Regular Article

Psychotherapy
and Psychosomatics

Psychother Psychosom 2011;80:345–352
DOI: [10.1159/000327253](https://dx.doi.org/10.1159/000327253)

Received: March 9, 2010
Accepted after revision: March 8, 2011
Published online: August 6, 2011

Treatment of Traumatized Victims of War and Torture: A Randomized Controlled Comparison of Narrative Exposure Therapy and Stress Inoculation Training

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Key Words

Posttraumatic stress disorder • Organized violence • Refugees • Narrative exposure therapy • Stress inoculation training

Abstract

Background: The aim of the present randomized controlled trial was to compare the outcome of 2 active treatments for posttraumatic stress disorder (PTSD) as a consequence of war and torture: narrative exposure therapy (NET) and stress inoculation training (SIT). **Methods:** Twenty-eight PTSD patients who had experienced war and torture, most of them asylum seekers, received 10 treatment sessions of either NET or SIT at the Outpatient Clinic for Refugees, University of Konstanz, Germany. Posttests were carried out 4 weeks after treatment, and follow-up tests were performed 6 months and 1 year after treatment. The main outcome measure was the PTSD severity score according to the Clinician-Administered PTSD Scale (CAPS) at each time point. **Results:** A significant reduction in PTSD severity was found for NET, but not for SIT. A symptom reduction in the NET group occurred between pretest and the 6-month follow-up examination, the effect size being $d = 1.42$ (for SIT: $d = 0.12$), and between pretest and the 1-year follow-up, the effect size being $d =$

1.59 (for SIT: $d = 0.19$). The rates and scores of major depression and other comorbid disorders did not decrease significantly over time in either of the 2 treatment groups. **Conclusions:** The results indicate that exposure treatments like NET lead to a significant PTSD symptom reduction even in severely traumatized refugees and asylum seekers.

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Introduction

Victims of organized violence including war and torture have been identified as an exceptional group among trauma survivors for 2 reasons. Firstly, organized violence may result in repetitive and extended traumatic stress followed by high rates of posttraumatic stress disorder (PTSD) [1–5]. Secondly, a large proportion of survivors of war and torture become internally displaced people, refugees, or asylum seekers, which involves a variety of additional and potentially continuous stressors in everyday life [6].

The prevalence rates of PTSD depend on the cumulative exposure to traumatic stress [7] and correspondingly vary with the respective refugee population, but rates around 40% seem to be not unusual in asylum seekers

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0033–3190/11/0806–0345\$38.00/0

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URL: <http://nbn-resolving.de/urn:nbn:de:bsz:352-180818>

who have had to flee from war, torture, or persecution [8]. However, little research has been done on psychological treatments for victims of organized violence. Although there have been several small-scale case series [9–13], to date there have only been 3 randomized controlled trials of psychotherapy for victims of organized violence in western countries. A study by Hinton et al. [14] compared culturally adapted cognitive behavior therapy with a waiting list condition in Cambodian refugees in the USA. Another study by Paunovic and Öst [15] in Sweden investigated the efficacy of cognitive behavior therapy (including exposure components) and exposure therapy for the treatment of PTSD in well-integrated refugees. In a recent pilot study, Neuner et al. [16] compared narrative exposure therapy (NET) and treatment as usual (TAU) for refugees in Germany and showed that NET is a promising approach. These studies have shown that variants of cognitive behavioral therapy can be effective for the treatment of traumatized refugees living in industrialized countries.

In our study, we aimed to directly compare the efficacy of an exposure-based treatment approach with symptom-focused therapy without an exposure component.

We chose NET as a promising exposure-based treatment for this comparison. In NET, the patient constructs a detailed chronological account of his or her own biography, with special focus on traumatic events, in cooperation with the therapist in order to overcome avoidance, reconstruct autobiographic memories, and achieve habituation. NET is especially suitable for people who suffer from multiple traumatic experiences because the patient's whole life is attended to.

An earlier study showed that NET was superior to TAU in a sample of asylum seekers [16]. However, TAU included a multiplicity of procedures that could not be monitored closely enough to get a clear account of their effectiveness. It was therefore not possible to prove that the symptom reduction with NET was due to the specific NET procedure and not just to other, unspecific treatment effects including the strict manualization of NET or the dosage of the intervention.

In the present study, we wanted to test whether specific effects of NET (including imaginal exposure and the reprocessing of past events) are relevant in the effective treatment of PTSD. We therefore compared the efficacy of NET with stress inoculation training (SIT). Both treatments have been shown to be effective in reducing PTSD symptoms [16–22], although SIT was less effective than exposure-based approaches in direct comparisons [17,

18]. In SIT, the participant is taught different techniques to cope with presently occurring stressors. We applied a version of SIT that explicitly avoids focusing on the past or exposure to traumatic memories in order to obtain 2 clearly distinguishable treatments.

We investigated in a randomized controlled trial whether these 2 active treatments, i.e. NET and SIT, were differentially effective in reducing PTSD symptoms in survivors of organized violence. The impact on comorbid disorders, especially mood disorders, was also analyzed. Long-term effects were assessed up to 1 year after treatment. We included patients with high PTSD scores and an insecure asylum status and those who lacked proficiency in German, English, or French languages.

Methods

Setting

The study was conducted between 2004 and 2007 at the Research and Outpatient Clinic for Refugees, a unit operated jointly by the University of Konstanz, Germany, and the NGO Vivo (www.vivo.org). The study protocol was approved by the University of Konstanz Ethical Committee.

Participants

Participants were referred by social workers or therapists. Two patients presented for treatment at our clinic after they had heard about it from their medical doctor or at an information center. The sample ($n = 28$) mainly consisted of asylum seekers who had fled from their countries of origin after experiencing organized violence. Most participants ($n = 25$) had an insecure asylum status of residency in Germany. One participant had temporary permission to stay in Germany. Two subjects were Germans from the former German Democratic Republic who had been exposed to severe forms of state-sponsored violence. Seventy-six percent reported experiences of torture, and more than 70% had been in detention. The participants of NET and SIT did not differ significantly in age, gender, education, years they had been living in Germany, comorbid psychiatric disorders, or area of origin.

Eligibility Criteria

Individuals who had a history of experiencing organized violence and a current PTSD diagnosis were eligible for this study. Subjects who fulfilled criteria for substance dependence, strong suicidal intentions requiring inpatient treatment, or schizophrenia were not included in this study. Pregnancy was also an exclusion criterion.

Procedure

Standardized diagnostic interviews were conducted before treatment and 4 weeks, 6 months, and 1 year after the end of treatment (see Outcome Measures for the questionnaires we used and differences in interview structure between assessment points). See figure 1 for a flowchart of study participants.

Fig. 1. Flow diagram of the randomized controlled trial comparing NET and SIT for PTSD as a consequence of war and torture.

Interventions

Therapists were trained staff from the Research and Outpatient Clinic for Refugees. In order to avoid any therapist effects, each therapist was involved in NET and SIT treatments. Treatment was usually carried out by 1 therapist, with 1 trainee therapist observing and assisting in the sessions. Subjects received 10 treatment sessions of either NET or SIT; each session was usually about 90 min long. The average interval between sessions was 9.82 days ($SD = 3.55$; range 4–16), and the average total treatment duration was about 13 weeks; there were no significant differences between the NET and SIT groups. In 17 cases, we conducted the treatment with the aid of trained interpreters who did not know the patients beforehand. Patients requiring interpreters were equally distributed across the 2 treatment groups.

NET was conducted according to the treatment manual by Schauer et al. [23]. In NET, the participant constructs a detailed chronological account of his or her own biography in cooperation with the therapist. Empathic understanding, active listening, congruency, and unconditional positive regard are key components of the therapist's behavior. The autobiography is recorded by the therapist and corrected by the patient with each subsequent reading. The participant is encouraged to relive the emotions while narrating, without losing the connection to the context. Us-

ing permanent reminders that the feelings and physiological responses result from memories, the therapist links the experiences to episodic facts and thus contrasts the time and place of the memory with those of the present. The discussion of a traumatic event is not terminated until habituation of the emotional reactions presented and reported by the patient takes place. In the last session, the participant receives a written report of his or her biography.

SIT was originally developed by Meichenbaum in the 1970s. It is a cognitive behavioral semistructured program aimed at enhancing the patient's ability to cope with stress. The version we used in our study was based on an adapted version for the treatment of rape victims [Foa, unpubl. data]. We modified the manual for the needs of survivors of organized violence. Techniques applied in SIT are training in breathing techniques, relaxation training, cognitive restructuring, thought stopping, guided self-dialog, covert modeling, and role play. Initially, the participant is asked to report several current stressful situations, both trauma related (i.e. seeing a uniformed policeman who reminds the patient of the torturer) and of everyday stress (i.e. arguing with a partner). Subsequently, the participant is taught different coping strategies for stress and anxiety, which are practiced referring to the respective examples of stressful situations. First of all, the participant receives training in breathing techniques. This includes

an explanation of the relation between breathing and emotions, e.g. that fear leads to fast breathing and shortness of breath. The patient is taught abdominal breathing, and slow exhalation is connected to a word like 'calm' (an alternative word in the patient's native language is chosen). Another intervention on a physical level is progressive muscle relaxation. On the cognitive level, the participant is trained in cognitive restructuring in order to reach a different view of the situations that he or she finds difficult and scary. The patient is also taught thought stopping in order to be able to stop rumination. Finally, in guided self-dialog the patient is instructed to find helpful, positive sentences in order to cope better with stressful situations. The patient is asked to write down these sentences on pleasant picture postcards. On the behavioral level, covert modeling and role play are introduced. In covert modeling, the participant is instructed to imagine him- or herself coping with a stressful situation. In role play, a difficult situation occurring in the patient's everyday life is enacted so that he or she is enabled to learn new behaviors in a safe environment.

In order to avoid inadvertent imaginative reliving of traumatic events (to keep SIT distinct from NET), the focus was always on current situations, even if those situations were related to past traumatic experiences. Exposure to traumatic events was never encouraged during SIT.

All sessions were videotaped and randomly analyzed in order to ensure treatment adherence. Treatment implementation was also discussed in team sessions.

Outcome Measures

The main outcome measure was change in the severity of PTSD symptoms. Additionally, we rated whether participants fulfilled PTSD diagnostic criteria after treatment. Furthermore, we measured changes in depressive symptom severity and rates of comorbid disorders.

We assessed sociodemographic data, experiences of organized violence using the vivo checklist of war, detention, and torture events [24], PTSD diagnosis and severity with the Clinician-Administered PTSD Scale (CAPS) [25], and comorbid psychiatric disorders using the Mini International Neuropsychiatric Interview (MINI) [26], as well as the severity of depressive symptoms with the Hamilton Depression Scale (HAM-D) [27, 28]. Comorbid disorders were only assessed at pretest and at the 6-month follow-up in order to avoid possible lack of compliance or dropout due to lengthy interviews (especially those conducted with the aid of interpreters). The CAPS was analyzed according to the following commonly used rule: a symptom was rated as clinically relevant if the frequency score was at least 1 and the severity score was at least 2 [29]. According to DSM-IV [30], PTSD was diagnosed if 1 symptom out of the intrusion cluster, 3 out of the avoidance cluster, and 2 out of the hyperarousal cluster had been present for at least 4 weeks prior to assessment and resulted in significant impairment of functioning.

Randomization

Subjects were randomly assigned to either NET or SIT. Participants were matched pairwise according to gender, age, and region of origin and were then allocated to NET or SIT by flipping a coin.

Blinding

Assessments were carried out by master and PhD level clinical staff of the outpatient clinic that was trained and experienced in

the clinical assessment of victims of war and torture. We aimed to keep the assessors blind to the treatment conditions of the subjects; however, occasionally the treatment condition was revealed to the rater by responses from the patient.

Statistical Methods

The sociodemographic and clinical characteristics were compared between the groups. Dichotomous variables were compared using χ^2 tests with continuity correction or Fisher's exact test when appropriate. Aiming at an intention-to-treat analysis, all subjects who were randomized were included in the outcome analysis. Much of the recent literature indicates that last-observation-carried-forward procedures may produce seriously biased results [31]. Hence we used mixed effects models. Mixed effects models allow the inclusion of all available data without the arbitrary replacement or imputation of missing values [32]. Recent simulation studies have indicated that mixed effects models are more accurate even than statistical multiple imputation strategies in dealing with missing data [33]. Changes in interval-scaled data of PTSD and depression severity were analyzed using a mixed models procedure with the patient (nested in treatment) as the random effect and treatment and time (i.e. pretest, posttest, and 6-month and 1-year follow-up interviews) as fixed factors. Tukey tests were used as post hoc tests. The significance level was set at $\alpha = 0.05$, and the Bonferroni-Holm correction was used for multiple comparisons. Effect size (Cohen's *d*) was calculated for changes in PTSD and depression severity over time.

Results

At pretest, data for the whole sample ($n = 28$) were available. At the 4-week posttest, data were available for 21 participants, at the 6-month follow-up for 22, and at the 1-year follow-up for 15. HAM-D scores (depression severity) were available for 27 participants at pretest, for 20 at the 4-week posttest, for 22 at the 6-month follow-up, and for 15 at the 1-year follow-up. Rates of comorbid disorders were analyzed separately for the whole sample ($n = 28$) and for the treatment completer group ($n = 23$). Five patients dropped out in the treatment phase (3 in NET, 20%; 2 in SIT, 15.4%). Two patients in the NET group dropped out after the first session before any exposure treatment was carried out. As these patients were suicidal, outpatient treatment was no longer considered appropriate and they underwent inpatient psychiatric treatment instead. The third patient in the NET group dropped out after 4 sessions. The patient went into hiding from the police because of a realistic fear of deportation. The 2 patients who dropped out from SIT showed increasingly less treatment motivation and failed to attend sessions repeatedly so that treatment could not be completed. Results on the outcome variables are presented in table 1.

Fig. 2. Effect sizes (Cohen's *d*) for changes in CAPS (**a**) and HAM-D scores (**b**) over time.

PTSD Diagnostic Status

According to the aims of the study, all participants who entered the trial ($n = 28$) fulfilled diagnostic criteria for PTSD. At the 4-week posttest, 82% of the NET sample ($n = 11$) and 100% of the SIT sample ($n = 10$) still suffered from PTSD. At the 6-month follow-up, 83% of NET patients ($n = 12$) and 80% of SIT patients ($n = 10$) fulfilled PTSD criteria. The PTSD rate at the 1-year follow-up was 63% for NET patients ($n = 8$) and 71% for SIT patients ($n = 7$). The whole sample showed a significant reduction in PTSD diagnostic status over time between pretest and the 1-year follow-up examination, but statistical significance was not reached when the 2 treatment groups were analyzed separately.

PTSD Symptom Severity

For the CAPS sum score there was no significant main effect of treatment [$F(1, 26) = 0.53$; n.s.], but we found a main effect of time [$F(3, 52) = 4.2$; $p = 0.01$] and a significant time-treatment interaction [$F(3, 52) = 3.08$; $p < 0.05$]. A post hoc Tukey test revealed that the symptom reduction appeared in the NET group between pretest and the 6-month follow-up examination, the effect size being $d = 1.42$ (95% confidence interval 0.57–2.27), as well as between pretest and the 1-year follow-up examination, the effect size being $d = 1.59$ (95% confidence interval 0.62–2.57). For SIT, there was no significant change in the CAPS score; the effect size between pretest and the 6-month follow-up was $d = 0.12$ (95% confidence interval

Table 1. CAPS and HAM-D scores over time

	Mean	SD	Range
<i>CAPS scores</i>			
Pretest			
NET ($n = 15$)	96.47	15.89	52–117
SIT ($n = 13$)	85.15	12.95	61–105
4-week posttest			
NET ($n = 11$)	76.73	26.19	33–111
SIT ($n = 10$)	82.60	18.80	46–113
6-month follow-up			
NET ($n = 12$)	72.33	18.10	41–100
SIT ($n = 10$)	82.70	26.16	39–115
1-year follow-up			
NET ($n = 8$)	64.12	23.95	27–99
SIT ($n = 7$)	80.14	33.88	14–108
<i>HAM-D scores</i>			
Pretest			
NET ($n = 14$)	29.64	6.73	11–38
SIT ($n = 13$)	26.54	8.59	10–38
4-week posttest			
NET ($n = 10$)	24.70	8.13	12–36
SIT ($n = 10$)	28.10	9.93	13–42
6-month follow-up			
NET ($n = 12$)	20.25	7.52	7–30
SIT ($n = 10$)	25.60	10.21	6–38
1-year follow-up			
NET ($n = 8$)	21.12	10.27	8–33
SIT ($n = 7$)	24.57	11.59	3–38

-0.71 to 0.94) and $d = 0.19$ between pretest and the 1-year follow-up (95% confidence interval -0.73 to 1.12). There was no significant difference between NET and SIT regarding PTSD severity at any assessment point. Effect sizes (Cohen's d) of changes in CAPS and HAM-D scores over time are presented in figure 2.

Comorbid Disorders

The rates of major depression and other comorbid disorders were assessed at pretest and at the 6-month follow-up. All participants suffered from a mood disorder at pretest as follows: 82% ($n = 23$) of the whole sample had a diagnosis of major depression (NET: $n = 13$; SIT: $n = 10$) and 18% ($n = 5$) had a diagnosis of dysthymia (NET: $n = 2$; SIT: $n = 3$). Fifty-four percent ($n = 15$) suffered from an anxiety disorder or OCD (NET: $n = 9$; SIT: $n = 6$), and 11% ($n = 3$) had a diagnosis of substance abuse (NET: $n = 1$; SIT: $n = 2$). One participant in the SIT group suffered from a psychotic disorder. There were no significant changes in comorbid disorders over time in either of the 2 treatment groups.

Depression Severity

The main effect for time [$F(3, 51) = 2.86$; $p = 0.05$] indicated a reduction across treatments. No significant main effect was found for the HAM-D score, for treatment [$F(1, 25) = 0.59$], or for the time-treatment interaction [$F(3, 51) = 1.37$].

Discussion

As expected, NET led to a significant PTSD symptom reduction between pretest and the 6-month follow-up ($d = 1.42$) as well as between pretest and the 1-year follow-up ($d = 1.59$). This result corresponds to the large effects found in other NET studies [16, 20–22] and for prolonged exposure with female rape victims [18]. Moreover, NET was feasible with highly traumatized survivors of organized violence who had an insecure asylum status in Germany (90%), with dropout rates that seem low for comparable treatment studies [16, 18, 34–37]. Similarly, Neuner et al. [16] reported that NET was well tolerated by highly traumatized asylum seekers living in unsafe conditions. Contrary to our prediction, no significant changes in PTSD symptom severity occurred in the SIT group. This was unexpected as Foa et al. [17, 18] found significant effects for SIT in traumatized rape victims. Obviously, the samples are quite different in terms of traumatic event types but also level of education and other

sociocultural factors. Most notably, the majority of our patients were in a continuous state of fear of being deported. Under such conditions of 'continuous trauma' SIT may not be an effective treatment. Transfer of the newly taught stress-reducing exercises to everyday stressful situations may not work where there is serious ongoing threat. It remains unclear whether SIT might have been more successful with higher-educated patients. SIT requires understanding of abstract concepts (i.e. the distinction between thoughts, feelings, and behavior). Moreover, it is possible that some of the treatment components of SIT were outside of the cultural norms of the participants because SIT has been developed according to the western understanding of human experiences and behavior.

The PTSD rate was significantly reduced after treatment for the whole sample, but the sample size may not have been large enough to show statistical effects for the groups separately. Moreover, since the participants presented with very high PTSD severity scores at pretest, more time may be needed before we can expect a reduction in PTSD symptoms to the extent that a PTSD diagnosis is no longer applicable.

Changes for comorbid disorders were not significant. This might have been due to the fact that participants received treatment tailored to reduce PTSD symptoms and no specific treatment for different comorbid disorders.

There are several limitations in our study. Due to organizational restrictions, the sample size remained rather small. Interrater reliability was not explicitly measured. However, raters were trained and supervised thoroughly to ensure the high quality of diagnostic interviews. Certain aspects of recruitment were not documented systematically. Due to the setting of the study at the Research and Outpatient Clinic for Refugees, we did not explicitly search for participants but rather recruited the subjects from a pool of refugees who had mostly been referred to our clinic. We screened all of these refugees for eligibility (i.e. PTSD as a consequence of organized violence). Most of them fulfilled the eligibility criteria, and no one refused to take part in the initial diagnostic interview.

We observed that NET and SIT differed in pretest mean PTSD scores. Although this difference did not reach statistical significance (possibly due to the small sample size) we cannot fully rule out an influence of pre-treatment scores on treatment success with NET. However, it seems implausible that the higher CAPS scores could have led to a significant decrease in PTSD severity, and to our knowledge no such effects have been docu-

mented before. Rather, it is likely that the improvement with NET was caused by NET treatment, which has been shown to be effective in reducing PTSD symptoms in previous studies. The improvement in trauma-related suffering of the NET group occurred despite higher CAPS scores at the beginning. We did not try to statistically control for pretest CAPS scores in our outcome analyses because, due to the small sample size, we do not expect that an ANCOVA can solve the problem of the confounding variables.

The results indicate that NET leads to a significant PTSD symptom reduction, even in refugees and asylum seekers. Exposure therapy is well tolerated by these patients and may be easier to conduct than more complex

cognitive behavioral treatments that require a high level of commitment and understanding of abstract concepts as occurs with SIT.

Acknowledgements

Research was supported by the European Refugee Fund and the Deutsche Forschungsgemeinschaft (DFG). We thank Katy Robjant for editing.

Disclosure Statement

The authors have no competing interests.

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