ARTICLE

The management of post-traumatic stress disorder and associated pain and sleep disturbance in refugees

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SUMMARY

More than 68 million people worldwide have been forcibly displaced and one-third of these are refugees. This article offers an overview of the current literature and reviews the epidemiology and evidence-based psychological and pharmacological management of post-traumatic stress disorder (PTSD), sleep disturbance and pain in refugees and asylum seekers. It also considers the relationship between sleep disturbance and PTSD and explores concepts of pain in relation to physical and psychological trauma and distress. During diagnosis, clinicians must be aware of ethnic variation in the somatic expression of distress. Treatments for PTSD, pain and sleep disturbance among refugees and asylum seekers are essentially the same as those used in the general population, but treatment strategies must allow for cultural and contextual factors, including language barriers, loss of freedom and threat of repatriation.

LEARNING OBJECTIVES

After reading this article you will be able to:

- recognise the challenges faced by the large number of refugees worldwide
- understand the relationship between PTSD, sleep disturbance and pain in refugees
- broadly understand the evidence for psychological and pharmacological therapy for treating PTSD, sleep disturbance and pain in refugees.

DECLARATION OF INTEREST

None.

KEYWORDS

Pain; post-traumatic stress disorder; sleep disturbance; psychotropic medication; psychotherapy.

Millions of people globally have been forced from their homes by civil conflicts, persecution, political violence and human rights violations. The scale of forced global displacement of people is unprecedented and accelerating. In 2017, the office of the United Nations High Commissioner for Refugees (UNHCR) recorded 68.5 million people displaced from their homes; an estimated 16.2 million of these individuals were newly displaced during that year (UNHCR 2017). The total figure comprised 25.4 million refugees who met the criteria stated in Box 1; around 40 million internally displaced persons who essentially met the definition of a refugee but had not crossed an internationally recognised state border; around 3.1 million asylum seekers who had applied for international protection, but whose claims for refugee status were still under review.

Pre- and post-migration stressors experienced by refugees and asylum seekers

Refugees and asylum seekers (defined in Box 1) are vulnerable to the effects of traumatic events arising from persecution, conflict and displacement. Overall, forcibly displaced populations report exposure to a high number of potentially traumatic, repeated and

BOX 1 Definition of refugees and asylum seekers[a]

A refugee is defined as a person who:

- is outside their country of nationality or habitual residence
- has a well-founded fear of persecution because of their race, religion, nationality, membership of a particular social group or political opinion
- is unable or unwilling to avail themselves of the protection of that country or to return there, for fear of persecution

An asylum seeker is defined as a person who:

- is outside their country
- has applied for refugee protection based on the United Nations' 1951 Convention on the Status of Refugees and is awaiting a decision

[a] United Nations. *Convention and Protocol Relating to the Status of Refugees*. United Nations Publications, 1951 (https://www.unhcr.org/3b66c2aa10.html).

prolonged adverse events. By definition, refugees are subjected to persecution, which means that these events are often interpersonal in nature. Potentially traumatic events commonly experienced by refugees and asylum seekers in their home countries include interpersonal violence, sexual violence, life-threatening injuries, witnessing the murder of loved ones and torture (Steel 2009; Wilson 2010). People living in conflict-affected areas also report high levels of exposure to traumatic events such as injury, witnessing the deaths of others, terrorist attacks, as well as lack of food, water, shelter and medical care (Porter 2007; Davidson 2008). As a result of persecution and conflict, refugees and asylum seekers often experience death and the disappearance of family members. Although the extent of exposure to traumatic events depends on factors such as country of origin, characteristics of the conflict, gender, age, ethnicity and sexual orientation, the frequency of exposure to traumatic events before displacement is commonly high among refugees and asylum seekers.

For many individuals, the displacement may involve months or even years of travelling, living in conflict-affected areas or residing in refugee camps. In these contexts, the likelihood of experiencing a life-threatening situation is often high. For instance, asylum seekers travelling by boat may be at risk of drowning at sea – it is estimated that more than 5000 people drowned in the Mediterranean while attempting to reach Europe in 2016 (Quinn 2016). Other frequent threats to survival include limited access to clean water, food and medical assistance, extreme weather conditions and dangerous travel methods. As a result, the physical safety of refugees and their family are compromised.

After arrival in the resettlement country, many asylum seekers face further stressors. It has been well documented that asylum seekers have the additional burden of prolonged uncertainty about the outcome of their asylum applications, the threat of being repatriated to their country of origin and prolonged immigration detention without a decision (Crumlish 2011). An Australian study revealed that temporary protection visas were associated with worse mental health than permanent protection visas, because of restrictions on family reunion, access to employment and national health insurance and exposure to ongoing uncertainty (Coffey 2010). The ongoing uncertainty (threat of being deported) combined with language barriers and limited access to healthcare made treatment delivery challenging when treating asylum seeker populations.

Terminology and scope of this article

Unless otherwise stated, we will refer to people from both refugee and asylum-seeker backgrounds as refugees. We recognise that asylum seekers face additional challenges, given their unique experiences, but we maintain that asylum seekers are a unique subgroup of refugees, to whom the overarching themes of this review apply.

Post-traumatic stress disorder (PTSD) experienced by refugees is unique and requires a different treatment strategy because it is often confounded by cultural and contextual factors, including language barriers, loss of freedom and threat of repatriation. A previous article on the mental healthcare of refugees in *BJPsych Advances* (McColl 2008) considered service models and service provision in the UK. In this review we will outline treatments for PTSD, and then focus on two culturally sensitive and less stigmatising symptoms that are commonly reported in refugees with PTSD. These are sleep disturbance, affecting around 88% of asylum seekers and refugees attending a community mental health service (Lies 2017), and chronic pain, experienced by around 96% of refugees presenting to psychiatric services (Buhman 2014).

Post-traumatic stress disorder in refugees

Given the considerable exposure to pre- and post-migration stressors, it is not surprising that high levels of psychological distress have frequently been documented in refugees (Steel 2009; Li 2016). Accordingly, high rates of trauma-related psychiatric disorders, including PTSD, depression and anxiety, have also been reported (Bogic 2015; Turrini 2017).

DSM-5 defines PTSD as a condition in which an individual exposed to a significant traumatic event persistently re-experiences the traumatic memory (e.g. in intrusive memories and nightmares), with heightened symptoms of arousal such as difficulty sleeping, poor concentration, irritability and hypervigilance. There is also effortful avoidance of distressing trauma-related stimuli and adverse effects on cognition and mood (e.g. negative emotional state and diminished interest) for more than 1 month (American Psychiatric Association 2013). As refugees experience chronic exposure to trauma and revictimisation, they are vulnerable to developing complex PTSD, which is characterised by alterations in regulation of affect and impulses, attention or consciousness, self-perception and interpersonal relationships and by somatisation, including pain (Roth 1997).

From the treatment perspective, it is important to identify specific symptoms of PTSD and complex PTSD, including sleep disturbance and chronic pain, so psychiatrists should actively inquire about these if the patient does not disclose them voluntarily.

Epidemiological data on PTSD among refugees are inconsistent, with large variations in prevalence

rates. One systematic review found rates ranging from 4.4 to 86% (Bogic 2015), and the authors pointed out that this variability related to differences in the specific populations studied, sample size, recruitment strategy and the quality of the research design.

Treatment of PTSD in refugees

Psychological treatment

In recent years, considerable evidence regarding the treatment of traumatised refugees has accumulated, which can be used to guide clinical decisions. The majority of treatment research conducted in this population has evaluated the efficacy of trauma-focused approaches in reducing PTSD symptoms, with a series of randomised controlled trials (RCTs) comparing the efficacy of these interventions with inactive and active control groups. To date, 16 systematic reviews suggest that psychological interventions are effective in minimising the distress experienced by these populations (Nickerson 2011; Lambert 2015; Thompson 2018), and the most promising of these are narrative exposure therapy (NET), eye-movement desensitisation and reprocessing (EMDR) and trauma-focused cognitive–behavioural therapy (TF-CBT).

Narrative exposure therapy

NET involves exposure to the traumatic memories, desensitisation and reorganisation of these memories into a coherent chronological narrative. By narrating their whole life story, individuals do not need to choose one particular traumatic event from numerous events experienced across the lifespan. Instead, NET allows individuals the freedom to reflect on their entire life, cultivating a feeling of personal identity. Going over their biography helps to highlight their understanding of experiences and contextualise interrelated emotional responses, which facilitates integration and comprehension of behavioural patterns and schemas that have emerged over time. NET has been tested in several refugee populations, including refugees from Africa living in low-income countries such as Uganda (Neuner 2002, 2004), as well as refugees living in high-income countries such as Germany (Hensel-Dittmann 2011), Norway (Stenmark 2013) and the USA (Hijazi 2014).

Eye-movement desensitisation and reprocessing

EMDR aims to enable individuals to reprocess their traumatic memories by helping them to focus on distressing components of the memories (such as the images, thoughts, feelings and physical sensations) while guiding them through sets of structured eye movements in a process of bilateral stimulation. Acarturk *et al* (2015, 2016) found clinically significant effects for EMDR among refugees, but another study found that the effect size for EMDR was markedly lower when compared to NET and culturally adapted TF-CBT (Ter Heide 2016). It should be noted that EMDR may need to be culturally attuned to treat refugee patients (Nickerson 2016).

Trauma-focused cognitive–behavioural therapy

TF-CBT focuses on helping individuals to manage difficulties following traumatic events by combining cognitive therapy and behavioural therapy to change key maintaining factors in PTSD, for example by exposing the individuals to the distressing memory. Among the different variants of TF-CBT, an adaptation for Cambodian refugees that incorporates interventions for culture-specific symptom presentations has been successfully tested in an RCT (Hinton 2005). Complex (Hinton 2005) as well as pragmatic versions of CBT (Bolton 2014) seem to be effective as long as they include trauma-focused elements such as imaginal exposure to the trauma memory or modification of trauma-related beliefs.

Pharmacological treatment

A Cochrane review (Stein 2006) of pharmacotherapy for PTSD studied the efficacy of a number of antidepressants (listed in Box 2), and reported that the selective serotonin reuptake inhibitors (SSRIs) paroxetine and sertraline (but not citalopram or fluoxetine) have the best evidence. The single trials of nefazodone and venlafaxine provided no evidence of efficacy in reducing PTSD symptom severity. None of the trials of amitriptyline, mirtazapine and MAOIs were significantly more effective than placebo in enhancing treatment responses.

One of the criticisms of this Cochrane review was the heterogeneity of patients, who were exposed to different types of trauma. Although a case report found that sertraline reduced PTSD symptoms in an Ethiopian refugee (Liu-Barbaro 2015), a pragmatic RCT found no effect of sertraline on PTSD symptoms in a group of refugees with war-related traumatic experiences (Buhmann 2016).

Further research is required to evaluate the effectiveness of new antidepressants with multiple pharmacodynamic mechanisms (such as agomelatine and vortioxetine) for treating PTSD in refugees (Lu 2018a, 2018b). It has been suggested that gamma-aminobutyric acid (GABA) deficit is implicated in the development of PTSD (Lu 2017), and gabapentin might have a role in treating PTSD in refugees.

Scrutiny of PTSD as a universal concept for refugees

The use of PTSD as the primary descriptor in the conceptualisation and assessment of distress and

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BOX 2 Antidepressants evaluated in a Cochrane review (Stein 2006) of pharmacotherapy for PTSD

- Selective serotonin reuptake inhibitors (SSRIs), e.g. fluoxetine, citalopram, sertraline, paroxetine
- Serotonin–noradrenaline reuptake inhibitors (SNRIs), e.g. venlafaxine
- Serotonin antagonists and reuptake inhibitors, e.g. nefazodone
- Noradrenergic and specific serotonergic agents (NaSSAs), e.g. mirtazapine
- Tricyclic antidepressants (TCAs), e.g. amitriptyline, desipramine
- Monoamine oxidase inhibitors (MAOIs), e.g. brofaromine, phenelzine

suffering caused by the refugee experience and related trauma has become increasingly common (Pedersen 2002). At the same time, the universality of the PTSD concept and its application to refugee populations has come under greater scrutiny and criticism (Summerfield 1999; Kienzler 2008; Pedersen 2008). It has been argued that PTSD as a diagnosis was created as a sociopolitical response to the problems of a particular group at a specific point in time (Summerfield 1999). An example is the American veterans after the Vietnam War. The concept of PTSD has its limitations when applied to different populations and cultures, given the diversity of clinical presentations when different individuals and societies survive severe trauma, express their distress and suffering, and assign meaning to their traumatic experiences (Summerfield 1999; Pedersen 2008). Some cultures and ethnic groups tend to express emotional distress through physical rather than psychological symptoms (Ho 2014).

The diagnostic criteria for PTSD place considerable emphasis on psychological symptoms, but some people who have experienced traumatic stress present initially with physical signs, including sleep disturbance and pain. People from some ethnic and cultural backgrounds may initially or solely present their emotional distress via sleep difficulty or physical symptoms (Niti 2007). These individuals are unaware of the relationship between their emotions and their physical symptoms.

PTSD and sleep disturbance

Studies have documented the significant association between PTSD and self-reported sleep disturbance (Spoormaker 2008; Babson 2010), and an estimated 70–90% of patients with PTSD experience insomnia and other forms of sleep disturbance (Leskin 2002). In the clinical context, insomnia/sleep disturbance and recurrent trauma-related nightmares are two of the most common and distressing symptoms of PTSD (Germain 2013). These symptoms may exacerbate the hyperarousal symptoms of PTSD (Westermeyer 2010).

It should be noted that DSM-5 does include sleep disturbance and nightmare as part of the diagnostic criteria for PTSD (American Psychiatric Association 2013). Sleep disturbance is defined as difficulty falling asleep or staying asleep or restless sleep, and it is part of the hyperarousal symptom (Criterion E) of PTSD, and nightmare refers to the recurrent distressing trauma-related dream that is classified under reexperiencing symptoms (Criterion B) of PTSD. As a result, sleep disturbance is often concealed as part of PTSD symptoms and it is assumed that sleep disturbance will be resolved when PTSD is properly treated. However, there is a more complex relationship between trauma and sleep (see paragraph below). Research indicates that sleep disturbance often does not remit after otherwise successful treatment of PTSD (Belleville 2009; Zayfert 2004). On the other hand, studies on sleep treatment in civilian and combat veteran populations suggest that reducing sleep disturbances can reduce daytime PTSD, depression and anxiety symptoms (Galovski 2009; Nappi 2012).

Relationship between trauma and sleep

Hyperarousal is hypothesised to be a central mechanism linking the response to trauma and clinically significant sleep disturbance (Germain 2008). The available literature indicates that arousal has an adverse effect on a range of sleep parameters, although operational definitions and uses of the term 'arousal' vary substantially (Fairholme 2015).

In sleep diaries, individuals with PTSD often report decreased total sleep time, reduced sleep efficiency, increased wakefulness after sleep onset and increased sleep-onset latency compared with healthy controls (van Liempt 2013; Straus 2015). These differences found in objective sleep measures indicate signs of hyperarousal or awakenings. It is possible that another factor contributing to PTSD-related sleep disturbance is hyperarousal or hypervigilance. Maintaining vigilance in the daytime could be an adaptive reaction following exposure to life-threatening events and the perception of continued threat. Fear of reduced vigilance might result in sustained arousal at bedtime.

Sleep disturbance has have long been thought to play a crucial role in PTSD, and research has suggested that sleep disturbance may predict the development of PTSD after exposure to trauma. Sleep disturbance at 1 month post-trauma are significant

predictors of PTSD at 12 months post-trauma (Koren 2002). Sleep disturbance and nightmare during the first month following a traumatic event predict the development of PTSD, and the absence of these symptoms during this same period is a strong protective factor against PTSD (Harvey 1998). Studies have shown that pre-existing sleep disturbance increase the risk of PTSD following trauma exposure, and poor sleep quality has been found to exacerbate PTSD symptoms (Belleville 2009; Bryant 2010). Thus, prospective longitudinal studies have established that sleep disturbances represent a risk factor for the development of PTSD and prolonging its course, suggesting that sleep is a crucial neurobiological mechanism in the aetiology and maintenance of PTSD. This research highlights the importance of early identification and treatment of sleep disturbances in trauma-exposed populations.

Untreated sleep problems can persist for years and intensify daytime PTSD symptoms and psychiatric comorbidity (Germain 2008), thus possibly contributing to poor clinical outcomes. As sleep has a restorative effect on emotion regulation, including toning down the emotional charge of memories (Walker 2009), poor sleep will affect the emotional processing of traumatic experiences (Maher 2006). Sleep disturbance is considered to be a modifiable risk factor for onset and relapse of psychiatric illnesses (Germain 2013), suggesting a neurobiological mechanism by which disturbance in the sleep–wake cycle may have subsequent effects on PTSD symptoms.

Sleep disturbance in refugees

Research shows that refugees subjected to traumatic events such as escaping from a war zone, violence, loss of family members or friends and forced displacement regularly suffer from sleep disturbance (Lavie 2001; Germain 2008) and that it is often a chronic clinical problem (Corvo 2005). In a large-scale prevalence study looking at sleep disturbance and mental health problems among refugees residing in Melbourne, Australia, 11.7% of participants reported no sleep disturbance, 12.8% mild sleep disturbance, 33.4% moderate sleep disturbance and 42.1% severe sleep disturbance (Lies 2017). Increased sleep disturbance was correlated with increased severity of psychiatric symptoms, including PTSD, anxiety and depression. Al-Smadi *et al* (2017) studied the prevalence of insomnia among Syrian and Iraqi refugees in Jordan: the majority of participants (52.2%) had moderate to severe insomnia. Basishvili *et al* (2012) investigated the prevalence of insomnia and associated factors among Abkhazian refugees in Tbilisi, Georgia. They reported a high prevalence of insomnia in this group (41.4%), and it was closely related to war-related stress and depressed mood.

Treatment of sleep disturbances in refugees

Psychological treatment

Despite the importance of sleep function and the likely impact of poor sleep on trauma symptoms, relatively few studies have focused on interventions in this population. One study examined the efficacy of music therapy (Jespersen 2012). Its aim was to investigate whether sleep quality of traumatised refugees could be improved by listening to relaxing music at bedtime and whether any resultant improvement would affect trauma symptoms and well-being. The intervention group received relaxing music played through a device hidden in an ergonomic pillow. The control group received only the ergonomic pillow without any music. The participants in the intervention group showed a significant improvement in global sleep quality, subjective sleep quality, sleep latency and reduction in sleep disturbance compared with the control group. However, between-group comparison showed no significant changes in sleep duration, sleep efficiency, use of sleep medication and daytime dysfunction. Furthermore, there were no changes in trauma symptoms, although a significant improvement in well-being was reported in the music therapy group. The change in well-being correlated significantly with the change in sleep quality, indicating a positive relationship between sleep and well-being in refugees.

Imagery rehearsal therapy (IRT) is one of the most commonly used interventions for posttraumatic nightmares (Krakow 2010), and an RCT to investigate whether the addition of of mianserin and/or IRT to treatment as usual for PTSD improves sleep disturbances is currently being conducted (NCT02761161; Sandahl 2017).

Pharmacological treatment

There are case reports that clonidine and mirtazapine improve sleep disorders associated with PTSD (Kinzie 1994; Lewis 2002). Clonidine, an alpha-2 adrenergic agonist, has shown polysomnographic effects on sleep disorders in refugees with PTSD (Kinzie 1994). Low-dose mirtazapine can be used to treat chronic insomnia (although evidence is lacking for people with PTSD symptoms or depression). A recent RCT supported low-dose mirtazapine for the treatment of insomnia because it eased getting to sleep and improved sleep quality (Karsten 2017).

Although the NICE guidelines do not recommend the use of benzodiazepines to treat PTSD symptoms

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(National Institute for Health and Care Excellence 2018), short-term benzodiazepines can be used to treat insomnia without presence of other psychiatric comorbidity. We recommend that treatment duration should be no longer than 2 weeks to avoid dependency.

Prazosin, an alpha-1 blocker that acts as an inverse agonist at alpha-1 adrenergic receptors, has been shown to reduce noradrenergic activity in the central nervous system (CNS) before sleep in refugees with PTSD (Boehnlein 2007).

Further research is required to evaluate the effectiveness of non-benzodiazepine medications, including melatonin, antihistamines (e.g. hydroxyzine), sedative antidepressants (e.g. mirtazapine) and sedative antipsychotics (e.g. quetiapine), in treating sleep disturbance among refugees.

Relationship between pain and trauma

Concepts of pain

Pain is increasingly understood to be a multidimensional experience. In an extensive review of this topic, pain was described as a personal, subjective experience influenced by cultural learning, the meaning of the situation, attention and other psychological variables (Melzack 2013). It has also been suggested that pain is a psychophysiological alarm (Morina 2015; Negron 2018) and part of a sophisticated body protection system (Jones 2017) that relies on the integrated communication of the nervous, immune and endocrine systems (Janig 2006; Grace 2014).

Pain is not merely a reflection of physical tissue damage. It is a common clinical observation that people with the same degree of tissue damage report different experiences of pain that require different doses of analgesia and have different outcomes. Reframing to view pain as part of the body's protection system – and not a direct measure of what is happening in the tissues – along with an understanding that there are multiple determinants of pain is essential when studying vulnerable populations such as the refugees (Williams 2017).

Related to this, and alongside extensive work that has come out of epigenetic research, is the possibility that some individuals can become 'pain vulnerable' (Denk 2014). As a result, they are more likely to develop chronic pain. Paradoxically this vulnerability to pain may be due to a more robust protection system. That is, the central processing of threatening information is upregulated due to previous adverse life events. Two studies might support this observation. First, a longitudinal study found that people who reported previous life adversity were more likely to develop multisite musculoskeletal pain during the 6-year follow-up (Generaal 2016). A second study involved a complicated path analysis in determining the contributors to ongoing pain in women who were survivors of intimate partner violence. Of importance here is that the only independent factor identified was not the level of physical abuse or tissue injury but the level of psychological abuse (Wuest 2010). It would seem that the processing of pain in these women had been sensitised, perhaps to be more vigilant to threat. These two studies, and a recent exploratory study of PTSD, post-migration living difficulties and pain (Morina 2017), support the idea that pain is a complex multidimensional expression of danger or threat and part of a system that would almost certainly include the triggers of symptoms associated with PTSD and sleep disturbance.

Sleep disturbance and pain

A narrative review of the relationship between sleep and pain in the general population was conducted on 13 studies. The conclusion was that inadequate sleep can predict new episodes and exacerbations of pain (Finan 2013). Subsequent studies have supported this finding. A population-based longitudinal study on older adults found that those who reported that they mostly felt 'tired and worn out' after their normal amount of sleep were almost twice as likely to develop widespread pain (McBeth 2014). A study on the bidirectional effects of pain and sleep disturbance found that poor sleep led to higher ratings of lower back pain and that higher pain ratings led to poorer sleep (Alsaadi 2014).

PTSD symptoms and pain

A recent study was conducted to clarify the relationship between PTSD symptoms and pain in people with whiplash injuries (Ravn 2018). It was established that PTSD symptoms predicted levels of pain both in the first 3 months and from 6 months onwards. In particular, the hyperarousal category of PTSD symptoms was found to be more predictive of pain than the intrusion or avoidance categories. In contrast, levels of pain did not predict PTSD symptoms. This finding has provided further evidence that pain is modulated by a range of threatening inputs and evaluations of vulnerability, not merely the degree of tissue damage that has occurred. Chronic pain in trauma survivors seems to be associated with re-experiencing and arousal symptoms (Taylor 2013). However, a review of the literature on the relationship between pain and PTSD found inconsistencies and proposed that it is likely to be a complex interplay in which pain perception may be affected by the duration and severity of PTSD and other influences on individual susceptibility (Moeller-Bertram 2012).

Another study compared war veterans who had been tortured with a control group who had not (Defrin 2017). Findings from two psychophysiological tests (i.e. conditioned pain modulation and temporal summation of pain) conducted to evaluate the integrity of central pain modulation processes suggested that there are variations in pain modulation that are mediated by the duration and severity of PTSD. Hence, the authors concluded that it is the intensity of PTSD symptoms and distress, rather than the exposure to trauma in itself, that is associated with changes in pain processing. In addition, this study found that higher pain ratings were positively correlated with anxiety levels. This finding suggests that, if anxiety is a psychophysiological alarm function that signals a situational threat to safety, then pain is a psychophysiological alarm function that indicates a physical threat to safety (Morina 2015).

Pain in refugees

A number of studies report the prevalence of pain among refugees. These studies were conducted in clinical settings, and the study samples include a significant number of survivors of torture and imprisonment. A study conducted in a psychiatric trauma clinic for refugees in Denmark reported that 96% of patients suffered from pain in at least one part of their body (Buhman 2014). In a population of refugees attending psychiatric out-patient clinics in Norway, Teodorescu and colleagues (Teodorescu 2015) reported chronic pain in a mean of 4.6 painful body locations per patient; chronic pain at 'clinical levels' affected 66% of the whole sample and 88% of those who were diagnosed with PTSD. The prevalence of pain in refugees with PTSD has been recorded as high as 92% (Buhman 2014). In a study which was conducted on refugees from Iraq, around 66% of the participants reported physical symptoms involving pain (Willard 2014). Interestingly, in the two studies that reported the area of body affected by pain, the most prevalent location was in the abdomen (Willard 2014; Teodorescu 2015).

Treatment of pain among refugees

There is a paucity of research supporting the treatment of pain in refugee populations. Pain management in refugees is basically the same as in non-refugee populations. Opioids (e.g. codeine, tramadol) and non-steroidal anti-inflammatory drugs (NSAIDs) (e.g. ibuprofen, paracetamol, metamizole) are routinely used in the treatment of moderate or severe acute and chronic pain in refugees (Kahl 2017).

It should be noted that ethnicity affects pharmacokinetic responses. For example, the cytochrome P450 enzyme 2D6 (CYP2D6) plays a key role in the metabolism of codeine and tramadol (Cregg 2013). Among White Europeans, 10% have been classified as poor metabolisers, 11% as intermediate metabolisers, 76% as extensive/normal metabolisers and 3% as ultra-rapid metabolisers of opioid analgesics (Puri 2013). Poor metabolisers often experience little analgesic effect (Persson 1995) and ultra-rapid metabolisers have a higher incidence of side-effects (Kirchheiner 2007). Up to 28% of North Africans have been estimated to be ultra-rapid metabolisers (Dean 2012). Only about 50% of Asians and individuals of Asian descent are thought to be extensive/normal metabolisers and Asians are more likely to carry no functional P450 2D6 genetic variants making them poor metabolisers of opioids (Ramamoorthy 2010).

A Cochrane review aimed to assess the efficacy of interventions for pain in survivors of torture identified only three relevant RCTs, involving 88 participants (Baird 2016). One study (Kim 2015, discussed below) employed manual therapy (manipulative therapy) by physiotherapists as the intervention and the other two used CBT. The reviewers described the quality of the evidence from the studies as very low for relevant outcomes, including pain relief, level of distress and degree of disability, because of the high drop-out of participants.

In the general population, evidence-based treatments for chronic pain include psychological interventions with a focus on psychoeducation and self-management skills (Nicholas 2016). Important outcomes include reduction of pain-related disability and mood improvement. An RCT published after the Cochrane review explored the use of bilingual health workers, partnered with physiotherapists, to deliver a culturally adapted physiotherapy with a focus on self-management skills (Brady 2018). The results were favourable, with more participants completing the entire programme compared with the non-culturally adapted programme. A recent review has also explored the benefits of merging religious principles and practices into therapeutic interventions for PTSD in survivors of trauma (Hasanović 2017). The authors postulate that pain can be reduced during spiritual actions such as group prayer, through the release of endorphins. It is possible that culturally appropriate therapeutic environments activate other stress- and pain-buffering hormones as well.

Manual therapy delivered by physiotherapists also show promise, especially when hands-on-skin approaches are used. Massage is believed to promote the release of oxytocin and reduce stress hormones (Morhenn 2012). A study involving Korean survivors of torture found that twice-weekly sessions of hands-on-skin manual therapy reduced lower back pain and disability (Kim 2015). This intervention included 30 min of gentle myofascial release. When reviewing these findings

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it is important to recognise that the interaction between physiotherapists and the treatment group was potentially different to the experience of the control group, and that interactions would appear to have been individualised and culturally safe.

One-on-one sessions of soft tissue manual therapy have also been reported to reduce pain, albeit temporarily, in a patient group made up predominantly of refugees (Negron 2018). The intervention was delivered in a 'holistic and interdisciplinary' clinic dedicated to the support of refugees. It would seem that interventions delivered in a culturally appropriate, non-threatening environment enable the attenuation of pain in refugees.

Case vignette

The fictitious case vignette in Box 3 illustrates some of the complexities of treating refugees with PTSD symptoms. The experiences of the female refugee before she fled her home country, coupled with her fear of the medical interpreter and of deportation, made her initially distrustful of 'talking therapy', complicatingd its progress.

BOX 3 Case vignette: the complexities of treating a refugee patient

Vithiyah was a 25-year-old, single, Sri Lankan Tamil refugee. She reported a significant history of sexual and physical assault in Sri Lanka. Her family sent her to Australia by boat for fearing of further assault by the Sri Lankan Sinhalese armies. She is currently residing in an Australia migration detention centre while awaiting refugee status. The uniformed security officers in the centre remind her of the Sinhalese armies back home, and this reminder has resulted in constant anxiety, rumination and poor sleep. Vithiyah complains of pain in her head, arms and legs where she suffered severe beating from the armies; medical examination and scans revealed no bone fractures or nerve damage. She presented with significant PTSD symptoms and these symptoms were maintained by the lack of safety and certainty; she was distressed and fearful of being deported back to Sri Lanka.

Vithiyah was prescribed mirtazapine and pregabalin. She was also referred to a psychologist. It took a number of sessions for her to open up about her worries and fears as she was unfamiliar with 'talking therapy', she did not feel safe sharing her story via a Sri Lankan interpreter (fearing the female interpreter would judge her) and she was not ready to discuss her trauma. The psychologist decided to focus the intervention on improving Vithiyah's sleep quality and pain management. Vithiyah began to appear more motivated during sessions, her rapport with the therapist was strengthened, and she reported improved general well-being and a sense of mastery in her self-care. After 6 months of regular therapy, Vithiyah was ready to try a trauma-focused psychological intervention.

Conclusions

Epidemiological studies have shown that more than 50% of refugees suffer from PTSD, sleep disturbance and pain. Treatment of these disorders in refugees is often confounded by cultural and contextual factors, including language barriers, ethnic variation in the somatic expression of distress and fear of repatriation. Cultural adaptation can improve the acceptability and success of psychological interventions. Doctors need to pay attention to genetic variants in the metabolism of opioids when prescribing analgesics.

For the treatment of PTSD, narrative exposure therapy, eye-movement desensitisation and reprocessing, and trauma-focused cognitive–behavioural therapy are promising psychological interventions. Sertraline is the recommended pharmacological treatment but further research to assess the effectiveness of novel antidepressants is required.

Sleep disturbance experienced by refugees is often associated with hyperarousal, which is a core symptom of PTSD. Music therapy is an emerging psychological intervention for the treatment of sleep disturbance, and low-dose mirtazapine, clonidine and prazosin have been shown to alleviate sleep problems in refugees.

Pain is a common comorbidity associated with PTSD among refugees, and abdominal pain is the most common complaint. Psychoeducation, self-managing skills development, manual therapy, opioids and NSAIDs have been shown to be effective pain treatments.

MCQ answers
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MCQs

Select the single best option for each question stem.

1 Which of the following statements regarding the current situation of refugees is true?

a by definition, refugees are usually found within their countries of origin
b in general, refugees are not willing to return to their countries of origin
c refugees are often exposed to traumatic events after displacement from their own countries
d the waiting period for asylum application is a protective factor against psychiatric illness
e the global displacement of people from their home countries is becoming uncommon.

2 Which of the following statements about PTSD among refugees is false?

a EMDR shows strong evidence for reducing PTSD symptoms
b both pharmacological and psychological interventions are effective in reducing PTSD symptoms
c PTSD is associated with negative alternations in cognition and mood
d the effectiveness of narrative exposure therapy was tested among refugees from Africa
e sertraline is a recommended SSRI for treating PTSD symptoms.

3 Which of the following statements about sleep disturbance among refugees is false?

a the majority of refugees present with mild sleep disturbances
b hypervigilance is a contributing factor in sleep disturbance
c insomnia or sleep disturbances are often due to trauma-related nightmares
d sleep disturbances affect up to 70–90% of refugees
e sleep disturbance may predict the development of PTSD after exposure to trauma.

4 Which of the following statements about pain experience by refugees is false?

a among all the pain syndromes, abdominal pain is the most common complaint
b pain is a simple reflection of tissue damage
c more than 90% of refugees with PTSD have comorbid pain
d PTSD symptoms may affect pain processing
e physiotherapy such as manual therapy is effective in reducing pain.

5 Which of the following medications has not been well studied among refugees to treat sleep disturbance in PTSD?

a sertraline
b clonidine
c prazosin
d mirtazapine
e agomelatine.

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