthquake in Italy – a very different study sample in terms of culture and type of trauma – using an Italian version limited to the first 16 items of the older HTQ-IV reported an ROC-AUC of .951, when comparing results to CAPS-IV interview (Pino *et al.*, 2021).

While the HTQ has been transferred into a multitude of different languages, these adaptations regularly outdate when the consensus on the diagnostic criteria of PTSD change; a circumstance that is reflected in even recent studies using versions of the HTQ based on criteria of DSM-IV or older (Basheti *et al.*, 2019; Pino *et al.*, 2021). Therefore, it is of special importance to notice that in this study, the latest criteria of the DSM-5 were used.

5.4 Strengths of this study

Because of the caveats inherent to the process of transferring a diagnostic tool to another language and cultural group, special care is to be given to the adaptation as well as translation and a solid validation of the finished product is critical (Flaherty *et al.*, 1988; van de Vijver, 2013; Epstein, Santo and Guillemin, 2015). In our study, we closely paid attention to the recommendations that have been given by the creators of the HTQ for the adaptation and translation process, as well as the general

recommendations for intercultural transfer of any diagnostic instrument including special attention towards bias and equivalence (Flaherty *et al.*, 1988; R. F. Mollica *et al.*, 1992; Shoeb, Weinstein and Mollica, 2007; van de Vijver, 2013; Epstein, Santo and Guillemin, 2015; Berthold *et al.*, 2019a). Following these recommendations, the process of adaptation was overseen by a panel of experts, who had to unanimously decide on each change being made. Within this panel three of five members were Arabic native speakers with intimate knowledge of Middle Eastern culture due to their own personal backgrounds from Syria, Palestine, and Egypt. Although the importance of back-translations has been put into doubt and the most common translation procedure used is the simple forward translation, back-translation is still a widely recommended feature when it comes to cross-cultural adaptation (Sperber, 2004; Epstein, Santo and Guillemin, 2015). In this study, we used two independent translators for back-translation, which largely improved the quality of our adaptation, as the comparison between both back-translations led to the adjustment of one central item, that otherwise might have been misunderstood.

Another strength of this study is derived from the sample population, which represents a real-life, naturalistic sample of data from participants from diverse walks of life, a broad range of socio-economic status (as reflected in different levels of education), and with genders equally represented.

By handing out the adapted HTQ-5 only after the psychometric interview for verifying PTSD symptomatology was finished, we ensured rater blindness and excluded this as a source of confound.

5.5 Limitations of this Study

Since our study was exclusively conducted at Mainz University Hospital, it remains to be proven, that our results can be replicated in different samples at other centers. Due to the diversity of our study sample, we however would not expect results to be fundamentally different in other locations. Nevertheless, a validation study at another site and in a non-clinical sample would be desirable.

The number of datasets included in our study was limited to those of 37 patients. We originally aimed to obtain a total of 50 complete datasets. Due to their uncertain living conditions, an exceptionally high number of patients of the TKA dropped out before

they completed initial psychometric assessment, resulting in a high number of incomplete datasets.

Furthermore, the significantly elevated load of depressive symptoms in the PTSD group is a possible confounding factor. It might be argued that the adapted and translated HTQ-5 presented in this study does not so much serve as a classifier for PTSD but depressive symptoms. Regarding the high degree of diligence of the translation process, a loss of the well-established concept validity of the English HTQ seems very unlikely, especially since in the adaptation process, there were no changes made to the symptom checklist in Part 4 of the HTQ-5 (Shoeb, Weinstein and Mollica, 2007; Berthold *et al.*, 2019a). Subgroup analyses of subgroups both with high and low depressive symptom load could offer the possibility to investigate this issue further. This would however necessitate a larger sample size.

Because of the retrospective nature of the study as well as the expected difficulties to gather complete data sets, both the HTQ-5 as well as the CAPS-5 have been taken each only once. There was no follow-up. Therefore, in this study the diagnosis of PTSD was not confirmed by a second assessment but relied on one CAPS-interview alone. Also, this study does not provide the data to assess retest reliability of the adapted and translated HTQ-5 or the stability of its findings in individuals. Inter-rater and test-retest reliability will need to be investigated in future studies.

5.6 Summary

Although the majority of human beings are exposed to Trauma at a certain point of their lifetime, the way people react to and deal with traumatic stress varies laregly depending on their culture. (Kessler *et al.*, 2017) Western-developed psychiatric assessment tools may fail to capture local idioms of distress and/or culturally relevant aspects of suffering and resilience in non-western communities. (Patel and Hall, 2021) With the increased need for trauma-informed services in the wake the so-called refugee crises during the years 2015 and 2016 an efficient screening tool that is specific for symptoms of posttraumatic stress in Arabic-speaking refugees from the Middle East is direly needed. The process of cross-cultural adaptation and translation of a diagnostic instrument requires a high level of diligence because even minor inaccuracies can lead to participants misunderstanding singular items or even the

entire instrument, resulting in drastically reduced validity (Flaherty *et al.*, 1988; van de Vijver and Leung, 2001; Epstein, Santo and Guillemin, 2015).

In this study, special consideration was given to follow pre-established guidelines to cross-cultural validation as well as the HTQ's creator's own recommendations during the adaptation and translation process (R. F. Mollica *et al.*, 1992; Shoeb, Weinstein and Mollica, 2007). This included setting up a panel of professionals who are experts in the relevant fields of mental health in general as well as trauma in particular, in epidemiological research and Middle Eastern societies, as well as the Arabic language. Furthermore, the quality of the translation of the instrument was counterchecked by obtaining two independent back-translations, which were subsequently compared with one another as well as the original questionnaire. Based on the high quality of the original instrument on one hand and the conscientiousness paid towards the process of adaptation and translation, it can be assumed that the Arabic HTQ-5 presented in this work represents a highly performative tool in facilitating the detection of PTSD in Arabic speaking refugees from the Middle East. This is supported by the data obtained from 37 Arabic speaking refugee patients that sought treatment at the specialized outpatient clinic at the department of psychiatry and psychotherapy at the university hospital Mainz. These datasets were obtained and retrospectively assessed for the adapted and translated Arabic HTQ-5. A Receiver Operating Classifier (ROC) analysis was calculated with a CAPS-5 interview serving as the reference in establishing a PTSD diagnosis.

With an Area under the Curve (ROC-AUC) of .750 the data suggest that the adapted and translated Arabic HTQ-5 has a high overall performance in classifying PTSD and non-PTSD patients into their respective groups. Based on the ROC analyses, the optimal cut-off threshold was determined to be 2.0 yielding a sensitivity of 83.3% and a specificity of 52.6%. Validation studies for other versions of the HTQ found similar results for their respective instruments, placing the presented Arabic HTQ-5 in a field of questionnaires that have many times proven their value in other cultural settings (Lhewa *et al.*, 2007b; de Fouchier *et al.*, 2012b) With the multiple adaptations of the HTQ regularly being outdated by changes to the consensus on the diagnostic criteria of PTSD, it is of special importance that in this study, the latest criteria of the DSM-5 were being used (Basheti *et al.*, 2019; Pino *et al.*, 2021). The adapted and translated

Arabic version of the HTQ-5 that is presented in this work can therefore be expected to provide an efficient and sensitive screening instrument for PTSD according to the most up-to-date scientific consensus serving as a valuable resource for all clinicians and researchers working with Arabic-speaking refugees that fled the Middle East to Europe.

5.7 Outlook

The newly adapted and translated Arabic HTQ-5 that was created and evaluated in this study represents an important addition to the diagnostic tools available for Arabic speaking refugee populations. Because of the high prevalence of trauma in people fleeing armed conflict in the Middle East since the escalation of violence in the wake of the so-called Arabic Spring, mental healthcare providers should be advised to be aware of PTSD symptoms in this patient population. The Arabic HTQ-5 provides an efficient tool to systematically screen for PTSD and it should be routinely used in Arabic speaking refugees seeking out mental healthcare services. Based on the presented validation, the Arabic HTQ-5 provides high sensitivity and specificity. Due to the datasets analyzed originating from only one clinical group, a validation study on a non-clinical refugee sample is desirable.

6 Literature

Abu Suhaiban, Grasser, and Javanbakht (2019) 'Mental Health of Refugees and Torture Survivors: A Critical Review of Prevalence, Predictors, and Integrated Care', *International Journal of Environmental Research and Public Health*, 16(13), p. 2309. Available at: https://doi.org/10.3390/ijerph16132309.

Acarturk, C. *et al.* (2021) 'Prevalence and predictors of common mental disorders among Syrian refugees in Istanbul, Turkey: a cross-sectional study', *Social Psychiatry and Psychiatric Epidemiology*, 56(3), pp. 475–484. Available at: https://doi.org/10.1007/s00127-020-01941-6.

Adams, R.E. *et al.* (2019) 'Social and Psychological Risk and Protective Factors for Veteran Well-Being: The Role of Veteran Identity and Its Implications for Intervention', *Military Behavioral Health*, 7(3), pp. 304–314. Available at: https://doi.org/10.1080/21635781.2019.1580642.

Alemi, Q. *et al.* (2014a) 'Psychological distress in afghan refugees: a mixed-method systematic review', *Journal of Immigrant and Minority Health*, 16(6), pp. 1247–1261. Available at: https://doi.org/10.1007/s10903-013-9861-1.

Alemi, Q. *et al.* (2014b) 'Psychological Distress in Afghan Refugees: A Mixed-Method Systematic Review', *Journal of immigrant and minority health / Center for Minority Public Health*, 16(6), pp. 1247–1261. Available at: https://doi.org/10.1007/s10903-013-9861-1.

Al-Hadethe, A. *et al.* (2014) 'Prevalence of traumatic events and PTSD symptoms among secondary school students in Baghdad', *European Journal of Psychotraumatology*, 5, p. 23928. Available at: https://doi.org/10.3402/ejpt.v5.23928.

Alpak, G. *et al.* (2015) 'Post-traumatic stress disorder among Syrian refugees in Turkey: a cross-sectional study', *International Journal of Psychiatry in Clinical Practice*, 19(1), pp. 45–50. Available at: https://doi.org/10.3109/13651501.2014.961930.

American Psychiatric Association (1952) *Diagnostic and Statistical Manual of Mental Disorders - 1*.

American Psychiatric Association (1994) *Diagnostic and Statistical Manual of Mental Disorders - IV*.

American Psychiatric Association (2013) *Diagnostic and Statistical Manual of Mental Disorders - 5*.

Armour, C., Műllerová, J. and Elhai, J.D. (2016) 'A systematic literature review of PTSD's latent structure in the Diagnostic and Statistical Manual of Mental Disorders: DSM-IV to DSM-5', *Clinical Psychology Review*, 44, pp. 60–74. Available at: https://doi.org/10.1016/j.cpr.2015.12.003.

Asfaw, B.B. *et al.* (2020) 'Experiences of psychotherapists working with refugees in Germany: a qualitative study', *BMC psychiatry*, 20(1), p. 588. Available at: https://doi.org/10.1186/s12888-020-02996-0.

Auxéméry, Y. (2018) 'Post-traumatic psychiatric disorders: PTSD is not the only diagnosis', *Presse Medicale (Paris, France: 1983)*, 47(5), pp. 423–430. Available at: https://doi.org/10.1016/j.lpm.2017.12.006.

Basheti, I.A. *et al.* (2019) 'The Syrian refugee crisis in Jordan: a cross sectional pharmacist-led study assessing post-traumatic stress disorder', *Pharmacy Practice*, 17(3), p. 1475. Available at: https://doi.org/10.18549/PharmPract.2019.3.1475.

Bauhoff, S. and Göpffarth, D. (2018) 'Asylum-seekers in Germany differ from regularly insured in their morbidity, utilizations and costs of care', *PloS One*, 13(5), p. e0197881. Available at: https://doi.org/10.1371/journal.pone.0197881.

Beni Yonis, O. *et al.* (2020) 'Post-traumatic stress disorder among Syrian adolescent refugees in Jordan', *Journal of Public Health (Oxford, England)*, 42(2), pp. 319–324. Available at: https://doi.org/10.1093/pubmed/fdz026.

Benjet, C. *et al.* (2016) 'The epidemiology of traumatic event exposure worldwide: results from the World Mental Health Survey Consortium', *Psychological Medicine*, 46(2), pp. 327–343. Available at: https://doi.org/10.1017/S0033291715001981.

Berthold, S.M. *et al.* (2019a) 'The HTQ-5: revision of the Harvard Trauma Questionnaire for measuring torture, trauma and DSM-5 PTSD symptoms in refugee populations', *European Journal of Public Health*, 29(3), pp. 468–474. Available at: https://doi.org/10.1093/eurpub/cky256.

Berthold, S.M. *et al.* (2019b) 'The HTQ-5: revision of the Harvard Trauma Questionnaire for measuring torture, trauma and DSM-5 PTSD symptoms in refugee populations', *European Journal of Public Health*, 29(3), pp. 468–474. Available at: https://doi.org/10.1093/eurpub/cky256.

Blackmore, R. *et al.* (2020) 'The prevalence of mental illness in refugees and asylum seekers: A systematic review and meta-analysis', *PLOS Medicine*. Edited by P. Spiegel, 17(9), p. e1003337. Available at: https://doi.org/10.1371/journal.pmed.1003337.

Borgschulte, H.S. *et al.* (2018) 'Health care provision for refugees in Germany - one-year evaluation of an outpatient clinic in an urban emergency accommodation', *BMC health services research*, 18(1), p. 488. Available at: https://doi.org/10.1186/s12913-018-3174-y.

Bothe, T. *et al.* (2020) 'How expensive are post-traumatic stress disorders? Estimating incremental health care and economic costs on anonymised claims data', *The European Journal of Health Economics*, 21(6), pp. 917–930. Available at: https://doi.org/10.1007/s10198-020-01184-x.

Brackbill, R.M. *et al.* (2009) 'Asthma and posttraumatic stress symptoms 5 to 6 years following exposure to the World Trade Center terrorist attack', *JAMA*, 302(5), pp. 502–516. Available at: https://doi.org/10.1001/jama.2009.1121.

Brett, E.A., Spitzer, R.L. and Williams, J.B. (1988) 'DSM-III—R criteria for posttraumatic stress disorder', *The American Journal of Psychiatry*, 145(10), pp. 1232–1236. Available at: https://doi.org/10.1176/ajp.145.10.1232.

Brooks, M.A. *et al.* (2022) 'Mental health of clinic-attending Syrian refugee women in Jordan: associations between social ecological risks factors and mental health symptoms', *BMC Women's Health*, 22(1), p. 4. Available at: https://doi.org/10.1186/s12905-021-01584-y.

Bundesamt für Migration und Flüchtlinge (2022a) *Das Bundesamt in Zahlen 2021 Asyl*, p. 58.

Bundesamt für Migration und Flüchtlinge (2022b) 'Schlüsselzahlen Asyl'. Available at: https://www.bamf.de/SharedDocs/Anlagen/DE/Statistik/SchluesselzahlenAsyl/flyer-schluesselzahlen-asyl-2021.pdf?__blob=publicationFile&v=3.

Bundesministerium der Justiz (1988) 'Sozialgesetzbuch (SGB) Fünftes Buch (V)', in *Sozialgesetzbuch (SGB)*.

Calhoun, P.S. *et al.* (2012) 'The effect of draft DSM-V criteria on posttraumatic stress disorder prevalence', *Depression and Anxiety*, 29(12), pp. 1032–1042. Available at: https://doi.org/10.1002/da.22012.

Campbell, T.A. (2007) 'Psychological assessment, diagnosis, and treatment of torture survivors: A review', *Clinical Psychology Review*, 27(5), pp. 628–641. Available at: https://doi.org/10.1016/j.cpr.2007.02.003.

Cloitre, M. *et al.* (2014) 'Distinguishing PTSD, Complex PTSD, and Borderline Personality Disorder: A latent class analysis', *European Journal of Psychotraumatology*, 5(1), p. 25097. Available at: https://doi.org/10.3402/ejpt.v5.25097.

Culp, B.L. *et al.* (2019) 'Better with age? A comparison of geriatric and non-geriatric trauma patients' psychological outcomes 6 months post-injury', *Cognitive Behaviour Therapy*, 48(5), pp. 406–418. Available at: https://doi.org/10.1080/16506073.2018.1533578.

Dai, W. *et al.* (2017) 'Comorbidity of post-traumatic stress disorder and anxiety in flood survivors: Prevalence and shared risk factors', *Medicine*, 96(36), p. e7994. Available at: https://doi.org/10.1097/MD.0000000000007994.

Diamond, P.R. *et al.* (2022) 'Change in prevalence of post-traumatic stress disorder in the two years following trauma: a meta-analytic study', *European Journal of Psychotraumatology*, 13(1), p. 2066456. Available at: https://doi.org/10.1080/20008198.2022.2066456.

Dupuy, K. and Rustad, S.A. (2018) 'Trends in Armed Conflict, 1946 - 2017', *Conflict Trends*, 5–2018.

Elhai, J.D. and Palmieri, P.A. (2011) 'The factor structure of posttraumatic stress disorder: a literature update, critique of methodology, and agenda for future research', *Journal of Anxiety Disorders*, 25(6), pp. 849–854. Available at: https://doi.org/10.1016/j.janxdis.2011.04.007.

Epstein, J., Santo, R.M. and Guillemin, F. (2015) 'A review of guidelines for cross-cultural adaptation of questionnaires could not bring out a consensus', *Journal of Clinical Epidemiology*, 68(4), pp. 435–441. Available at: https://doi.org/10.1016/j.jclinepi.2014.11.021.

Estacio, E.V. and Saidy-Khan, S. (2014) 'Experiences of Racial Microaggression Among Migrant Nurses in the United Kingdom', *Global Qualitative Nursing Research*, 1, p. 2333393614532618. Available at: https://doi.org/10.1177/2333393614532618.

Farhood, L., Fares, S. and Hamady, C. (2018a) 'Correction to: PTSD and gender: could gender differences in war trauma types, symptom clusters and risk factors predict gender differences in PTSD prevalence?', *Archives of Women's Mental Health*, 21(6), pp. 735–743. Available at: https://doi.org/10.1007/s00737-018-0874-6.

Farhood, L., Fares, S. and Hamady, C. (2018b) 'PTSD and gender: could gender differences in war trauma types, symptom clusters and risk factors predict gender differences in PTSD prevalence?', *Archives of Women's Mental Health*, 21(6), pp. 725–733. Available at: https://doi.org/10.1007/s00737-018-0849-7.

Flaherty, J.A. *et al.* (1988) 'Developing instruments for cross-cultural psychiatric research', *The Journal of Nervous and Mental Disease*, 176(5), pp. 257–263.

Flory, J.D. and Yehuda, R. (2015) 'Comorbidity between post-traumatic stress disorder and major depressive disorder: alternative explanations and treatment considerations', *Dialogues in Clinical Neuroscience*, 17(2), pp. 141–150. Available at: https://doi.org/10.31887/DCNS.2015.17.2/jflory.

de Fouchier, C. *et al.* (2012a) 'Validation of a French adaptation of the Harvard Trauma Questionnaire among torture survivors from sub-Saharan African countries', *European Journal of Psychotraumatology*, 3. Available at: https://doi.org/10.3402/ejpt.v3i0.19225.

de Fouchier, C. *et al.* (2012b) 'Validation of a French adaptation of the Harvard Trauma Questionnaire among torture survivors from sub-Saharan African countries', *European Journal of Psychotraumatology*, 3(1), p. 19225. Available at: https://doi.org/10.3402/ejpt.v3i0.19225.

Freedman, J., Jamal, B., and Euro-Mediterranean Human Rights Network (2008a) *Violence against migrant and refugee women in the Euromed region: case studies : France, Italy, Egypt & Morocco*. Copenhagen, Denmark: Euro-Mediterranean Human Rights Network.

Freedman, J., Jamal, B., and Euro-Mediterranean Human Rights Network (2008b) *Violence against migrant and refugee women in the Euromed region: case studies : France, Italy, Egypt & Morocco*. Copenhagen, Denmark: Euro-Mediterranean Human Rights Network.

Freyd, J.J. (2007) 'Archiving Dissociation as a Precaution Against Dissociating Dissociation', *Journal of Trauma & Dissociation*, 8(3), pp. 1–5. Available at: https://doi.org/10.1300/J229v08n03_01.

Friedman, M.J. (2013) 'Finalizing PTSD in DSM-5: getting here from there and where to go next', *Journal of Traumatic Stress*, 26(5), pp. 548–556. Available at: https://doi.org/10.1002/jts.21840.

Frommberger, U., Frommberger, H. and Maercker, A. (2020) '[Delayed Onset of PTSD - A Problem for Diagnosis and Litigation - with Special Reference to Political Imprisonment in the GDR]', *Psychotherapie, Psychosomatik, Medizinische Psychologie*, 70(3–04), pp. 104–111. Available at: https://doi.org/10.1055/a-0918-5689.

Gäbel, U. *et al.* (2006) 'Prävalenz der Posttraumatischen Belastungsstörung (PTSD) und Möglichkeiten der Ermittlung in der Asylverfahrenspraxis', *Zeitschrift für Klinische Psychologie und Psychotherapie*, 35(1), pp. 12–20. Available at: https://doi.org/10.1026/1616-3443.35.1.12.

Garrett, A. *et al.* (2019) 'Longitudinal changes in brain function associated with symptom improvement in youth with PTSD', *Journal of Psychiatric Research*, 114, pp. 161–169. Available at: https://doi.org/10.1016/j.jpsychires.2019.04.021.

Gentes, E.L. *et al.* (2014) 'DSM-5 posttraumatic stress disorder: factor structure and rates of diagnosis', *Journal of Psychiatric Research*, 59, pp. 60–67. Available at: https://doi.org/10.1016/j.jpsychires.2014.08.014.

Ghafoori, B. *et al.* (2012) 'Racial and ethnic differences in symptom severity of PTSD, GAD, and depression in trauma-exposed, urban, treatment-seeking adults', *Journal of Traumatic Stress*, 25(1), pp. 106–110. Available at: https://doi.org/10.1002/jts.21663.

Golier, J.A. *et al.* (2003) 'The relationship of borderline personality disorder to posttraumatic stress disorder and traumatic events', *The American Journal of Psychiatry*, 160(11), pp. 2018–2024. Available at: https://doi.org/10.1176/appi.ajp.160.11.2018.

Gorst-Unsworth, C. and Goldenberg, E. (1998a) 'Psychological sequelae of torture and organised violence suffered by refugees from Iraq. Trauma-related factors compared with social factors in exile', *The British Journal of Psychiatry: The Journal of Mental Science*, 172, pp. 90–94. Available at: https://doi.org/10.1192/bjp.172.1.90.

Gorst-Unsworth, C. and Goldenberg, E. (1998b) 'Psychological sequelae of torture and organised violence suffered by refugees from Iraq. Trauma-related factors compared with social factors in exile', *The British Journal of Psychiatry: The Journal of Mental Science*, 172, pp. 90–94. Available at: https://doi.org/10.1192/bjp.172.1.90.

Grimm, A. *et al.* (2012) 'Post- and peritraumatic stress in disaster survivors: an explorative study about the influence of individual and event characteristics across different types of disasters', *European Journal of Psychotraumatology*, 3(1), p. 7382. Available at: https://doi.org/10.3402/ejpt.v3i0.7382.

Hafstad, G.S. *et al.* (2017) 'PTSD or not PTSD? Comparing the proposed ICD-11 and the DSM-5 PTSD criteria among young survivors of the 2011 Norway attacks and their parents', *Psychological Medicine*, 47(7), pp. 1283–1291. Available at: https://doi.org/10.1017/S0033291716002968.

Hashim, M.J. (2017) 'Patient-Centered Communication: Basic Skills', *American Family Physician*, 95(1), pp. 29–34.

Hatch, S.L. and Dohrenwend, B.P. (2007) 'Distribution of traumatic and other stressful life events by race/ethnicity, gender, SES and age: a review of the research', *American Journal of Community Psychology*, 40(3–4), pp. 313–332. Available at: https://doi.org/10.1007/s10464-007-9134-z.

Helzer, J.E., Robins, L.N. and McEvoy, L. (1987) 'Post-traumatic stress disorder in the general population. Findings of the epidemiologic catchment area survey', *The New England Journal of Medicine*, 317(26), pp. 1630–1634. Available at: https://doi.org/10.1056/NEJM198712243172604.

Henkelmann, J.-R. *et al.* (2020) 'Anxiety, depression and post-traumatic stress disorder in refugees resettling in high-income countries: systematic review and meta-analysis', *BJPsych open*, 6(4), p. e68. Available at: https://doi.org/10.1192/bjo.2020.54.

Hirschberger, G. (2018) 'Collective Trauma and the Social Construction of Meaning', *Frontiers in Psychology*, 9, p. 1441. Available at: https://doi.org/10.3389/fpsyg.2018.01441.

Hollifield, M. *et al.* (2008) 'Symptoms and coping in Sri Lanka 20-21 months after the 2004 tsunami', *The British Journal of Psychiatry: The Journal of Mental Science*, 192(1), pp. 39–44. Available at: https://doi.org/10.1192/bjp.bp.107.038422.

Horn, S.R. and Feder, A. (2018) 'Understanding Resilience and Preventing and Treating PTSD', *Harvard Review of Psychiatry*, 26(3), pp. 158–174. Available at: https://doi.org/10.1097/HRP.0000000000000194.

Hruska, B. and Barduhn, M.S. (2021) 'Dynamic psychosocial risk and protective factors associated with mental health in Emergency Medical Service (EMS) personnel', *Journal of Affective Disorders*, 282, pp. 9–17. Available at: https://doi.org/10.1016/j.jad.2020.12.130.

Hyland, P. *et al.* (2016) 'Exploring differences between the ICD-11 and DSM-5 models of PTSD: Does it matter which model is used?', *Journal of Anxiety Disorders*, 37, pp. 48–53. Available at: https://doi.org/10.1016/j.janxdis.2015.11.002.

International Federation of Red Cross and Red Crescent Societies, Sanderson, D. and Sharma, A. (2018) *World disasters report 2018: leaving no one behind*.

Jackson-Koku, G. (2016) ‘Beck Depression Inventory’, *Occupational Medicine*, 66(2), pp. 174–175. Available at: https://doi.org/10.1093/occmed/kqv087.

Johnson, H. and Thompson, A. (2008) ‘The development and maintenance of post-traumatic stress disorder (PTSD) in civilian adult survivors of war trauma and torture: A review’, *Clinical Psychology Review*, 28(1), pp. 36–47. Available at: https://doi.org/10.1016/j.cpr.2007.01.017.

de Jong, J.T. *et al.* (2001) ‘Lifetime events and posttraumatic stress disorder in 4 postconflict settings’, *JAMA*, 286(5), pp. 555–562. Available at: https://doi.org/10.1001/jama.286.5.555.

Karam, E.G. *et al.* (1998) ‘Major depression and external stressors: the Lebanon Wars’, *European Archives of Psychiatry and Clinical Neuroscience*, 248(5), pp. 225–230. Available at: https://doi.org/10.1007/s004060050042.

Karnouk, C. *et al.* (2021) ‘Development of a culturally sensitive Arabic version of the Mini International Neuropsychiatric Interview (M.I.N.I.-AR) and validation of the depression module’, *International Journal of Mental Health Systems*, 15(1), p. 24. Available at: https://doi.org/10.1186/s13033-021-00447-1.

Katzman, M.A. *et al.* (2014) ‘Canadian clinical practice guidelines for the management of anxiety, posttraumatic stress and obsessive-compulsive disorders’, *BMC Psychiatry*, 14(Suppl 1), p. S1. Available at: https://doi.org/10.1186/1471-244X-14-S1-S1.

Keller, A. *et al.* (2006) ‘Traumatic experiences and psychological distress in an urban refugee population seeking treatment services’, *Journal of Nervous and Mental Disease*, 194(3), pp. 188–194. Available at: https://doi.org/10.1097/01.nmd.0000202494.75723.83.

Kelley, L.P. *et al.* (2009) ‘A comparison of PTSD symptom patterns in three types of civilian trauma: PTSD Symptom Patterns’, *Journal of Traumatic Stress*, 22(3), pp. 227–235. Available at: https://doi.org/10.1002/jts.20406.

Kelley, M.L. *et al.* (2021) ‘Own soul’s warning: Moral injury, suicidal ideation, and meaning in life’, *Psychological Trauma: Theory, Research, Practice and Policy*, 13(7), pp. 740–748. Available at: https://doi.org/10.1037/tra0001047.

Kessler, R.C. *et al.* (2017) ‘Trauma and PTSD in the WHO World Mental Health Surveys’, *European Journal of Psychotraumatology*, 8(sup5), p. 1353383. Available at: https://doi.org/10.1080/20008198.2017.1353383.

Khorram-Manesh, A. *et al.* (2021) ‘Estimating the Number of Civilian Casualties in Modern Armed Conflicts–A Systematic Review’, *Frontiers in Public Health*, 9, p. 765261. Available at: https://doi.org/10.3389/fpubh.2021.765261.

Kilpatrick, D.G. *et al.* (2013) ‘National estimates of exposure to traumatic events and PTSD prevalence using DSM-IV and DSM-5 criteria’, *Journal of Traumatic Stress*, 26(5), pp. 537–547. Available at: https://doi.org/10.1002/jts.21848.

Kira, I.A. *et al.* (2010) 'The Effects of Perceived Discrimination and Backlash on Iraqi Refugees' Mental and Physical Health', *Journal of Muslim Mental Health*, 5(1), pp. 59–81. Available at: https://doi.org/10.1080/15564901003622110.

Kira, I.A. *et al.* (2014) 'The Traumatogenic Dynamics of Internalized Stigma of Mental Illness Among Arab American, Muslim, and Refugee Clients', *Journal of the American Psychiatric Nurses Association*, 20(4), pp. 250–266. Available at: https://doi.org/10.1177/1078390314542873.

Kline, N.K. *et al.* (2021) 'Self-Blame and PTSD Following Sexual Assault: A Longitudinal Analysis', *Journal of Interpersonal Violence*, 36(5–6), pp. NP3153–NP3168. Available at: https://doi.org/10.1177/0886260518770652.

Koenen, K.C. *et al.* (2017) 'Posttraumatic stress disorder in the World Mental Health Surveys', *Psychological Medicine*, 47(13), pp. 2260–2274. Available at: https://doi.org/10.1017/S0033291717000708.

van der Kolk, B.A. *et al.* (2007) 'A randomized clinical trial of eye movement desensitization and reprocessing (EMDR), fluoxetine, and pill placebo in the treatment of posttraumatic stress disorder: treatment effects and long-term maintenance', *The Journal of Clinical Psychiatry*, 68(1), pp. 37–46. Available at: https://doi.org/10.4088/jcp.v68n0105.

Kroenke, K., Spitzer, R.L. and Williams, J.B. (2001) 'The PHQ-9: validity of a brief depression severity measure', *Journal of General Internal Medicine*, 16(9), pp. 606–613. Available at: https://doi.org/10.1046/j.1525-1497.2001.016009606.x.

Laban, C. *et al.* (2008) 'The impact of a long asylum procedure on quality of life, disability and physical health in Iraqi asylum seekers in the Netherlands', *Social psychiatry and psychiatric epidemiology*, 43, pp. 507–15. Available at: https://doi.org/10.1007/s00127-008-0333-1.

Laban, C.J. *et al.* (2005) 'Postmigration Living Problems and Common Psychiatric Disorders in Iraqi Asylum Seekers in the Netherlands':, *The Journal of Nervous and Mental Disease*, 193(12), pp. 825–832. Available at: https://doi.org/10.1097/01.nmd.0000188977.44657.1d.

Lee, J. and Jung, D.Y. (2006) 'Measurement issues across different cultures', *Taehan Kanho Hakhoe Chi*, 36(8), pp. 1295–1300. Available at: https://doi.org/10.4040/jkan.2006.36.8.1295.

Lhewa, D. *et al.* (2007a) 'Validation of a Tibetan translation of the Hopkins Symptom Checklist 25 and the Harvard Trauma Questionnaire', *Assessment*, 14(3), pp. 223–230. Available at: https://doi.org/10.1177/1073191106298876.

Lhewa, D. *et al.* (2007b) 'Validation of a Tibetan Translation of the Hopkins Symptom Checklist–25 and the Harvard Trauma Questionnaire', *Assessment*, 14(3), pp. 223–230. Available at: https://doi.org/10.1177/1073191106298876.

Lie, B. (2002) ‘A 3-year follow-up study of psychosocial functioning and general symptoms in settled refugees’, *Acta Psychiatrica Scandinavica*, 106(6), pp. 415–425. Available at: https://doi.org/10.1034/j.1600-0447.2002.01436.x.

López, C.M. *et al.* (2017) ‘Racial/ethnic differences in trauma exposure and mental health disorders in adolescents’, *Cultural Diversity & Ethnic Minority Psychology*, 23(3), pp. 382–387. Available at: https://doi.org/10.1037/cdp0000126.

Maercker, A., Brewin, Chris R., *et al.* (2013) ‘Diagnosis and classification of disorders specifically associated with stress: proposals for ICD-11’, *World Psychiatry*, 12(3), pp. 198–206. Available at: https://doi.org/10.1002/wps.20057.

Maercker, A., Brewin, Chris R, *et al.* (2013) ‘Proposals for mental disorders specifically associated with stress in the International Classification of Diseases-11’, *The Lancet*, 381(9878), pp. 1683–1685. Available at: https://doi.org/10.1016/S0140-6736(12)62191-6.

Mandrekar, J.N. (2010) ‘Receiver Operating Characteristic Curve in Diagnostic Test Assessment’, *Journal of Thoracic Oncology*, 5(9), pp. 1315–1316. Available at: https://doi.org/10.1097/JTO.0b013e3181ec173d.

Maneesriwongul, W. and Dixon, J.K. (2004) ‘Instrument translation process: a methods review’, *Journal of Advanced Nursing*, 48(2), pp. 175–186. Available at: https://doi.org/10.1111/j.1365-2648.2004.03185.x.

Marx, B.P. *et al.* (2022) ‘Reliable and clinically significant change in the clinician-administered PTSD Scale for DSM-5 and PTSD Checklist for DSM-5 among male veterans’, *Psychological Assessment*, 34(2), pp. 197–203. Available at: https://doi.org/10.1037/pas0001098.

McNally, R.J. (2007) ‘Betrayal trauma theory: a critical appraisal’, *Memory (Hove, England)*, 15(3), pp. 280–294; discussion 295-311. Available at: https://doi.org/10.1080/09658210701256506.

Miller, M.W. *et al.* (2004) ‘Externalizing and internalizing subtypes of combat-related PTSD: a replication and extension using the PSY-5 scales’, *Journal of Abnormal Psychology*, 113(4), pp. 636–645. Available at: https://doi.org/10.1037/0021-843X.113.4.636.

Mollica, R.F. *et al.* (1987) ‘Indochinese versions of the Hopkins Symptom Checklist-25: a screening instrument for the psychiatric care of refugees’, *The American Journal of Psychiatry*, 144(4), pp. 497–500. Available at: https://doi.org/10.1176/ajp.144.4.497.

Mollica, Richard F. *et al.* (1992) ‘The Harvard Trauma Questionnaire: Validating a cross-cultural instrument for measuring torture, trauma, and posttraumatic stress disorder in Indochinese refugees’, *Journal of Nervous and Mental Disease*, 180(2), pp. 111–116. Available at: https://doi.org/10.1097/00005053-199202000-00008.

Mollica, R. F. *et al.* (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), pp. 111–116.

Mollica, R.F. (2004) 'Surviving Torture', *New England Journal of Medicine*, 351(1), pp. 5–7. Available at: https://doi.org/10.1056/NEJMp048141.

Morina, N., Kuenburg, A., Schnyder, U., Bryant, Richard A, *et al.* (2018) 'The Association of Post-traumatic and Postmigration Stress with Pain and Other Somatic Symptoms: An Explorative Analysis in Traumatized Refugees and Asylum Seekers', *Pain Medicine*, 19(1), pp. 50–59. Available at: https://doi.org/10.1093/pm/pnx005.

Morina, N., Kuenburg, A., Schnyder, U., Bryant, Richard A., *et al.* (2018) 'The Association of Post-traumatic and Postmigration Stress with Pain and Other Somatic Symptoms: An Explorative Analysis in Traumatized Refugees and Asylum Seekers', *Pain Medicine (Malden, Mass.)*, 19(1), pp. 50–59. Available at: https://doi.org/10.1093/pm/pnx005.

Neuner, F. *et al.* (2010) 'Can asylum-seekers with posttraumatic stress disorder be successfully treated? A randomized controlled pilot study', *Cognitive Behaviour Therapy*, 39(2), pp. 81–91. Available at: https://doi.org/10.1080/16506070903121042.

Nock, M.K. *et al.* (2010) 'Mental disorders, comorbidity and suicidal behavior: results from the National Comorbidity Survey Replication', *Molecular Psychiatry*, 15(8), pp. 868–876. Available at: https://doi.org/10.1038/mp.2009.29.

OConghaile, A. and DeLisi, L.E. (2015) 'Distinguishing schizophrenia from posttraumatic stress disorder with psychosis', *Current Opinion in Psychiatry*, 28(3), pp. 249–255. Available at: https://doi.org/10.1097/YCO.0000000000000158.

O'Donnell, M.L. *et al.* (2014) 'Impact of the diagnostic changes to post-traumatic stress disorder for DSM-5 and the proposed changes to ICD-11', *The British Journal of Psychiatry: The Journal of Mental Science*, 205(3), pp. 230–235. Available at: https://doi.org/10.1192/bjp.bp.113.135285.

Palik, J. *et al.* (2020) 'Conflict Trends in the Middle East, 1989–2019', p. 35.

Park, S.H., Goo, J.M. and Jo, C.-H. (2004) 'Receiver Operating Characteristic (ROC) Curve: Practical Review for Radiologists', *Korean Journal of Radiology*, 5(1), p. 11. Available at: https://doi.org/10.3348/kjr.2004.5.1.11.

Patel, A.R. and Hall, B.J. (2021) 'Beyond the DSM-5 Diagnoses: A Cross-Cultural Approach to Assessing Trauma Reactions', *FOCUS*, 19(2), pp. 197–203. Available at: https://doi.org/10.1176/appi.focus.20200049.

Pieterse, A.L. *et al.* (2012) 'Perceived racism and mental health among Black American adults: a meta-analytic review', *Journal of Counseling Psychology*, 59(1), pp. 1–9. Available at: https://doi.org/10.1037/a0026208.

Pino, O. *et al.* (2021) 'Post-Traumatic Outcomes among Survivors of the Earthquake in Central Italy of August 24, 2016. A Study on PTSD Risk and Vulnerability Factors',

Psychiatric Quarterly, 92(4), pp. 1489–1511. Available at: https://doi.org/10.1007/s11126-021-09908-9.

Place, V. *et al.* (2021) 'Perceived barriers to care for migrant children and young people with mental health problems and/or neurodevelopmental differences in high-income countries: a meta-ethnography', *BMJ Open*, 11(9), p. e045923. Available at: https://doi.org/10.1136/bmjopen-2020-045923.

Porter, M. and Haslam, N. (2005) 'Predisplacement and Postdisplacement Factors Associated With Mental Health of Refugees and Internally Displaced Persons: A Meta-analysis', *JAMA*, 294(5), p. 602. Available at: https://doi.org/10.1001/jama.294.5.602.

Qi, W., Gevonden, M. and Shalev, A. (2016) 'Prevention of Post-Traumatic Stress Disorder After Trauma: Current Evidence and Future Directions', *Current Psychiatry Reports*, 18(2), p. 20. Available at: https://doi.org/10.1007/s11920-015-0655-0.

Rasmussen, A. *et al.* (2010) 'Rates and impact of trauma and current stressors among Darfuri refugees in Eastern Chad.', *American Journal of Orthopsychiatry*, 80(2), pp. 227–236. Available at: https://doi.org/10.1111/j.1939-0025.2010.01026.x.

Rathke, H. *et al.* (2020) 'PTSD with secondary psychotic features among trauma-affected refugees: The role of torture and depression', *Psychiatry Research*, 287, p. 112898. Available at: https://doi.org/10.1016/j.psychres.2020.112898.

Renner, A. *et al.* (2021) 'Predictors of psychological distress in Syrian refugees with posttraumatic stress in Germany', *PLOS ONE*. Edited by R. Nater-Mewes, 16(8), p. e0254406. Available at: https://doi.org/10.1371/journal.pone.0254406.

Resick, P.A. *et al.* (2012) 'A critical evaluation of the complex PTSD literature: Implications for DSM-5', *Journal of Traumatic Stress*, 25(3), pp. 241–251. Available at: https://doi.org/10.1002/jts.21699.

Richter, K. *et al.* (2018) 'Prevalence of psychiatric diagnoses in asylum seekers with follow-up', *BMC Psychiatry*, 18(1), p. 206. Available at: https://doi.org/10.1186/s12888-018-1783-y.

Richter, P. *et al.* (1998) 'On the validity of the Beck Depression Inventory. A review', *Psychopathology*, 31(3), pp. 160–168. Available at: https://doi.org/10.1159/000066239.

Rizkalla, N. and Segal, S.P. (2018) 'Well-Being and Posttraumatic Growth Among Syrian Refugees in Jordan', *Journal of Traumatic Stress*, 31(2), pp. 213–222. Available at: https://doi.org/10.1002/jts.22281.

Roberts, A.L. *et al.* (2011) 'Race/ethnic differences in exposure to traumatic events, development of post-traumatic stress disorder, and treatment-seeking for post-traumatic stress disorder in the United States', *Psychological Medicine*, 41(1), pp. 71–83. Available at: https://doi.org/10.1017/S0033291710000401.

Roberts, B. *et al.* (2008) 'Factors associated with post-traumatic stress disorder and depression amongst internally displaced persons in northern Uganda', *BMC Psychiatry*, 8(1), p. 38. Available at: https://doi.org/10.1186/1471-244X-8-38.

Roberts, N.P. *et al.* (2016) 'Psychological therapies for post-traumatic stress disorder and comorbid substance use disorder', *Cochrane Database of Systematic Reviews*. Edited by Cochrane Common Mental Disorders Group, 2016(4). Available at: https://doi.org/10.1002/14651858.CD010204.pub2.

Rohlof, H.G., Knipscheer, J.W. and Kleber, R.J. (2014) 'Somatization in refugees: a review', *Social Psychiatry and Psychiatric Epidemiology*, 49(11), pp. 1793–1804. Available at: https://doi.org/10.1007/s00127-014-0877-1.

Ruf, M. *et al.* (2010) 'Narrative exposure therapy for 7- to 16-year-olds: a randomized controlled trial with traumatized refugee children', *Journal of Traumatic Stress*, 23(4), pp. 437–445. Available at: https://doi.org/10.1002/jts.20548.

Santiago, P.N. *et al.* (2013) 'A Systematic Review of PTSD Prevalence and Trajectories in DSM-5 Defined Trauma Exposed Populations: Intentional and Non-Intentional Traumatic Events', *PLoS ONE*. Edited by J. Coyne, 8(4), p. e59236. Available at: https://doi.org/10.1371/journal.pone.0059236.

Sawaya, H. *et al.* (2016) 'Adaptation and initial validation of the Patient Health Questionnaire - 9 (PHQ-9) and the Generalized Anxiety Disorder - 7 Questionnaire (GAD-7) in an Arabic speaking Lebanese psychiatric outpatient sample', *Psychiatry Research*, 239, pp. 245–252. Available at: https://doi.org/10.1016/j.psychres.2016.03.030.

Schick, M. *et al.* (2016) 'Challenging future, challenging past: the relationship of social integration and psychological impairment in traumatized refugees', *European Journal of Psychotraumatology*, 7, p. 28057. Available at: https://doi.org/10.3402/ejpt.v7.28057.

Schnyder, U. *et al.* (2016) 'Culture-sensitive psychotraumatology', *European Journal of Psychotraumatology*, 7(1), p. 31179. Available at: https://doi.org/10.3402/ejpt.v7.31179.

Schröder, H., Zok, K. and Faulbaum, F. (2018) 'Gesundheit von Geflüchteten in Deutschland – Ergebnisse einer Befragung von Schutzsuchenden aus Syrien, Irak und Afghanistan', *WIdO Monitor*, p. 20.

Shevlin, M. *et al.* (2018) 'A comparison of DSM-5 and ICD-11 PTSD prevalence, comorbidity and disability: an analysis of the Ukrainian Internally Displaced Person's Mental Health Survey', *Acta Psychiatrica Scandinavica*, 137(2), pp. 138–147. Available at: https://doi.org/10.1111/acps.12840.

Shoeb, M., Weinstein, H. and Mollica, R. (2007) 'The Harvard Trauma Questionnaire: Adapting a Cross-Cultural Instrument for Measuring Torture, Trauma and Posttraumatic Stress Disorder in Iraqi Refugees', *International Journal of Social Psychiatry*, 53(5), pp. 447–463. Available at: https://doi.org/10.1177/0020764007078362.

Sigvardsdotter, E. *et al.* (2016) ‘Refugee trauma measurement: a review of existing checklists’, *Public Health Reviews*, 37(1), p. 10. Available at: https://doi.org/10.1186/s40985-016-0024-5.

Skopp, N.A. *et al.* (2011) ‘The role of intimate relationships, appraisals of military service, and gender on the development of posttraumatic stress symptoms following Iraq deployment’, *Journal of Traumatic Stress*, 24(3), pp. 277–286. Available at: https://doi.org/10.1002/jts.20632.

Smith, B.W. *et al.* (2008) ‘The brief resilience scale: assessing the ability to bounce back’, *International Journal of Behavioral Medicine*, 15(3), pp. 194–200. Available at: https://doi.org/10.1080/10705500802222972.

Söndergaard, H.P., Ekblad, S. and Theorell, T. (2001) ‘Self-Reported Life Event Patterns and Their Relation to Health among Recently Resettled Iraqi and Kurdish Refugees in Sweden’:, *The Journal of Nervous and Mental Disease*, 189(12), pp. 838–845. Available at: https://doi.org/10.1097/00005053-200112000-00005.

Sperber, A.D. (2004) ‘Translation and validation of study instruments for cross-cultural research’, *Gastroenterology*, 126(1 Suppl 1), pp. S124-128. Available at: https://doi.org/10.1053/j.gastro.2003.10.016.

Stein, D.J. *et al.* (2014) ‘DSM-5 AND ICD-11 DEFINITIONS OF POSTTRAUMATIC STRESS DISORDER: INVESTIGATING “NARROW” AND “BROAD” APPROACHES: Research Article: DSM-5 and ICD-11 Definitions of PTSD’, *Depression and Anxiety*, 31(6), pp. 494–505. Available at: https://doi.org/10.1002/da.22279.

Stein, M.B. and Rothbaum, B.O. (2018) ‘175 Years of Progress in PTSD Therapeutics: Learning From the Past’, *American Journal of Psychiatry*, 175(6), pp. 508–516. Available at: https://doi.org/10.1176/appi.ajp.2017.17080955.

Summerfield, D. (2001) ‘The invention of post-traumatic stress disorder and the social usefulness of a psychiatric category’, *BMJ (Clinical research ed.)*, 322(7278), pp. 95–98. Available at: https://doi.org/10.1136/bmj.322.7278.95.

Teodorescu, D.-S. *et al.* (2015) ‘Chronic pain in multi-traumatized outpatients with a refugee background resettled in Norway: a cross-sectional study’, *BMC psychology*, 3(1), p. 7. Available at: https://doi.org/10.1186/s40359-015-0064-5.

UNHCR (1987) ‘Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment’. UNHCR. Available at: https://www.unhcr.org/protection/migration/49e479d10/convention-against-torture-other-cruel-inhuman-degrading-treatment-punishment.html (Accessed: 2 July 2022).

UNHCR (2021a) ‘Biannual Fact Sheet - Germany’. Available at: https://www.unhcr.org/dach/wp-content/uploads/sites/27/2021/03/Bi-annual-fact-sheet-2021_Germany_1103_final-External.pdf.

UNHCR (2021b) ‘UNHCR - Refugee Data Finder’. Available at: https://www.unhcr.org/refugee-statistics/ (Accessed: 20 May 2022).

UNHCR (2022) *UNHCR - Refugee Data Finder*. Available at: https://www.unhcr.org/refugee-statistics/ (Accessed: 2 July 2022).

United Nations Division for the Advancement of Women (2004) 'Consultative Meeting on Migration and Mobility and How This Movement Affects Women. Report of the Consultative Meeting Malmö, Sweden, 2 to 4 December 2003'. Available at: https://www.un.org/womenwatch/daw/meetings/consult/CM-Dec03-Report.pdf.

U.S. Central Intelligence Agency (2022) 'The World Factbook'. Available at: https://www.cia.gov/the-world-factbook/ (Accessed: 6 June 2022).

U.S. Department of Veteran Affairs (2022) 'Clinician-Administered PTSD Scale for DSM-5 (CAPS-5)'. Available at: https://www.ptsd.va.gov/professional/assessment/adult-int/caps.asp (Accessed: 19 May 2022).

Van der Kolk, B.A., McFarlane, A.C. and Weisæth, L. (eds) (2007) *Traumatic stress: the effects of overwhelming experience on mind, body, and society*. Pbk. ed. New York: Guilford Press.

Vereinte Nationen (ed.) (2006) *Apassage to hope: women and international migration*. New York, NY: UNFPA (The state of world population, 2006).

van de Vijver, F.J. and Leung, K. (2001) 'Personality in cultural context: methodological issues', *Journal of Personality*, 69(6), pp. 1007–1031. Available at: https://doi.org/10.1111/1467-6494.696173.

van de Vijver, F.J.R. (2013) 'Contributions of internationalization to psychology: Toward a global and inclusive discipline.', *American Psychologist*, 68(8), pp. 761–770. Available at: https://doi.org/10.1037/a0033762.

Villagran, L. *et al.* (2021) 'A Proposal for Evaluating Psychosocial Trauma', *Psicothema*, 33(4), pp. 631–638. Available at: https://doi.org/10.7334/psicothema2021.160.

Watters, C. (2001) 'Emerging paradigms in the mental health care of refugees', *Social Science & Medicine (1982)*, 52(11), pp. 1709–1718. Available at: https://doi.org/10.1016/s0277-9536(00)00284-7.

Weathers, F.W. *et al.* (2018) 'The Clinician-Administered PTSD Scale for DSM–5 (CAPS-5): Development and initial psychometric evaluation in military veterans.', *Psychological Assessment*, 30(3), pp. 383–395. Available at: https://doi.org/10.1037/pas0000486.

White, J. *et al.* (2015) 'Risk of post-traumatic stress disorder following traumatic events in a community sample', *Epidemiology and Psychiatric Sciences*, 24(3), pp. 249–257. Available at: https://doi.org/10.1017/S2045796014000110.

WHO (1949) 'International Classification of Diseases (ICD) - 6'.

Williams, D.R. and Mohammed, S.A. (2009) ‘Discrimination and racial disparities in health: evidence and needed research’, *Journal of Behavioral Medicine*, 32(1), pp. 20–47. Available at: https://doi.org/10.1007/s10865-008-9185-0.

Wisco, B.E. *et al.* (2016) ‘The impact of proposed changes to ICD-11 on estimates of PTSD prevalence and comorbidity’, *Psychiatry Research*, 240, pp. 226–233. Available at: https://doi.org/10.1016/j.psychres.2016.04.043.

World Health Assembly (2019) *World Health Assembly Update, 25 May 2019*. Available at: https://www.who.int/news/item/25-05-2019-world-health-assembly-update.

World Medical Association (2013) ‘World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects’, *JAMA*, 310(20), pp. 2191–2194. Available at: https://doi.org/10.1001/jama.2013.281053.

Yufik, T. and Simms, L.J. (2010) ‘A meta-analytic investigation of the structure of posttraumatic stress disorder symptoms.’, *Journal of Abnormal Psychology*, 119(4), pp. 764–776. Available at: https://doi.org/10.1037/a0020981.

Zbidat, A. *et al.* (2020) ‘The Perceptions of Trauma, Complaints, Somatization, and Coping Strategies among Syrian Refugees in Germany-A Qualitative Study of an At-Risk Population’, *International Journal of Environmental Research and Public Health*, 17(3), p. E693. Available at: https://doi.org/10.3390/ijerph17030693.

Zipfel, S., Nikendei, C. and Junne, F. (2016) ‘Fördern, Fordern und Überfordern?’, *PPmP - Psychotherapie · Psychosomatik · Medizinische Psychologie*, 66(07), pp. 263–265. Available at: https://doi.org/10.1055/s-0042-109592.

7 Danksagung

8 Tabellarischer Lebenslauf