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# **Efficacy and Cultural Adaptations of Narrative Exposure Therapy for Trauma-related Outcomes in Refugees/Asylum-seekers: A Systematic Review and Meta-analysis**

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## Abstract

Refugees/asylum-seekers are more likely to have experienced traumatic events than the general population in high-income countries. Narrative Exposure Therapy (NET) was developed to treat trauma within this population. This review aimed to determine (1) the efficacy of NET and (2) if the interventions have been successfully culturally adapted.

Databases were searched from January 2002 to September 2020, for peer-reviewed randomised controlled trials (RCT) of NET published in English, involving adult refugees/asylum-seekers with any trauma disorder, resettled in high-income countries. Data were extracted and risk of bias assessed using the Cochrane data collection forms, and meta-analyses were conducted for depression and trauma symptom change. Cultural adaptations were assessed using a structured framework.

Six RCTs (total n = 272) met eligibility criteria. All reported significant reductions in trauma symptoms in the NET group but only two studies found a significant reduction in depression symptoms. Meta-analyses showed medium-large between-groups effect sizes in favour of NET (depression -0.59 [-1.07, -0.11]; trauma -0.75 [-1.19, -0.31]), with substantial heterogeneity. The most common cultural adaptations were in language and context.

NET was shown to be a potentially beneficial intervention for treating trauma-related outcomes. However, studies should be more transparent regarding any attempts to make interventions more culturally appropriate.

**Keywords:** meta-analysis; narrative exposure therapy; NET; post-traumatic stress disorder; PTSD; cultural adaptation

## **Introduction**

### **Trauma in Refugee and Asylum-seeker Populations**

Providing mental health treatment for traumatised victims of conflict, persecution and torture is a global challenge, particularly as these issues have also resulted in forced displacement. The UNHCR's figures suggest that there are 79.5 million displaced people across the world with approximately 26 million being refugees (UNHCR, 2020). For this review, the term refugee is used to define those outside their country of origin, with substantiated fears of persecution, who are unable to receive protection and consequently are unable to return to their country of origin (UNHCR, 2014). Conversely, the term asylum-seeker is utilised for those who state that they are a refugee but whose claim to asylum has not been fully evaluated (UNHCR, 2014).

Post-traumatic stress disorder (PTSD) is an anxiety disorder that can occur following “exposure to a stressful event or situation ... of exceptionally threatening or catastrophic nature, which is likely to cause pervasive distress” (WHO, 1993, F43.1). This can be persistent and have a severe impact on a person's daily life (NHS, 2018). Refugee and asylum-seeker populations have a greater likelihood of having experienced traumatic events than the general population within high-income countries (Kalt et al, 2013). The nature, severity and duration of trauma experienced by refugees is different to that of other populations (Schick et al, 2016; Ullmann et al, 2015). Refugees/asylum-seekers disproportionately experience traumatic events before displacement that can increase vulnerability to PTSD, such as conflict and torture (Hargreaves, 2002; Hollifield et al., 2002). However, exposure to a traumatic event may occur pre-migration, during transit and/or post-migration (Zimmerman et al, 2011). Post-displacement risk factors include life-threatening migration often through smuggling (Schwarzer & Schulz, 2003). The experience of being displaced in a new country can create additional stress and exacerbate existing mental health issues. A possible explanation is that this is due to post migration stressors including delays in their application process, disputes with immigration officials, unemployment, separation from families and loneliness (Stenmark et al, 2013; Toar et al, 2009). Refugees and asylum-seekers are also vulnerable to other mental health issues (Hassan et al, 2016). Previous studies have demonstrated that there is a considerable comorbidity of depression and PTSD within this population (Kalt et al, 2013; Neuner et al, 2018; Sijbrandij, 2018).

### **Narrative Exposure Therapy**

Narrative Exposure Therapy (NET) is a short-term therapy designed to treat survivors of trauma, including those affected by war and torture (Neuner et al, 2002). The treatment involves emotional exposure to the memories of traumatic events and the reorganisation of these memories into a coherent chronological narrative (Schauer et al, 2011). Therapists provide psychoeducation about response to trauma and help clients to develop the narrative, incorporating both positive and negative events (Lambert & Alhassoon, 2015). The aim is for the individual to become emotionally exposed to the memory of the event for a sufficient period of time in order for habituation to occur and their emotional response to diminish.

It has been suggested that NET is particularly effective when treating refugee populations, because it enables individuals to discuss their traumatic experiences in a testimonial approach (as opposed to a potentially more stigmatizing clinical approach) and explicitly acknowledges the role of human rights violations in producing psychological distress.

Robjant and Fazel's (2010) review highlighted the efficacy of NET amongst individuals who have experienced multiple, repeated traumatic events. NET was evaluated within low- and middle-income settings such as Rwanda (Jacob et al., 2010; Schaal et al, 2009) and Romania (Bichescu et al, 2007) as well as high-income settings such as Norway (Halvorsen & Stenmark, 2010) and Germany (Neuner et al, 2010). Additionally, positive findings for NET in long term follow-ups are consistent within reviews concerning psychological therapies utilised with refugee populations (Crumlish & O'Rourke, 2010; Nosè et al., 2017). In comparison to other psychological interventions, NET has a low dropout rate. For example, the rate for NET is approximately 4% whereas CBT is often higher, around 20% (Palic & Elklit, 2011). Previous review findings suggested medium to large pre-post effect sizes in uncontrolled studies of NET with refugees and displaced persons (Gwoździewicz & Mehl-Madrona, 2013; Lambert & Alhassoon, 2015; Robjant & Fazel, 2010), even for those in insecure living conditions. However, previously published reviews have not been consistent when discussing the methodological quality of the NET trials, with some authors questioning the levels of bias (Lely et al, 2019).

### **Cultural Adaptation**

Mental health and individual understanding of trauma are culture specific and it is important that treatments can be adapted to meet the needs of marginalised groups. As many countries become

increasingly culturally diverse, an immense responsibility is placed on health care systems to ensure that practice is relevant to the variety of cultural backgrounds of the diverse populations (Rathod et al, 2018). It is evident that there is a need for cultural sensitivity in the delivery of health services, as interventions which may be effective for native citizens in high-income countries may not be as effective with refugee populations.

Since most psychological interventions for PTSD, including NET, have been developed in Western countries, researchers need to consider cultural adaptations to ensure these treatments are globally applicable (Naseh et al, 2019). Therefore, For an intervention to be culturally relevant, it should be applicable across cultures and fit into the social and political background of the setting (Gwoździewicz & Mehl-Madrona, 2013). Although NET research has involved culturally varying populations, cultural adaptation of the intervention has gained little attention within this growing body of evidence.

Bernal and Saez-Santiago (2006) proposed that culturally sensitive psychological interventions included the following: (a) awareness of culture; (b) knowledge of cultural aspects (e.g. norms, language, lifestyle, etc.); (c) ability to distinguish between culture and pathology, and to integrate these components in the treatment with emphasis on language, contexts and concepts.

Chowdhary et al (2014) suggested that adapting evidence-based therapies to incorporate components that are culturally relevant and meaningful in their delivery is central to enhancing acceptability and effectiveness (Sijbrandij et al, 2017). However, a consistent finding within this area of research is that while authors may note that cultural adaptation has taken place, they have not described the process of adaptation. It is therefore unclear how effective any cultural adaptation has been in treatment.

### **Aim of this Review**

The aims of this study were to evaluate the effectiveness of NET in reducing depression and trauma symptom outcomes within refugee/asylum-seeker populations in high-income countries (HIC) and to evaluate how NET has been adapted to meet cultural needs successfully within the included studies.

### **Methods**

## **Protocol and Registration**

The protocol for this review was registered in the International Prospective Register of Systematic Reviews (PROSPERO), registration number: CRD42019121055. This report has been written in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist (Moher et al, 2009). Ethical approval was not required for a systematic review of this type.

## **Eligibility Criteria**

*Participants:* Adult (16 years or above) refugees or asylum-seekers with any trauma-related disorder resettled in high-income countries as classified by the World Bank criteria (World Bank, 2018).

*Intervention:* Narrative Exposure Therapy.

*Comparator:* Any active or inactive condition.

*Outcomes:* The main outcomes were efficacy of NET through the reduction of depressive and trauma symptoms as measured by a validated rating scale at post-intervention. The secondary outcome was cultural adaptation as measured by the Bernal and Saez-Santiago (2006) model.

*Study design:* Randomised controlled trials (RCT).

Studies were excluded if not published in English or not full text. Participants had to be adults aged 16 or older as some studies with children use an adapted form of NET known as KIDNET, which was outside the scope of this review.

## **Information Sources**

The literature search utilised the following databases: Web of Science, PubMed and PsycINFO. The initial search range was from 1st January 2002 (as NET was first developed in 2002) up to 18th February 2019, when the main search was performed. A further updated search was run on 16th September 2020, which did not yield any further eligible results. As this review was

concerned with the efficacy of NET within studies utilising RCTs, grey literature on NET has not been included. The reference lists from relevant articles and systematic reviews on NET were examined as well as the Journal of Refugee Studies to identify publications not covered by the original database searches.

### **Search Strategy**

Terms indicative of NET were combined with terms indicative of refugees and asylum-seekers (both MeSH terms and text words). Examples of the search terms utilised are included in Appendix A. A sensitivity check was carried out on search terms to ensure that key studies were included in the results.

### **Study Selection**

A detailed screening checklist based on the criteria summarised above was developed and utilised by two reviewers (A.W. and A.R.). All search results were independently reviewed by both researchers. Titles and abstracts were reviewed initially, and then the full text of potentially eligible articles were reviewed. Any studies that did not meet criteria were identified and reasons for exclusion noted. Any discrepancies were discussed by both reviewers to reach a consensus.

### **Data Collection Process and Data Items**

Data from eligible studies were extracted as per the Cochrane data collection forms (2014). Data were extracted by hand to a spreadsheet by A.W. and cross checked by A.R. Utilising the Bernal & Saez- Santiago framework, any attempts at cultural adaptation were noted. The framework includes assessment of eight areas of cultural adaptation: language, persons, metaphors, content, concepts, goals, methods and context. Cultural adaptation was evaluated as either being attempted (yes) or unclear.

### **Risk of Bias**

The Cochrane Collaboration's handbook was utilised to assess risk of bias. The framework includes assessment of seven areas of methodological quality: sequence generation, allocation sequence concealment, blinding of participants and investigators, blinding of outcome

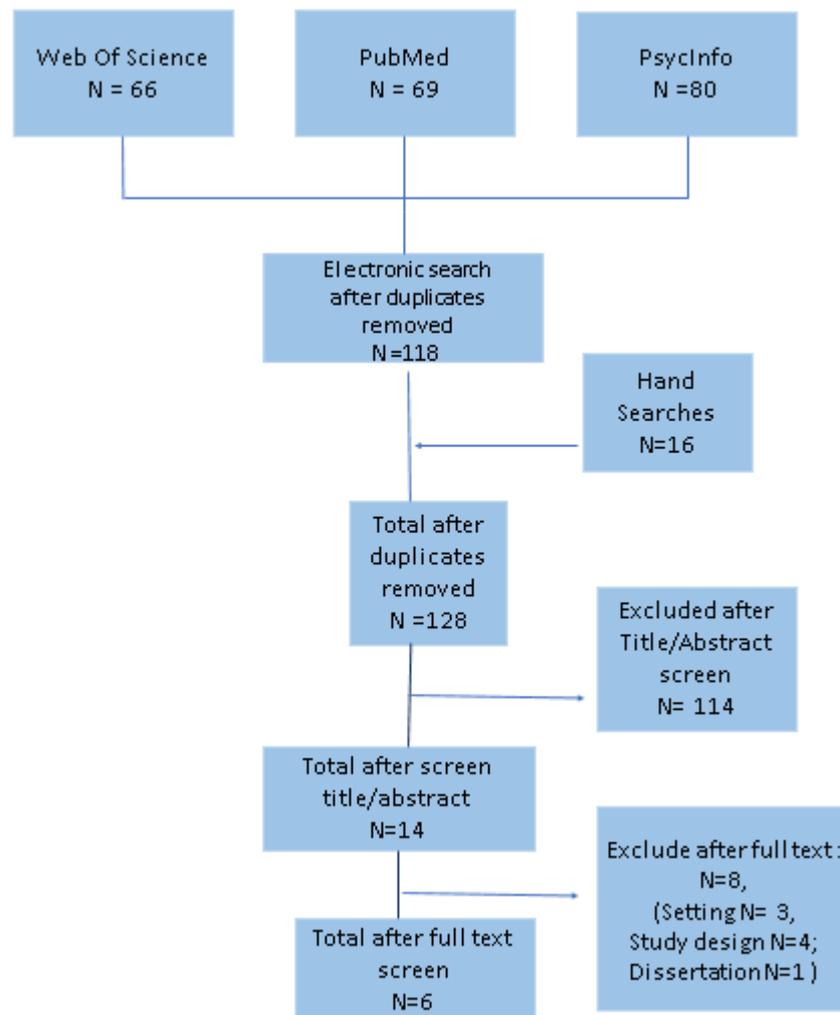
assessment, incomplete outcome data, selective outcome reporting and other biases. The risk of bias for each criterion was rated as high, low or unclear in accordance with Cochrane guidelines (Higgins & Green, 2011). The risk of bias ratings were conducted by A.W., and fifty percent of the studies were independently rated by A.R. Both reviewers agreed on 86% of the potential bias criteria (18 items out of a total of 21). Any discrepancies in perceived bias at study level were discussed by both researchers and a consensus reached.

## **Data Synthesis**

The primary outcomes for the data extraction were the scores at post-intervention on validated rating scales measuring depressive or trauma/PTSD symptoms. The study results were synthesised descriptively using tables and text summaries. Meta-analysis was performed separately for depression and trauma outcomes using inverse-variance random effects models in RevMan 5.3 software (2014). Results are reported as standardised mean differences with 95% confidence interval (CI). Heterogeneity was evaluated using chi-squared and  $I^2$  statistics.

## **Results**

The final search identified 215 studies, of which 118 were not duplicates. Ten additional potential studies (excluding duplicates) were found from hand searching reference lists of previously published reviews. No additional studies were found in the Journal of Refugee Studies. One hundred and fourteen studies were excluded after reading the title and abstract. The most common reason was study design (not RCT; 52 studies), followed by setting (14 studies). Following full-text screening, six studies (total  $n = 272$ ) met inclusion criteria. Figure 1 provides a PRISMA flow chart of the selection process.



**Figure 1.** PRISMA Flow Diagram.

There was a seventh article that was considered (Halvorsen et al, 2014), which used the same sample as one of the six included articles (Stenmark et al, 2013). However, this was not included as it is a moderation analysis concerning the same outcomes.

### Study Characteristics

Key study characteristics are shown in Table 1. The participants' country of origin included those in the Middle East, Africa and the Balkan region. Only one study (Hensel-Dittmann et al, 2011) had an active intervention as a comparator. The other control groups included treatment as usual (TAU) or waitlist. Excluding Hijazi et al (2014), all studies were carried out in Western Europe. As far as can be ascertained, there was no overlap with participants across studies.

All interventions were 12 sessions or less, with the length of session ranging from 60 to 120 mins with 90 mins being average. The follow up periods were brief with some only being four months from baseline (Hijazi et al, 2014) which arguably can make it challenging to assess any long-lasting effects.

**Table 1.** Descriptive Characteristics of Included Studies.

Study	Country	Country of Origin	No. of Sessions Offered in NET	Control (No. of Sessions)	N for NET	N for Control	Gender & Age	Measure of Depression	Measure of Trauma	Follow Up (Months)	Inclusion Criteria	Exclusion Criteria
Adenauer, 2011	Germany	Middle East / Central East / Balkans / Africa	12 (weekly or biweekly)	Waitlist	16	18	<p><b>NET:</b> 7 Female &amp; 9 Male</p> <p>(Average Age: 30.3 (9.2))</p> <p><b>Control:</b> 8 Female &amp; 10 Male</p> <p>(Average Age: 36.4 (9.9))</p>	HAM-D  (clinician-administered)	CAPS  (clinician-administered)	4 (from end of treatment)	History of organized violence or persecution and current PTSD diagnosis according to DSM-IV	Current psychosis, substance or alcohol dependence
Hensel-Dittmann, 2011	Germany	Not stated	10 (weekly)	SIT (10 sessions)	15	13	Not Reported	HAM-D  (clinician-administered)	CAPS  (clinician-administered)	6 (P) & 12 (S)  from baseline	History of organized violence and a current PTSD diagnosis	Substance dependence, strong suicidal intentions requiring inpatient treatment, schizophrenia or pregnancy
Hijazi, 2014	U.S. A	Iraq	3 (weekly)	Waitlist	41	22	<p>Average Age: 48.2 (8.9)</p> <p><b>NET:</b>26 Female/ 15 Male</p> <p><b>Control:</b> 9 Female /13 male</p>	Beck Depression Inventory-II  (Self-report)	HTQ  (clinician-administered)	2 (P) & 4 (S) from baseline	“Exposed to a violent or traumatic event related to being a refugee, to the war, or to sectarian strife”; and that they currently “were bothered by the event, thought about it repeatedly, or felt like they had not overcome it.”	Not Stated

Study	Country	Country of Origin	No. of Sessions Offered in NET	Control (No. of Sessions)	N for NET	N for Control	Gender & Age	Measure of Depression	Measure of Trauma	Follow Up (Months)	Inclusion Criteria	Exclusion Criteria
Morath, 2014	Germany	Middle East / Africa	12 (weekly)	Waitlist	17	17	<b>NET:</b> 8 Female & 9 Male  (Average Age :28)  <b>Control:</b> 6 Female & 11 Male  (Average Age: 31)	HAM-D  (clinician-administered)	CAPS  (clinician-administered)	12 (from end of treatment)	Not explicitly stated but refugees with PTSD & history of war and torture aged 16 and over	Acute infections or chronic somatic illnesses (e.g., HIV, autoimmune diseases) and glucocorticoid medication
Neuner, 2010	Germany	Turkey / Balkans / Africa	9 (weekly or bi-weekly)	TAU (Not reported)	16	16	<b>NET:</b> 5 Female & 11 Male  (Average Age: 31.1 (7.80))  <b>Control:</b> 5 Female & 11 Male  (Average Age: 31.6 (7.7))	HSCL-25  (clinician-administered)	PDS  (Self-report)	6 (from end of treatment)	Asylum-seeker status with a temporary leave to remain, a history of organized violence, and the fulfilment of DSM-IV criteria for PTSD	“Mental retardation”, schizophrenia, and severe brain lesions requiring immediate treatment
Stenmark, 2013	Norway	Afghanistan / Iraq / Middle East (remaining countries)/ Africa / Other Countries	10 (weekly)	TAU (10 sessions)	51	30	<b>NET:</b> 17 Female & 34 Male  (Average Age: 34.5 (11.1))  <b>Control:</b> 8 Female & 22 Male	HAM-D  (clinician-administered)	CAPS  (clinician-administered)	1 month (s) & 6 (P) (from end of treatment)	Age above 18 years & PTSD diagnosis as per DSM-IV criteria	Psychotic disorders, current severe substance abuse, or severe suicidal ideations

Study	Country	Country of Origin	No. of Sessions Offered in NET	Control (No. of Sessions)	N for NET	N for Control	Gender & Age	Measure of Depression	Measure of Trauma	Follow Up (Months)	Inclusion Criteria	Exclusion Criteria
							(Average Age: 36.6 (11.0))					

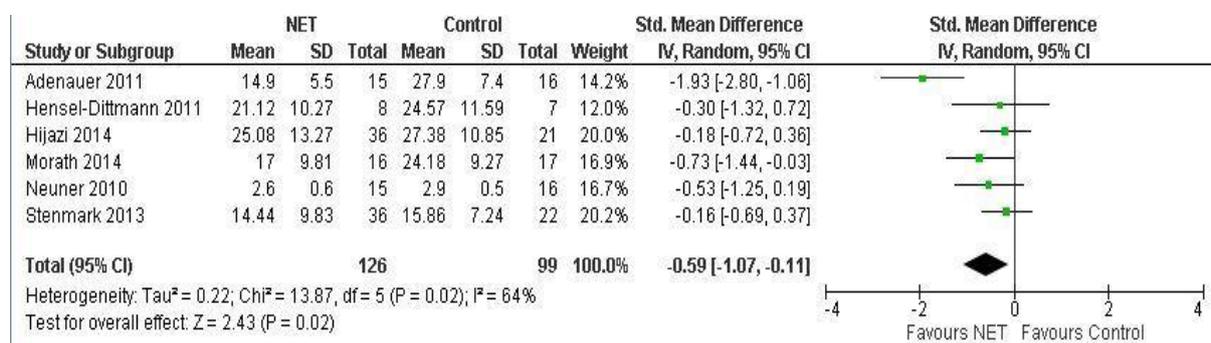
Note: CAPS = Clinician Administered PTSD Scale; HAM-D = Hamilton Depression Rating Scale; HSCL-25 = Hopkins Symptom Checklist-25; HTQ = Harvard Trauma Questionnaire; NET = Narrative Exposure Therapy; PDS = Posttraumatic Diagnostic Scale; SIT = Stress Inoculation Training; TAU = Treatment as usual; (P) = primary; (S) = Secondary.

## Measures

The most common measure of depressive symptoms was the Hamilton depression rating scale (HAM-D; Hamilton, 1960) (Adenauer et al, 2011; Hensel-Dittmann et al, 2011; Morath et al, 2013; Stenmark et al, 2014). Conversely, Hijazi et al (2014) used the Beck Depression Inventory-II (BDI-II) (Beck et al, 1996), while Neuner et al (2010) utilised the Hopkins Symptom Checklist (HSCL-25) (Derogatis et al, 1974). For PTSD symptoms, the Clinician-Administered PTSD Scale (CAPS; Blake et al, 1995) was the most frequently used (Adenauer et al, 2011; Hensel-Dittmann et al, 2011; Morath et al, 2013; Stenmark et al, 2014). Hijazi et al (2014) utilised the Harvard Trauma Questionnaire (HTQ) (Shoeb et al, 2007) and Neuner et al (2010) used the Posttraumatic Diagnostic Scale (PDS) (McCarthy, 2008).

## Effect of NET on depression symptom outcomes

The results provided some evidence in favour of the effectiveness of NET in reducing symptoms of depression (Figure 2 and Table 2). While all studies reported fewer depressive symptoms in the NET group following treatment, only two of the included studies found a statistically significant between-group difference at follow up. Adenauer et al (2011) was also the only study in which the depression scores increased in the control group. There were some inconsistencies across the studies, as not all reported if participants still met diagnostic criteria and if there were differences in diagnostic status between groups. The pooled effect size was found to be medium at post-treatment ( $-0.59$ ; 95% [CI]  $-1.07, -0.11$ ). Substantial heterogeneity between studies was also found.



**Figure 2.** Meta-analysis of Effect of NET on Depression Symptoms.

Note: CI = confidence interval; IV = inverse variance; NET = Narrative Exposure Therapy

**Table 2.** Depression Symptoms in NET and Control Groups.

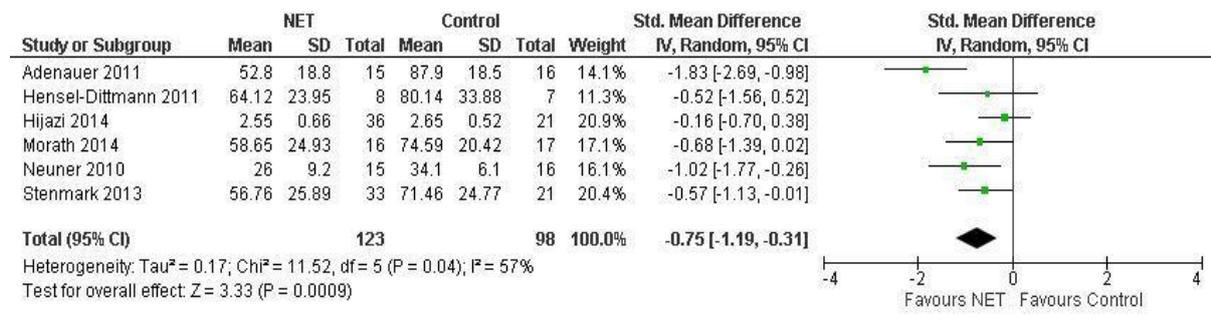
Study	NET pre M (SD) N	NET post M (SD) N	Control pre M (SD) N	Control post M (SD) N	Results for Group Differences
Adenauer, 2011	25.8 (7.9) N= 16	14.9 (5.5) N=15	27.4 (5.6) N=18	27.9 (7.4) N=16	An interaction effect for Time × Treatment was found for HAM-D ( $F(1, 17) = 13.2, p < .005$ ). The NET group reported significantly less severe depressive symptoms at post-test ( $p < .001$ ) while symptoms remained unchanged in the WLC group ( $p = .99$ ).
Hensel-Dittmann, 2011	29.64 (6.73) N=15	21.12 (10.27) N=8	26.54 (8.59) N=13	24.57 (11.59) N=7	Main effect for time [ $F(3, 51) = 2.86; p = 0.05$ ] indicated a reduction of depressive symptoms in both treatments. However, no significant main effect was found for the HAM-D score, for treatment ( $F(1, 25) = 0.59$ ), or for the time-treatment interaction [ $F(3, 51) = 1.37$ ].
Hijazi, 2014	33.91 (10.46) N=41	25.08 (13.27) N=36	33.45 (11.45) N=22	27.38 (10.85) N=21	Authors reported a significant condition × time interaction at 2 months favouring NET. However, the significance had disappeared at 4 months. There was also significant improvement in depressive symptoms in NET group (Cohen's $d = -0.62$ ) at 2 months with a standardised effect size of $-0.46$ in between groups. The reduction in symptoms in the control group was not significant. (Cohen's $d = -0.17$ ). At 4 months, the NET group was no longer significant (Cohen's $d = -0.84$ ). The effect size between groups now $-0.27$ .
Morath, 2014	22.82 (11.73) N=17	17.0 (9.81) (4 months post) N=16	25.94 (6.55) N=17	24.18 (9.21) N=17	No significant improvement in depressive symptoms (HAM-D) between the NET compared to the WLC group (Time × Treatment, ( $F(1, 32) = .89, p = .35$ ). Authors did not provide any further results between groups.
Neuner, 2010	3.0 (0.4) N=16	2.6 (0.6) N=15	3.0 (0.5) N=16	2.9 (0.5) N=16	No significant main effect was found for neither treatment, $F(1, 29.6) = 1.14, p = .30$ , nor Time, $F(1, 29.0) = 3.72, p = .06$ . Additionally, no significant Time × Treatment interaction, $F(1, 29.0) = 1.51, p = .29$ , was found.
Stenmark, 2013	20.2 (6.6) N=51	14.44 (9.83) N=33	20.7 (5.8) N=30	15.86 (7.24) N=21	Stenmark et al (2013) noted that the HAM-D scores suggested a significant main effect of time, $F(2, 114.2) = 11.64, p < .0001$ and a main effect of asylum status, $F(1, 63.21) = 4.13, p < .05$ The between-group effect size (NET vs. TAU) for the HAM-D scores was $0.52$ (confidence interval: $0.17, 1.21$ ] for the refugees, and for the asylum seekers, it was $0.59$ (confidence interval: $0.36, 1.54$ ) at six months follow-up (Subgroup analyses).

Note: HAM-D = Hamilton Depression Rating Scale; M = Mean; NET = Narrative Exposure Therapy; SD = Standard Deviation;

TAU = Treatment as usual; WLC = Waitlist Control.

## Effect of NET on trauma symptom outcomes

All studies reported a significant reduction in trauma scores in the NET group in comparison to the control group (Figure 3 and Table 3). Adenauer et al (2011) also found an increase in trauma scores in the control group at follow up. However, there was not a significant difference in diagnostic status between groups in Neuner et al (2010), Hensel-Dittmann et al (2011) or Hijazi et al (2014). Stenmark et al (2013) found no significant difference in trauma scores when stratified by gender, asylum status or treatment centre in their analyses. The other included studies did not report any subgroup analyses with trauma symptom outcomes. The pooled effect size was also found to be medium-large at post-treatment (-0.75; 95% CI -1.19, -0.31). There was substantial heterogeneity between studies in trauma scores also.



**Figure 3.** Meta-analysis of Effect of NET on Trauma Symptoms.

Note: CI = confidence interval; IV = inverse variance; NET = Narrative Exposure Therapy

**Table 3.** Trauma Symptoms in NET and Control Groups.

Study	NET pre M (SD) N	NET post M (SD) N	Control pre M (SD) N	Control post M (SD) N	Results for Group Differences
Adenauer, 2011	88.0 (12.5) N=16	52.8 (18.8) N=15	72.0 (13.8) N=18	87.9 (18.5) N=16	The “Time × Treatment interaction” demonstrated a significant difference in CAPS scores between groups ( $F(1, 17) = 34.99, p < .001$ ). In those who had received NET, PTSD symptom severity significantly declined at the 4-months post-test ( $p < .001$ ) while the WLC group showed no significant improvement ( $p = .11$ ).
Hensel-Dittmann, 2011	96.47 (15.89) N=15	64.12 (23.95) N=8	85.15 (12.95) N=13	80.14 (33.88) N=7	For the CAPS score, there was no significant main effect of treatment [ $F(1, 26) = 0.53; n.s.$ ], however there was a main effect of time [ $F(3, 52) = 4.2; p = 0.01$ ] and a significant time-treatment interaction [ $F(3, 52) = 3.08; p < 0.05$ ]. Authors reported that there was no significant difference in PTSD severity between NET and SIT at any assessment point.
Hijazi, 2014	2.79 (0.49) N=41	2.55 (0.66) N=36	2.76 (0.44) N=22	2.65 (0.52) N=21	Authors reported a significant condition × time interaction at 2 months favouring NET. Improved HTQ scores in the NET group (Cohen's $d = -0.39$ ) were shown at 2 months, with a standardised effect size between groups of $-0.48$ . (Control group = $d = -0.01$ ). However, the significance in the NET group had disappeared at 4 months (Cohen's $d = -0.50$ ; between groups effect size = $-0.32$ ).
Morath, 2014	92.41 (14.95) N=17	58.65 (24.93) N=16	76.88 (15.95) N=17	74.59 (20.42) N=17	PTSD symptom severity (CAPS score) had declined significantly in the NET compared to the WLC group four months after treatment (Time × Treatment $F(1, 32) = 16.90, p = .0003$ ). The effect size of treatment in the NET group was large (Hedges' $g = -1.61$ ).
Neuner, 2010	38.9 (6.4) N=16	26.0 (9.2) N=15	36.9 (8.0) N=16	34.1 (6.1) N=16	Authors reported a significant main effect of time, $F(1, 29.2) = 17.9$ , no main effect of treatment, $F(1, 29.6) = 2.47, p = .13$ , but a significant Time × Treatment interaction, $F(1, 29.2) = 7.27, p = .01$ . The difference in diagnostic status between groups was not significant.
Stenmark, 2013	83.7 (15.5) N=51	56.76 (25.89) N=33	83.67 (16.5) N=30	71.46 (24.77) N=21	For the CAPS scores, a significant main effect of time, $F(2, 121.3) = 30.11, p < .0001$ , a main effect of treatment, $F(1, 71.1) = 4.44, p < .05$ , and a significant Time × Treatment interaction, $F(2, 122.5) = 7.55, p < .001$ were found. No significant effects were found for gender, asylum status or treatment centre (Subgroup Analyses).

Note: CAPS = Clinician Administered PTSD Scale; HTQ = Harvard Trauma Questionnaire; M = Mean; NET = Narrative Exposure Therapy; PTSD = Post Traumatic Stress Disorder; SD = Standard Deviation; SIT = Stress Inoculation Training; WLC = Waitlist Control.

## Cultural Adaptation

**Table 4.** Evidence of Cultural Adaptation.

Study	Language	Persons	Metaphors	Content	Concepts	Goals	Methods	Context
Adenauer, 2011	Yes <sup>1</sup>	Unclear	Unclear	Unclear	Unclear	Unclear	Yes	Yes
Hensel-Dittmann, 2011	Yes <sup>1</sup>	Unclear	Yes	Unclear	Yes	Unclear	Unclear	Unclear
Hijazi, 2014	Yes <sup>2</sup>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Morath, 2014	Yes <sup>1</sup>	Unclear	Unclear	Unclear	Yes	Yes	Unclear	Unclear
Neuner, 2010	Yes <sup>1</sup>	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Yes
Stenmark, 2013	Yes <sup>1</sup>	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Yes

<sup>1</sup> A language interpreter was used; <sup>2</sup> The therapist spoke the same language as the participant.

### *Language and Metaphors*

As per Bernal & Saez-Santiago's framework (2006), the language used in an intervention must be "culturally appropriate and consider differences in regional or subcultural groups" (pg. 127). As noted in Table 4, all studies utilised a language interpreter if required. In Neuner et al's study (2010), female participants who had experienced violence had female interpreters to ensure that they felt comfortable. Furthermore, in Hijazi et al (2014), the therapists conducting the intervention spoke in Arabic with the participants. This would avoid any potential complications from communicating through an interpreter. In this context, metaphors include the symbols and concepts that are shared by a particular cultural group such as idioms or common sayings. This was demonstrated in Hensel-Dittmann et al (2011), who incorporated different words to express distress and traumatic events depending on the participant's first language. Additionally, in Hijazi et al (2014), the therapists would have used metaphors common in Arabic. It was unclear if this had been attempted in the other studies.

### ***Persons***

This aspect focuses on the client/therapist relationship and considering the ethnic, racial, or cultural similarities and differences between participant and therapist. As Hijazi et al (2014) had therapists who were from a similar ethnic background to participants, it was evident that they had considered the therapist-client relationship. None of the other studies disclosed that this had been acknowledged during the intervention.

### ***Content***

Content refers to the cultural knowledge concerning values and traditions shared by ethnic minority groups integrated into assessment and treatment planning. While the content of the intervention is founded on the individual's personal narrative, further cultural considerations were only integrated into the content within Hijazi et al (2014). The narratives were written in Arabic and the measures either had been back translated or had previously been shown to be valid with an Arab population.

### ***Concept***

Adapting the concept involves communicating the presenting issue and its constructs in a culturally appropriate manner so that they are understood by the participant. This can also help to reduce self-stigma through psychoeducation (Morath et al, 2014; Hijazi et al, 2014; Hensel-Dittmann et al, 2011). As demonstrated by Hensel-Dittmann and colleagues, the therapist should remind participants that their emotional and physiological responses result from memories in a way that is culturally relevant. This should take into consideration the individual's cultural understanding of mental health and the terminology that should be used.

### ***Goals***

The goals of NET were discussed with the participants in Morath et al (2014) and Hijazi et al (2014) and they were encouraged to incorporate their own goals. However, this was not noted in any of the other included studies.

### ***Methods***

***Methods*** refers to adapting the process to encourage cultural relevancy and the achievement of the treatment goals. Adenauer et al (2011) allowed flexibility for the participants to discuss their current concerns in their host country. They also acknowledged the political context of the participants and dedicated the last two sessions to discussing concerns regarding the asylum

process. Hijazi et al (2014) allowed the participant to choose where the intervention was set so that they would feel comfortable and could maintain privacy. Most participants were Christian (79.4%) and were also given the option for sessions to be carried out at church. Hijazi et al (2014) additionally translated the HTQ into Arabic using a three-person panel to encourage cultural relevance.

**Context**

Four of the included studies attempted to adapt the intervention to ensure that it fit into the participant’s broader social, economic and political contexts (Adenauer et al, 2011; Stenmark et al, 2013; Neuner et al, 2010; Hijazi et al, 2014). This involved considering the participant’s current asylum status, using female interpreters for female participants who had experienced violence, and understanding the internal conflict of living in the U.S. for Iraqi refugees. In Hijazi et al’s (2014) study, therapists also asked about the family and personal background to understand the context of the participant. This is particularly relevant for those from collectivist cultures in which family plays a significant role in their beliefs and values.

**Risk of Bias**

**Table 5.** Risk of Bias Across Studies.

Study	Random Sequence Generation	Allocation Sequence Concealment	Blinding of Participants and Investigators	Blinding of Outcome Assessment	Incomplete Outcome Data	Selective Outcome Reporting	Other Bias
Adenauer, 2011	Low	Unclear	Unclear	Low	High	High	High
Hensel-Dittmann, 2011	Low	Low	Unclear	High	Low	High	High
Hijazi, 2014	Low	Low	High	Unclear	Unclear	High	Low
Morath, 2014	Unclear	Low	Low	Low	Low	High	High
Neuner, 2010	Low	Unclear	High	Unclear	Low	Unclear	High
Stenmark, 2013	Low	Unclear	High	High	Low	High	High

Potential bias was most commonly due to failure to report on key details of the procedures and outcomes. Some studies failed to report follow ups for control groups or argued that NET was

superior when the results were not statistically significant, and participants still met criteria for PTSD or depression. Adenauer et al (2011) failed to report confidence intervals or between-groups effect sizes and there was no intent-to-treat analysis. This increases the risk of attrition bias in these results.

Furthermore, there was potential detection bias as some of the researchers were not blinded to the treatment received (Hensel-Dittmann et al, 2011; Hijazi et al, 2014; Stenmark et al, 2013) and this may influence how the outcomes are measured. Neuner et al (2010) and Morath et al (2014) also could have potential assessor bias, as “blindness could not be maintained in all cases”.

Excluding Hijazi et al, all studies had input from one of the researchers who had developed NET, either as an author or a supervisor of the treatment. It is possible that this may have influenced reporting of results to establish NET as an effective intervention.

## **Discussion**

### **Summary of Findings**

#### ***Effect of NET on Outcomes***

While all the studies argued that NET could be effective in reducing trauma-related symptoms in refugee/asylum-seeker populations, not all results were statistically significant. Nevertheless, the pooled effect sizes were significantly in favour of NET. Overall, NET was shown to be more effective in reducing symptoms of trauma than reducing depressive symptoms. There was a recurring pattern in which the control group demonstrated some improvement at the last follow-up in conjunction with the NET group. However, statistical significance in support of NET may have been lost at follow-up due to the sample sizes being smaller and therefore losing statistical power. In regards to the trauma effect sizes, these varied from small (Hijazi et al, 2014) to large (Adenauer et al, 2011; Hensel-Dittmann et al, 2011; Neuner et al, 2010; Morath et al, 2014; Stenmark et al, 2013). Both the trauma and depression results were found to show substantial heterogeneity. This may be due to several different factors such as the different measures used between studies and the different cultural backgrounds of the participants, as well as the variations in study quality and risk of bias.

In agreement with previous reviews, dropout rates were low (Crumlish & O'Rourke, 2010; Neuner et al, 2018; Lely et al, 2019). Most participants “dropped out” due to deportation. This highlights that NET is well tolerated by those with considerable trauma living in insecure conditions. The number of sessions ranged from three to twelve on a weekly or bi-weekly basis. This indicates that a shorter therapy could still be effective in reducing symptoms of trauma. This has important implications for considering shorter interventions, particularly when resources are scarce. The current lack of trauma- focused comparators which are supported by empirical evidence is an ongoing research gap (Lely et al, 2019).

### ***Cultural Adaptation***

Most of the included studies did not explicitly state if cultural adaptation had taken place, which makes it challenging to determine if the sessions were culturally relevant to the participants. A possible explanation may be that as the intervention involves the participant providing their own narrative, authors may not have been as deliberate in ensuring the intervention was culturally appropriate.

However, the cultural adaptations that were described were promising. Hijazi et al (2014) demonstrated the most cultural adaptations of all reviewed studies. They were able to make their intervention more culturally relevant as they had a homogeneous sample of Iraqi refugees. This could be more challenging in a sample with various ethnic groups. Interestingly, while Hijazi et al (2014) had tailored their delivery to suit cultural needs, there was not a significant difference at four months follow up between the NET and control groups.

This review has been unable to demonstrate that cultural adaptations had a positive impact on treatment outcomes. The findings on cultural adaptations are hindered due to the limited information provided in the reviewed studies. In Hensel-Dittmann et al (2011), for example, as the nationality/ethnicity of the participants was not reported, it is difficult to evaluate how effective any cultural adaptations would be. Lack of language adaptation besides interpreter translation, specifically in self-report instruments, could create inaccuracy in assessment.

It is also important to acknowledge that the ethnicity of refugee populations can vary widely, as do their cultural beliefs. Within the majority of research, the different cultural backgrounds of the participants have not been taken into consideration. While authors have recognised that cultural beliefs would be different than those in the host country, it has not been acknowledged that they

vary within refugee populations. The populations included were reasonably varied as was the complexity and frequency of trauma experienced, which may limit the generalisability of findings. Future research would benefit from authors explicitly stating if they have attempted to adapt the intervention and describing how they made it culturally relevant to the participants involved.

While the testimonial aspect of NET is assumed to be effective across different cultures, this approach may not be socially acceptable in all cultures especially incidents of gender-based violence. In order to increase cultural relevance, future studies should incorporate more than language interpreters and an attempted understanding of context. Studies should also acknowledge the broader social context such as asylum status and perceived social support.

The Bernal & Saez-Santiago framework highlighted the different components that can be incorporated to ensure cultural relevance within interventions. In relation to NET, while the testimonial approach addresses the context component of the framework, the concept of the "lifeline" in NET was challenging to cover sufficiently as it did not fit easily into the components evaluated by this framework.

### ***Study Limitations and Risk of Bias***

A general limitation was that the sample sizes were small and may not be representative. There were also some methodological weaknesses. For example, Hijazi et al (2014) did not record the NET sessions, as they thought this to be too intrusive. They were therefore unable to accurately monitor or assess treatment competence or adherence and correlate these to outcomes.

Furthermore, the short mean length of time between treatment and final follow up across studies could be considered another limitation, and so the maintenance of any gains could not be evaluated. Additionally, authors did not always report attempted imputation of missing data, or power calculations. Authors could be more transparent when reporting their findings such as between-group effect sizes and confidence levels.

The studies carried out in Germany and Norway all included researchers who either acknowledged therapist allegiance to, or had developed, NET. This highlights the challenge of potential bias due to so-called "researcher allegiance" (Luborsky et al, 1999; Tribe et al, 2019). The literature would benefit from having a more varied mix of researchers to present an independent contribution.

In regard to the risk of bias ratings, it is important to note that most discrepancies between reviewers were based on the “other bias” column. This is due to one reviewer having a deeper familiarity with the literature in this area of research.

### **Review Limitations**

This review is subject to certain limitations. For example, there were some weaknesses in the search strategy. While there was a high number of duplicates in the search results, many of these were due to studies being published both in German and English. Relevant studies not published in English may have been missed.

By only including studies carried out in high-income countries, the final number of studies was small, and the results may not be generalisable to other settings. As most refugees are located in low- or middle-income countries, studies where NET has been conducted in refugee camps, for example, could provide key insight. However, there were few RCTs in these settings within the search results. This may be because RCTs are expensive to conduct and many low- or middle-income countries may not have the resources to do so.

A lack of studies or small sample sizes may be due to the target population not presenting for mental health treatment. As the new wave of refugees in Europe is primarily from the Middle East and Sub-Saharan Africa, they may not present or seek help for trauma because of cultural stigma around mental illness (Hassan et al, 2016). They may be suspicious of particular services and authorities due to previous negative experiences in their country of origin or in the host country. Additionally, they may be unfamiliar with how the healthcare system works in their host country, particularly mental health care services. All participants in the included studies had been recruited through referral from healthcare facilities and often with an existing diagnosis of PTSD. They would have had to seek treatment to obtain this diagnosis and therefore may not have the same stigmatising beliefs concerning mental health issues. Therefore, they may not be representative of this population as a whole.

The challenging nature of researching this group may also explain the lack of NET RCT studies with refugee populations in high-income settings (Sijbrandij, 2018). Within specialised refugee healthcare clinics, patients often present with comorbid disorders and disabilities (Fazel et al,

2005). However, the majority of published studies have explicitly excluded those with substance abuse issues. This fails to address the issue that some individuals may have developed negative coping behaviours to living with trauma such as alcohol or substance abuse, which can put them at further risk of severe mental health issues (Hanna, 2017). This issue should be addressed in future NET trials to determine if individuals with comorbid mental health issues can also benefit from this intervention.

## **Future Recommendations and Conclusions**

Refugee mental health care services in most high-income countries involve long-term intensive treatments, delivered by scarce and expensive mental health professionals. This makes it difficult to determine if NET is still effective with those who have inequitable access to healthcare. An ongoing issue is that there are an insufficient number of mental health professionals to meet the needs of refugees experiencing significant psychological distress (Sijbrandij et al, 2017). Studies also largely focus on single disorders rather than targeting more general distress, and difficulties within the wider system, thus not always addressing the complex nature of trauma with this population (Sijbrandij, 2018). The included studies did acknowledge that the chronic stress of insecure status could have detrimental effects on mental health. Future studies should be carried out to establish how this could be addressed in mental health services. Additionally, within the RCT literature in this area, the further use of control groups is needed rather than measuring changes against baseline as there is an over reliance on wait list control conditions which do not account for unspecified treatment effects.

In summary, these results demonstrate that NET can be effective in reducing symptoms of trauma and, to a lesser extent, depression with refugee and asylum-seeker populations. These results support previous findings (Crumlish & O'Rourke, 2010; Robjant & Fazel, 2010; Gwozdziwycz & Mehl-Madrona, 2013; Tribe et al, 2019; Nosè et al., 2017; Thompson et al, 2018; Lely et al, 2019). However, it was challenging to assess if the included studies had been successfully culturally adapted and how this affected treatment. This review builds on the existing evidence base for psychological interventions with refugee and asylum-seeker populations in high-income countries. It highlights the feasibility and acceptability of a potential intervention with populations who have experienced multiple traumas.

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### **Declarations of interest**

None.

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## Appendix A. Example of Search Terms.

### PsycINFO (EBSCO)

S7	 S3 AND S6	Search modes - Boolean/Phrase	 <a href="#">View Results</a> (80) 
S6	 S4 OR S5	Search modes - Boolean/Phrase	 <a href="#">View Results</a> (8,711)
S5	 refugee# or (asylum N2 seek*)	Search modes - Boolean/Phrase	 <a href="#">View Results</a> (8,709)
S4	 DE "Refugees" OR DE "Asylum Seeking" OR DE "Political Asylum"	Search modes - Boolean/Phrase	 <a href="#">View Results</a> (5,934)
S3	 S1 OR S2	Search modes - Boolean/Phrase	 <a href="#">View Results</a> (23,576)
S2	 net	Search modes - Boolean/Phrase	 <a href="#">View Results</a> (23,535)
S1	 "narrative exposure therap**"	Search modes - Boolean/Phrase	 <a href="#">View Results</a> (111) 