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A critical review of psychological treatments of posttraumatic stress disorder in refugees

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ABSTRACT

Despite much research evidence that refugees suffer from elevated rates of posttraumatic stress disorder (PTSD), relatively few studies have examined the effectiveness of psychological treatments for PTSD in refugees. The field of refugee mental health intervention is dominated by two contrasting approaches, namely trauma-focused therapy and multimodal interventions. This article firstly defines these two approaches, then provides a critical review of 19 research studies that have been undertaken to investigate the efficacy of these treatments. Preliminary research evidence suggests that trauma-focused approaches may have some efficacy in treating PTSD in refugees, but limitations in the methodologies of studies caution against drawing definitive inferences. It is clear that research assessing the treatment of PTSD in refugees is lagging behind that available for other traumatized populations. The review examines important considerations in the treatment of refugees. A theoretical framework is offered that outlines contextual issues, maintaining factors, change mechanisms and the distinctive challenges to traditional trauma-focused treatments posed by the needs of refugees with PTSD.

Contents

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1. Introduction

The psychological impact of mass violence has attracted much interest in recent decades, with research documenting the adverse effects of trauma on displaced populations such as refugees and asylum seekers (Steel et al., 2009). As knowledge about the psychological sequelae of refugee trauma has increased, debate has intensified regarding the optimal approaches to treating distress in these populations, with the focus being particularly on posttraumatic stress disorder (PTSD) (Basoglu, 2006; Nicholl & Thompson, 2004; Schweitzer, Buckley, & Rossi, 2002; Silove, 1996; Summerfield, 1999). This article builds on previous reviews of the psychological treatment of adult refugees (Crumlish & O'Rourke, 2010; Nicholl & Thompson, 2004; Palic & Elklit, in press; Schweitzer et al., 2002) to consider the strengths and limitations of two prevailing models of practice which we broadly refer to as the trauma-focused paradigm and the multimodal approach. We define trauma-focused interventions as treatments in which the discussion of traumatic experiences represents a key therapeutic strategy targeted PTSD symptoms. In contrast, multimodal treatments address concurrently a variety of issues including psychological functioning, social and cultural adaptation, physical health and ongoing psychosocial difficulties. While acknowledging overlap in practice of the two models, we focus on their differences in outlining the historical background and rationale for each method. We then undertake a systematic review and critical examination of the research evidence in support of each approach. The review concludes by proposing a theoretical framework that outlines the special considerations needed in the treatment of refugees, and identifying strategies for reconciling and integrating therapeutic approaches.

1.1. The mental health of refugees

Mass conflict and violence affect a large proportion of the world's population (Human Security Report Project, 2007; Obermeyer, Murray, & Gakidou, 2008; United Nations High Commissioner for Refugees (UNHCR), 2006). The United Nations High Commissioner for Refugees (UNHCR) estimates that more than 42 million persons have been forcibly displaced either within their home countries or across national borders (UNHCR, 2009). By definition, refugees leave their home countries to escape persecution, and many are exposed to human rights violations, such as the murder of family and friends, torture and war-related trauma, prior to their flight (de Jong et al., 2001; Man Shrestha et al., 1998; Mollica et al., 1993; United Nations High Commissioner for Refugees (UNHCR), 1951, 1967). Studies conducted in a range of settings, including within conflict-affected areas, in neighbouring states of first asylum, or in re-settlement countries of the west, indicate variable but generally high rates of psychological disorders amongst war-affected and displaced groups, compared to non-refugee populations (Fazel, Wheeler, & Danesh, 2005; Porter & Haslam, 2005; Steel, Chey, et al., 2009). Importantly, these high rates have been documented amongst refugees from diverse cultures and contexts (de Jong et al., 2001; Mollica et al., 1999; Turner, Bowie, Dunn, Shapo, & Yule, 2003).

Most of the epidemiological research examining the mental health of refugees has centred on the diagnosis of posttraumatic stress disorder (PTSD). Population-wide surveys undertaken in Western settings report 12-month PTSD prevalence rates of 4% in the USA (Kessler, Chiu, Demler, Merikangas, & Walters, 2005) and 6% in Australia (Australian Bureau of Statistics, 2007). Estimates of PTSD prevalence amongst refugee groups vary widely, with studies reporting rates ranging from 4% (Vietnamese refugees, Hinton et al., 1993; Steel, Silove, Phan, & Bauman, 2002) to 79%–86% (Cambodian refugees, Carlson & Rosser-Hogan, 1991; Mollica, McInnes, Poole, & Tor, 1998). A recent meta-analysis of 181 studies undertaken with conflict-affected populations reported an unadjusted PTSD weighted prevalence of 30.6% (Steel, Chey, et al., 2009). The prevalence of other psychological disorders, including mood and anxiety disorders also appear to be elevated amongst refugees (Gorst-Unsworth & Goldenberg, 1998; Hauff & Vaglum, 1994; Hinton, Ba, Peou, & Um, 2000; Hinton et al., 2001; Man Shrestha et al., 1998; Silove, Sinnerbrink, Field, Manicavasagar, & Steel, 1997; Turner et al., 2003). A key factor known to influence rates of psychological disorders is exposure to pre-migration traumatic events (Mollica, McInnes, Poole, & Tor, 1998; Mollica et al., 1998; Porter & Haslam, 2005; Steel, Chey, et al., 2009), and in particular torture (Basoglu et al., 1994; Man Shrestha et al., 1998; Van Ommeren et al., 2001). Research has also indicated that resettlement difficulties (Beiser & Hou, 2001; Porter & Haslam, 2005; Schweitzer, Melville, Steel, & Lacharez, 2006; Silove, Steel, McGorry, & Mohan, 1998), and post-migration stressors such as immigration detention and temporary protection (Ichikawa, Nakahara, & Wakai, 2006; Keller et al., 2003; Silove & Steel, 1998; Steel et al., 2006) contribute to psychological distress.

1.2. Trauma-focused treatment

The trauma-focused approach to treating posttraumatic stress in refugees is grounded in contemporary cognitive behavioural frameworks (Foa & Kozak, 1986). This model gives emphasis to two major processes; extinction learning and the correction of distortions of cognition and memory. Most models of PTSD implicate fear conditioning as the key etiological agent in the development of the disorder, in which extreme fear at the time of the event is paired with other stimuli associated with the trauma, resulting in a strong conditioned response (Rauch, Shin, & Phelps, 2006). Accordingly, successful resolution of the trauma involves extinction learning in which the survivor gradually learns that cues initially conditioned with the trauma are no longer aversive, thereby resulting in a reduction of anxiety (Milad et al., 2006). Trauma-focused therapy is conceptualised as a form of extinction learning in which conditioned fear responses are inhibited by new learning that ensures that associated cues are no longer signals of threat (Bryant et al., 2008). The second key process targeted by trauma-focused treatment involves the disturbances in memory processing and cognitive appraisal that accompany intrusive thoughts or images, and lead to avoidance of feared stimuli. The focus of treatment is on altering maladaptive cognitions held by the trauma survivor in order to reduce psychological distress and improve functioning (Foa, Steketee, & Rothbaum, 1989). In summary, trauma-focused interventions, such as cognitive behaviour therapy (CBT), are thought to alleviate symptoms by facilitating extinction learning, processing the traumatic memories, altering maladaptive appraisals of threat, and overcoming avoidance behaviour (Bryant, Moulds, Guthrie, Dang, & Nixon, 2003; Ehlers, Clark, Hackmann, McManus, & Fennell, 2005; Foa, Rothbaum, Riggs, & Murdock, 1991; Foa et al., 1999; Hackmann, Ehlers, Speckens, & Clark, 2004; Resick & Schnicke, 1992).

Accruing evidence supports the conclusion that CBT is the treatment of choice for PTSD in non-refugee populations (Foa, 2000, 2006; Foa & Meadows, 1997; Harvey, Bryant, & Tarrier, 2003; van Etten & Taylor, 1998), a consensus reflected in recent treatment guidelines (International Society of Traumatic Stress Studies Treatment Guidelines, 2008; National Health & Medical Research Council Treatment Guidelines, 2007; UK National Institute of Clinical Excellence, 2005). Hence, considering the documented prevalence of posttraumatic stress in refugee populations, it is reasonable to expect that CBT would potentially have benefit for refugees suffering from PTSD (Basoglu, 2006).

1.3. Multimodal intervention

The approach that has dominated refugee mental health treatment in recent decades may be best described as multimodal intervention. This treatment modality has its origins in several premises, including the recognition that refugees are exposed to a wide range of stressors and challenges during the phases of persecution, flight and resettlement (Reid, Silove, & Tarn, 1990; Silove, 1999). Accordingly, arguments have been advanced that refugees require a range of interventions to address the complex array of psychological reactions that may occur following exposure to multiple traumatic events, as well as subsequent psychosocial stressors, physical health problems and resettlement and acculturation challenges (Berliner, Nikkelsen, Bovbjerg, & Wiking, 2004). As such, it has been argued that a singular focus on trauma or PTSD may not be sufficiently comprehensive to address these diverse and complex needs; at worst, concerns have been raised that the application of exposure techniques (such as reliving memories of torture) when refugees are in a state of heightened stress related to resettlement may result in adverse emotional reactions (for discussion, see Herman, 2001; Neuner et al., 2008; Silove, 1996; Silove, Tarn, Bowles, & Reid, 1991).

Organizations that attend to the psychological needs of refugees in these settings have tended to favour intervention programs that encompass a variety of components (Morris & Silove, 1992). These treatments typically include general resettlement assistance (e.g., advocacy, acculturation issues, assistance with residency status and family reunion, and coordination of resettlement needs including housing, access to social services, referral to language classes, and support in pursuing education, and employment), referral for medical care (e.g., to general practitioners, psychiatrists, physiotherapists), in addition to direct psycho-therapeutic interventions. Psychological interventions often are subsumed under the broad umbrella of "trauma counselling" (as opposed to trauma-focused therapy) and may include general psychological support, directive or non-directive counselling, assistance with practical issues, and problem-solving delivered at the individual, couple, family or community level.

2. Systematic review

Previous reviews have been undertaken examining the efficacy of various psychological and psychopharmacological treatments for refugees (Crumlish & O'Rourke, 2010; Nicholl & Thompson, 2004; Palic & Elklit, in press; Schweitzer et al., 2002). The present paper focuses specifically on the evidence in support of trauma-focused and multimodal interventions respectively. In order to assess the relative value of these approaches, we searched both on-line databases (including PSYCInfo, Medline and PILOTS) and the reference lists of the articles yielded in order to identify studies examining the treatment of PTSD in refugee groups (including asylum seekers) up to September 2010. We used the following keywords: refugee/s, asylum seeker/s, treatment, intervention, therapy, PTSD and posttraumatic stress disorder. The following inclusion criteria were adopted: (a) publications provided sufficient detail to assess the nature of the psychological interventions targeting PTSD; and (b) at least one quantifiable measure of PTSD or anxiety was reported. We excluded case studies (Grey & Young, 2008; Kinzie, 2001; Kinzie & Fleck, 1987; Moore & Boehnlein, 1991; Neuner, Schauer, Roth, & Elbert, 2002; Regel & Berliner, 2007; Schreiber, 1995; Schulz, Marovic-Johnson, & Huber, 2006) and observations based on chart notes (e.g., Boehnlein et al., 2004; Brune et al., 2002). We also excluded studies that detailed treatments that were not trauma-focused or multimodal in nature (e.g., Folkes, 2002; Renner, 2009; Snodgrass et al., 1993). The review was restricted to the psychological treatment of adult refugees. A separate systematic review of interventions for children in post-conflict settings has recently been published (Jordans, Tol, Komproe, & de Jong, 2009). Methodological details of the 19 studies identified by the research strategy are presented in Table 1, together with within-groups effect sizes of PTSD symptom change for each treatment discussed. For studies that did not report within-group effect sizes and provided means and standard deviations, we calculated Cohen's d to represent within-group effect sizes, using the following formula: Cohen's $d = M_1 - M_2/\sqrt{[(\sigma_1^2 + \sigma_2^2)/2]}$.

2.1. Research into trauma focused therapy

2.1.1. Studies involving a control condition

We identified 10 studies comparing trauma-focused treatment with a control condition not including a trauma focused intervention.

Paunovic and Ost (2001) compared the efficacy of imaginal and *in vivo* exposure therapy alone with a combination of both types of exposure therapy, controlled breathing and cognitive therapy in treating PTSD amongst 16 refugees from a variety of backgrounds who were resettled in Sweden. All participants were referred to a torture and trauma clinic from psychiatric services, and were randomly assigned to treatment conditions. Each treatment consisted of 16 to 20 therapy sessions undertaken on an individual basis, and treatment was provided by a doctoral level student in Swedish. No information was provided on whether assessors were blind to treatment condition. Both modalities of treatment led to significant reductions in symptoms of PTSD, generalized anxiety and depression, with gains being maintained at a six-month follow-up assessment. There were no significant differences in symptom reduction between the two treatment conditions, an outcome that may be related to the limited statistical power associated with small sample size.

Neuner and colleagues (Bichescu, Neuner, Schauer, & Elbert, 2007; Neuner, Schauer, Klaschik, Karunakara, & Elbert, 2004; Neuner et al., 2008, 2010) investigated the efficacy of Narrative Exposure Therapy (NET) in four studies undertaken with displaced persons in Africa, survivors of political violence in Romania and asylum-seekers in Germany. NET is an adaptation of exposure therapy specifically designed for war-affected refugees. This treatment is based on testimony psychotherapy, which was initially developed by Lira and Weinstein (published under the pseudonyms Cienfuegos & Monelli, 1983) and applied with survivors of the "dirty war" in Chile. The method was implemented subsequently in an uncontrolled treatment study involving Bosnian refugees in the United States (Weine, Kulenovic, Pavkovic, & Gibbons, 1998 — see below). The NET approach involves the recounting of the patient's life story, focusing particularly on the traumatic experiences that initiated PTSD symptoms. Unlike some more traditional variants of exposure therapy, it has been specifically designed for post-conflict and refugee populations; as such, it allows the multiple traumatic events typically experienced by refugees to be discussed, as well as integrated into the patient's life story. The authors argue that this facilitates habituation, emotional processing and the construction of a coherent life narrative (Neuner et al., 2004; Schauer, Neuner, & Elbert, 2005). The therapist records the patient's life story in written form, then reads it back to the patient, with both therapist and patient jointly making modifications until a cohesive lifetime narrative is recorded. At the end of treatment,

Table 1
Treatment studies examining efficacy and effectiveness of trauma-focused interventions and multimodal treatments for posttraumatic stress disorder (PTSD) in refugees.

Authors	Sample/referral Source	Random assign	Blind assess	Treatment conditions	Therapist	PTSD measure and follow-up assessment	Findings	Effect sizes
Trauma-focused studies with control group								
Paunovic & Ost, 2001	16 refugees from various backgrounds Referred from psychiatry services to torture and trauma clinic in Sweden	Yes	Not specified	CBT –16 to 20 sessions –Imaginal exposure –*In vivo* exposure –Controlled breathing –Cognitive therapy Exposure therapy –16 to 20 sessions –Imaginal exposure –*In vivo* exposure	Doctoral-level student (Therapy conducted in Swedish)	Clinician Administered PTSD Scale (CAPS) PTSD Symptom Scale (PSS-SR) Impact of Events Scale-Revised (IES-R) 6 months post-treatment	Significant reductions in PTSD, generalized anxiety and depression Gains maintained at 6-month follow-up No between-group differences	Not reported CBT *CAPS* Pre to post d = 2.7 Pre to f-up d = 2.5 *PDS* Pre to post d = 2.4 Pre to f-up d = 2.6 Exposure therapy *CAPS* Pre to post d = 2.4 Pre to f-up = 2.6 *PDS* Pre to post d = 2.2 Pre to f-up d = 2.1
Neuner et al., 2004	43 Sudanese refugees residing in Ugandan refugee camp Potential participants randomly selected from sample of earlier epidemiological survey. Those with PTSD were eligible to participate	Yes	Yes	NET –4 sessions Supportive counselling (SC) –4 sessions Psychoeducation (PE) –1 session	Doctoral level psychologists and graduate students with interpreters	Composite International Diagnostic Interview (CIDI) Posttraumatic Stress Diagnostic Scale (PDS) 4 months and 12 months post-treatment	NET superior to other conditions in reducing PTSD at 12-month follow-up No difference between NET and PE on other indices PTSD diagnosis at 12 months NET—29% SC—79% PE—80%	Reported NET *CIDI* Pre to f-up d = 1.9 *PDS* Pre to post d = 0.6 Pre to f-up = 1.6 PE *CIDI* Pre to f-up d = 0.4 *PDS* Pre to post d = 0.2 Pre to f-up d = −0.1 SC *CIDI* Pre to f-up = 0.3 *PDS* Pre to post = −0.5 Pre to f-up = −0.9
Neuner et al., 2008	227 Rwandan and Somalian refugees residing in Ugandan refugee camp Participants with PTSD identified from earlier epidemiological survey. Those residing close to the research base participated.	Yes	Yes	NET –6 sessions –Participants received written testimony Trauma counselling (TC) –6 sessions –Counsellors decided which interventions to implement including whether to apply NET strategies –Therapy less directive –Focus on linking current experiences to past traumatic events –Participants did not receive written testimony No-treatment control group (NTC)	Lay counsellors from same refugee camp who received training in NET and general counselling skills	Posttraumatic Stress Diagnostic Scale (PDS) 3, 6 and 9 months post-treatment	NET and TC led to greater reductions in PTSD and physical health problems than NTC No between-group differences PTSD diagnosis at 9 months NET—30% TC—35% TC—63%	NET *PDS* Pre to post-d = 1.4 Pre to f-up d = 1.4 TC *PDS* Pre to post d = 1.5 Pre to f-up d = 1.5 NTC *PDS* Pre to f-p d = 0.8
Neuner et al., 2010	32 asylum seekers from Turkey, the Balkans and Africa with temporary leave to remain in Germany	Yes	Yes	NET –Median of 9 sessions Treatment as usual (TAU)	Doctoral level clinical psychologists and graduate students with interpreters	Posttraumatic Stress Diagnostic Scale (PDS) 6 months post-treatment	NET led to greater decreases in PTSD symptoms No between-group differences in rates of PTSD diagnosis, depression symptoms or pain	NET *PDS* Pre to post d = 1.6 TAU

	Referred to refugee clinic by GPs, aid organizations, lawyers and judges			–Medication and psychotherapy –Information on number of sessions not available due to lack of concordance between patient and therapist reports		(note this served as post-treatment assessment)		*PDS* Pre to post d = 0.4
Bichescu et al., 2007	18 survivors of political violence in Romania Potential participants randomly selected from sample of earlier epidemiological survey. Those with PTSD were eligible to participate	Yes	Yes	NET –5 sessions Psychoeducation (PE) –1 session	PhD student fluent in Romanian	Composite International Diagnostic Interview (CIDI) 6 months post-treatment (note this served as post-treatment assessment)	NET superior to PE in reducing PTSD diagnosis as well as avoidance and arousal symptoms No between-group differences in re-experiencing symptoms.	NET *CIDI — No. PTSD symptoms* Pre to f-up d = 3.2 PE *CIDI—No. PTSD symptoms* Pre to f-up d = 0.3 PTSD diagnosis at 6 months NET = 44% PE = 89%
Otto et al., 2003	10 treatment-resistant female Cambodian refugees (all participants had received initial course of pharmacotherapy (clonazepam) and "adequate dose" of SSRI that was not sertraline Participants presented at outpatient clinic	Yes	No information provided	Medication –Sertraline Medication ± CBT –10 sessions –Sertraline –Group-based CBT In both conditions patients gradually ceased use of other SSRI and commenced sertraline. Clonazepam dose held constant throughout treatment	Psychiatrist fluent in Khmer	Clinician Administered PTSD Scale (CAPS) No follow-up assessment	Combined condition led to greater reductions in PTSD, anxiety and somatisation No between-group differences in depression symptoms.	No post-treatment standard deviations reported
Hinton et al., 2004	12 Vietnamese refugees with comorbid PTSD and panic attacks who had failed to respond to at least one year of treatment with adequate dose of SSRI medication and supportive counselling Participants presented at outpatient clinic	Yes	No information provided	CBT –11 sessions Wait-list control group (WLC) –Received CBT after 17-week delay Other medications held consistent throughout treatment Cross-over design	Psychiatrist with assistance of Vietnamese staff who provided translation and cultural consultation services	Harvard Trauma Questionnaire (HTQ) Cross-over design	CBT associated with greater reductions in PTSD, anxiety, depression and panic symptoms. Similar reductions in symptoms observed in WLC group after they received therapy	CBT—Group 1 *HTQ* Pre to post d = 3.5 CBT—Group 2 *HTQ* Pre to post d = 1.8 WLC *HTQ* Pre to post d = −0.3
Hinton et al., 2005	40 Cambodian refugees with treatment-resistant \PTSD and panic attacks Patients presented at an out-patient clinic	Yes	Yes	CBT –12 sessions –Focus on traumatic memories –Cognitive flexibility training Wait-list control group (WLC) –Received CBT after 20 week delay Supportive psychotherapy and other medications held constant through treatment Cross-over design	Psychiatrist fluent in Khmer	Clinician Administered PTSD Scale (CAPS) Cross-over design & 6 month follow-up assessment	CBT associated with greater reductions in PTSD, anxiety, depression and panic symptoms	CBT—Group 1 *CAPS* Pre to post d = 2.0 Pre to f-up d = 2.1 CBT-Group 2 *CAPS* Pre to post d = 3.1 Pre to post d = 0.3 WLC *CAPS* Pre to f-up = 3.0
Hinton et al., 2009	24 Cambodian refugees with treatment-resistant PTSD and panic attacks Participants presented at an outpatient clinic	Yes	Yes	CBT –12 sessions Wait-list control group (WLC)	Psychiatrist fluent in Khmer	Clinician Administered PTSD Scale (CAPS) Cross-over design	CBT associated with greater reductions in PTSD, emotion regulation ability and panic symptoms	CBT—Group 1 *CAPS* Pre to post d = 1.9 CBT—Group 2 *CAPS* Pre to post d = 3.2 WLC *CAPS* Pre to post d = 0.3

(continued on next page)

Table 1 (*continued*)

Authors	Sample/referral Source	Random assign	Blind assess	Treatment conditions	Therapist	PTSD measure and follow-up assessment	Findings	Effect sizes
Trauma-focused studies without control group								
Kruse et al., 2009	70 Bosnian refugees with PTSD and somatoform disorder Referral source not reported Participants treated at university-based clinic	No	No	Skills training (ST) –25 h –Psychoeducation –Affect regulation –Interpersonal relationship focus –Progressive muscle relaxation –Trauma-related cognitive therapy Treatment as usual (TAU) –Number of sessions not specified –Medical treatment –Social support –3-monthly counselling	Bosnian-speaking physician and psychologist	Harvard Trauma Questionnaire (HTQ) 12 months post-baseline assessment	Skills training related to greater decreases in PTSD and global severity, and increases in mental and physical health-related functioning	ST *HTQ* Pre to f-up d = 2.7 TAU *HTQ* Pre to f-up d = −0.3
Trauma-focused studies without control group								
Weine et al., 1998	20 Bosnian refugees identified through researchers' work in Bosnian community	N/A	N/A	Testimony psychotherapy (TP) –4 to8 sessions –Relate life story focusing on individual and collective experiences of traumatic events	English speaking psychiatrist working with interpreter and Bosnian-speaking psychiatrist	PTSD Symptoms Scale (PSS) 2 months and 6 months post-treatment	Significant decreases in PTSD and depression, and increase in Global Assessment of Functioning PTSD diagnosis Post-treatment—75% 2 months—70% 6 months—53%	No post-treatment standard deviations reported
Holmqvist et al., 2006	34 refugees mostly from former Yugoslavia Participants referred to refugee treatment service by treating physicians	N/A	N/A	Trauma-focused therapy (TFT) –15 sessions (mean) –Trauma-focused and psychodynamic	Six therapists Language of therapy was not specified	Posttraumatic Stress Scale (PTSS) 5 months and 15 months post-treatment	Participants evidenced significantly decreased depression and PTSD	TFT *PTSS* Pre to 15 month f-up d = 1.5
Schulz, Huber, & Resick, 2006	53 refugees from various backgrounds Participants sought treatment at community mental health centre	N/A	N/A	Cognitive Processing Therapy (CPT) –17 sessions (mean) –Written exposure therapy tasks –Cognitive therapy –17 sessions (mean)	Masters-level clinicians; approx half of patients treated with interpreters	PTSD Symptoms Scale (PSS) No follow-up	Participants reported significantly reduced symptoms of PTSD	CPT *PSS* Pre to post d = 2.5
d'Ardenne, Ruaro, et al., 2007	44 refugees requiring interpreters 36 refugees who spoke English 48 non-refugees Referred to tertiary health clinic by community mental health teams	N/A	N/A	CBT –9 sessions (mean) –"Standard CBT" –Exposure to traumatic memories	Clinical psychologists and trainees	Impact of Events Scale (IES) No follow-up	Patients reported significantly decreased symptoms of PTSD and depression	CBT *IES* Pre to post d = 0.5
Halvorsen & Stenmark, 2010	16 torture survivors from a variety of backgrounds Participants referred to outpatient psychiatric treatment clinic	N/A	N/A	NET –10 sessions	Mental health professionals (psychologists, psychiatrists, psychiatric nurses and clinical social workers) 12 patients required interpreters	Clinician Administered PTSD Scale (CAPS) 6-month follow-up	Patients reported significantly decreased symptoms of PTSD and depression	CBT *CAPS* Pre to post d = 0.7 Pre to f-p d = 1.2

Multimodal treatment studies Mollica et al., 1990	52 Cambodian, Vietnamese and Laotian refugees Treatment-seeking patients at Indochinese Psychiatry Clinic	N/A	N/A	Multimodal therapy (MMT) –Number of sessions not specified –Medication –Counselling –Culturally-appropriate psychosocial support	Multimodal team including psychiatrist social worker and mental health worker	Hopkins Symptom Checklist 2(HSCL-25) used to index anxiety and depression symptoms No follow-up	No significant changes in anxiety or depression overall	MMT *HSCL-Anxiety* *Cambodian* Pre to post d = 0.1 *Laotian* Pre to post d = −0.4 *Vietnamese* Pre to post d = 0.5 *HSCL-Depression* *Cambodian* Pre to post d = 0.5 *Laotian* Pre to post d = −0.2 *Vietnamese* Pre to post d = 0.2
Carlsson et al., 2005	55 refugees from various backgrounds Referred to specialist torture and trauma service in Denmark by general practitioners	N/A	N/A	Multimodal therapy (MMT) –35 sessions (mean) –Psychothearpy –Physiotherapy –Medical attention –Social assistance 71% received MMT 13% received group therapy for women 9% received psychoeducation (groups all classified as MMT)	Multimodal team	Harvard Trauma Questionnaire (HTQ) No follow-up	No significant change in PTSD, depression or anxiety	No post-treatment standard deviations reported
Birck, 2001	30 refugees from various backgrounds Referral source not specified. Treatment conducted at centre for torture survivors	N/A	N/A	Multimodal therapy (MMT) –Weekly sessions over mean time of 2 years –Medical treatment –Social support –Psychological care –Most patients received psychodynamic psychotherapy –A few cases received Gestalt, systemic and CBT	Multimodal team	Impact of Events Scale Revised (IES-R) Harvard Trauma Questionnaire (HTQ) 2 year follow-up	Decreased re-experiencing symptoms, no change in avoidance or hyperarousal symptoms. No reduction in depression, anxiety or PTSD.	MMT *HTQ* Pre to f-u d = 0.3
Palic & Elklit, 2009	26 refugees from various backgrounds treated at refugee trauma clinic in Denmark. Referral sources not specified	N/A	N/A	Multimodal therapy (MMT) –16 to 18 weeks of treatment –Physiotherapy (1 session per week) –Pharmacotherapy –CBT focusing on exposure therapy (1 session per week) –Social counselling	Multimodal team	Harvard Trauma Questionnaire (HTQ) 6 months post-treatment	Decreased re-experiencing symptoms only between base-line and follow-up. Decreased avoidance and arousal symptoms, general distress, increased social support at post-treatment and 6-month follow-up Almost all patients retained diagnosis of PTSD following treatment with 2 attracting new diagnosis of Enduring Personality Change After a Catastrophic Event	MMT Pre to f-u d = 1.0 *HTQ* Pre to post d = 0.9

the patient is provided with a written record of the narrative, and, if the patient wishes, a copy is sent to an appropriate human rights organization (Schauer et al., 2005).

In the first study of the series, Neuner et al. (2004) examined the relative efficacy of NET, supportive counselling, and psycho-education in treating PTSD amongst Sudanese refugees residing in a settlement in northern Uganda. Following an epidemiological survey, 77 persons were randomly selected, and those with PTSD (N = 44) were eligible to receive treatment. One potential participant refused, resulting in a final sample size of 43. Participants were randomly assigned to NET, supportive counselling or psychoeducation, and therapy was conducted by doctoral-level psychologists and graduate students. Post-treatment, four month follow-up and twelve month follow-up assessments were conducted by interviewers blind to treatment condition. In this study, four sessions of NET proved superior in reducing symptoms of PTSD to four sessions of supportive counselling and one session of psycho-education. At the one-year follow-up assessment, significantly fewer participants in the NET group retained a diagnosis of PTSD (29%) compared to those in the supportive counselling group (79%) and the psycho-education group (80%). There were no significant differences between the two active intervention groups (NET and psycho-education) in general psychological health, including indices of anxiety and depression.

In a further study, Neuner et al. (2008)investigated the effectiveness of NET when delivered by lay counsellors in a refugee camp in southern Uganda. Participants were Somali and Rwandan refugees identified as suffering from PTSD in an earlier epidemiological survey. The 227 persons living in villages closest to the research base were invited to participate, and all chose to proceed with treatment. Participants were randomly assigned to six bi-weekly sessions of either NET, trauma counselling or to a no-treatment control group. Counsellors were nine refugees from the same camp who received training in NET and general counselling skills. NET was conducted as described for the previous study (Neuner et al., 2004). Trauma counselling was developed to represent an ecologically valid treatment alternative in which individual counsellors had considerable autonomy in deciding which interventions to implement, including whether or not to apply NET strategies. Therapy was less directive and focused on helping the patient to link current experiences with past traumatic events. Assessment was conducted by raters who were blind to the participants' treatment condition. For all conditions, assessment took place prior to treatment and at six and nine-month post-treatment intervals. Participants in the two treatment conditions were also assessed both immediately following treatment and three months later. More participants failed to complete treatment in the trauma counselling group (20%) compared to NET (4%). While all participants exhibited significant reductions in PTSD symptoms, those who received NET and trauma counselling manifested a greater reduction in symptoms than those in the no-treatment control condition. Accordingly, in terms of PTSD diagnosis, significantly fewer patients in the NET (30%) and the trauma counselling (35%) conditions continued to meet clinical criteria for PTSD at the nine-month follow-up assessment compared to the control condition (63%). Participants in the two active treatment conditions also exhibited fewer physical health problems at six-month follow-up assessment.

Another study undertaken by Neuner et al. (2010) investigated the applicability of NET to asylum-seekers who had been granted leave to remain in Germany for three months. Participants were 32 patients from the Turkey, the Balkans and Africa who had been referred by general practitioners, lawyers, judges or aid organizations. All participants were randomly assigned to receive either NET or treatment as usual (TAU), consisting of non trauma-focused psychotherapy and/or medication. Assessments were undertaken prior to treatment and six months post-treatment by assessors blind to treatment condition. It is notable that the symptoms exhibited by the sample in this study was severe, with NET being conducted in an inpatient setting with two participants when they were admitted to hospital due to suicidality following the initial assessment. The duration of the NET treatment was a median of nine sessions, however the authors were unable to report how many sessions were completion in the TAU condition due to lack of concordance between patient and therapist reports. Results indicated that the NET group evidenced significantly greater decreases in symptoms of PTSD compared to the TAU group. However, there were no between-group differences in rates of PTSD diagnosis (all but one participant continued to meet diagnostic criteria at the six-month follow-up assessment), symptoms of depression or pain indices.

In a study in Romania, NET was compared with psycho-education in treating PTSD in 18 survivors of political violence (Bichescu et al., 2007). Participants were randomly selected from a pool of 59 people who took part in an epidemiological study examining the effect of political imprisonment in Romania (Bichescu et al., 2005). Those with PTSD were eligible to participate. All persons invited to take part in this study agreed to participate. Patients were randomly assigned to receive five sessions of NET or one session of psycho-education. They were assessed for a diagnosis of PTSD and symptoms of depression prior to treatment and six months post-treatment. Treatment was carried out by a PhD psychology student who was fluent in Romanian. At follow-up assessment, which was conducted by blind raters, five out of nine participants in the NET condition and one out of nine in the psycho-education group no longer met criteria for PTSD. Significantly greater reductions were evident for symptom clusters of avoidance and arousal in relation to PTSD, and in depression for the NET group compared to the psycho-education group. No difference between the groups was observed in the re-experiencing symptoms of PTSD.

Hinton and colleagues have conducted four trials evaluating CBT in treatment-refractory PTSD amongst Vietnamese and Cambodian refugees (Hinton, Hofmann, Pollack, & Otto, 2009; Hinton et al., 2004, 2005), in addition to two case-series studies (Hinton, Pich, Chhean, Safren, & Pollack, 2006; Hinton, Safren, Pollack, & Tran, 2006) which will not be reviewed in this article. The authors adapted CBT to address culturally-specific panic attacks and symptoms of posttraumatic stress (Hinton, Chau, et al., 2001; Hinton, Um, & Ba, 2001). The treatment varied slightly between studies, but primarily consisted of psycho-education, exposure to trauma memories and interoceptive exposure to bodily sensations. Therapy also encompassed instruction in culturally-appropriate visualization, traditional meditation techniques and the practice of mindfulness, components that were deemed consistent with South East Asian cultural and religious beliefs (see Hinton, Safren, et al., 2006 for a full description of the therapy; Otto & Hinton, 2006).

In the first study in the series, Otto et al. (2003) investigated the therapeutic benefit of combining sertraline, a selective serotonin reuptake inhibitor (SSRI) medication, and CBT for treatment-resistant PTSD. Participants were 10 Cambodian women who were randomly assigned to receive either sertraline alone or sertraline with group-based CBT (provided in Khmer, the Cambodian language). Participants were selected on the basis that they continued to meet criteria for PTSD after they had received an initial course of pharmacotherapy consisting of clonazepam in addition to an “adequate dose” of an SSRI that was not sertraline (Otto et al., 2003 p. 1273). Ten sessions of CBT were offered, with patients gradually ceasing use of their previously prescribed SSRI medication and then commencing a course of sertraline. The clonazepam dosage was held constant throughout treatment. No information was provided detailing whether assessors were blind to treatment condition. No follow-up assessment was reported. Analyses revealed that the participants in the combined medication/psychological therapy condition exhibited the greater reduction in symptoms of PTSD, anxiety, and somatisation at post-treatment. While symptoms of depression declined in both groups, there was no additional reduction of depressive symptoms in the

combination treatment over and above the medication-only treatment.

In a further study, Hinton et al. (2004) tested the efficacy of CBT for treatment-refractory PTSD amongst 12 Vietnamese refugees attending specialized outpatient clinics that provide services to Vietnamese and Cambodian refugees. All participants had co-morbid PTSD and panic attacks and had failed to respond to at least one year of treatment with an "adequate dose" of an SSRI medication and supportive counselling (Hinton et al., 2004, p. 430). Medications reported at the initial assessment were continued throughout therapy. Participants were randomly assigned to either active treatment involving 11 sessions of CBT or a wait-list control group in which participants received treatment after a 17-week delay. Assessments were conducted for both groups at baseline (first assessment) and after the treatment of the active group (second assessment). The wait-list group was assessed for the third time after they had received treatment. No information was provided on assessors. Therapy was conducted on an individual basis by a psychiatrist with the assistance of Vietnamese staff who provided translation and cultural consultation services. Participants in the CBT condition showed a significantly greater reduction in symptoms of PTSD, anxiety, depression and panic compared to the wait-list group at the second assessment point. Similar reductions in symptoms were then observed in the wait-list group after they had received therapy.

Hinton et al. (2005) implemented a similar design with 40 Cambodian refugees who suffered from treatment-resistant PTSD and panic attacks and were attending a specialized outpatient clinic. Patients were randomly assigned to either an active treatment condition or a wait-list control, with participants in the wait-list condition receiving treatment after 20 weeks. The treatment was similar to that used in the preceding studies at the clinic, but with a greater focus on exposure to traumatic memories, and the addition of cognitive flexibility training in which participants were taught how to shift between alternate ways of thinking about a situation. Treatment was undertaken over 12 weekly sessions by a psychiatrist fluent in Khmer. Supportive psychotherapy and medication was continued for all participants throughout wait-list and treatment periods. Assessments were conducted by bicultural Cambodian staff who were blind to treatment condition. Participants in the active treatment condition exhibited a significantly greater decline in PTSD, depression, anxiety and panic symptoms than those who were waiting for treatment. Those in the wait list condition also exhibited a similar decrease in symptoms at the post-treatment assessment. A 12-week follow up assessment was also conducted, with both groups exhibiting similar reductions in symptoms.

In a recent study, Hinton et al. (2009) replicated the design with 24 Cambodian patients at the outpatient clinic with treatment-resistant PTSD and panic attacks. Participants were once again randomly assigned to active treatment or a wait-list control. Treatment was 12 sessions of culturally-adapted CBT and blind assessments were once again implemented. Patients receiving CBT evidenced greater reductions in PTSD and panic symptoms and greater increases in emotion regulation ability compared to the control group. Once again, participants in the wait-list control also exhibited analogous improvements after receiving the active treatment.

2.1.1.1. Conclusions from studies with control condition. All studies reported a significant reduction in symptoms of PTSD following trauma-focused therapy. In all studies, trauma-focused treatment was superior to the control treatment in reducing symptoms of PTSD. In some studies, trauma-focused therapy was also associated with a greater decrease in other symptoms (such as depression, anxiety or physical health symptoms) than the control group (Hinton et al., 2004, 2005; Kruse, Joksimovic, Cavka, Woller, & Schmitz, 2009; Neuner et al., 2008; Otto et al., 2003), although no consistent pattern of findings emerged for other disorders.

It is notable that most of the randomized controlled trials reviewed here reported large effect sizes in relation to PTSD symptom reduction following a trauma-focused treatment. Only one study reported an effect size of less than 1.0 (Neuner et al., 2004), which may have been related to the decision by the authors to include change in diagnostic status as a treatment outcome. In the other studies, effect sizes of greater than 1.5 were common. This corresponds to a 70% or greater non-overlap of the treated group's scores with the scores at baseline. In general, effect sizes were much larger for trauma-focused treatments than the non-trauma-focused control conditions which generally yielded effect sizes smaller than 0.5, or a much lower 33% of non-overlap of control group pre- and post-treatment scores.

2.1.2. Studies not involving a control condition

Kruse et al. (2009) conducted an effectiveness trial where they examined the relative impact of a "skills-training" intervention and treatment as usual on PTSD in 70 Bosnian refugees referred to a university-based clinic. Patients were eligible to take part in the study if they fulfilled diagnostic criteria for PTSD and somatoform disorder. The first 35 eligible patients were assigned to receive the skills training treatment, while the next 35 received treatment as usual. The skills training treatment consisted of 25 h of therapy, and focused on affect regulation, interpersonal relationships and trauma-related cognitive therapy. Treatment as usual was comprised of social support, medical treatment and counselling once every three months. Participants were assessed prior to treatment and at 12 months after baseline. Participants in the skills-training intervention evidenced greater reductions in symptoms of PTSD and overall severity of psychological distress, and greater improvements in mental and physical health-related functioning compared to those who received treatment as usual.

Weine et al. (1998) used testimony psychotherapy (based on that described by Cienfuegos & Monelli, 1983) to treat symptoms of PTSD in 20 Bosnian refugees resettled in Chicago. Testimony psychotherapy is a therapeutic intervention based on documenting the experiences of survivors of war and trauma, and finding appropriate ways to share these with others. It focuses on collective traumatisation, in contrast to other trauma-focused therapies such as NET which are primarily concerned with alleviating the individual psychological effects of trauma. Thus a major aim of testimony psychotherapy is to contribute to understandings of history and facilitate peace. Participants consisted of volunteers and those identified through the researchers' work with the Bosnian community. Treatment was conducted by an English-speaking psychiatrist working in conjunction with an interpreter and a Bosnian-speaking psychiatrist. Psychological assessments were undertaken prior to treatment, at post-treatment and at two and six months follow-up by members of the research team. Treatment consisted of four to eight sessions conducted once or twice a week, each lasting 90 min. Similar to NET, which was based on this approach (Neuner et al., 2004; Schauer et al., 2005), participants related their life story with a particular focus on individual and collective experiences of traumatic events. Symptoms of PTSD and depression decreased significantly at post-treatment and follow-up assessments, while functioning (as assessed by the Global Assessment of Functioning Scale) increased significantly. The prevalence of PTSD amongst participants reduced to 75% at the immediate post-treatment assessment, 70% at two-months follow-up, and 53% at the six-months assessment.

A study conducted at a refugee treatment service in Sweden investigated the effectiveness of trauma-focused psychotherapy in treating symptoms of PTSD amongst 34 resettled refugees mostly from the former Yugoslavia (Holmqvist, Andersen, Anju, & Alinder, 2006). All participants were referred by treating physicians, and received an average of 15 therapy sessions conducted by six experienced psychotherapists. Little information is provided regarding the non-manualised treatment except that it was "trauma-

focused" and psychodynamic. The approach was based on the therapeutic principles developed by Herman (Herman, 1992a) who posited that therapy should involve stages including safety building, remembrance and mourning, and reconnection (Holmqvist et al., 2006, p. 253). Self-report assessment was conducted prior to treatment, immediately following treatment, and 5 and 15 months post-treatment. Data was only available for 14 participants, who evidenced significant reductions in symptoms of depression between pre-treatment and the two follow-up assessments. PTSD symptoms significantly reduced between pre-treatment assessment and all other assessment times.

An effectiveness study was conducted at a community mental health service in the United States, applying manualized Cognitive Processing Therapy (CPT) with 53 treatment-seeking refugees (Schulz, Resick, Huyber, & Griffin, 2006). CPT (Resick & Schnicke, 1993) is a variation of CBT that employs written exposure tasks and cognitive therapy to treat PTSD. Interpreters were used for approximately half of patients, who were treated by masters-level clinicians. Assessments were made by treating therapists prior to and immediately after the intervention. The number and duration of therapy sessions was negotiated jointly between the therapist and the participant, and patients attended a mean of 17 sessions of approximately 1.5 to 2 h in length. Treatment termination was determined by reduction of PTSD symptoms and achievement of treatment objectives. While formal treatment fidelity was not assessed, therapists attended regular supervision to ensure adherence to the manual. Participants reported significantly reduced symptoms of PTSD from pre- to post-treatment assessment.

Research comparing the effectiveness of CBT when delivered via an interpreter or by a therapist who spoke the patient's native language was undertaken at a mental health service in London (d'Ardenne, Ruaro, Cestari, Fakhoury, & Priebe, 2007). Participants were 44 refugees requiring interpreters, 36 refugees who spoke English and thus did not need interpreters and 48 non-refugees. All were referred by community mental health teams. Assessment was conducted prior to and following treatment. CBT was implemented over a mean of approximately nine sessions by two clinical psychologists and eight trainees who conducted therapy under close supervision. Participants in all groups showed significant decreases in symptoms of PTSD and depression from pre-treatment to post-treatment. In contrast to other groups, the trend towards increased quality of life was not significant in refugees requiring interpreters. The authors noted that treatment gains, while significant, were relatively small.

2.1.2.1. Conclusions from studies not involving a control condition. Five studies have reported trauma-focused interventions with refugees but did not include a control condition. Trauma-focused treatments were associated with significant decreases in PTSD symptoms across all studies. Participants also exhibited significant decreases in the levels of depressive symptoms in the four studies that measured those symptoms (d'Ardenne, Farmer, Ruaro, & Priebe, 2007; Halvorsen & Stenmark, 2010; Holmqvist et al., 2006; Weine et al., 1998). Effect sizes for the symptom change achieved ranged from moderate (d = 0.5, d'Ardenne, Ruaro, et al., 2007) to very large (d = 2.5, Schulz, Resick, et al., 2006).

2.1.3. Summary of trauma-focused treatments

Compared to the large number of trials of trauma-focused therapy conducted amongst trauma-affected western populations, only a relatively small number of studies have evaluated these interventions amongst refugees. Emerging results are encouraging in suggesting that trauma-focused therapies may be effective in reducing symptoms of PTSD and associated distress in refugee groups residing in both western and non-western settings. It is noteworthy however, that only one study (Neuner et al., 2004) has compared a trauma-focused therapy with a credible psychological intervention that did not include a trauma focus. Designs that do not include credible control interventions do not allow non-specific factors to be excluded as the primary therapeutic mechanisms. Also, the trauma-focused interventions detailed in these studies varied in content and the extent to which various components were applied. The absence of treatment fidelity checks in all but one study (Neuner et al., 2004) adds to the difficulty in disaggregating the specific components of treatment that may be effective. This highlights the need for more rigorous investigations into treatment efficacy as well as the mechanisms of change before clear recommendations can be made regarding the vital components of CBT programs in for the treatment of PTSD in refugees.

2.2. Research into multimodal approaches

2.2.1. Overview of studies

We identified four studies that evaluated multimodal interventions (see Table 1). For the purpose of this review, we operationalised multimodal approaches as encompassing psychological interventions that occurred alongside other treatment components (e.g., medical, psychosocial or resettlement assistance). One of the reviewed studies also encompassed a CBT treatment component (Palic & Elklit, 2009).

The review of relevant research indicates that there has been scant proper evaluation of multimodal approaches to treating psychological distress in refugees. Importantly, no trials have been reported that randomised participants to a multimodal or control program. Four uncontrolled studies have been conducted examining the impact of multimodal treatment delivered by specialized refugee trauma services on symptoms of PTSD and other disorders in refugees (Birck, 2001; Carlsson, Mortensen, & Kastrup, 2005; Mollica et al., 1990).

Mollica et al. (1990) evaluated the impact of a multimodal treatment program on psychiatric symptoms amongst resettled Cambodian, Vietnamese and Laotian refugees. Participants were 52 refugees attending a specialized clinic in the United States within a six-month period. Symptoms of anxiety, depression and PTSD were assessed by psychiatrists and a physician at the beginning and end of the six-month period. Patients attended weekly sessions and treatment was provided by a multimodal team, including a psychiatrist, a social worker and a mental health worker. Treatment consisted of medication, counselling and culturally-appropriate psychosocial support. It is not specified whether traumatic experiences were discussed during the course of therapy. There were no significant changes in the mean scores on measures of PTSD and anxiety from pre-treatment to post-treatment. Cambodian patients exhibited a significant decrease in symptoms of depression at post-treatment, while Vietnamese and Laotian patients did not.

A study conducted by a specialist torture and trauma service in Denmark investigated the efficacy of their multimodal intervention in treating PTSD in 55 refugee patients from various cultural backgrounds (Carlsson et al., 2005). Participants were all torture survivors and had been referred by general practitioners. PTSD, depression, anxiety and quality of life were assessed prior to and after treatment. Patients received an average of 35 treatment sessions over an eight-month period. The authors specified that 39 participants (71%) received multimodal treatment, 7 (12.7%) participated in a group therapy for women and 5 (9%) received psychoeducation for families. The multimodal intervention consisted of a combination of psychotherapy, physiotherapy, medical attention and social assistance, while no details were provided about the other treatments. There were no significant changes in symptoms of PTSD, depression or anxiety from baseline to post-treatment assessment. Reported quality of life also did not differ from pre-treatment to post-treatment assessment.

A third study examined the effect of a multimodal intervention including medical treatment, social support and psychological care in refugee torture survivors attending a treatment centre in Berlin

(Birck, 2001). Data on 30 patients were presented from pre-treatment and a two year follow up assessment. Treatment sessions occurred weekly, and were conducted over a mean of approximately two years. The follow-up assessment was undertaken two years after the end of therapy. The majority of patients received psychodynamic psychotherapy, although in a few cases, Gestalt, systemic and cognitive behavioural therapies were applied. In participants who met criteria for PTSD at pre-treatment assessment, the majority evidenced decreased re-experiencing symptoms at the two year follow-up assessment. In contrast, there was no reduction in avoidance or hyperarousal symptoms, or overall levels of depression, anxiety or PTSD between the two assessment periods.

One recent study has examined the effectiveness of a multimodal treatment comprising a cognitive behavioural psychotherapeutic component (Palic & Elklit, 2009). Participants were 29 traumatized refugees from various backgrounds resettled in Denmark. Treatment consisted of 16 to 18 weeks of physiotherapy (1 session per week), pharmacotherapy, exposure-based CBT (1 session per week) and social counselling. Assessments were conducted by treating clinicians at pre- and post-treatment, and six months follow-up. Participants evidenced significant decreases in re-experiencing symptoms only between baseline and follow-up, although significant improvements in avoidance symptoms, overall functioning, general distress and social support were observed both at post-treatment assessment and six months following treatment. The authors noted, however, that, following treatment, patients continued to display high levels of symptoms and poor functioning overall. Almost all patients retained their diagnosis of PTSD following treatment, while two attracted a new diagnosis of enduring personality change after a catastrophic event.

2.2.2. Conclusions from studies

The studies reviewed above applied a form of multimodal treatment to refugees with PTSD, encompassing psychosocial assistance and both physical and psychological interventions, in an attempt to address the wide range of difficulties experienced across multiple areas by refugee groups. All studies were conducted by treatment centres considered to be leaders in the field of refugee treatment. Despite implementing culturally-appropriate interventions that addressed many of the issues considered to be of primary importance to refugees, none of the interventions led to significant improvements in the medium-term. It is possible that those seeking treatment at specialized centres exhibit very high levels of psychopathology, disability and chronicity, and thus fall into a loosely defined treatment-resistant group who may even have worsened in the absence of intervention. Further research in which multimodal interventions are compared to control groups, and the psychiatric status of persons entering therapy is considered, is vital to advance knowledge about the efficacy or otherwise of this therapy in treating PTSD in refugees.

3. Limitations of studies

Limitations of studies reviewed in this article are presented in Table 2. The major threat to the validity of many studies was the absence of a control condition against which the active intervention could be compared, limiting conclusions that can be drawn about the effectiveness of treatment components compared to non-specific factors (Birck, 2001; Carlsson et al., 2005; d'Ardenne, Ruaro, et al., 2007; Halvorsen & Stenmark, 2010; Holmqvist et al., 2006; Kruse et al., 2009; Mollica et al., 1990; Palic & Elklit, 2009; Schulz, Resick, et al., 2006; Weine et al., 1998). Even when a control condition was implemented, it was sometimes non-equivalent, rendering comparisons to the active treatment difficult; for example, using a wait-list control group (Hinton et al., 2004, 2005, 2009; Otto et al., 2003), or comparing unequal numbers of sessions (Kruse et al., 2009; Neuner et al., 2004, 2010). Other limitations included small sample sizes (Bichescu et al., 2007; Halvorsen & Stenmark, 2010; Hinton et al., 2004; Otto et al., 2003; Paunovic & Ost, 2001), the absence of post-treatment assessment (Holmqvist et al., 2006; Kruse et al., 2009) or long-term follow-up assessments (Bichescu et al., 2007; Carlsson et al., 2005; d'Ardenne, Ruaro, et al., 2007; Hinton et al., 2004, 2005; Mollica et al., 1990; Otto et al., 2003; Schulz, Resick, et al., 2006) and the lack of blind assessment (Kruse et al., 2009; Otto et al., 2003; Paunovic & Ost, 2001; Schulz, Resick, et al., 2006). Restrictive inclusion criteria also limited the generalizability of findings in the case of the study undertaken by Paunovic and Ost (2001). The lack of clear delineation of treatment components also represented a significant limitation for a number of the studies (Carlsson et al., 2005; Mollica et al., 1990; Neuner et al., 2008; Paunovic & Ost, 2001) (Birck, 2001; d'Ardenne, Ruaro, et al., 2007; Holmqvist et al., 2006; Kruse et al., 2009; Palic & Elklit, 2009).

4. Conclusions from trauma-focused and multimodal treatment research

Findings from the above studies provide preliminary evidence for the effectiveness of trauma-focused treatment in reducing symptoms of PTSD among refugees. While relatively fewer studies have evaluated the impact of multimodal treatments on PTSD symptoms, emerging research has failed to find substantial reductions in symptomatology following extended treatment using this modality. It is notable that no randomized controlled trials have been undertaken comparing multimodal treatments to other interventions. Without such research, it is not possible to determine whether the lack of symptom improvement occurred as a result of high levels of symptom severity, or due to the potential inefficacy treatment itself. Further, while several studies have implemented randomized controlled designs to evaluate trauma-focused interventions, these also exhibit numerous methodological limitations. While findings from the above studies suggest that trauma-focused treatments may be effective in reducing PTSD in refugee, further methodologically rigorous research investigating the effectiveness of both modalities should be undertaken before firm conclusions can be drawn.

5. Factors potentially impacting refugee treatment

Underpinning much of the debate between the relative merits of trauma-focused and multimodal approaches are the psychosocial challenges that are specific to refugees and that may influence the design and content of treatment programs. This review now turns to examine some of these factors.

5.1. Relevance of PTSD diagnosis to non-western populations

One area of debate that is at the core of the divide between research and clinical practice in the field is the application of western-derived diagnoses (and by implication their associated treatments) amongst non-western refugee groups. Theorists have posited that PTSD is a culture-bound diagnosis derived from Western psychiatric traditions that, at best, do not fully encapsulate, and at worst, are irrelevant to, the experience of individuals from refugee backgrounds (Bracken, Giller, & Summerfield, 1995; Chakraborty, 1991; Summerfield, 1999). In contrast, clinicians advocating trauma-focused work argue that there are certain key features of psychological disorders, such as PTSD, which remain relatively constant across cultures and that have been reliably documented in individuals in multiple settings (de Jong et al., 2001; Marsella, Friedman, Gerrity, & Scurfield, 1996; Mollica et al., 1999; Silove, 1999) (see Kienzler, 2008 for a recent proposition regarding the combination of psychiatric and anthropological perspectives). It has also been asserted that symptoms of PTSD are of lesser importance to refugees who are more

Table 2
Limitations of treatment studies examining efficacy and effectiveness of trauma-focused interventions and multimodal treatments for posttraumatic stress disorder (PTSD) in refugees.

Limitation	Description	Example(s)
Small sample sizes	Limited generalizability	(Bichescu et al., 2007; Halvorsen & Stenmark, 2010; Hinton et al., 2004; Otto et al., 2003)
	Inadequate statistical power –May hinder detection of between-group differences	(Paunovic & Ost, 2001)
Assessment	Lack of post-treatment assessment –Unable to compare relative impact of intervention and events in months following treatment on psychological symptoms	(Holmqvist et al., 2006; Kruse et al., 2009)
	Lack of long-term follow-up assessments –Unable to determine whether changes in symptoms endure over time	(Bichescu et al., 2007; d'Ardenne et al., 2007; Hinton et al., 2004, 2005; Otto et al., 2003; Schulz, et al., 2006) (Carlsson et al., 2005; Mollica et al., 1990)
	Lack of blind assessment –Unable to judge if unbiased estimate of participants' post-treatment status obtained. This may be especially difficult when person conducting assessment is participant's therapist	(Kruse et al., 2009; Otto et al., 2003; Paunovic & Ost, 2001; Schulz, Resick, et al., 2006)
Inclusion criteria	Restrictive inclusion criteria –Limits generalizability of findings	Exclusion of participants without permanent residency and who do not speak Swedish (Paunovic & Ost, 2001)
Assignment to treatment condition	Lack of random assignment –May introduce systematic variations into treatment conditions that may account for between-treatment differences	(Kruse et al., 2009)
Nature of treatment conditions	Absence of control condition –Limits ability to determine whether treatment gains were due to factors unrelated to treatment	(Birck, 2001; Carlsson et al., 2005; d'Ardenne, Ruaro, et al., 2007; Holmqvist et al., 2006; Kruse et al., 2009; Mollica et al., 1990; Palic & Elklit, 2009; Schulz, Resick, et al., 2006; Weine et al., 1998) (Birck, 2001; Halvorsen & Stenmark, 2010; Palic & Elklit, 2009)
	Inequivalent control groups –Difficult to compare treatments	Use of wait-list rather than "talking therapy" control group limits inferences about mechanisms of symptom reduction (Hinton et al., 2004, 2005, 2009; Otto et al., 2003). Comparison of unequal or unspecified numbers of sessions makes it difficult to determine whether group differences occur as result of dosage rather than treatment effects (Kruse et al., 2009; Neuner et al., 2004, 2010).
	Small differences between treatments –May limit ability to determine impact of nonspecific therapeutic effects or natural recovery	(Paunovic & Ost, 2001)
	Inadequate description of content of treatment conditions –Limits conclusions that may be drawn about efficacy of different interventions, and potential for replication	Difficulty determining extent to which specific treatment techniques were applied in practice and thus judge whether interventions were different (Neuner et al., 2008) Difficulty operationalizing treatment interventions to further test treatment efficacy (Carlsson et al., 2005; Mollica et al., 1990) (Birck, 2001; d'Ardenne, Ruaro, et al., 2007; Holmqvist et al., 2006; Kruse et al., 2009; Palic & Elklit, 2009)
Methodological	Lack of treatment manaulization –Impossible to clearly describe intervention implemented	(Birck, 2001; Holmqvist et al., 2006; Mollica et al., 1990) (Palic & Elklit, 2009)
	Incomplete data –Findings may not be representative of all persons who received treatment	(Holmqvist et al., 2006)

concerned with other problems, such as grief or anger over past injustices, or the myriad of psychosocial difficulties associated with the resettlement process (Kinzie, 1989; Van der Veer, 1998). As a consequence, treatments that focus primarily on PTSD symptoms may be seen as too narrow in scope to address the high level of distress and many practical difficulties experienced by refugees. A contrasting perspective, drawn from research linking symptoms of posttraumatic stress to functional impairment in refugees (Mollica et al., 2001; Thapa, Van Ommeren, Sharma, de Jong, & Hauff, 2003), is that it is necessary for refugees to address incapacitating psychological symptoms before they are able to effectively manage other psychosocial stressors. Preliminary evidence in support of this assertion can be inferred from the study undertaken by Neuner et al. (2004). In the year following treatment, over half of the patients who had participated in the NET condition left the refugee camp and migrated elsewhere with their families compared to very few of those in the other conditions. In the context of significant food ration reductions in the camp, refugees who successfully migrated elsewhere following therapy were in a better position to access food resources. This fails to support the viewpoint that trauma-focused therapy does not address core concerns or life obstacles confronting refugees and suggests, albeit indirectly, that the reduction of PTSD symptoms may have improved patients' capabilities to alter their psychosocial circumstances.

5.2. Nature of traumatic experience

Another key point of contention relates to the particular type of trauma commonly experienced by individuals fleeing persecution and mass violence. Critics of the trauma-focused approach draw attention to the fact that evidence-based treatments for PTSD (including CBT) have primarily been trialled with Western survivors of discrete traumatic events (e.g., motor vehicle accidents, assaults). Concerns have been raised that the application of such therapies to refugee survivors of repeated trauma, which often involves gross human rights violations such as torture, may be inappropriate, given that the symptom profile and/or contextual meaning of these experiences may differ from those of typical Western treatment samples (see Basoglu, 2006 for recent debate on this issue). For example, it has been proposed that survivors of repeated, human-perpetrated trauma such as torture exhibit a more complex constellation of symptoms that may require specialized modes of intervention (Beltran & Silove, 1999; Herman, 1992b; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). Research comparing the efficacy of available treatment

interventions on a range of symptoms exhibited by refugees (including depression, anger, grief, guilt, emotion dysregulation and substance use) is necessary to determine how best to address complex symptom profiles in survivors of refugee trauma.

5.3. Appropriateness of exposure therapy

Another point of contention in the debate regarding the treatment of PTSD in refugees relates to the use of exposure therapy in trauma-focused approaches. Specifically it has been posited that exposure therapy poses an increased risk of re-traumatizing refugees by encouraging patients to repeatedly discuss traumatic memories to facilitate information processing (see Neuner et al., 2004; Paunovic, 1997 for discussion). It has been argued that exposure may lead to distress levels that are unmanageable for refugees. It is notable that these concerns have also been raised in the treatment of Western trauma survivors (Kilpatrick & Best, 1984; Pitman, Orr, Altman, & Longpre, 1991). Nonetheless, studies conducted in western outpatient settings and with refugees indicate that exposure therapy does not appear to lead to more adverse effects or drop-outs than other strategies (Bryant et al., 2008; Foa, Zoellner, Feeny, Hembree, & Alvarez-Conrad, 2002; Neuner et al., 2008, 2004).

5.4. Context of treatment delivery

It is important to note that while all but two of the studies reviewed in this article were undertaken in developed Western settings, a vast proportion of persons affected by violence and trauma (including refugees, asylum-seekers and internally displaced persons) reside in developing countries with ongoing conflict or a history of war. Therefore, it is vital that the capacity of treatments designed to address the psychological effects of trauma is evaluated in ecologically valid settings. Two of the efficacious studies undertaken by Neuner and colleagues were conducted in such settings; specifically in refugee camps in Uganda (Neuner et al., 2004, 2008). The success of trauma-focused therapy in these contexts is important for several reasons. First, the resources required to implement treatments delivered by highly educated Western clinical and research staff are often beyond the capacity of services operating in such settings. Second, the knowledge of local workers regarding the experiences and psychological sequelae of the communities is key when attempting to alleviate psychological distress in any setting. Third, local staff may be able to integrate treatment programs with local methods of healing, which is likely to increase the culturally-appropriateness of the intervention and its capacity to meet local needs.

5.5. Change mechanisms

A major obstacle to developing evidence-based treatments for PTSD in refugees is the lack of appropriate models to guide interventions. As noted above, CBT is largely predicated on extinction learning, which presumes that therapy occurs once the threat has passed and one can learn that subsequent reminders are benign signals that indicate safety (Milad et al., 2006). Refugees often need assistance in the context of ongoing threat, such as fleeing persecution, living in refugee camps, being contained in detention centres, suffering torture, or living with the uncertainty of future security. This is also the case with other trauma survivors such as emergency services personnel, persons serving in the military, domestic violence victims and persons living in settings where there is frequent terrorist activity. This scenario may be a challenge for traditional extinction learning models of CBT. Exposure to trauma reminders, an integral therapeutic technique employed in CBT, may, in the case of refugees and such other groups, involve exposure to signals that represent actual or potential threats that may consolidate fear conditioned trauma memories, and elevate anxiety. The pervasiveness of ongoing threats experienced refugees and other trauma survivors suggest that extinction models of trauma-focused treatments need to consider the manner in which extinction occurs; and in particular the role that reminders play in reducing or enhancing anxiety. When considering change mechanisms, it is also vital that intervention studies focus attention on cognitive processes in refugee treatment. Cognitive models of PTSD emphasise that maladaptive appraisals are pivotal in maintaining PTSD, and that treatment requires the modification of distorted appraisals and the integration of memories of the trauma in a way that they form a coherent narrative (Ehlers & Clark, 2000). A number of trauma-focused treatments of refugees have directly addressed maladaptive appraisals of the trauma, the self and the world using cognitive therapy (Hinton et al., 2004, 2005; Paunovic & Ost, 2001; Schulz, Resick, et al., 2006), while others have done so indirectly by integrating the trauma memory into the autobiographical memory base (Bichescu et al., 2007; Neuner et al., 2004, 2008, 2010). Considering the fact that refugees (as well as the other groups discussed above) often live in contexts that are persistently dangerous or in which their safety is uncertain, cognitive restructuring requires a specific approach that recognises the reality of ongoing threats and uncertainty. In the wake of people coping with realistic threats of terrorist attacks, there has been increasing recognition of the role of relative risk appraisals, in which cognitive reframing needs to accept the reality of risks in one's environment and determine appropriate appraisals that allow one to function despite potential threats (Marshall et al., 2007). It may be useful for treatments that address cognitions in refugee samples to integrate this development into their models to explain how the reframing of maladaptive appraisals in treatment may directly lead to improved outcomes.

Models guiding the treatment of PTSD in refugees need to especially attend to culturally specific adaptations that may be made to Western treatment approaches to enhance their appropriateness for refugees. Many treatments with refugees have adapted CBT techniques to be amenable to the cultural setting in which they are delivered. For example, Hinton and colleagues (Hinton, Pich, et al., 2006; Hinton, Safren, et al., 2006; Hinton et al., 2004, 2005; Otto & Hinton, 2006) modified standard CBT to enhance its relevance and utility for Vietnamese and Cambodian patients. Their culturally-adapted treatment protocol included such elements as mindfulness meditation and cultural metaphors to optimise the treatment benefits for their patients. Furthermore, factors specific to the refugees' experiences were considered in therapy delivery; for example, potential similarities between the therapy setting and Cambodian indoctrination sessions that occurred under the rule of Pol Pot (Otto & Hinton, 2006) were explicitly addressed at the beginning of treatment to avoid the retraumatization of patients. In another example of the modification of CBT, Neuner et al. (2004) integrated the political nature of the refugee experience into treatment by recording the human rights abuses experienced by refugees in written form; with the document potentially being sent to relevant human rights organizations at the cessation of therapy. These examples of modifications to traditional CBT for refugees suggest that other change mechanisms may be operating as part of the therapeutic process.

6. Model of psychological reactions to refugee trauma

There is a need for specified models to guide future research into understanding and treating the psychological effects of the refugee experience. In this section, we propose a model that evolves from available evidence from refugee mental health research and more general traumatic stress research. Fig. 1 illustrates our model of psychological reactions to refugee trauma, focusing on aspects that are unique or particularly important in the context of the refugee experience.

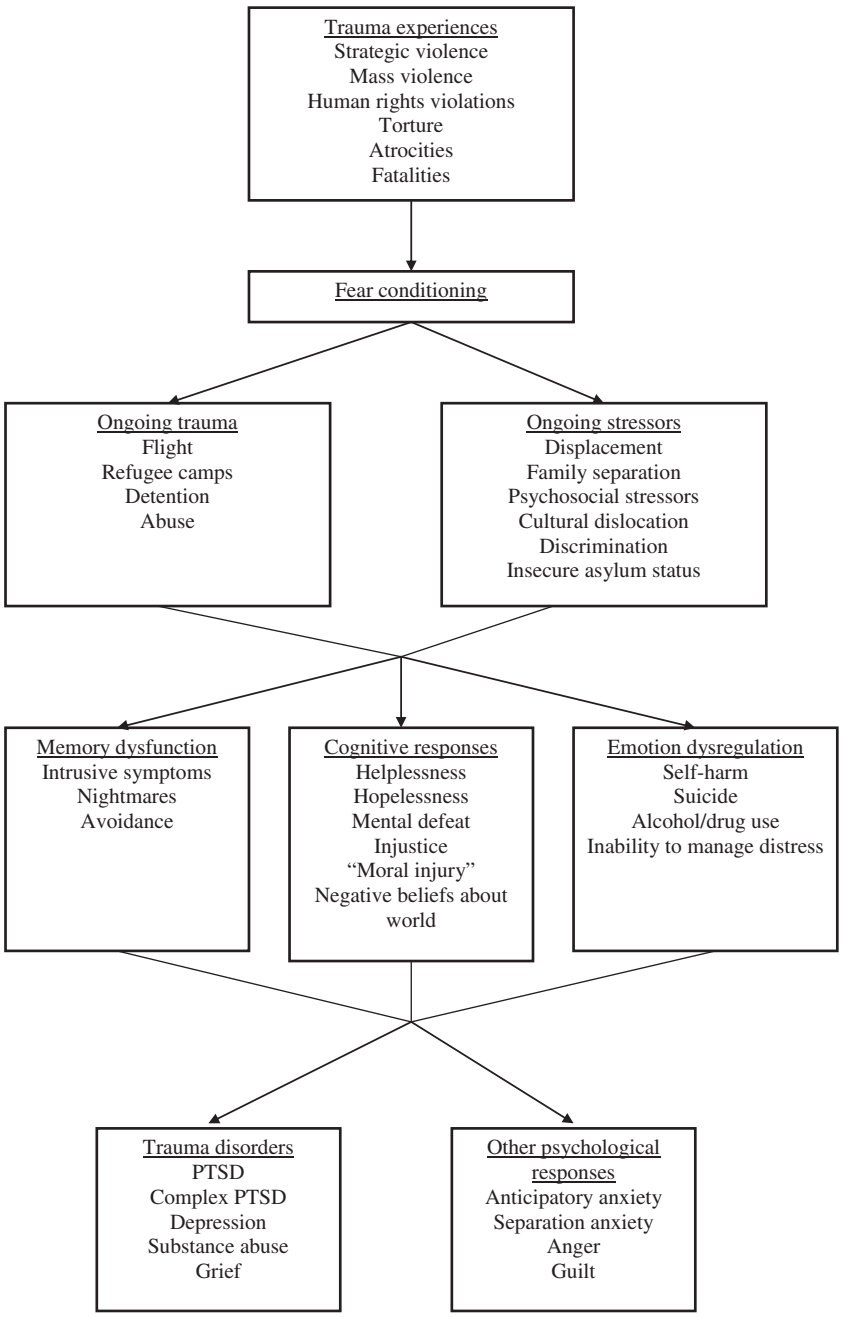

Fig. 1. Model of Psychological Reactions to Refugee-Related Trauma.

6.1. Levels 1 and 2: trauma experiences and fear conditioning

Level 1 details the distinctive nature of refugees' traumatic experiences, highlighting the repeated, human-perpetrated and widespread nature of the traumatic events. Level 2 draws on fear conditioning theories which propose that severe fear experienced during a traumatic event becomes strongly associated with environmental cues also present during the trauma and contributes to subsequent psychopathology (Rauch et al., 2006). The key importance of fear conditioning factors in the development of PTSD symptoms underscores the potential utility of trauma-focused interventions in treating PTSD in refugees. Studies outlined in this review provide preliminary support for the efficacy of techniques such as imaginal and *in vivo* exposure in alleviating trauma-related psychological distress. Our model notes, however, that this approach needs to recognize distinctive features of the refugee experience, which can typically result in extremely strong conditioning (and PTSD severity).

6.2. Level 3: ongoing trauma and stressors

Level 3 outlines contextual factors that may be important after the refugee has fled his/her home country. The posttraumatic environment of refugees typically differs significantly from that of other trauma survivors. It is important to note that retraumatization is common as the individual may remain in the area of conflict, be displaced to another area of the home country or a neighbouring country and/or be forced to reside in a refugee camp; all settings where there exists a high probability of encountering further traumatic events. Trauma may also continue after seeking asylum in a Western country of resettlement, for example in immigration

detention (Steel et al., 2006). Other stressors such as separation from family, fear for family remaining in the country of origin (Nickerson, Bryant, Steel, Silove, & Brooks, 2010) and insecure asylum status (Steel et al., 2006) may contribute to ongoing distress. A challenge for conditioning models of PTSD is the potential impact of repeated traumatic experiences after initial conditioning and how this may compromise potential extinction learning for refugees. Accordingly, the extent to which the refugee is experiencing ongoing threat is likely to have a significant impact on treatment. As with any population, the safety of the client is of primary importance and must be established prior to the treatment of psychopathology. Implementing trauma-focused therapeutic techniques, such as exposure therapy, when an individual is not in a situation of safety may be ineffective or even exacerbate symptomatology. As previously noted, however, there is evidence that such interventions may be effectively applied in circumstances where there is a degree of risk, and even help with the individual's capacity to seek safety (Neuner et al., 2004). However, further research must be conducted to determine the kind of circumstances under which such therapeutic techniques may be effective and in which situations they may be contra-indicated.

In refugee populations, psychosocial stressors that occur after resettlement have significant negative effects on mental health (e.g., Silove et al., 1997, 1998). Factors such as difficulties obtaining employment, financial support or housing, separation from family, language difficulties and discrimination may contribute to psychological distress and perpetuate uncertainty associated with future circumstances. It has been suggested that the effects of trauma may be compounded by post-migration living difficulties and fear for the future to create an ongoing "continuum of stress" which may preclude recovery from the psychological effects of refugee trauma (Silove, 2003; Silove et al., 1991). Treatment interventions should recognize the importance of these factors in contributing to mental health. Many refugees present for treatment seeking assistance with current psychosocial stressors rather than trauma-related symptoms. In this case, it is important to address the concerns that are having the most significant impact on the refugee's life; and work with the client to balance the potential benefits of alleviating trauma-related distress and psychosocial stressors in a way that optimally facilitates functional improvement.

6.3. Level 4: psychological mechanisms

Level 4 of this model outlines psychological factors that may be important in influencing mental health outcomes in refugees. A core feature of PTSD is the reexperiencing of trauma memories. Cognitive models posit that the highly arousing manner in which trauma memories are encoded prevents these memories being embedded into one's normal autobiographical memory base, resulting in frequent intrusions of core traumatic instances. In the context of refugees, this process is understood in the context of the prolonged nature of the trauma and the need to contextualise traumatic experiences into the refugee's memory. Typifying this approach, NET conducts exposure therapy of trauma experiences in the course of discussing the refugee's lifespan, which allows the numerous trauma experiences to be integrated into the many positive and negative events that influence the refugee (Schauer et al., 2005).

Cognitive responses to traumatic events also play a strong role in maintaining PTSD reactions (Bryant & Guthrie, 2005, 2007; Dunmore, Clark, & Ehlers, 2001; Ehlers & Clark, 2000; Whiting & Bryant, 2007). Posttraumatic cognitions have not been specifically investigated with refugee groups but it is likely that these will be key intervention targets when treating PTSD. While it is important to note that cognitions may be particularly susceptible to cultural variation, there are a number of cognitive themes that may be common in working with traumatized refugees from various backgrounds. First, lack of control over one's circumstances is a key characteristic of virtually every stage of the refugee experience. This may result in a pervasive sense of helplessness in refugees, and can be likened to the concept of "mental defeat" (Grey & Young, 2008). While this helplessness may sometimes reflect reality, it is important that associated cognitions be addressed in the context of treatment to assist the refugee in regaining a sense of control over his/her own life. In many circumstances, the capacity to effect change may be limited, however fostering a sense of control and efficacy should be a key therapeutic goal.

Alongside this lack of control, there is also often a profound sense of hopelessness regarding the future. Depression is commonly co-morbid with PTSD in refugee groups (Carlson & Rosser-Hogan, 1991; Momartin, Silove, Manicavasagar, & Steel, 2004; Silove et al., 1998) and may manifest in negative cognitions, hopelessness, social withdrawal and inactivity. The implementation of behavioural strategies may be useful to address depressive symptomatology in refugee groups; for example, techniques such as behavioural activation and pleasant events scheduling may assist in breaking the inactivity cycle and challenging negative beliefs about the world and the future. The high level of functional impairment that has been documented in the context of co-morbid PTSD and depression (Mollica et al., 1999; Momartin et al., 2004) renders it vital that further research be undertaken investigating interventions to reduce these symptoms.

The concept of "moral injury", which has received recent attention in the context of current wars, refers to witnessing or taking part in activities that transgress one's moral values and beliefs (Litz et al., 2009). Many refugees have been forced to witness and endure atrocities; events that may significantly impact beliefs about the self, the world and humankind in general (Silove, 1999). While this cognitive factor has not been previous investigated in refugees, it may be important to address existential issues that arise as a result of these experiences in the context of treatment. Further research should investigate the extent to which moral injury is relevant to refugee populations, and draw on developing treatment frameworks to guide intervention (Litz et al., 2009).

Commentators have argued that diagnostic categories, such as PTSD and depression, do not adequately encapsulate the high levels of anger and emotion dysregulation observed amongst refugee and non-refugee survivors of extreme trauma (Dor-Shav, 1978; Marsella et al., 1996; Miller, Kulkarni, & Kushner, 2006). Difficulties regulating strong emotions after being exposed to these experiences may result in the expression of psychological distress via suicidality, self-harm, substance abuse and explosive anger. It is important that emotion regulation deficits be addressed in treatment to assist refugees with developing more adaptive ways to manage strong reactions. Exposure therapy may be contra-indicated in cases where extreme anger, suicidality or substance use disorders are present as distress associated with reliving the trauma memory may exacerbate such reactions. Recent research with refugees and survivors of childhood abuse suggest that a stabilization phase focusing on affect regulation may be useful in reducing psychological distress (Cloitre, Koenen, Cohen, & Han, 2002; Kruse et al., 2009).

6.4. Level 5: psychological responses

Key psychological reactions that may be exhibited by refugees are presented on Level 5 of the model. Models and treatment of refugee mental health need to recognize the wide variety of problems that may be experienced, including emotion dysregulation, anger, substance abuse, complicated grief, anticipatory anxiety about future traumatic events, separation anxiety as a result of dislocation from loved ones, anger and guilt. The range of psychological reactions must be taken into consideration when working in a clinical capacity with refugees to ensure that the

interventions target those symptoms that are causing the greatest distress and functional impairment.

7. Future directions

Despite the extensive range of challenges associated with evaluating treatments for refugee-related PTSD, it is essential that an evidence base be developed to empirically shape best practice for treating this disorder in refugees. The failure to clearly define treatment components in a number of the studies to date represents a major obstacle in investigating the efficacy and effectiveness of interventions, as it limits the extent to which treatment gains can be attributed to specific interventions. Despite the difficulties associated with research in this area, failure to systematically evaluate available treatment programs and their constituent components will result in the stagnation of knowledge and entrenchment of practices, some of which may be without demonstrated efficacy. The evaluation of the capacity of an intervention to both reduce psychopathology under controlled conditions (efficacy) and be successful when implemented in routine treatment settings (effectiveness) should be the ultimate aim, a prerequisite to reaching conclusions regarding the utility of any treatment (Chambless & Hollon, 1998). In the area of refugee mental health these considerations are particularly important as there are major differences between research settings where the efficacy of a treatment is determined and real-world settings, such as in refugee camps, where the intervention is applied.

To determine the utility of any given treatment, a multi-stage evaluation process is typically undertaken. According to Flay et al. (2005) the first step should focus on the establishment of the efficacy of an intervention, preferably by means of a randomized controlled trial. Strict scientific rigour at this stage facilitates the investigation of the potential of an intervention to reduce psychological distress under ideal conditions when extraneous factors are controlled. Thus, at this phase of the evaluation, it is necessary to employ controlled conditions, such as a clearly defined treatment sample, psychometrically validated outcome measures, random assignment to a treatment and control conditions, treatment fidelity checks, and clear, statistically validated causality (Flay et al., 2005). The state of efficacy evidence for testing the treatment of PTSD in refugees is currently very limited. Future efficacy studies need to ensure adequate sample sizes to determine moderate-large effect sizes; across most studies for CBT with PTSD, large effect sizes have been achieved with samples of 30 patients per condition (International Society of Traumatic Stress Studies Treatment Guidelines, 2008).

When the efficacy of a treatment has been determined, it is then important to evaluate the impact of the intervention when applied in a variety of "real-world settings". For example, can an intervention with demonstrated efficacy in a controlled setting be effectively applied in a government-funded treatment centre or in a refugee camp in a developing country? At this stage, treatment manuals and training should be provided, and the treatment should be implemented in a representative sample in a manner that is generalizable across settings (Flay et al., 2005). When investigating effectiveness, it is important to consider whether the treatment is amenable to implementation in settings in which staff may have lower levels of expertise, and resources for frequent supervision may be limited. In addition, the capacity for the flexible delivery of the intervention should be determined; for example, can treatment be conducted in English with the assistance of interpreters or is it imperative that the intervention is administered by same-language personnel? The cost-effectiveness of the treatment and its capacity for application in settings with limited resources should also be carefully assessed, in addition to the overall practical and social benefits.

If the treatment modalities identified as being efficacious and effective are to be made available to those in need, it is critical that mental health researchers also develop implementation models to expand the intervention to address population-level needs (Patel & Thornicroft, 2009). Flay et al. (2005) highlight the importance of considering the amenability of a program to implementation at a broader scale. Treatment resources, such as training and manuals should be widely available, and guidelines regarding mechanisms underlying treatment effects and infrastructure required to coordinate the treatment should be provided. Furthermore, information regarding the cost of implementing the intervention must be available as well as methods of monitoring and evaluating the large-scale dissemination of the intervention. There are numerous barriers that inhibit the uptake of research evidence into policy formulation particularly in resource poor settings. There may be considerable benefit for the researchers in this field to attempt to engage government and/or non-government stakeholders in the process of evidence generation where it is appropriate and ethical. Accumulating health service research indicates that interaction between researchers and policy makers increases the likelihood that research outcomes will be used to inform decision making (Oxman, Vandvik, Lavis, Fretheim, & Lewin, 2009). It is also important to emphasise that the nature of research in this field places a particularly heavy burden on researchers to ensure that treatment development and evaluation occurs in a context that is embedded within the communities in which they work (Steel, Bateman Steel, & Silove, 2009). If undertaken in a manner that is not respectful of local cultural beliefs and practices, the scientific authority associated with evidence based research can contribute to the fracturing of indigenous healing mechanisms that are already disrupted by intersecting forces of conflict and displacement.

The adoption of this multi-stage evaluation process would facilitate the ability to draw conclusions regarding the treatment of PTSD in refugees. A treatment found to be optimal would not only have a demonstrated capacity to reduce psychopathology in refugees under controlled conditions, but would be able to be effectively implemented in real-life settings and culturally acceptable to the recipient community. Furthermore, this treatment would then provide a blue-print for designing larger-scale interventions to be applied in community settings. An environment of scientific evaluation would thus be encouraged, ensuring that the best possible treatment would be available to this vulnerable group.

8. Conclusions

Refugees represent one of the largest at-risk groups for PTSD worldwide, emphasizing the imperative to establish an evidence-base for managing their psychological conditions. While this review has suggested that trauma-focused approaches, such as CBT, show promise in alleviating refugee-related PTSD, there is an outstanding need for (a) more detailed models that outline proposed mechanisms of change for treatments of refugee-related PTSD, (b) better controlled studies of CBT applied to refugees; (c) further evaluation of novel adaptations of CBT to meet the specific clinical and cultural needs of refugees; (d) systematic assessment of potential adverse effects of treatment; (e) evaluation as to the possible additive effects of including components currently included in multimodal interventions; (f) detailed assessments of the range of potential impacts of treatments on refugee adjustment, and (g) evidence of the effectiveness of interventions when disseminated into routine service settings, particularly the overall impact of treatment availability on the mental health and psychosocial well-being of refugee communities as a whole.

Arguably one of the most outstanding questions in the field is the extent to which trauma-focused or multimodal approaches is the preferred modality for assisting refugees with PTSD. Considering that substantial financial resources that are allocated to psychosocial programs around the world each year, it is important that controlled trials are conducted to evaluate the relative merits of these

approaches. Inherent in this question is the possibility that these approaches may vary in terms of relative gain in different areas of outcome. For example, it is possible that whereas trauma-focused approaches may address PTSD symptoms more effectively, multimodal approaches may alleviate other mental health problems experienced in the context of ongoing stressors. In this context, it is imperative that research on treatment of PTSD in refugees indexes the hypothesised mechanisms by which symptoms of PTSD are reduced by different treatments. This is particularly important as current treatments, both trauma-focused and multimodal, comprise multiple elements and it is important to understand the components that contribute to treatment. The implementation of appropriate models that are complemented by properly controlled trials is essential to move the issue of optimal assistance of traumatized refugees beyond the level of speculative debate and into the realm of evidence.

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