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Chapter 1

Introduction

Introduction

Clinical vignette, part 1

A man, aged 63 years, married, with three adult children, was referred to the outpatient clinic of Centrum '45 by a general practitioner with a request for additional diagnostics and a treatment advice. The GP described the patient's problems as: "nightmares and memory problems in combination with diabetes, type 2." The patient had worked as a bus-driver, and from time to time, he had had to deal with violent passengers. He had handled these situations fairly well. The nightmares had started after the patient had collapsed due to a hypoglycaemic attack. Due to impaired functioning, the patient was declared unfit for work. Concurrent with the nightmares, attention problems were observed. The GP assumed that adverse childhood experiences played a role. Before establishing a diagnosis and considering a treatment approach, age-related memory impairment had to be ruled out.

In the patient's own words: *"I was referred to this institution after a long period of stress. Actually, there was too much stress in my life. For a long time, I managed to handle it, by working hard, too hard. But when diabetes came up, I collapsed, and my old nightmares returned, I got very irritable and I had memory problems. I felt so bad..., but I thought this was due to age. After all, getting older means problems. But when the family doctor asked me what these bad dreams were about, he said there could be a link with what had happened to me in the past. It's kind of embarrassing to talk about personal problems with somebody other than family. In our generation, we're supposed to solve our own problems. But this just can't go on any more... You know, my wife can't handle my nightmares and my spells of anger any longer. Frankly, I never told anybody the worst details of what had happened. After all, I also feel guilty, that I couldn't stop it when it happened. Now you offer me treatment for my problems. I wonder how you can change what happened in the past. What difference will it make to talk?"*

A story like this evokes many questions, for researchers and clinicians in mental health care alike. If traumatic events are reported, can the observed symptoms be summarised as post-traumatic stress disorder (PTSD) or do comorbid conditions also play a role? Can older adults benefit from treatment approaches based on evidence collected among younger adults? What evidence is available regarding psychological treatment for older adults with post-traumatic stress symptoms? On which subpopulations of the elderly is this evidence based? What treatment approaches have been found safe, acceptable and effective for this population? What clinical and contextual problems can influence treatment response? How can what is happening to an older person in psychotherapy be comprehended? What can a senior patient expect of treatment?

This thesis focuses on the psychological treatment of older adults with trauma-related disorders, in particular post-traumatic stress disorder or PTSD. This set of symptoms can emerge after experiencing or witnessing an disrupting or life-threatening event in which one is left completely helpless. Frequent comorbid depression, anxiety or somatic symptoms justify a broad approach, addressing PTSD and comorbid disorders. Traumatic events can occur during all stages of life. In older adults, however, the symptoms are often misinterpreted as depression, anxiety, somatic illness, or memory problems due to aging. Consequently, PTSD is described as a 'hidden variable' in the lives of older adult survivors (Nichols & Czirr, 1986). Only by assessing adverse life events throughout life, symptoms and past events can be linked and individual patients better understood.

Research context

All over the world, there are more and more older adults (UN, 2017). Although the percentage of them suffering from PTSD appears to be lower than among younger adult groups (Reynolds, Pietrzak, Mackenzie, Chou, & Sareen, 2016), further research is needed to develop evidence based treatment approaches for this population. Such research is justified by a cohort-specific presentation of symptoms and the frequency of comorbid disorders (Averill & Beck, 2000; Busuttill, 2004). Furthermore, if left untreated, PTSD presents high burdens to individuals (both adults and older adults) and society (Kessler, 2000; Van Zelst, De Beurs, Beekman, Van Dyck, & Deeg, 2006).

Generally speaking, increasing age is associated with milder PTSD profiles (Böttche, Kuwert, & Knaevelsrud, 2012). Evidence suggests, however, that PTSD remains a significant mental health problem for older adults (Lapp, Agbokou, & Ferreri, 2011), leading to severe impairments in daily life (Kessler, Kruse, & Wahl et al., 2014; Van Zelst et al., 2006). These impairments include comorbid depression symptoms, functional limitations (such as limitations in activities in daily life or ADL) and chronic diseases. Disability days were found to be comparable with, but not connected to late life depression (Van Zelst et al., 2006). In addition, PTSD was found to be associated with increased risks of comorbid anxiety (Spitzer et al., 2008); cardiovascular disease (Edmondson & Cohen, 2013), and dementia (Lohr et al., 2015).

Psychological treatment for older PTSD patients has been found to encounter three barriers: low recognition of PTSD in primary care (Ehlers, Gene-Cos, & Perrin, 2009; Van Zelst et al., 2006), reluctance of older adults to use the services of mental health professionals to deal with their problems (Laidlaw, Thompson, Dick-Siskin, & Gallagher-Thompson, 2003) and a lack of empirical data (Böttche et al., 2012). The present thesis aims at addressing this third barrier.

Historical context

At the beginning of the twentieth century, Sigmund Freud assumed that people over the age of forty were too inflexible to benefit from therapeutic change (Freud, 1905). Obviously, Freud (then aged 49) referred to psychoanalysis. Because of the strong influence of psychoanalysis in the field of psychotherapy, advancing age was long considered a disadvantage in psychotherapy. Nonetheless, practitioners in the field were more optimistic about the benefits from psychological treatment for older people (Knight, 2004). Contemporary demographic changes (United Nations, 2017) challenge psychotherapists to reconsider their age-related assumptions and to test its evidence base (Laidlaw & Pachana, 2009). With increasing longevity, trauma-related psychotherapy in later life can be meaningful for many more years to live.

In the 21st century, Western mental health care in later life can be described as diverse, etiologically complex, versatile and sensitive for biographical and historical context (Kessler et al, 2014). Over the past decades, a body of evidence on the efficacy of psychological treatment in later life emerged. The majority of studies, however, described cognitive behaviour therapy or CBT for depression and disorders such as generalised anxiety disorder (Laidlaw et al., 2003). Meta-analytic findings showed efficacy of CBT for late-life anxiety disorders (mean age 68 years), when compared with a waiting list condition and with an active control condition (Hendriks, Oude Voshaar, Keijsers, Hoogduin & Van Balkom, 2008). Trials investigating trauma-focused CBT, however, were not included. On the other hand, in the majority of randomised controlled trials (RCTs) regarding trauma-focused treatment, older adults appeared to be absent (Dinnen, Simiola, & Cook, 2015). Regarding trauma-related psychotherapy in later life, case reports and uncontrolled outcome studies reported mixed results, not permitting clear conclusions (Dinnen et al., 2015). Recent case studies (Curran & Collier, 2016; Mørkved & Thorp, 2018) reported encouraging results; four controlled trials however, revealed widely varying results on PTSD (Bichescu, Neuner, Schauer, & Elbert, 2007; Gamito et al, 2010; Knaevelsrud, Böttche, Pietrzak, Freyberger, & Kuwert, 2017; Ready, Gerardy, Backschneider, Mascaro, & Olasov Rothbaum, 2010). The key characteristics are presented in Table 1.

Table 1. Controlled Trials on Trauma-Focused Therapy with Older Adults: Reported Key Characteristics

Study Name	Bichescu et al., 2007	Gamito et al., 2010	Ready et al., 2010	Knaevelsrud et al., 2017
Age in Years: M (SD)	68.9 (4.4)	63.5 (4.43)	57.5 (3.03)	71.4 (4.7)
Number of Participants	18	10	11	94
Population	State Political Prisoners	Africa Combat Veterans	Vietnam Combat Veterans	Older persons with ACE
Country	Romania	Portugal	USA	Germany
Experimental Condition	NET*	VRET*	VRET	ITT*
Control Condition(s)	PE*	IE* / WLC*	PCT*	WLC
Pre-Post Effect Size PTSD	$d^* = 3.15^{**}$	8%		$d = .84^{**}$
Controlled Effect Size PTSD	$d = 1.48^{**}$		$d = .56^*$	$d = .42$
Pre-Post Effect Size Depression	$d = .97^{**}$	40%*		$d = .36$
Controlled Effect Size Depression	$d = 1.48^{**}$		$d = -.24$	$d = .36$

Note. NET, narrative exposure therapy; PE, psycho-education; VRET, virtual reality exposure therapy; IE, imaginary exposure; WLC, waiting list condition; PCT, present-centered therapy; ITT, integrative testimonial therapy (CBT plus life review via internet); ACE, adverse childhood event; d , Cohen's d ; Negative sign of effect size, control condition is more successful than experimental condition; * $p < .05$; ** $p < .01$.

Various forms of exposure therapy in samples of older adults were investigated. Most of the sample sizes, however, were too small to allow for a wider generalisation of the results. Consequently, practice guidelines for the treatment of PTSD (American Psychological Association; APA, 2017; National Institute for Clinical Excellence; NICE, 2018; U.S. Department of Veteran Affairs, Department of Defense (VA/DoD, 2017) did not yet specify whether recommendations for adult patients could be applied to older adults. The question, then, is whether the recommended disorder-specific interventions provided to older adults require an age-specific approach to show full potential effect (Böttche et al., 2012). Some clinicians suggest that exposure therapies could be contraindicated for older adults because of increased autonomic arousal exacerbating physical conditions (Thorp, Glassman, & Wells, 2015). Furthermore, cognitive impairments might complicate cognitive behavioural therapies, because they are learning-based (Thorp, Sones, & Cook., 2011). Multimodal representations of information material (Cook and Niederehe, 2007) and a life-review approach (Knaevelsrud, Böttche, & Kuwert, 2011) were proposed as helpful adaptations for older adults (Böttche et al., 2012). As mentioned above, however, the available RCTs did not yield consistent results. Consequently, in an age of a growing population of older adults, those suffering from post-traumatic stress disorder risk to receive less-than-optimally efficacious treatment. Summarising, a research gap regarding trauma-focused treatment in older adulthood remains, limiting evidence based treatment expectancies and calling for new research avenues.

Treating trauma-related disorders in late life: key characteristics

The key characteristics of this thesis are:

Psychotrauma. Throughout human life, potentially traumatic events occur. Many older adults have lived through such adverse events. Disrupting experiences, such as domestic violence, physical attacks, sexual violence, warfare or natural disasters, can leave persisting psychological symptoms, including post-traumatic stress disorder (PTSD; American Psychiatric Association; APA, 2000, 2013). If such symptoms last longer than one month, they meet the inclusion criteria of PTSD; in hindsight, the activating event is called traumatic. Epidemiological findings (Bonanno, 2004), however, stress that most people will not develop serious mental disorders. If they do, their disturbances are frequently associated with comorbid depression, somatic complaints and problems with psychosocial adjustment (Van Zelst, De Beurs, Beekman, Deeg, & Van Dyck, 2003).

Post-traumatic stress disorder. The symptoms are summarised as involuntary re-experiencing of the events, efforts avoiding re-experiencing and increased arousal (APA, 2000). In the latest diagnostic criteria, negative cognition and mood alterations have been added (APA, 2013).

Comorbid psychopathology and psychosocial adjustment. Depression and anxiety are the disorders most frequently accompanying PTSD. Depression is a mood disorder that causes a persistent feeling of sadness and loss of interest. This condition affects how one feels, thinks and behaves and can lead to a variety of emotional and physical symptoms. These problems can range from a depressed mood during most of the days persisting for at least two weeks, having trouble with daily activities, generalised negative thoughts or perceiving one's future as foreshortened, to suicidal ideations or risks of attempting suicide. In anxiety disorders, one suffers from uncontrollable fears, either in a generalised way (generalised anxiety disorder), or focused on distinct situations (agoraphobia, specific phobias or social phobia). Panic disorder also belongs to this group of conditions. Associated manifestations include arousal, vigilance, stress, irritability, restless sleep and gastrointestinal problems (APA, 2013).

In treatment and research, the PTSD concept frequently is put at centre stage. This perspective can be criticised for overseeing the role of comorbid pathology, biographical and historical context (Kessler et al., 2014) psychosocial adjustment (self-efficacy and quality of life), or cognitive coping (Janoff Bulman & Frantz, 1997). In older adults, psychosocial adjustment can be compromised by PTSD (Van Zelst et al., 2006). In the face of adversity, however, resilience may be regained and adaptive changes, such as improved well-being, benefit finding and growth, can occur (Tedeschi & Calhoun, 2004). Translating these concepts to the context of older adults, one could speak of restored normal or even successful aging (Baltes, & Baltes, 1990).

Participants. In epidemiological studies, varying age limits (60 years versus 65 years) and prevalence intervals (last year versus last month) restrict the comparability of findings on older adults. Since the age of 65 was once selected to distinguish between working life and the years beyond, the selection of different age limits for different ends seems justified. To capture important age-related

challenges and losses in terms of emotional attachment, physical independence and socio-economic setbacks (Laidlaw et al., 2003), in this thesis, older adults are defined as those of 55 years and over. Interchangeably, the relevant age-group is indicated as 'older adults' or 'senior adults'. In the Chapters 3, 4 and 5, participants were 33 civilian trauma survivors; the reported traumatic events included persecution, political, domestic and sexual violence, including childhood abuse. Those events took place throughout the life course. The mean age of participants was 63.81 years and 75% were men. Most participants originated from the Netherlands and the Middle-East. All participants had encountered multiple traumatisation; the majority suffered from comorbid depression symptoms.

Interventions. Regarding treatment, two psychological interventions take centre stage: narrative exposure therapy or NET (Schauer, Neuner, & Elbert, 2011) and present-centered therapy or PCT (McDonagh et al., 2005). In NET, CBT is embedded in an autobiography, offering a lifespan perspective for imaginal exposure. The therapist and the patient collaboratively create a timeline of the patient's life and subsequently elaborate this timeline in the next sessions. This short-term treatment approach, which can be disseminated among local para-professional staff, is considered an innovative modification of CBT for vulnerable populations in low-resource regions. NET was extensively investigated in various populations of refugees and displaced persons, but also in refugees and asylum seekers, living in Western countries. Finally, some trials had investigated non-refugees, such as former political prisoners in Romania (Bichescu et al., 2007) or Chinese earthquake survivors (Zang, Hunt, & Cox, 2013; 2014). The lifespan perspective of NET suggests that this intervention has high age-specific suitability for the target population in this thesis. As for PCT, in a trauma-informed context, the focus is explicitly *not* on traumatic content, but on problem-solving of current stressors or maladaptive interactions. This equally innovative approach was developed as a control condition. PCT, however, appears to be an efficacious and acceptable treatment for PTSD (Frost, Laska, & Wampold, 2014).

Individual NET and eye movement desensitisation and reprocessing or EMDR (Shapiro, 2001), as well as multi-modal trauma treatment for refugees are included in Chapter 6. EMDR is a form of individual psychotherapy in which the patient is asked to recall distressing images while the therapist generates a type of bilateral sensory input, such as side-to-side eye movements or hand tapping. EMDR aims at shifting the connotation of painful memories on a cognitive and physiological level. The treatment modalities for refugees and asylum-seekers, including day-treatment programs and individual outpatient treatments, are summarised as multi-modal trauma treatment for refugees.

Assessments. Diagnostic interviews and self-report instruments were used, assessing severity and presentation of PTSD and comorbid disorders such as depression or anxiety, supplemented by several measures of psychosocial adjustment. Data were collected pre-treatment, post-treatment and at four months follow-up. Finally, in order to explore post-traumatic cognitive processing in the

treatment process, qualitative patient reported outcomes were collected by analysing autobiographies and interview responses.

Methods. Several methods of analysis were used. In *Chapter 2*, electronic literature searches were used to select the primary studies for the meta-analysis. The meta-analysis was conducted by using the comprehensive meta-analysis software program (CMA; Biostat Inc.). In addition, methodological quality of the selected studies was assessed by using the Cochrane Collaboration's tool for assessing risk of bias (Higgins et al., 2011). Finally, meta-regression analyses were performed to examine the effect of moderating variables on outcomes. *Chapter 3* reports on a qualitative analysis using the MAXQDA software programme (Verbi¹⁰, 2007). *Chapters 4 and 5* relate a piece-wise mixed effects growth model to address high variability in time-points of assessment. Finally, *Chapter 6* describes a hierarchical regression analyses conducted to examine the effect of moderating variables on all outcomes.

Aims and research questions

All reported studies in this thesis aim to strengthen the evidence on trauma-related psychotherapy for older PTSD-patients, in order to improve treatment possibilities for this population. Specifically, in subsequent chapters, the following research questions were addressed:

1. *Chapter 2:* What is the estimated treatment effect of all randomised controlled NET trials, both in terms of within-treatment effect as between-treatments effect for PTSD and depression outcomes? And: what factors may explain the within-treatment effects in terms of PTSD and depression?
2. *Chapter 3:* How can the benefits of treatment by NET be understood from a patients' perspective? In addition, does a cognitive and developmental framework clarify the patient reported outcomes?
3. *Chapter 4:* Are trauma-focused NET and non-trauma-focused PCT equally effective in reducing PTSD severity in a sample of older adults, in terms of total PTSD scores and symptom clusters (intrusions, avoidance and hyperarousal)?
4. *Chapter 5:* Are trauma-focused NET and non-trauma-focused PCT equally effective in reducing symptom severity in a sample of older adults, in terms of depression severity, self-efficacy, quality of life, and post-traumatic cognitions?
5. *Chapter 6:* Does age explain treatment response in terms of PTSD, depression and anxiety in a sample of adult refugees, aged from 17 to 63 years? In addition, what other factors may explain treatment response in terms of PTSD, depression and anxiety outcomes?

Finally, *Chapter 7* contains a general discussion of the strengths, limitations and implications of this thesis, and presents general conclusions. An overview of the general outline of this thesis is presented in Table 2.

Table 2. General outline of the study

<i>Study Question</i>	<i>Database</i>			
	Meta-analysis	Qualitative Analysis	RCT	Predictor Analysis
Safety			Chapter 4, Chapter 5	
Efficacy	Chapter 2		Chapter 4, Chapter 5	Chapter 6
Methodological Quality	Chapter 2			
Explanatory Factors	Chapter 2	Chapter 3		Chapter 6
Lifespan Perspective		Chapter 3		Chapter 6
Posttraumatic Cognitions		Chapter 3		

Note. RCT: Randomised controlled trial.

After Chapter 7, a general summary of this thesis is provided, as well as a summary in Dutch. Following the summary in Dutch, all references are listed.

Chapter 2

The effectiveness of narrative exposure therapy: a review, meta-analysis and meta-regression analysis

Published as:

Lely, J.C.G., Smid, G.E., Jongedijk, R.A., Knipscheer, J.W. & Kleber, R.J. (2019). The Effectiveness of Narrative Exposure Therapy: A Review, Meta-analysis and Meta-regression Analysis. *European Journal of Psychotraumatology*, 10, 1, doi:10.1080/20008198.2018.1550344.

Abstract

Background: Narrative exposure therapy (NET) is a short-term psychological treatment for Post-traumatic Stress Disorder (PTSD) that has been investigated in various contexts among traumatised refugees and other PTSD patients. Sustained treatment results have been reported, but the methodological quality of the trials needs a more thorough examination.

Objective: to evaluate the effectiveness of NET for survivors of trauma, using a quality assessment, an updated meta-analysis and a meta-regression analysis.

Method: following a systematic literature selection, the methodological quality of the included studies was assessed; non-controlled and controlled effect sizes (Hedges' g) were estimated using a random effects model. Predictor analyses were performed. Non-controlled effect sizes for PTSD and depression included symptom change at post-treatment and follow-up time points. Controlled effect sizes included post-treatment comparisons of NET with non-active and active comparators: both trauma-focused (TF) and non- trauma-focused (non-TF) interventions.

Results: The selected studies showed high external validity; methodological quality was equivalent to other guideline supported TF interventions. In 16 randomised controlled trials, involving 947 participants, large non-controlled effect sizes were found for PTSD symptoms: at post-treatment ($g = 1.18$, 95% confidence interval [0.87; 1.50]), and follow-up ($g = 1.37$, [0.96; 1.77]). For depression symptoms, medium non-controlled effect sizes were found: at post-treatment ($g = 0.47$, [0.23; 0.71]) and follow-up ($g = 0.60$, [0.26; 0.94]). Post-treatment, NET outperformed non-active comparators and non-TF active comparators for PTSD, but not the combined active comparators. For depression, NET only outperformed non-active comparators. Advancing age predicted better treatment results for PTSD and depression symptoms; a history of migration predicted smaller treatment results for depression symptoms.

Conclusions: The findings of this meta-analysis suggest that patients and providers may expect sustained treatment results from NET. Controlled comparisons with other guideline supported TF interventions are not yet available.

Keywords: intervention, meta-analysis, narrative exposure therapy, NET, post-traumatic stress disorder, PTSD, treatment.

Highlights

- Narrative exposure therapy is effective in PTSD symptom reduction at post-treatment ($g = 1.18$) and follow-up ($g = 1.37$).
- Treatment results are better for older adults.
- Controlled comparisons with other guideline supported TF interventions are not yet available.

Contribution of authors

Designed research: Lely, Smid, Knipscheer and Kleber

Conducted literature search: Lely

Analysed data: Lely and Smid

Wrote the paper: Lely, Smid, Knipscheer, Jongedijk and Kleber

Introduction

Current geopolitical developments and worldwide migration crises stress the urgency of providing effective treatment to trauma exposed refugees. Narrative exposure therapy (NET) (Schauer, Neuner, & Elbert, 2011), a short-term trauma-focused cognitive behaviour therapy (TFCBT), has been investigated with populations from different cultural and ethnic backgrounds (Palic & Elklit, 2011). These studies have primarily involved refugees and displaced persons with post-traumatic stress disorder (PTSD) (American Psychiatric Association [APA], 2000, 2013) from non-Western countries.

PTSD is a serious and demoralising mental health disorder, burdening adaptation and development (McEwen, 2012). Prevalence rates range widely, from 2.7 % in population surveys (Hauffa et al, 2011) to 30.6% among refugees worldwide (Steel et al., 2009). PTSD and depression frequently co-occur (Rytwinski, Scur, Feeny, & Youngstrom, 2013; Steel et al., 2009). Treatment guidelines recommend trauma-focused (TF) psychological treatment for PTSD (American Psychological Association; APA, 2017; National Institute for Clinical Excellence; NICE, 2011; 2018).

Narrative exposure therapy

NET is a standardised form of TF psychotherapy, embedding trauma exposure in an autobiographical context. The manual (Schauer et al., 2011) recommends four to 12 sessions of 90 minutes, depending on the number of traumatic events, and treatment focuses on imaginary trauma exposure and on reorganising memories (Schnyder et al., 2015). Memories of traumatic events are hypothesised to form multiple fear networks dominated by sensory-perceptual information and lacking autobiographical information (Schauer et al., 2011). By connecting these anxiety-provoking implicit memories with episodic context, the autobiographic memory is rebuilt, allowing for reduction of anxiety (Schauer et al., 2011).

In NET, the therapist and the patient create a timeline of the patient's life, followed by chronologically elaborating this timeline in subsequent sessions. At the end of therapy, the patient receives the written narrative as a documented testimony. Given its focus on the lifespan, NET is particularly suited to populations affected by multiple traumatic experiences (Schauer et al., 2011).

Research in context

Review findings indicated medium to large non-controlled effect sizes for NET with refugees and displaced persons (Gwozdziwycz & Mehl-Madrona, 2013; Lambert & Alhassoon, 2015; Robjant & Fazel., 2010), even in extremely insecure living conditions. Treatment gains for PTSD symptoms and comorbid disorders were found to be stable at follow-up. Treatment dropout was low (Mørkved, et al., 2014), and provision of the intervention by trained counsellors was found to be feasible

(Gwozdziwicz & Mehl-Madrona, 2013). Controlled effect sizes have been found to be in line with those of other guideline supported interventions (Cusack et al., 2016; Watts et al., 2013). The methodological quality of the NET trials, however, has been questioned (Bisson, Roberts, Andrew, Cooper, & Lewis, 2013; Mundt et al., 2014; Patel, Kellezi, & Williams, 2014). These doubts suggest that the findings need more thorough investigation.

In the review literature on NET, some serious omissions were found. Some reviews were merely descriptive (Robjant & Fazel, 2010), while some were exclusively focused on low resource settings (Mundt et al., 2014) or survivors of torture (Patel et al., 2014). Some missed important trials (Bisson et al., 2013; Patel et al., 2014) and others lacked information on comorbid depressive symptoms (Gwozdziwicz & Mehl-Madrona, 2013) or follow-up effects (Lambert & Alhassoon, 2015). So far, no PTSD guideline supported comparators have been found (Gerger, Munder, & Barth, 2014; Nosè et al., 2017). Meanwhile, new NET trials have been added to the evidence base of NET, calling for evaluation.

In the current study, these gaps in the literature were addressed and several clinically important moderators were examined as predictors of treatment outcome (e.g. advancing age, gender, migration to Western countries, treatment dose, self-report assessments, language matching between participants and therapists and the influence of providing NET by trained counsellors). In exposure treatment, participants' advancing age was found to be associated with larger effects (Rizvi, Vogt, & Resick, 2009). Psychotherapy studies with more women were also found to have larger effects (Stenmark, Guzey, Elbert, & Holen, 2014; TARRIER, Sommerfield, Pilgrim, & Faragher, 2000; Watts et al., 2013). Migration to Western countries, leading to potential post-migration stressors (Li, Liddell, & Nickerson, 2016), may complicate treatment progression. A higher number of sessions was found to predict higher treatment effects (Lambert & Alhassoon, 2015). Treatment dose, capturing session length as well (Mørkved et al., 2014), has not yet been examined as a predictor. Contrasting findings existed for the influence of self-reported PTSD symptoms versus diagnostic interviews (Bisson et al., 2013; Lambert & Alhassoon, 2015) and language matching between participants and therapists (Dossa & Hatem, 2012; Lambert & Alhassoon, 2015; Nickerson, Bryant, Silove, & Steel, 2011; Patel et al., 2014). Finally, updating the evidence on the effectiveness of paraprofessional counsellors (Gwozdziwicz & Mehl-Madrona, 2013) was considered relevant.

Aims and hypotheses

The first aim of the present study was to assess the efficacy of NET in adults, as both non-controlled and controlled effect sizes. The second aim was to critically assess the methodological quality of the current evidence on NET and to inform clinicians about treatment outcome predictors, facilitating optimisation of treatment response. PTSD and depression outcomes have been included, as have post-

treatment and follow-up assessments. Comparisons included non-active and active (both non-TF and TF) comparators, followed by a meta-regression analysis of the moderators described above.

Consistent with meta-analytic findings, the methodological quality of the evidence was expected to be modest. NET was expected to show medium to large and sustained treatment effects regarding PTSD and depression outcomes. In addition, NET was expected to outperform non-active and active non-TF comparators for PTSD outcomes (Lambert & Alhassoon, 2015). According to direct comparisons of TF interventions (Brom, Kleber, & Defares, 1989; Nijdam, Gersons, Reitsma, de Jongh, & Olf, 2012; ter Heide, Mooren, van de Schoot, de Jongh, & Kleber, 2016), no significant differences were expected comparing NET with all active control conditions (non-TF and TF comparators). Finally, advancing age and female gender were hypothesised to predict larger treatment effects; while having migrated to Western countries was hypothesised to predict lower treatment effects. A higher treatment dose, self-reported PTSD symptoms, counsellors, and language matching were hypothesised to predict larger treatment effects.

Method

Search strategy and data sources

The literature search was conducted independently by the first author and a senior librarian. The search conformed to the Meta-Analysis Reporting Standards (MARS) guidelines (American Psychological Association; APA, 2010); OvidSP software (2010) was used. The searched internet databases included the ACP Journal Club, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, Cochrane Methodology Register, Database of Abstracts of Reviews of Effects, Health Technology Assessment, National Health Service Economic Evaluation Database, Ovid MEDLINE(R), Ovid MEDLINE(R) in-Process, Ovid MEDLINE(R) Daily Update, Psych INFO, and Published International Literature On Traumatic Stress (PILOTS). Trials published between January 1, 2004 (the first NET trial being published in 2004) and April 30, 2018 were included, and no language restrictions were applied. Search terms in titles and abstracts were: (“narrative exposure therapy” OR “NET”) AND (“post-traumatic stress disorder” OR “PTSD”) AND (“treatment” OR “intervention”). Additional studies were identified by cross-referencing.

Inclusion criteria and selection of studies

The search strategy targeted independent randomised controlled trials (RCTs) investigating NET outcomes (NET and its brief version NET-R) compared with TF or non-TF comparators. Studies had to report at least one quantitative measure of PTSD assessed both pre- and post-treatment, and intention-to-treat analyses had to be applied.

Data extraction and coding

The included interventions were coded as NET or NET-R. Comparators were coded as active or non-active, and TF or non-TF interventions. If a trial included more than one comparison, the most active comparator was selected. PTSD outcome assessments were coded as diagnostic interviews or self-report instruments. Post-treatment and last follow-up effect sizes were computed. Treatment dropout indicated the percentage of participants leaving treatment prematurely. Inter-assessment correlations were obtained from the authors for all studies except for one trial. For that study, the averaged correlations of the other studies were included.

Quality appraisal

All studies were appraised using the Cochrane Collaboration's tool for assessing risk of bias (Higgins et al., 2011), focusing on six domains threatening internal validity: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective reporting and other bias. The risk of bias of each domain was judged as high, low, or unclear. Consistent with the GRADE framework (Higgins et al., 2011), for each study, the highest risk of bias was considered to determine the quality. Two independent assessors (the first author and a research assistant) agreed on 94% of the resulting scores, and remaining inconsistencies were resolved by a third independent assessor (the fourth author).

Data synthesis

Heterogeneity

To evaluate heterogeneity in the outcomes, Cochrane's heterogeneity statistic (Q) was computed and tested for significance.

Effect size calculation

First, *non-controlled (within-group) effect sizes* were computed for the NET groups and control groups (post-treatment and last follow-up, the latter indicated as "follow-up"). In addition, the post-treatment effect sizes for NET were grouped according to the participants' backgrounds. Secondly, *controlled (between-groups) effect sizes* were computed. All effect sizes were calculated in Hedges' g . Positive signs indicated symptom reduction or treatment groups outperforming comparators.

Meta-analytic techniques

Effect sizes (random effects model) were computed using the Comprehensive Meta-analysis software programme (CMA: version 2.0, 2005). All effect sizes were computed for PTSD outcomes and, if available, for depression outcomes. Publication bias, meaning preferential publication of striking findings, was evaluated by inspecting the funnel plots as implemented in CMA and using Egger's test

of the intercept to evaluate the significance of the bias. The random effects version of Duval and Tweedie's trim-and-fill procedure (2000), as implemented in CMA, was used to estimate adjustments for the possible effects of publication bias. Finally, in a sensitivity analysis, each study was consecutively removed as a potential outlier to test its influence on the overall effect sizes.

Meta-regression analyses

Multiple regression analyses were performed to examine the effect of moderators on outcomes. SPSS-software, version 23 (IBM Corp., Armonk, NY, USA), was used, with macros provided by Lipsey & Wilson (2001). For all analyses, the alpha level was set at $p = .05$. PTSD and depression symptom change at post-treatment were used as dependent variables. Seven potential predictors were specified as independent variables: age (sample mean), female gender (sample percentage), migration (1 = yes, 0 = no), treatment dose (number of sessions by session length, yielding total treatment time in minutes), matching languages (1 = yes, 0 = no), PTSD outcome (1 = diagnostic interview, 0 = self-report) and, finally, therapist's training being professional or paraprofessional (1 = professional, 0 = paraprofessional). All variables were entered in the model at once. The contribution of all variables to the explained variance was evaluated by calculating R^2 .

Results

Study selection

From 182 eligible studies, 16 RCTs (denoted as k) were selected for the meta-analysis, using several steps. A primary search was conducted in July 2015 and repeated in January 2016; a secondary search was conducted in July 2016 and confirmed in September 2018. The selection process is presented in Figure 1.

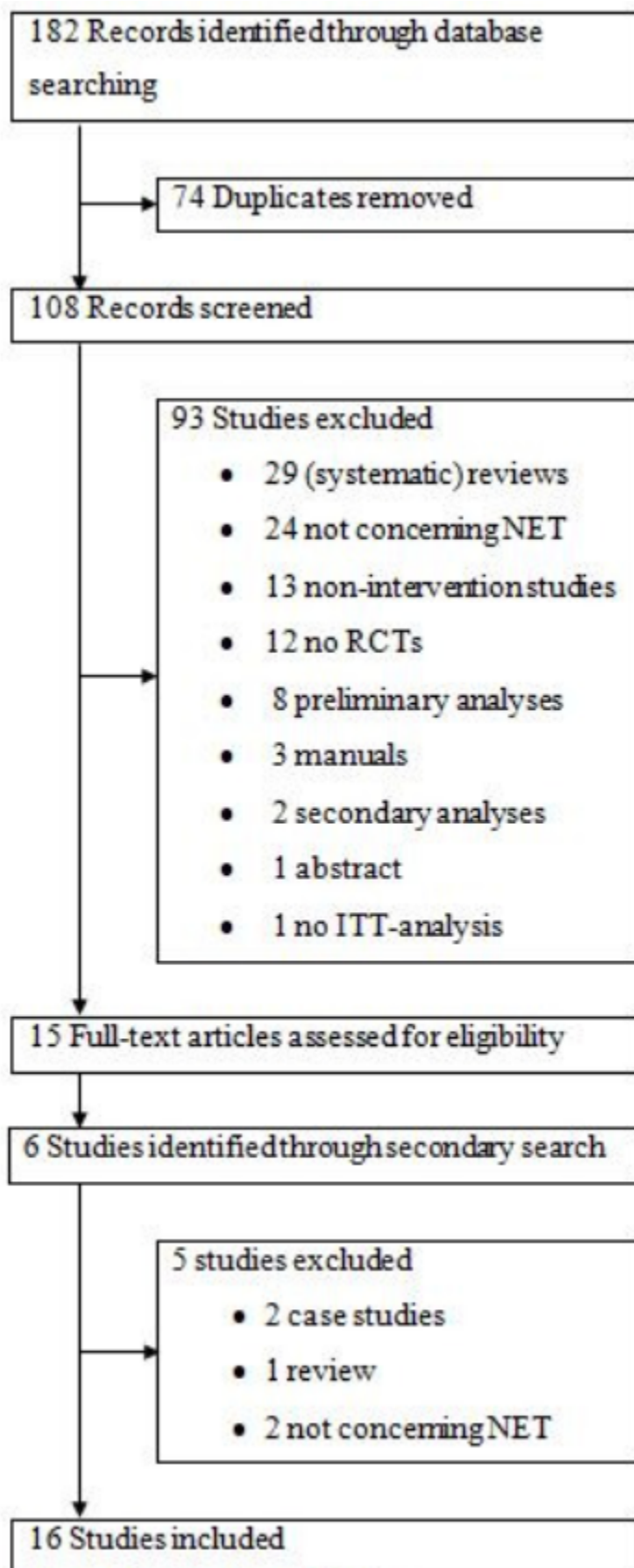


Figure 1. Selection of Studies.

Study characteristics

As one study (Zang, Hunt, & Cox, 2014) included two comparisons (for NET and NET-R), the selection included 16 trials with 17 comparisons. Most NET samples ($k = 13$, 76.47 %) were small, ranging from five to 29 participants; A minority ($k = 4$, 23.52%) ranged from 38 to 111 participants. Characteristics of the trials are listed in Table 1.

Table 1. Characteristics of the included studies.

<i>Study name</i>	<i>N NET*</i>	<i>Age</i>	<i>Male participants (%)</i>	<i>Treatment dose</i>	<i>Professionals</i>	<i>Outcome</i>	<i>Language</i>	<i>Migration</i>	<i>Dropout NET</i>	<i>Control</i>
Alghamdi et al., 2015	17	28.7	100.00	360	1	SR*	1	0	0.00	WLC*
Al-Hadethe et al., 2015	20	17.5	100.00	300	1	SR	1	0	0.05	EFT*
Bichescu et al., 2007	9	68.9	100.00	600	1	DI*	1	0	0.00	PED*
Ertl et al., 2011	29	18.66	44.8	840	0	DI	1	0	10.34	Catch-up*
Hensel-Dittmann et al., 2011	15	36.4	57.14	900	1	DI	0	1	20.00	SIT*
Hijazi et al., 2014	41	47.6	36.59	225	1	SR	1	1	4.88	WLC
Jacob et al., 2014	38	40.0	10.53	960	0	DI	1	0	2.63	WLC
Morath et al., 2014a	17	27.29	58.82	1080	1	DI	0	1	0.00	WLC
Morath et al., 2014b	19	28.7	67.65	1080	1	DI	0	1	21.05	WLC
Neuner et al., 2004	17	31.9	41.18	420	1	SR	0	0	5.88	SC*
Neuner et al., 2008	111	34.4	49.55	540	1	SR	1	0	3.6	TC*
Neuner et al., 2010	16	31.6	68.75	1055	1	SR	0	1	12.5	TAU
Schaal et al., 2009	12	19.42	38.46	540	1	DI	0	0	0.00	IPT*
Stenmark et al., 2013	51	34.51	66.67	900	1	DI	0	1	25.49	TAU
Zang et al., 2013	11	56.64	22.72	360	1	SR	1	0	0.00	WLC
Zang et al., NET 2014	10	53.5	6.67	300	1	SR	1	0	0.00	WLC
Zang et al., NET-R* 2014	10	56.5	6.67	270	1	SR	1	0	0.00	WLC

Note. Catch-up, academic catch-up program; DI, diagnostic interview; EFT, emotional freedom techniques; IPT, interpersonal psychotherapy; NET, narrative exposure therapy; NET-R, NET-revised; PED, psychoeducation; SC, supportive counselling; SIT, stress inoculation training; SR, self-report; TAU, treatment as usual; TC, trauma counselling; WLC = waiting list condition.

Methodological quality

In most studies, the risk of bias was rated as unclear. In one study, the risk of bias was rated as high. With respect to blinding and allocation concealment, no evidence was reported that violation affected outcomes. Five studies (31%) were conducted by authors who were not involved in the development of NET.

The quality assessment data are included in Figure 2.

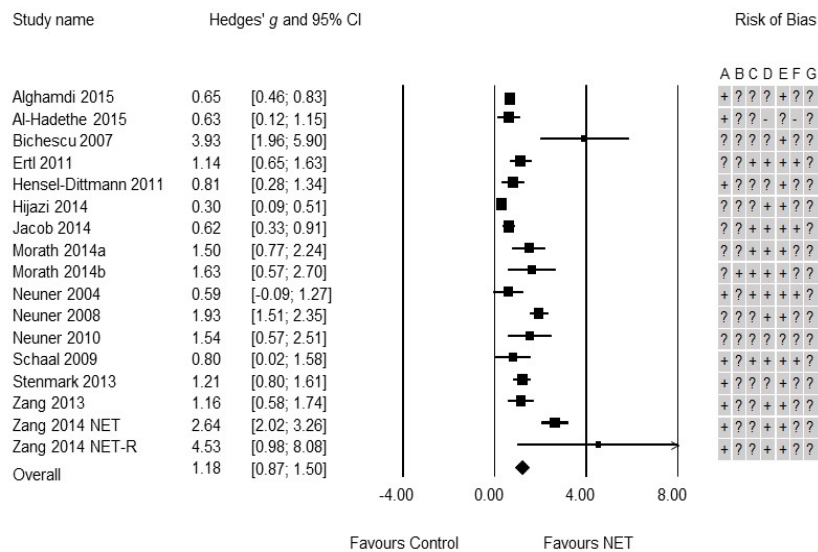


Figure 2. Mean effect sizes of narrative exposure therapy (NET) Hedges' g [95% confidence interval]. Risk of Bias: A, random sequence generation; B, allocation concealment; C, blinding of participants and personnel; D, blinding of outcome assessment; E, incomplete outcome data; F, selective reporting; G, other bias. Ratings: +, low; ?, unclear; -, high.

Participants

The selected studies involved 947 individuals in nine countries; 443 (46.78%) participants were offered a NET intervention; 294 (31.05%) participated in an active control intervention, and 210 (22.18%) participated in a non-active control condition. Participants included adults (81.94%) and adolescents (18.06%); 456 participants (48.15%) were female. Mean age ranged from 17.50 to 68.90 years ($M = 37.01$, $SD = 14.97$). Eleven studies (68.75%) involved refugees or displaced persons, identified as refugees, including 783 ethnically diverse participants. Five studies (31.25%), involving 507 participants, were conducted in low-income regions (Ertl, Pfeiffer, Schauer, Elbert, & Neuner, 2011; Jacob et al., 2014; Neuner et al., 2008; Neuner, Schauer, Klaschik, Karunakara, & Elbert, 2004; Schaal, Elbert, & Neuner, 2009). Six studies (37.50%), with 276 participants, involved migrated refugees or asylum seekers (identified as refugees as well) in Western countries (Hensel-Dittmann et al., 2011; Hijazi et al., 2014; Morath et al., 2014a, 2014b; Neuner et al., 2010; Stenmark, Catani, Neuner, Elbert, & Holen, 2013). All refugee studies included participants surviving multiple traumatic events or torture, the mean number ranging from 6.82 ($SD = 2.09$) to 19.85 ($SD = 6.4$). Consequently, those populations may be characterised by high problem complexity (Gerger et al., 2014). Finally, five studies (31.25%), including 164 individuals, involved non-refugee participants (Alghamdi, Hunt, & Thomas, 2015; Al Hadethe, Hunt, Al-Qaysi, & Thomas, 2015; Bichescu, Neuner, Schauer, & Elbert, 2007; Zang, Hunt, & Cox, 2013, 2014). Three of those studies (Alghamdi et al., 2015; Bichescu et al., 2007; Zang et al., 2013) reported multiple traumatic events as well.

Interventions

The mean number of sessions was 6.47 ($SD = 3.17$, range 3-12, mean session length was 97.06 minutes ($SD = 17.68$, range 75-135), and the mean treatment dose was 631.18 minutes ($SD = 316.51$, range 225-1080).

Comparators

Comparators included non-active ($k = 9$; 56.25%) and active interventions ($k = 8$; 47.06%). The non-active comparators consisted of waiting lists. The active comparators included one intervention that could be considered TF (Neuner et al., 2008) and one study in which NET was compared with another TF intervention (Al-Hadethe et al, 2015). The other active comparators included diverse psychosocial interventions. In Table 1, all comparators are listed.

Outcomes

All studies reported group means; in addition, three studies reported individual change and eight studies reported remission of PTSD diagnosis. All studies reported reasons for dropout. In five studies, incidents of symptom increase were reported, with no indication of more adverse events among NET

participants than in the control group being apparent. In one study, a suicide took place during follow-up in the control condition. None of the adverse events was attributed to treatment stress.

PTSD and depression severity were monitored with well-accepted diagnostic instruments. Time points of post-treatment measurements varied from 2 to 26 weeks ($M = 9.55$, $SD = 8.26$). Time-points of the last follow-up measurements ranged from 9 to 52 weeks ($M = 35.57$, $SD = 17.38$). Treatment dropout from NET ranged from 0.00% to 25.49% ($M = 5.85\%$, $SD = 8.51\%$), whereas treatment dropout from the comparators ranged from 0.00% to 26.67% ($M = 7.11\%$, $SD = 9.56\%$).

Treatment effects

Effect sizes

For PTSD, the non-controlled effect sizes were found to be large at post-treatment ($g = 1.18$, 95% confidence interval [CI] [0.87; 1.50] and sustained at follow-up ($g = 1.35$ [0.93; 1.77]). Controlled effect sizes for all active comparators (both TF and non-TF) were non-significant. For active non-TF comparators, controlled effect sizes were medium and significant ($g = 0.43$ [0.09; 0.78]); for non-active comparators, they were large and significant ($g = 1.37$ [0.66; 2.07]).

For depression, the non-controlled effect sizes were found to be medium at post-treatment ($g = 0.47$ [0.23; 0.71]) and sustained at follow-up ($g = 0.60$ [0.26; 0.94]). Controlled effect sizes for all active comparators (both TF and non-TF) were non-significant, and the same applied for active non-TF comparators. For non-active comparators, controlled effect sizes were medium to large and significant ($g = 0.79$ [0.48; 1.09]). The resulting effect sizes are presented in Table 2 and Figure 2.

Table 2. Mean Effect Sizes of NET on PTSD and Depression Outcomes in Hedges' g.

	Effect sizes					Heterogeneity		
	<i>k</i>	<i>Mean</i>	<i>-95% CI*</i>	<i>95% CI</i>	<i>p-value</i>	<i>Q*</i>	<i>df*</i>	<i>p-value</i>
PTSD								
Non-controlled Effect Sizes								
Pre- to post treatment	17	1.18	.87	1.50	.000	117.41	16	.000
Pre-treatment to last Follow-up	15	1.35	.93	1.77	.000	94.77	14	.000
Controlled Effect Sizes								
All active comparators	9	.24	-.10	.58	.166	25.24	8	.001
Active Non-TF comparators	7	.43	.09	.78	.014	11.65	6	.070
Non-active comparators	8	1.37	.66	2.07	.000	50.96	7	.000
All comparators	17	.69	.33	1.06	.000	92.33	16	.000

Depression

Non-controlled Effect Sizes

Pre- to post treatment	13	.47	.23	.71	.000	40.63	12	.000
Pre-treatment to last Follow-up	11	.60	.26	.94	.001	46.68	10	.000
Controlled Effect Sizes								
All active comparators	7	.17	-.31	.64	.497	22.70	6	.001
Active Non-TF comparators	6	.33	-.05	.70	.088	9.84	5	.080
Non-active comparators	6	.79	.48	1.09	.000	5.47	5	.361
All comparators	13	.49	.15	.82	.004	35.57	12	.000

Note. CI = confidence interval; Q = Cochrane's heterogeneity statistic; df = degrees of freedom. All active comparators = trauma-focused comparators (Emotional Freedom Techniques; Trauma Counselling) + active non-TF comparators; Active non trauma-focused (non-TF) comparators = Academic Catch-up Program; Interpersonal Psychotherapy; Psychoeducation; Stress Inoculation Training; Supportive Counselling, and Treatment as Usual. Non-active comparators = waiting list conditions.

To take into account the participants' backgrounds, the mean non-controlled effect sizes at post-test were grouped with respect to refugees in their home regions ($g = 1.03$ [0.47; 1.60]), refugees in Western countries ($g = 1.07$ [0.55; 1.60]), and non-refugees ($g = 1.66$ [0.83; 2.48]). The mean numbers of participants in these subgroups were 41.40, 26.50, and 12.83, respectively. Finally, the non-controlled effect sizes of the comparators are presented in Table 3.

Table 3. Mean Non-controlled Effect Sizes of the Comparators in Hedges' g : $g = .02$ small; $.05$ medium; $.08$ large (Cohen, 1992).

	Effect sizes					Heterogeneity		
	<i>k</i>	<i>Mean</i>	<i>-95% CI*</i>	<i>95% CI</i>	<i>p-value</i>	<i>Q*</i>	<i>df*</i>	<i>p-value</i>
<i>All Comparators</i>								
PTSD pre-post	17	.77	.41	1.12	.000	162.81	16	.000
PTSD pre-FU	12	1.08	.55	1.62	.000	95.48	11	.000
Depression pre-post	13	.34	.08	.59	.010	43.18	12	.000
Depression pre-FU	9	.67	.26	1.12	.002	37.07	8	.000
<i>Active Comparators</i>								
PTSD pre-post	8	.69	.22	1.16	.004	39.24	7	.000
PTSD pre-FU	5	.57	-.17	1.32	.133	32.45	4	.000
Depression pre-post	3	.31	-.06	.67	.100	1.233	5	.030
Depression pre-FU	3	.47	-.10	1.04	.108	3.79	2	.150
<i>Active TF Comparators</i>								
PTSD pre-post	2	1.79	1.02	2.56	.000	3.37	1	.066
PTSD pre-FU	2	1.50	.30	2.71	.015	7.20	1	.007
Depression pre-post	1	.97	.41	1.54	.001	.00	0	1.000
Depression pre-FU	1	1.14	.50	1.79	.001	.00	0	1.000
<i>Non-active comparators</i>								
PTSD pre-post	9	.19	-.08	.47	.163	35.10	8	.000
PTSD pre-FU	7	1.40	.54	2.26	.001	71.23	6	.000
Depression pre-post	7	.05	-.09	.19	.498	1.32	6	.97
Depression pre-FU	6	.54	-.01	1.09	.052	32.00	5	.000

Note: CI = confidence interval; Q = Cochrane's heterogeneity statistic; df = degrees of freedom.

For PTSD, these effect sizes were found to be large at post-treatment ($g = 0.77$ [0.41; 1.12]) and sustained at follow-up ($g = 1.08$ [0.55; 1.62]). For depression, these effect sizes were found to be small at post-treatment ($g = 0.34$ [0.08; 0.59]) and sustained at follow-up ($g = 0.67$ [0.26; 1.12]).

Publication bias

For controlled effect sizes, visual inspection of the funnel plots did not suggest possible publication bias, for both time points and both outcomes. Duval and Tweedie's trim and fill procedure (2000) indicated unchanged results. For the non-controlled effect sizes of PTSD, however, seven studies were missing; and for the non-controlled effect sizes of depression, two studies were missing at post-treatment and three at follow-up. Imputed effect sizes for PTSD outcomes remained medium post treatment ($g = 0.71$ [.37; 1.06]) and at follow-up ($g = 0.79$, [0.37; 1.20]). Imputed effect sizes for depression outcomes were small post treatment ($g = 0.39$ [0.14; 0.63]) and at follow-up ($g = 0.36$ [0.01; 0.71]).

Sensitivity analyses

For PTSD and depression outcomes, no study was found to exert a disproportionately large effect on the overall effect sizes, for both time points, involving non-controlled and controlled effect sizes.

Predictor Analyses

For PTSD, treatment results were predicted by advancing age, but not by the other moderators. The model explained 34% of the inter-study variance. The residual heterogeneity was found to be non-significant (residual $Q = 22.04$; $df = 9$; $p = .088$).

For depression, treatment results were predicted by advancing age and migration, but not by the remaining moderators. The model explained 97% of the inter-study variance. Residual heterogeneity was found to be non-significant (residual $Q = 0.82$; $df = 5$; $p = .976$). The details of the multiple regression analyses are presented in Table 4.

Table 4. Meta-regression Analyses relating Mean Age, being Female, Migration, Treatment Dose, Matching Languages, Outcome, and Therapist's Training to non-controlled Effect Sizes.

<i>PTSD</i>							
<i>Assessment</i>	<i>Moderator</i>	<i>R²</i>	<i>Q (df)</i>	<i>B</i>	<i>SE</i>	<i>β</i>	<i>p-value</i>
Pre- to post treatment		.34	22.04 (9)				.088
	Mean Age			.05	.02	.75	.043
	Female Gender			-.01	.01	-.39	.145
	Migration			-.70	.41	-.44	.084
	Treatment Dose			.00	.00	.41	.325

	Matching						
	Languages						
	Outcome						
	Therapist's Training						
<hr/>							
<i>Depression</i>							
Pre- to post							
treatment							
	Mean Age						
	Female Gender						
	Migration						
	Treatment Dose						
	Matching						
	Languages						
	Outcome						
	Therapist's Training						

Note. R², explained variance; Q, Cochran's heterogeneity statistic; df, degrees of freedom; B, intercept; SE, standard error; β , regression coefficient.

Discussion

Main findings

This meta-analysis shows that NET is effective in the reduction of PTSD and depression symptoms across diverse, predominantly war-affected refugee populations. Treatment results are better for older adults. NET was found to be superior to non-active comparators and active non-TF comparators. So far, controlled comparisons with other guideline-supported TF interventions were not available. The application of paraprofessional therapists and very low treatment doses in trials can be seen as strengthening external validity. Using the GRADE framework, the risk of bias in the primary studies was found to range from unclear to high.

Predictors

Advancing age predicted better treatment outcomes for PTSD and depression symptoms. These findings may be explained by the lifespan perspective of NET. Trauma exposure with several retellings may foster cognitive coherence, self-reflection and restored meaning in life. Thus, it may appeal to the needs of older adults (Rizvi et al., 2009). Unexpectedly, a higher proportion of women did not show significant associations with treatment results. Such deviations from earlier findings may be explained by differences in sample size and sample specificity. The sample of Watts et al. (2013) contained nearly 10 times more participants than the present sample. In the study by Stenmark and colleagues (2014), male gender may have been influenced by violent offences. In the study by Tarrier et al. (2000), the female gender may have been influenced by psychoticism or treatment motivation. Migration to Western countries predicted smaller treatment results for depression, but not for PTSD. This finding implies that treatment response for PTSD is not influenced by post-migration stress. For the treatment of depression, however, NET appears to be less satisfying. Higher treatment dose showed no significant

association with treatment results. This finding may encourage more research on NET with brief treatment formats. Outcome assessment did not predict treatment outcomes; neither did language matching. The latter finding supports that of Lambert & Alhassoon (2015). Although this finding may not take away methodologists' concerns regarding assessments, it implies that the assistance of interpreters does not influence treatment outcomes. Similar conclusions were found for ethnic matching in providing mental healthcare to Mediterranean migrants in the Netherlands (Knipscheer & Kleber, 2004). Unexpectedly, treatment progression was not predicted by the therapist's training. This finding supports the contribution of trained paraprofessionals as NET therapists, being highly relevant in low resource settings.

Findings in context

The included NET trials have been conducted in various settings and, consequently, in different healthcare systems. NET for non-refugees was found to be highly efficacious, albeit involving notably smaller treatment groups than the other studies. Remarkably, NET trials with migrated refugees (treated in health care systems in Western countries) did not show higher mean effect sizes than those with refugees in their home regions. Apparently, refugees in Western countries did not benefit more from NET in the settings of those countries. This finding may be explained by the influence of time on persisting PTSD symptoms. In current network analyses of PTSD, a common factor (trauma) is assumed to cause the onset of PTSD (influenced by vulnerability and protecting variables), whereas the persistence of the disorder seems to be governed by a larger network of variables (Fried & Cramer, 2017). Although the scope of the present study does not allow for a direct comparison, it can be hypothesised that refugees resettled in Western countries on average suffer from chronic symptoms, potentially complicated by post-migration stressors, especially language barriers and the necessity to adjust to Western cultures (Li et al., 2016). Addressing those symptoms with the help of NET – focusing on the past - can be less efficacious than might be expected in high quality health care systems. This finding may call for research investigating whether migrated refugees benefit as much from NET as from other guideline supported TF interventions. To effectively treat resettled refugees in Western healthcare systems, individualised decisions are needed, based on comparative evidence of different TFCBT interventions or Eye Movement Desensitisation and Reprocessing (EMDR). Some meta-analytical findings show effect sizes of TFCBT to be superior to those of the current study (Bradley, Greene, Russ, Dutra, & Westen, 2005; Watts et al., 2013). The findings of the current study are, however, in accordance with recent meta-analytic findings, involving participants with complex problems (Gerger et al., 2014) or refugees resettled in Western countries (Nosè et al., 2017). The results were also consistent with those involving survivors of childhood abuse (Ehring et al., 2014).

The comparators varied from waiting list conditions to active psychosocial interventions. The active interventions suggested contextual face validity and credibility. By using the strict criteria of the GRADE framework for the evaluation of the trials, the assessment focused on the internal validity of the studies, providing rather conservative ratings. Factors of external validity included intended face validity and credibility of the comparators, the complexity of the difficulties within the target population and the local circumstances.

The framework of GRADE reduces the overall methodological quality to the weakest qualification, which presents serious dilemmas in psychotherapy research. Whereas underrating the risks of bias may lead to accepting disappointing treatments, overrating such risks may withhold effective interventions from patients in need (Patel et al., 2014). As for NET, numerous studies, qualitatively equivalent to other psychotherapy research, conducted with high external validity, have supported evidence on the safety and efficacy of NET across various populations. Therefore, NET has been described as being of proven effectiveness (De Jong, Knipscheer, Ford & Kleber, 2014) and can be considered the psychotherapeutic treatment of choice in post-conflict settings.

Strengths and limitations

The present study is the first meta-analysis summarising the current evidence base of NET. Its strengths include a systematic literature selection, a domain-based methodological quality appraisal, a differentiation between TF and non-TF control conditions and, finally, the exploration of heterogeneity in the main outcomes by meta-regression analyses.

Simultaneously, this study has a number of limitations. First, restricted study quality limited the interpretation of results. This is not unexpected, since the majority of TFCBT interventions shares this qualification (Bisson et al., 2013; Patel et al., 2014). Secondly, the current absence of guideline supported TF comparators presents a persisting research gap. Thirdly, the short mean length of follow-up intervals may be considered a limitation. In a long follow-up interval, the protection of the intervention against new traumatic exposure can be assessed. Fourthly, the findings regarding follow-up outcomes were based on fewer studies, limiting the conclusions about stability of follow-up results. Fifthly, the heterogeneity of the PTSD outcomes was only partly explained by the selected predictors. Furthermore, for the non-controlled effect sizes, the possibility of publication bias was suggested. This finding calls for extended research. Finally, the high frequency of a limited group of authors may present a risk of confounding on grounds of therapist effects and allegiance bias (Wampold et al., 2010).

Clinical implications

Notwithstanding shared methodological weaknesses, in recent guidelines TFCBT and EMDR (eye movement desensitization and reprocessing) are recommended as the most effective treatments for PTSD (Hamblen, Schnurr, Rosenberg, & Efkehari, 2009; Foa, 2009). NET has been considered qualitatively comparable to those evidence-based trauma therapies (Hoge, 2011), and is currently included in the suggested interventions for treating PTSD in adults (APA, 2017; NICE, 2018).

Despite the need for caution in interpretation, this study's findings provide evidence for empirically informed decision making in clinical practice and research policy. Providing NET to adults with high problem complexity may be expected to be safe and effective. Symptoms of depression require specific attention when treating refugees in Western countries. In clinical care, the findings about assisting interpreters imply that no reluctance is needed to provide NET with interpreters. The same accounts for trained paraprofessionals providing NET in low-resource settings.

Future research

Although rigorous research methodology and the needs of clinical care in naturalistic settings may be hard to align, some research options can be outlined. To enhance the methodological quality of future research, larger samples should be used, and individual treatment results, including adverse developments, should be systematically reported. These recommendations also apply to the generalisation of the results of non-refugee trials. To explain the residual heterogeneity for PTSD outcomes, more research is recommended on trauma-related variables such as traumatic load, which may influence treatment response (Lonergan, 2014), and clinical variables such as the influence of comorbid depression symptoms (Haagen, Ter Heide, Mooren, Knipscheer, & Kleber, 2017). In addition, to assess long-term treatment results, future research should preferably follow-up patients for 2 years after the end of treatment (Bradley et al., 2005). Next, strengthening comparative evidence of NET relative to TF comparators would seem to be supportive. Direct comparisons, however, hardly yield clear differences (Tran & Gregor, 2016). More can be expected from studies with high-frequency measuring, which may reveal relevant information on response patterns or treatment strategies (Nijdam et al., 2012). Furthermore, the development of future NET research by independent research groups would strengthen the evidence for NET. Finally, applications of NET beyond refugee populations are awaiting qualitatively rigorous research.

Conclusions

Although the evidence regarding the treatment effects of NET must be interpreted with caution, this meta-analysis provides empirical support for the effectiveness of NET for traumatised and highly burdened populations, facilitating optimisation of treatment response in clinical care.

Chapter 3

Stronger than my ghosts: A qualitative study on cognitive recovery in later life

In review:

Lely, J.C.G., De la Rie, S.M., Knipscheer, J.W., & Kleber, R.J. Stronger than my ghosts: A qualitative study on cognitive recovery in later life

Abstract

Background

To illustrate cognitive recovery during and after Narrative exposure therapy from the patient's perspective, autobiographical material and interview responses were qualitatively analysed.

Method

Using a framework of cognitive development, patient reported outcomes from four senior Dutch citizens, (57 to 81 years) were examined. All participants reported multiple traumatic experiences, including adverse childhood experiences.

Results

During and after treatment, the participants reported gradual changes in post-traumatic feelings, cognitions and **treatment related** perceptions toward increased self-awareness and self-esteem.

Conclusions

A framework of cognitive development provides a comprehensive understanding of how older adults deal with childhood trauma and its consequences.

Keywords

PTSD, Trauma, Narrative Exposure Therapy, Older adults, Qualitative Research.

Contribution of authors

Designed research: Lely, De la Rie

Analysed data: Lely and De la Rie

Wrote the paper: Lely, De la Rie, Knipscheer and Kleber

Introduction

Traumatic events, either experiencing or closely witnessing them, exert a tremendous impact on someone's assumptions about oneself, others and the world (Janoff-Bulman, 1992). Processing those experiences and gaining control over symptoms go hand in hand with the struggle for new meanings and perspectives (Tedeschi & Calhoun, 2004).

If specific posttraumatic stress symptoms, seriously disturbing an individual's functioning in life, last longer than four weeks after the traumatic event, they are qualified as posttraumatic stress disorder or PTSD (American Psychiatric Association; APA, 2013). This disorder can be activated at every stage of life. Consistent with the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; 2013), the core symptoms of PTSD include involuntary re-experiencing of the event, hyperarousal, avoidance of stimuli reminding of the event and finally negative alterations in thought and mood. PTSD in older adult patients is frequently associated with comorbid depression (Van Zelst, De Beurs, Beekman, Deeg, & Van Dyck, 2003), cardiovascular disease (Edmondson & Cohen, 2013), and dementia (Lohr et al., 2015). In addition, PTSD in later life is associated with serious impairments in daily life (Kessler, Kruse, & Wahl, 2014). Those findings lend additional urgency to treatment research regarding PTSD in older adults.

Risk factors for PTSD include adverse childhood events or ACEs (Van Zelst et al, 2003). In high-income countries, child maltreatment by parents or caregivers has been found to be related to injuries of varying severity and long-term consequences affecting the children into early and late adulthood (Gilbert et al., 2009).

Practice guidelines for PTSD treatment (e.g. National Institute for Health and Care Excellence; NICE, 2018) recommend Cognitive Behavior Therapy (CBT) focusing on trauma exposure. However, the guidelines have not yet specified whether their recommendations for adults can be generalized to older adults. In order to explore the cognitive changes which appear to be at the core of CBT, this qualitative study was conducted.

Posttraumatic changes in thoughts and meanings play an important role in adaptation and recovery, as has been stated in various cognitive perspectives on trauma (Foa, Tolin, Ehlers, Clark, & Orsillo, 1999; Janoff-Bulman, 1992). In this cognitive framework, emotions and cognitions are closely connected. Distressing emotions and conflicting cognitions may result in distrust and symptom increase (Janoff_Bulman, 1992), thus complicating adaptation and recovery. Traumatic events, therefore, can remain highly central in a person's identity and life story (Berntsen & Rubin, 2006). In contrast, individuals exposed to traumatic events can also develop growth and resilience (Tedeschi & Calhoun, 2004).

Persisting burdening cognitions, such as shame or self-blaming may interfere with age-specific psychosocial tasks in childhood, adolescence, early and later adulthood. For later years, those tasks are described as growing towards self-acceptance or ego-integration (Erikson & Erikson, 1998). From a perspective of lifespan cognitive development, patients' reported cognitions and feelings may be considered to be indicative of past developments and of current recovery.

In order to understand the older patients' coping and recovery from their own words, a qualitative analysis was conducted, using patients' autobiographies and interview responses. In this study, three questions are investigated. First: which posttraumatic cognitions, related to past life stages, could be identified in the autobiographies of older PTSD patients recovering with the help of trauma-focused exposure therapy? Second: to what extent did cognitions change during the treatment process? Negative cognitions about oneself, others and the world were expected to be associated with traumatic episodes and to reflect distressing convictions and emotions. During therapy, a differentiation toward more well-being was expected to happen, due to advances in the treatment process, when patients have learned to tolerate sensitive memories. Third, how did patients perceive their treatment process? During and after therapy, a noticeable change in perceptions in a positive direction was expected.

Method

Trial Registration

The trial was registered in the Netherlands Trial Register (NTR), number 3987 and NARCIS (Dutch National Academic Research and Collaborations Information System), OND1352440.

Procedures, participants and interventions

This study is based on data from a randomized clinical trial (RCT) comparing narrative exposure therapy (NET; Schauer, Neuner, & Elbert, 2011) with present centered therapy (PCT; Frost, Laska, & Wampold, 2014) in older adult PTSD patients. The present study describes a small cohort of participants from the NET condition. In the participants' past, adverse events occurred both in childhood and later in life.

After medical ethics committee approval (protocol number P13.009), participants were recruited from two specialised Dutch centres for research and treatment of psychological trauma between April 2013 and April 2016. These civilian trauma survivors were aged 55 years and over, meeting DSM-IV criteria for PTSD (APA, 2000). Exclusion criteria included severe cognitive impairment, current high risk for suicide, active psychosis or bipolar disorder, non-fulfilment of all

DSM-IV criteria for PTSD, current diagnosis of substance disorders and concurrent psychosocial treatment for PTSD during the study. After receiving a complete description of the study, potential participants gave their written informed consent. All participants were interviewed pre-treatment, post-treatment and at follow-up; the NET participants completed an autobiography, from birth to the present.

Trauma narratives

NET addresses individual effects of traumatic events by simultaneously reconstructing autobiographic memory and providing imaginal exposure. In NET, the therapist and patient collaboratively develop a chronological narrative of the patient's life, highlighting memories of trauma and perceived support. Developing and revising this narrative allows the patient to re-experience avoided traumatic events in prolonged exposure. NET was carried out according to the manual (Schauer et al., 2011) by therapists from both trial sites. The treatment included 11 90-minute sessions. In the last session, the participants signed and received their documented narration.

Interviews

At all assessments, master students in clinical psychology with a theoretical and practical interview training conducted semi-structured interviews face-to-face. The assessors had signed a declaration of confidentiality. The duration of each interview was approximately 20 minutes. Most interviews took place at the research sites, two of them at a participant's home. After having completed all assessments, including the interviews, the participants received a gift voucher to thank them for their time and efforts.

The first questions dealt with perceived health, expressed in the patient's own words. The next questions referred to ascribed explanations of the traumatic events ("What was for you the most important reason for your problems?"). In addition, participants could evaluate the contact with their therapist and the treatment process. Finally, using a developmental perspective (Erikson & Erikson, 1998), participants could report potential lessons learned ("What have you learned about yourself during treatment?"), and reflect on a metaphor or title for their life story, and their perceived future ("If you would write a memoir, which title would you choose for it?").

Data analysis

All transcribed narratives and interviews were entered into MAXQDA¹⁰ (VERBI, 2007), to provide consistency to the coding process and to enable thematic analysis. The data analysis was based on a three-step process derived from the Grounded Theory formulation (Glaser & Strauss,

1967). First, the material was open-coded. The transcripts were closely read and coded line-by-line. The codes were primarily derived from the Post Traumatic Cognitions Inventory (Foa et al, 1999), to reflect the framework of cognitive adaptation. Additional codes, involving feelings, reported resilience and life stages, were added.

The first author (psychotherapist) and a research assistant (psychologist) independently coded all narratives; differences were discussed until consensus was reached. The second author (psychotherapist) then reviewed the codes, to maximise inter-subjectivity in interpretation. Consistent with the theoretical framework, the codes were assigned to main groups which involved posttraumatic cognitions, developmental impact and responses from the interviews, the latter indicated as treatment related perceptions. The narratives served to explore the posttraumatic cognitions; the interviews mainly provided information on how patients perceived their treatment process and cognitive changes.

Results

Participants

In order to obtain a sample of NET-participants with a maximum of cultural and clinical homogeneity, only biographies from Dutch civilians, born in the Netherlands, were analysed. The present sample consisted of those four participants: one woman and three men, aged 57 to 81 ($M = 64.40$ years; $SD = 9.69$). All participants lived or had lived in stable relationships; all of them had children and some of them also grandchildren. After secondary education, they had held various professions; currently, however, they were unemployed or retired. All participants reported multiple childhood trauma (traumatic memories reaching back from around five to twelve years of age) and subsequent adverse life events; the number of events during adulthood ranging from two to five, ($M = 3.3$). In total, the participants reported four to nine ($M = 6.5$) traumatic events, as indicated on the Life Events Checklist in the CAPS. The reported ACEs ranged from surviving bombardments during World War II, to physical and/or sexual abuse or domestic violence. Two patients reported recurrent sexual harassment by a relative and/or parent. The reported traumatic events are presented in Table 1.

Table 1. Traumatic Events and Additional Burdens of Participants

<i>Type of event</i>	<i>Event</i>	<i>Life stage</i>
Warfare	Bombardments during World War II	Childhood
Violence	Father's beatings	Childhood
	Witnessing father beating up mother	Childhood

	Bullying	Childhood
Exaggerated demands	Being forced to listen to father's wartime stories	Childhood
	Father imposing excessive labour	Childhood
Sexual abuse	Relative's sexual abuse	Childhood
	Father's sexual abuse	Childhood
Violence to pets	Father killing pet cat	Childhood
	Relative killing pet dog	Childhood
Isolation	Extended hospital stay	Childhood
Triggering event	Food droppings after flood	Adolescence
Loss	Partner dying in car accident	Adulthood
	Life partner's death of life partner	Adulthood
	Son's death	Adulthood
	Son converting to radical Islam	Adulthood
	Bankruptcy of own business	Late adulthood
	Being threatened during work in public service	Late adulthood
	Unemployment	Late adulthood
Comorbidity	Chronic disease	Late adulthood
	Depression	Varying
	Dissociation symptoms	Varying
Triggers in late adulthood	Playing chess in hospital	Late adulthood
	Extended stay in isolation unit	Late adulthood
	Crisis in somatic disease	Late adulthood
	Sudden change in medication	Late adulthood

All participants were currently diagnosed with symptoms of PTSD and comorbid depression. Additionally, three of them reported chronic somatic problems. All participants started NET in out-patient treatment. For two of them, however, continuing treatment (and NET) in an in-patient setting was needed due to severe dissociation.

Posttraumatic emotions and cognitions

Several themes emerged from the narratives: feelings and cognitions reflecting distress or well-being related to oneself or to others. When talking about their traumatic childhood experiences,

participants mentioned not only anxiety and/or panic, but also anger, confusion, estrangement and inadequacy. In the case of sexual harassment, they reported disgust and self-blame, as well as anticipation anxiety. *"I felt sick; it smelled like rotten food."* And *"The feeling that something terrible is going to happen and that you can't stop it."* The anger was mixed with helplessness, resulting in a perceived inadequacy: *"I should have done something."*

Sexual harassment was associated with a perceived lack of protection and consolation from the (other) parent(s), resulting in confusion and inability to explain what was going on: *"I didn't understand anymore. I felt alone."* And, when trying to tell one's parent what was going on: *"You don't understand anything at all. I don't exaggerate."* The inability to share one's feelings was repeatedly expressed: *"There was no way I could express my feelings and I got locked up inside myself, fretting."* All participants mentioned the themes of cognitive ruminating, social isolation, and desperation, expressed as: *"My life is useless; everything feels worn and heavy."* For all participants, the reported events were highly central in their identity and life story. This centrality could be inferred from the reported permanent change caused by the adverse events and from persisting self-blame and feelings of shame. In contrast to the reported negative cognitions, positive emotions related to attachment figures, such as an older sister, a grandfather, or the favorite pet, were reported as well.

Coping mechanisms

During childhood, reported coping mechanisms ranged from submission to the circumstances, retreating from interaction into dissociation, to finding consolation (serving as self-regulation) with a favorite pet, such as a rabbit or a dog. Perceived permanent change was reported as well: *"In the night Jackie (the dog) was killed, my life changed forever."* On the other hand, participating in creative activities, such as a musical performance, brought on the feeling of being admired, resulting in shared pride and joy. Social support and connectedness were described as important. Belonging to one's family, however difficult the situation, was sometimes a life-saving necessity. *"Whatever you want to do, in the end something pulls you back."* The perceived lack of support or social alienation was described as extremely difficult to bear. *"She (Mum) never stood up for me."* And *"I lived locked up in my own world."* This alienation was described mainly for childhood trauma; in later life, however, it easily returned when experiencing new hardships.

Lifespan perspective

From school age, new experiences and risks were reported. Both being bullied at school and feeling inadequate by the inability to set limits to the abuse resulted in sharply perceived inferiority. Patients

reported that adolescence offered new possibilities, such as learning a profession, having more control by attracting sexual attention among peers, or being able to limit the domestic violence. In young adulthood, all participants managed to find work, a partner, and start a family. All participants succeeded in forming stable romantic relationships. New competences, such as giving birth or curbing undesirable events, caused pride and resilience. Professional skills could evoke similar responses. Those achievements, however, could be shattered by sudden losses. For those participants who had suffered from domestic violence, the death of the perpetrator was a highly ambivalent experience: relief intermingled with anger and regret that no reconciliation had taken place: *"I have to make it up all by myself, I can't make it up with him anymore."*

Remarkably, from middle adulthood, the smallest amount of information was available. From late adulthood, all participants reported a reactivation or a first onset of posttraumatic symptoms, triggered by somatic illness, dismissal, or serious surgery. Unexpectedly, old nightmares returned after a sudden change in medication or an innocent game of chess. *"My relative always wanted to play chess; afterwards, he abused me"*. In hindsight, feelings of anger were more accessible. *"I was angry, deliberately angry. I thought: I am going to leave and will never come back."* Feelings of disgust returned in full force. *"Disgust is what I feel; in my throat, my stomach aching, my head aching."* For one participant, persisting feelings of guilt led to suicidal ideations. In treatment, several lessons from the events were recounted, such as: *"I will do it differently myself. I never want to be like my father"*, or: *"I am still here, you didn't bring me to my knees. I am stronger than my ghosts (memories)."*

Treatment related perceptions

In the interviews, all participants described deteriorating health as the factor requiring treatment. They ascribed their problems to increased symptoms, the adverse experiences in their youth, or *"too much stress"*. In the course of treatment and follow-up, the explanatory models showed little change, except for one participant who initially ascribed his problems to *"anxiety"*. At follow-up, however, he acknowledged them to be caused by *"the abuse, as was the case at the beginning"*. After treatment, mental health was reported as improved, although not all problems were solved. When feelings of guilt persisted, symptom severity did not decrease.

Notwithstanding experiencing problems in trusting others, the participants highly valued the therapeutic relationship and treatment process. At follow-up, one participant expressed some criticism on the treatment logistics, which might be valued as an act of self-assertion. Somatic problems and current domestic stressors were mentioned as factors interfering with treatment. Regarding lessons learned, participants indicated having *"learned to talk about it"*, or: *"to show*

emotions", or being aware that *"although I am not to blame, I feel guilty"*. Characterising their life, participants moved from *"the big fight"* or *"no childhood, a lost childhood"*, to *"we will manage"*. Perceived future ranged from: *"I don't have a clue"*, to *"I hope that we can stay together for a long time"*.

Improvements in mental health were perceived as most notable. Doubts and disappointments were reported as well. *"Although I feel better in my mind, my physical strength is deteriorating"*. No adverse effects on somatic problems were reported. Interfering complications included dissociation and suicidal ideations. Although this led to the treatment lasting longer, all participants succeeded in completing the full NET module.

Discussion

Main Findings

Biographies and interviews were analysed in order to reveal which posttraumatic cognitions of older PTSD patients, related to past life stages, could be identified, to what extent existing cognitions changed during the treatment process, and finally, how the treatment process was perceived.

In the biographies, strong and centralised self-oriented cognitions were found in terms of self-blame, persisting shame, alienation, anger and permanent change. In addition, positive cognitions showing attachment and resilience were reported. In the interviews, treatment related perceptions reflected gradual change in long-standing cognitions, such as growing acceptance of anger, self-esteem and growing confidence. The treatment process was reported to be emotionally validating and leading to a clinically meaningful symptom reduction.

Regarding cognitively and emotionally processing the adverse events, this study illustrates some of the steps required on this path of change. The steps include being able to better tolerate sensitive memories, while learning to cope with feelings of anger or shame. In this way, traumatic memories may lose some centrality, allowing for a more balanced self-image. Rather than radically changing cognitions, participants reported a gradual shift from mainly pessimistic self-oriented cognitions to more self-disclosure and self-assertion. This wider range of responses allowed for a more comprehensive self-image, including not only vulnerabilities, but also resilience and endurance. At follow-up, one participant described the benefit of the treatment as: *"Getting to know myself better. Fewer appearances. Standing up for myself; more self-esteem"*.

Lifespan perspective

The framework of a lifespan cognitive development offered a comprehensive understanding of the way in which older adults deal with childhood trauma and its consequences. Thematic content illustrated that the participants not only suffered from the traumatic events, but also from the long aftermath. When reaching adolescence and adulthood, the participants had managed to control the dreaded behaviour, form new attachments, and acquire an adult identity in society. To form those new attachments, sufficient personal resources appeared to be available. Changing the context of one's life seemed to support the use of available resources. Persisting feelings of self-blame or perceived injustice restricted in those developments.

Crises and/or health problems in later adulthood, however, disrupted the balance achieved, (re)activating or exacerbating symptoms. As expected, negative cognitions were associated with traumatic episodes; more differentiated feelings and cognitions were associated with later life stages, including treatment time. Differentiation involved the emergence of more self-asserting cognitions alongside persisting self-defeating ones.

The present study confirmed the central role of feelings and cognitions in processing adverse events. The childhood experiences retained high centrality in the participants' life story (Berntsen & Rubin, 2006), compared to other life events. Notably, the expressed feelings and cognitions predominantly involved the self. Other-directed feelings, such as anger, seemed more difficult to express. This might be explained by the loyalty to one's parents, in spite of their behaviour. Beside this loyalty, justice could be clearly at stake: *"If only he would have said 'sorry', if only once!"*.

The relatively few reported cognitions from middle adulthood may be explained by the high centrality of childhood memories. In addition, memories from adolescence and young adulthood reflect the importance and frequency of transitions in these life phases and result in a 'remembrance bump' (Berntsen & Rubin, 2002). Recent adverse events frequently served as triggers reactivating symptoms, resulting in heightened attention as well. Cognitions involving the world at large were not apparent, perhaps because of the child's small world, in which the adverse events took place. Remarkably, the participants perceived their future not as foreshortened, implying that neither pessimism, nor feeling prematurely old played a role.

Next to the themes included in the open coding, other ones emerged. The self-regulation found in cuddling a beloved pet illustrated the impact on a child when the animal was tortured or killed. Such an event could trigger perceived permanent change. Participants also described anticipation anxiety as especially troubling. Central in the participants' cognitive world were lack of trust, confusion and the difficulty to express feelings. On the other hand, new attachments, resilience and pride emerged. As for developmental stages, the care for new generations in middle adulthood can be inferred from the reported stable marital and family relationships.

Cognitive processing

The reported feelings, cognitions and perceptions reveal life-long trajectories of cognitively processing the adverse childhood experiences. These trajectories, underlying the separate feelings and cognitions, show new starts, achievements, setbacks and sometimes relapses. During treatment, processing appears to be intensified; patients report both stable and changing emotions and cognitions. The framework of a life-long cognitive development was found to offer a comprehensive understanding of the way in which older adults deal with childhood trauma and its consequences.

Strengths and limitations

One of this study's virtues lies in the fact that semi-structured interviews allowed the participants to present their views and perceptions in their own words. Even in this small sample, common characteristics across different types of childhood trauma could be identified, as well as ways to deal with it. Using patient reported material, this qualitative analysis offered a unique insight in treatment process and treatment response. In addition, the data were repeatedly analyzed and discussed within the team of researchers, thereby maximizing inter-subjectivity.

Some limitations merit to be mentioned as well. Regarding the sample, the reported achievements in adult life (being employed, having a family and even grandchildren), may suggest a risk of selection- or survival bias. This bias occurs if those who suffer less from health risks than others are more likely to enter a study. As a consequence of this bias and of the small sample size, generalizability of the findings of this study to Dutch ACE victims in later life is limited. A larger sample and older aged participants would have been helpful to improve generalizability. Generalizability, however, is not the main objective of this study. The aim of this study rather lies in understanding the patients' perspective and the patients' cognitive and emotional changes during and after treatment, indicating signs of recovery and leads to further research. The next limitation refers to therapists and interviewers. Differences in documentation style might have caused some risk of confound. Finally, the interviews took place at the end of the assessments, which might have influenced the participants' attention span.

Clinical implications

The findings of this study highlight some of the changes which may occur when processing adverse events. These findings suggest that NET may effectively address the long-term aftermath of ACEs by embedding childhood trauma and its consequences in a lifespan perspective. In order to optimize treatment planning, routinely assessing ACEs in intake procedures would be recommended for patients of both sexes. Even if patients initially deny having experienced ACEs, they will understand

that discussing them is allowed in a clinical setting. Later, they may be able to open up on this issue. By early recognizing ACEs in the patient's history, treatment can be adjusted to the patient's needs (e.g. preferred gender of therapist). During treatment and in assessments, cognitions may provide useful insights for subsequent treatment, such as schema therapy, which is found to be safe and effective with older adults (Videler, Rossi, Schoevaars, Van der Feltz-Cornelis, & Van Alphen, 2014).

In this study's participants, validating the emotional impact of the experiences appeared to be the first gain. An observation such as: '*I could tell him everything*', reflects this validation. During treatment, feelings of distrust and shame required patience and acknowledgement of the need for safety and keeping control. If necessary, dissociation was addressed appropriately. Complications called for the availability of in-patient treatment and necessitated emergency plans. Overall, NET improved cognitive coherence by completing the autobiographic narrative. The focus on coping and recovery appeared to be an essential strategy for older adults trying to regain resilience and hope, even if residual symptoms persist. This study suggested that NET has the potential to release the energy previously consumed by dealing with traumatic memories. During and after treatment, renewed personal growth was found to be within reach for older adults, just as for younger patients.

In conclusion

NET has been found to be a safe and effective intervention for older adults (Bichescu, Neuner, Schauer, & Elbert, 2007). In addition, gradual changes in posttraumatic feelings, cognitions and treatment related perceptions indicated increased self-awareness and self-esteem. In future research, attention for the lifespan content of the narrations could provide additional information on dealing with adverse events during the life course.

The findings of the present study advocate a wider perspective on coping with adverse events, transcending the current focus on PTSD symptoms (Mooren & Kleber (2013). They show that recovery after trauma, however distant the memories, is not limited to PTSD symptoms, but includes feelings, cognitions, and treatment related perceptions, which can be considered indicative of processing the adverse events.

Chapter 4

Randomised controlled trial comparing narrative exposure therapy with present-centered therapy for older PTSD patients with post-traumatic stress disorder

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Lely, J.C.G., Knipscheer, J.W. , Moerbeek, M., Ter Heide, F.J.J., Van den Bout, J, & Kleber, R.J. Randomised controlled trial comparing narrative exposure therapy with present-centred therapy for older patients with post-traumatic stress disorder

Abstract

Background

Evidence-based treatment and age-specific services are required to address the needs of trauma-affected older populations. Narrative exposure therapy (NET) may present an appropriate treatment approach for this population since it provides prolonged exposure in a lifespan perspective. As yet, however, no trial on this intervention was conducted with older adults from Western Europe.

Aims

Examining the efficacy of NET in a sample of older adults.

Method

Out-patients with post-traumatic stress disorder (PTSD), aged 55 years and over, were randomly assigned to either 11 sessions of NET (n = 18) or 11 sessions of present-centred therapy (PCT) (n = 15), and assessed on the Clinician-Administered PTSD Scale (CAPS-IV) pre-treatment, post-treatment and at follow-up. Total scores, as well as symptom scores (re-experience, avoidance and hyperarousal) were evaluated.

Results

Using a piecewise mixed effects growth model, at post-treatment, a medium between-treatment effect size for CAPS-IV total score (Cohen's $d = 0.44$) was found, favouring PCT. At follow-up, however, the between-treatment differences were non-significant. Drop-out rates were low (NET 6.7%; PCT 14.3%) and no participant dropped out of the study because of increased distress.

Conclusions

Both NET and PCT appear to be safe and efficacious treatments with older adults: PCT is non-intrusive and NET allows for imaginal exposure in a lifespan perspective. By selectively providing these approaches in clinical practice, patient matching can be optimised.

Declaration of interest

None.

Contribution of authors

Designed research: Lely, Knipscheer, Ter Heide and Kleber

Conducted the experiment: Lely conducted the experiment

Analysed data: Lely, Knipscheer, Moerbeek and Ter Heide

Wrote the paper: Lely, Knipscheer, Van den Bout, Moerbeek, Ter Heide and Kleber

Introduction

Globally, the number of older adults is increasing (United Nations, 2018). Post-traumatic Stress Disorder (PTSD; American Psychiatric Association; APA, 2000) in older adults is a serious condition (Van Zelst, De Beurs, Beekman, Deeg, & Van Dyck, 2003), often associated with depression and somatic problems. Compared with younger cohorts, older adults present higher arousal and lower avoidance levels (Böttche, Kuwert, & Knaevelsrud, 2012). Preliminary controlled trials on the efficacy of trauma-focused interventions for older adults - sample mean ages from 57 to 71 years - (Bichescu, Neuner, Schauer, & Elbert, 2007; Gamito et al., 2010; Knaevelsrud, Böttche, Pietrzak, & Freyberg, 2017; Ready, Gerardi, Backschneider, Mascaro, & Olatos Rothbaum, 2010) revealed mixed results for PTSD. The experimental interventions included narrative exposure therapy (NET), virtual reality exposure therapy and therapist-guided internet-based therapy; the controls included psycho-education, waitlists and present-centered therapy (PCT, originally developed as Present Centered Therapy). Reported between-treatment effect sizes in Hedges' g (ranging from non-significance to 1.41) were substantially smaller than mean effect sizes of psychotherapy among adults in general (Watts et al., 2013): Hedges' $g = 1.14$; 95% CI [0.97; 1.3]. The trial on NET (Bichescu et al., 2007) yielded promising results, which call for replication. Because of barriers in assessment (Van Zelst, De Beurs, Beekman, Van Dyck, & Deeg, 2006) and clinical practice (Araon, 2012), adequate psychotherapeutic service for older people with PTSD patients is not self-evident. If traumatic backgrounds are not recognised in primary health care, older patients frequently get inappropriate treatments, leading to dissatisfaction and overconsumption of somatic care or medication (Van Zelst et al., 2006). Furthermore, uncertainty exists about the need for trauma-focused interventions when treating older PTSD patients (Thorp, Wells, & Cook, 2017) and how to provide such treatments in an age-specific way (Böttche et al., 2012).

By embedding trauma-focused Cognitive Behaviour Therapy (TFCBT) in a lifespan perspective and by allowing for imaginal exposure of multiple traumatic memories, NET (Schauer, Neuner, & Elbert, 2011) might be an appropriate treatment option for older adults. Medium to large effect sizes were found for NET for adults and good treatment results were found for older adults (Lely, Smid, Jongedijk, Knipscheer, & Kleber, in press).

In this randomised controlled trial (RCT), the efficacy of NET for older people with PTSD was compared with non-trauma-focused PCT (McDonagh et al., 2005; Schnurr et al., 2007). In addition to PTSD-IV severity and diagnosis, individual treatment response and drop-out rates were reported. Consistent with preliminary findings (Bichescu et al., 2007), a larger decline in PTSD symptoms was expected for NET participants than in the control group during treatment. During follow-up, it was expected that the difference between the trends of NET and PCT would be sustained. Finally, it was expected that mainly avoidance and hyperarousal symptoms would be reduced.

Method

Participants were recruited from two specialised Dutch centres (Foundation Centrum '45 and the Sinai Centrum) assessing and treating psycho-trauma related disturbances. After approval of the medical-ethics committee at Leiden University (protocol number P13.009), participants were enrolled between April 2013 and April 2016. Eligible patients were approached by their intake therapists. After receiving a complete description of the study, those consenting gave written informed consent. In order to assess interrater reliability and treatment adherence, permission was asked to videotape all assessments and treatment sessions. Subsequently, those consenting were interviewed to formally check inclusion and exclusion criteria.

Study entry criteria

Participants were adults, aged 55 years or older, seeking individual treatment for PTSD in the trial sites. The limit of 55 years was set to capture important age-related challenges, such as retirement, loss of family members and friends, and physical and cognitive changes. Eligibility required meeting DSM-IV (1994) criteria for PTSD and, if taking psychotropic medication, maintaining a stable dose for at least two months. Participants were asked to keep their medication regimen unchanged throughout the treatment in consultation with their prescribers. Exclusion criteria involved severe cognitive impairment - Mini Mental State Examination (Folstein, Folstein, & Hugh, 1975) score ≤ 20 -, current high suicide risk, active psychosis or bipolar disorder (assessed with the Mini-International Neuropsychiatric Interview (Sheehan et al., 1998), not meeting full PTSD-IV criteria on the Clinician-Administered PTSD Scale or CAPS (Blake et al., 1995), current substance disorders, and concurrent psychosocial treatment during the study. No restrictions were applied on language proficiency.

Design

This RCT compared NET with PCT. For ethical reasons, an active comparator was selected. PCT focuses on current problems, avoiding traumatic memories. Participants were randomly assigned to 11 sessions of NET or 11 sessions of PCT, using computer-generated random numbers. The senior researcher had access to the computer programme, kept a log file of all random assignments and assigned the participants to the therapists. To increase comparability, session length and number of both treatments were equated. Taking into account patients' preferences and possibilities, session frequency could vary from one to two weeks. This naturalistic approach resulted in highly variable assessment intervals.

Interventions

NET is a standardised individual treatment intervention (Schauer et al., 2011) for PTSD, which is based on TFCBT and includes components from testimonial therapy (Cienfuegos, & Monelli, 1983), such as the chronological narrative. Consequently, multiple adverse events can be processed. The intervention includes 4-15 sessions of 90 minutes each, depending on the number of traumatic experiences. In NET, therapist and patient collaboratively develop a chronological narrative of the patient's life, emphasising memories of trauma and perceived support. Developing and revising this autobiographical narrative allows the patient to re-experience avoided traumatic experiences in imaginal exposure. This procedure is considered to modify the patient's neural fear networks and to reorganise autobiographical memories (Schauer et al., 2011), reducing symptoms and restoring narrative continuity. The narrative is written down and the resulting document may be used by the patient for legal or personal purposes. Therapists in both trial sites conducted NET following the manual (Schauer et al., 2011). Session one is dedicated to psychoeducation and treatment planning. In session two, the therapist and the participant create a visual timeline of traumatic and supporting experiences and select the events for exposure. Sessions three to ten are dedicated to imaginal exposure. The last session allows for receiving the documented narration, focusing on the future and saying goodbye.

PCT, developed as a non-trauma-focused control condition, includes psychoeducation about PTSD and homework assignments targeting current maladaptive relational patterns by including problem solving techniques, and helps patients to focus on the 'here and now'. Since PCT was found to show similar efficacy in reducing post-traumatic and depressive symptoms to that of trauma-focused psychotherapy (Frost, Laska, & Wampold, 2014; Steenkamp, Litz, Hoge, & Marmar, 2015), PCT could be presented as a credible therapeutic alternative (McDonagh et al., 2005). Moreover, PCT had significantly fewer participants dropping out than trauma-focused comparators (Frost et al., 2014). Therapists conducted PCT following the PCT-protocol (McDonagh, et al., 2005). After the introductory session, nine 90 minutes sessions are focused on relieving daily stress. In homework assignments, the patients select the relevant issues. The last session allows for summarising, looking forward and saying goodbye.

Both interventions involved registered psychotherapists, psychiatry residents or fully qualified psychosocial therapists, with appropriate training in NET or PCT. All therapists had completed the required training; part of them had additional experience. If necessary, treatments were facilitated by professional interpreters over the telephone. To prevent investigator allegiance effects, independent, qualified trainers and supervisors participated in the study. In supervision meetings, treatment content (including videotapes) and processes were evaluated. For both conditions, therapist manuals were

designed, including study procedures and the medication protocol (manuals available on request). In order to systematically assess treatment content, a checklist (available on request) of prescribed or proscribed components was used, adapted for use in the interventions. To take account of the desired focus, the checklist was stratified (1. introduction, 2. trauma-informed psycho-education or developing the timeline and 3. present centred or exposure sessions), allowing for a detailed assessment. In PCT session reports, treatment content was summarised. Treatment adherence in both groups was assessed by the assistant researchers or the senior researcher observing randomly selected videotaped treatment sessions (stratified by therapist and treatment phase). Additionally, all PCT session reports were screened for the abstinence of trauma exposure.

Assessments

PTSD-IV severity and diagnosis were measured using the CAPS (Blake et al., 1995) in Dutch translation (Hovens et al., 1994). In addition to total scores, symptom cluster scores (re-experience, avoidance and arousal) were calculated. Finally, individual change and drop out were reported. The assessments were scheduled to take place pre-treatment, post-treatment and at follow-up (four months). After follow-up assessment, participants converted to care as usual.

Assessments were conducted by trained, independent master students in clinical psychology with extensive training in the use of the CAPS, assisted by professional interpreters if necessary. As part of their training, all assessors signed a declaration of confidentiality and conducted diagnostic sessions under direct observation of the senior researcher, a registered psychotherapist. To ensure blinding of treatment allocation, assessors had limited access to participants' data; participants were asked not to reveal treatment content. All interpreters were trained for clinical interviews in psychotherapy and signed a declaration of confidentiality. After having completed all assessments, participants received a gift coupon in appreciation of their time and effort.

The pre-treatment assessment included a structured interview about socio-demographic data. To assess traumatic experiences the CAPS Life Events Checklist was used. DSM-IV-TR diagnosis and symptom severity were assessed using the CAPS. The CAPS assesses frequency and intensity ratings (range [0;4]) resulting in symptom scores (range [0;8]) for all 17 PTSD symptoms according to DSM-IV-TR (total range [0;136]). A symptom was considered present if its frequency was rated as at least one and its intensity as at least two (Blake et al., 1995). The CAPS has been widely used in trauma research, revealing strong psychometric properties. In previous studies, high internal consistency was reported: Cronbach's $\alpha = [0.89; 0.95]$ (Hinton et al., 2006; Hovens et al., 1994; Hyer, Summers, Boyd, Litaker, & Boudewyns, 1996; Weathers, Ruscio, & Keane, 1991). Good internal reliability was maintained in different translations (Hinton et al., 2006; Hovens et al., 1994). High specificity and sensitivity were found with older combat veterans (Hyer et al, 1996).

Statistical analysis

Power calculations were based on the assumption of small to medium relative effect sizes. Using G*Power version 3.1 for Windows (Faul, Erdfelder, Lang, & Buchner, 2007), a total sample size of 28 was estimated (assuming a power of 0.80, a two-sided significance level of 0.05 and three repeated measures). To allow for patient attrition of 20%, the aim was a final sample size of 34.

Since the treatment and follow-up duration highly varied across subjects, a piecewise mixed-effects growth model was used to determine weekly change rates in the four outcome measures across time (therapy vs follow-up) and treatments. The time factor was scaled at zero corresponding to the post-treatment measurement. This multilevel model enabled the comparison of mean NET and PCT outcome scores at post-test. Between-subjects variation for the duration of treatment and follow-up could be taken into account (Naumova, Must, & Laird, 2001), as well as between-subjects variability at post-treatment. This model permitted varying change rates during treatment and follow up (Hox, Moerbeek, & Van de Schoot, 2018) but required reformulating the expectations into operational hypotheses:

- (a) during treatment, the outcome change rate is different for either condition;
- (b) during follow-up, the outcome change rate is different for either condition;
- (c) for NET, the outcome change rate is equal during treatment and follow-up;
- (d) for PCT, the outcome change rate is different during treatment and follow-up;
- (e) at post-treatment, the two conditions have different outcomes.

Four covariates were included in the model: comorbid depression symptoms and childhood trauma were considered to have a negative impact on the effectiveness of psychological treatments (Dunn, Nishimi, Powers, & Bradley, 2017; Rytwinski, Scur, Feeny, & Youngstrom, 2013); female gender was associated with higher treatment effects for PTSD (Watts et al, 2013; Stenmark, Guzey, Elbert, & Holen, 2014; TARRIER, Sommerfield, Pilgrim, & Faragher, 2000), higher numbers of traumatic events were found to increase PTSD symptom severity (Kolassa et al., 2010; Ogle, Rubin, & Siegler, 2014).

Treatment adherence, interrater reliability and demographic and clinical variables were analysed with SPSS, version 23 for Windows (Armonk, NY: IBM Corp.). Chi-square tests or Fisher's exact tests and independent *t*-tests were used to compare demographic and clinical characteristics between participants and refusers, treatment completers and those who dropped out, as well as between the treatment conditions. Interrater reliability was calculated by dividing the proportion of agreements between two observers by the probability for that proportion.

The data were converted to the software MLwiN 3.02 for Windows (Rasbash, Steele, Browne, & Goldstein, 2015) with restricted maximum likelihood and robust standard errors. The hypotheses were submitted to contrast testing (Goldstein, 2011). Underlying model assumptions were evaluated

and potential multicollinearity of covariates was assessed by means of variance inflation factors. Furthermore, the relation between the number of traumatic events and CAPS scores was assessed by means of scatterplots. Two-sided tests were conducted with a significance level of $\alpha = 0.05$.

To evaluate individual treatment response, clinically significant change (indicated as treatment response) was rated. Treatment response was defined as a symptom reduction of ≥ 10 score-points on the CAPS (Schnurr et al., 2003; Schnurr, & Lunney, 2016) and outcomes dropping under the CAPS cut-off value at 40 scoring points. Harm was defined as an increase in symptoms by ten or more points followed by drop out. Treatment drop out indicated the percentage of participants prematurely terminating treatment.

Clinical trial registration

This clinical trial was registered with the Netherlands Trial Register (NTR), under reference number 3987, and NARCIS (Dutch National Academic Research and Collaborations Information System), OND1352440.

Results

Participants

Figure 1 provides details of the patient flow through the trial. The diagram includes all patients who met inclusion criteria at intake, i.e. before being informed about the study and formally interviewed.

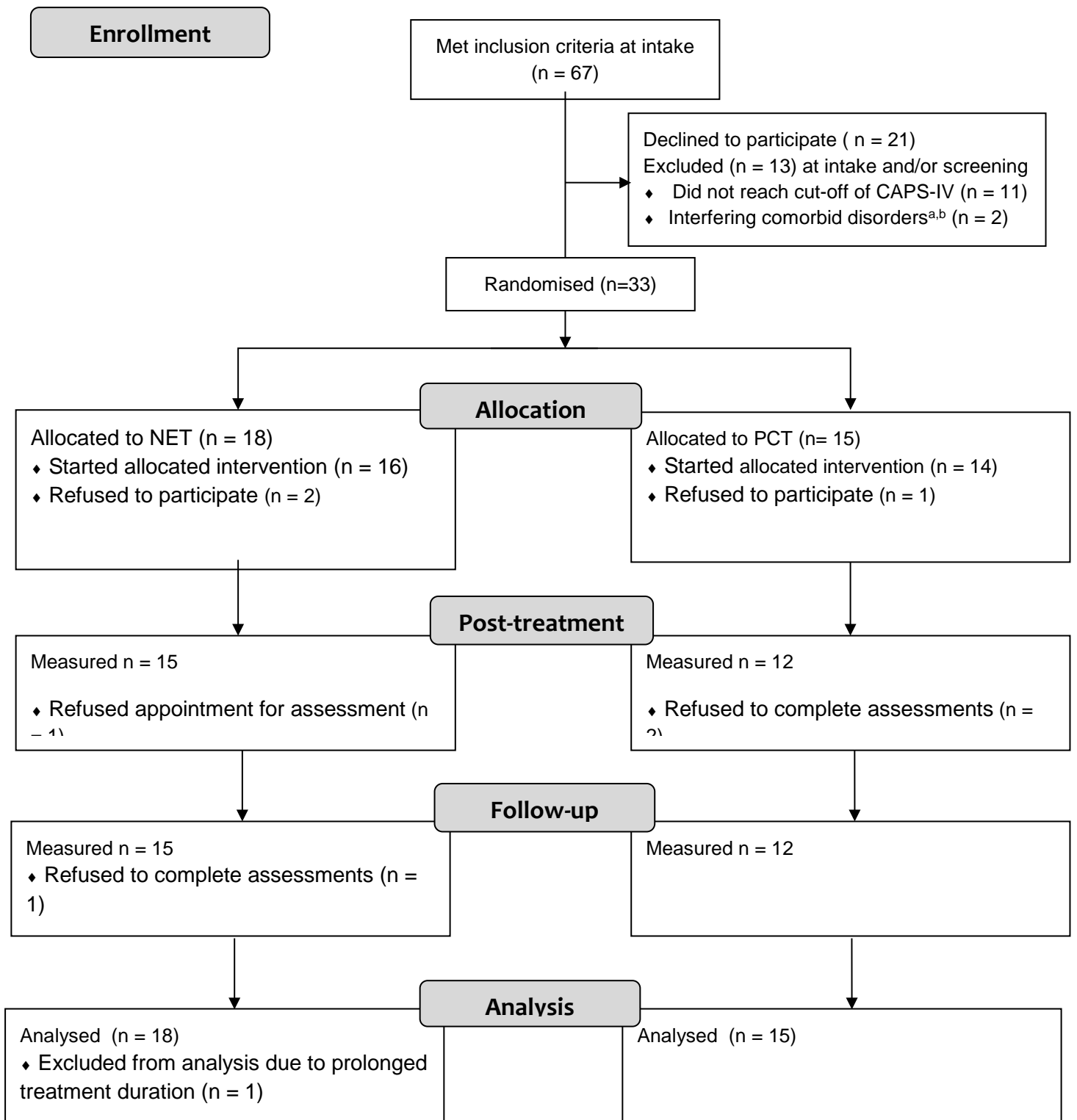


Figure 1. Consort Flow Diagram. Note: ^a = cognitive impairment; ^b = alcohol abuse

In total, 67 patients were approached; 36 patients were assessed for eligibility. Reported reasons to decline participation were fear of increased stress due to assessments, or refusal to be randomised. Table 1 displays the baseline and clinical statistics of the two treatment conditions.

Table 1. Baseline personal and trial characteristics of participants per treatment condition

		NET	PCT	Analysis			
		n = 18	n = 15	χ^2	t-test	d.f.	p-value
<i>Socio-demographic characteristics</i>							
<i>Age in years, mean (S.D.)</i>		62.65 (5.89)	62.47 (6.24)		0.46	31	0.616
<i>Gender</i>				0.01		1	1.000*
Female	n (%)	5 (27.8)	4 (26.7)				
<i>Number of traumatic events</i>					-4.21	29	0.677
	M (SD)	8.83 (4.11)	9.40 (3.52)				
<i>Childhood trauma (≤ 12 years)</i>				0.19		1	0.667
Yes	n (%)	6 (35.3)	6 (42.9)				
No	n (%)	11 (64.7)	8 (57.1)				
<i>Sexual trauma</i>				3.68		1	0.121*
Yes	n (%)	3 (17.6)	7 (50)				
No	n (%)	14 (82.4)	7 (50)				
<i>Region of Origin</i>				0.30*		2	1.000*
Netherlands	n (%)	8 (47.1)	8 (53.3)				
Middle-East	n (%)	7 (41.2)	5 (33.3)				
Other	n (%)	2 (11.1)	2 (13.3)				
<i>Residency situation</i>				0.92		1	0.324*
No refugee	n (%)	12 (66.7)	12 (80)				
Refugee with residence permit	n (%)	5 (33.3)	3 (20)				
<i>Education</i>				2.87*		2	0.191*
Basic ^a	n (%)	1 (5.9)	3 (20)				
Middle ^b	n (%)	17 (94.1)	11 (73.3)				
<i>Living arrangement</i>				0.11		1	0.741
With partner	n (%)	11 (61.1)	10 (66.7)				
Without partner	n (%)	7 (38.9)	5 (33.3)				
<i>Employment</i>				0.35*		2	1.000*
Unemployed /unfit for work	n (%)	9 (52.9)	9 (60)				
Retired/other	n (%)	6 (35.3)	4 (26.7)				
Employed	n (%)	2 (11.8)	2 (13.3)				
<i>Religion</i>				1.64*		4	0.948*
No religion	n (%)	8 (47.1)	6 (46.2)				
Moslim	n (%)	3 (17.6)	3 (23.1)				
Protestant	n (%)	2 (11.8)	3 (23.1)				
Roman Catholic	n (%)	3 (17.6)	1 (7.7)				
Yazidi	n (%)	1 (5.9)	0 (0)				
<i>Practicing Religion</i>				1.12*		2	0.631*
No	n (%)	11 (68.8)	9 (69.2)				
Somewhat	n (%)	2 (12.5)	3 (23.1)				
Yes	n (%)	3 (18.8)	1 (7.7)				
<i>Trial characteristics</i>							
<i>Treatment duration</i>					0.00	25	0.100
	Range	12 to 41	11 to 41				
	M (SD)	19.00 (8.31)	19.00 (8.78)				
<i>Interval pre- to post-treatment</i>					-0.31	24	0.762
	Range	12 to 41	12 to 41				

	M (SD)	21.57 (8.06)	22.58 (8.80)			
<i>Follow-up interval</i>				1.07	23	0.294
	Range	10 to 28	11 to 23			
	M (SD)	17.85 (4.79)	16.08 (3.18)			
<i>Interpreter</i>				4.74	1	0.060*
Yes	n (%)	0	3 (25)			
No	n (%)	17 (100)	9 (75)			
<i>Therapist's expertise</i>				2.33	1	0.159*
Basic	n (%)	9 (56.3)	4 (28.6)			
Extended	n (%)	7 (43.8)	10 (71.4)			
<i>Clinical characteristics</i>						
<i>Comorbid Depression</i>				0.03	1	0.854
Yes	n (%)	11 (61.1)	9 (64.3)			
No	n (%)	7 (38.9)	5 (35.7)			
<i>Medication during treatment</i>				2.35	1	0.126*
Yes	n (%)	10 (71.4)	5 (41.7)			
No	n (%)	4 (30.8)	7 (58.3)			
<i>Change in medication</i>				0.01	1	1.000*
Yes	n (%)	1 (7.1)	1 (8.3)			
No	n (%)	12 (92.9)	11 (91.7)			

Note. ^a: Primary school/ basic vocational training; ^b: secondary school / middle level vocational training;
 *: Chi-square tests have been used if all expected frequencies are at least 5; otherwise, Fisher's exact tests have been used.

Because of external circumstances, one participant's treatment was exceptionally long; consequently, this participant's data were removed from all further analyses. At baseline, no significant differences across conditions were found in the covariates and other clinical and sociodemographic variables, except for the assistance of interpreters. Participants were civilian trauma survivors, referred by primary physicians or medical specialists. Reported traumatic events included persecution and domestic violence, including childhood abuse. The participants' mean age was 63.81 years and 75% of the participants were men. Most participants originated from the Netherlands (51.5%) and the Middle-East (36.4%). All participants had encountered multiple traumatic events ($M = 9.15$, $SD = 3.76$). A total of 12 participants (36.4%) reported childhood trauma, implying trauma occurring between 5 and 12 years of age; 10 participants (30.3%) reported sexual trauma. As shown in Table 1, no significant between-groups differences for those variables were found. From the participants, 60.6% suffered from comorbid depression and 9.1% were assisted by interpreters.

Attrition

After being included for the study, three patients refused to participate before starting treatment. Refusal involved not accepting the allocated intervention, not wanting to participate in the required assessments, and fearing increase in stress following exposure sessions. Three more participants left treatment prematurely (two of them refusing to continue the prescribed number of sessions and assessments; one not being able to do so due to altered personal circumstances). Completer and drop-out rates did not significantly differ across treatment conditions ($t(1) = 0.45$, $p = 0.501$). The t -tests

revealed no significant differences in age ($t(27) = 1.51, P = 0.142$), or pre-treatment symptom severity ($t(27) = -0.52, P = 0.604$) between completers and drop-outs.

Treatment adherence

Most therapists provided either NET or PCT. Four therapists provided both NET and PCT. Videotaped treatment sessions (both interventions) of those therapists were included in the treatment adherence assessment. Of all treatment sessions, 39 (12.96 %) sessions (21 for NET and 18 for PCT) were randomly selected for independent protocol adherence scoring by two assessors. On a scale of 100, the overall mean treatment adherence ranged from 87 for PCT (SD = 14) to 89 for NET (SD = 11), which is considered excellent. According to the assessors, on average 87-89% of the desired treatment protocol components were applied during the interventions. Inspection of PCT session reports confirmed that no deviations of the prescribed focus were detected. Treatment adherence scores did not significantly differ for NET and PCT ($t(37) = 0.515; P = 0.609$).

Reliability

To assess the interrater reliability, 19.33% of all assessments were randomly elected, stratified for assessor, participant and time of assessment. A total of 14 independent assessors conducted the assessments; 7 of which were involved in assessing interrater reliability. Interrater reliability was good (Cohen's $\kappa = 0.72$) for PTSD severity. Internal consistency for the CAPS was excellent (Cronbach's alpha = 0.88).

Missing data

From 396 scores (i.e. four outcome measures administered three times with 33 participants), 44 scores (11.1 %) were missing, due to refusal after inclusion (7.1 %) or drop out (4 %).

Outcomes

Table 2 presents the mean outcomes and their s.d. at the three assessments per treatment group.

Table 2.							
<i>Mean PTSD Severity (CAPS-IV) at Baseline, Post Treatment, and Follow-up, for CAPS (Re-experience, Avoidance, Arousal, and Total Scores), per Treatment Groups: NET and PCT</i>							
		Baseline		Post treatment		Follow-up	
		NET	PCT	NET	PCT	NET	PCT
<i>PTSD</i>							
Re-experience	M (SD)	24.36 (6.48)	23.17 (8.27)	20.79 (8.62)	17.17 (9.33)	18.36 (9.72)	20.50 (8.61)
Avoidance	M (SD)	24.36 (10.87)	24.17 (12.27)	19.79 (13.50)	15.08 (11.12)	16.64 (13.48)	21.50 (12.48)
Arousal	M (SD)	23.14 (12.87)	21.00 (5.12)	20.14 (7.25)	17.58 (7.59)	17.79 (8.35)	17.17 (9.18)
Total	M (SD)	71.14 (20.12)	68.33 (19.23)	60.71 (26.68)	49.83 (21.71)	52.79 (28.37)	59.17 (28.40)

Individual treatment response is presented in Table 3, showing the number of participants who reported recovery, treatment response, no response or symptom increase per treatment group.

Table 3.

<i>Individual Changes in CAPS severity per treatment</i>		NET (n = 14)	PCT (n = 12)
<i>CAPS-Total severity change: pre- to post-treatment</i>			
n (%)	Recovery*	2 (14.3)	2 (16.7)
n (%)	Treatment response*	7 (50)	5 (41.7)
n (%)	No response	3 (21.4)	3 (25)
n (%)	Symptom increase*	2 (14.2)	1 (8.3)
<i>CAPS-Total severity change: pre-treatment to follow-up</i>			
n (%)	Recovery	4 (28.6)	1 (8.3)
n (%)	Treatment Response	6 (42.9)	5 (41.7)
n (%)	No response	4 (28.6)	3 (25)
n (%)	Symptom increase	0 (0)	2 (16.7)

Note: *Treatment response: at least 10 score points improvement;

*Recovery: at least 10 score points improvement + crossing cut-off score;

*Symptom increase: at least 10 score points worsening.

No participant reporting increased symptoms left treatment prematurely. After having started treatment, one patient in the NET-group developed dissociative symptoms and was admitted to residential care. The patient then continued NET according to the protocol as a single psychotherapeutic treatment.

During treatment, a majority of treatment completers in both conditions showed treatment response in PTSD severity. From pre-treatment to follow-up, 71.4% of the NET completers achieved a

treatment response, compared with 50% of the PCT completers. During treatment, two NET completers (14.3%) and two PCT completers (16.7%) lost the diagnosis of PTSD. At follow-up, four NET completers (28.6%) and one PCT completer (8.3%) lost the diagnosis of PTSD. Figure 2 presents the outcomes, centred around post-treatment assessment.

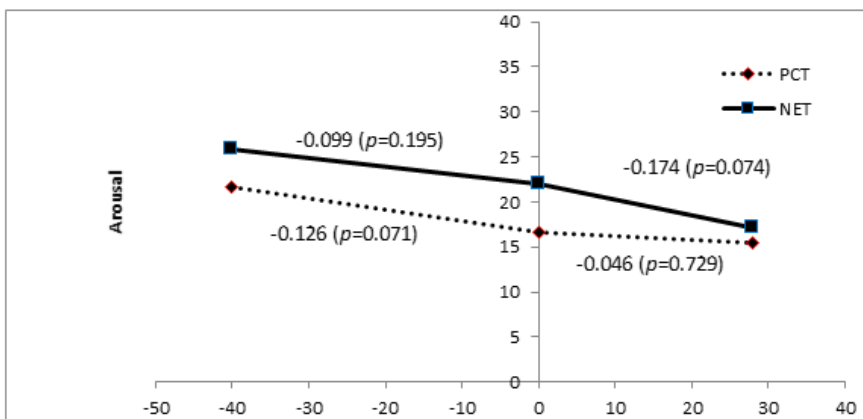
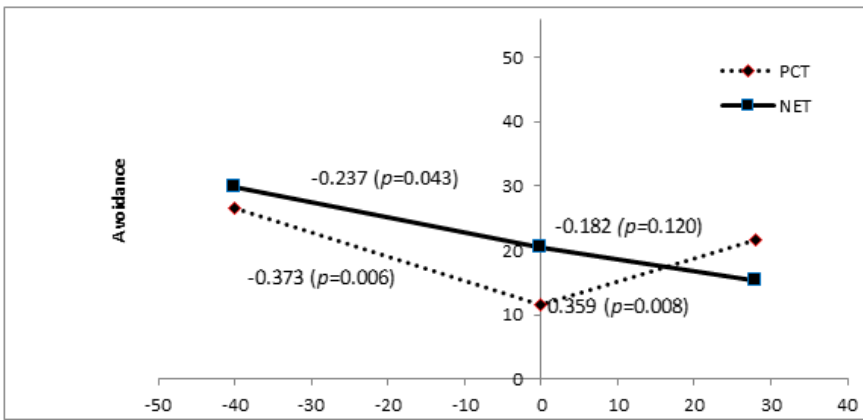
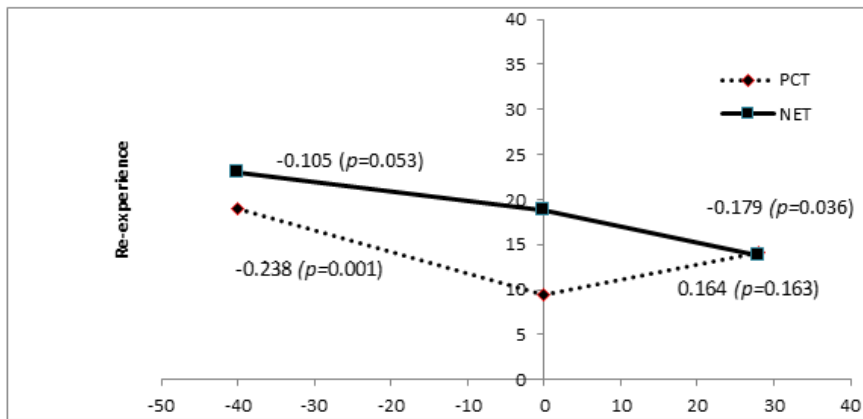
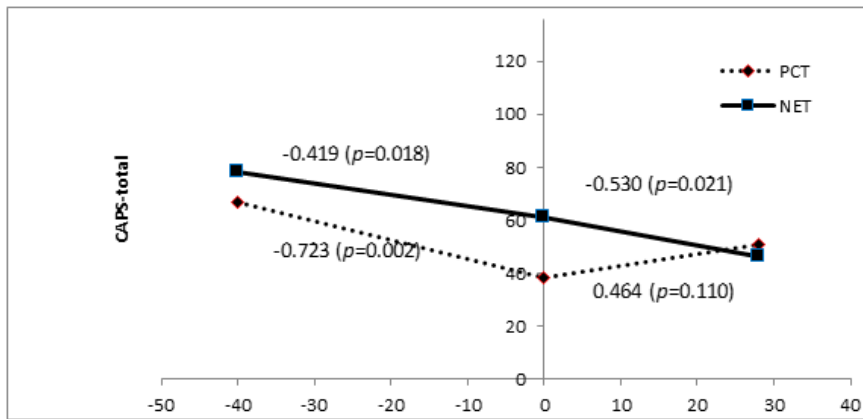


Figure 2. Outcomes of CAPS-total, re-experience, avoidance and arousal.

Best model fit was obtained when including quadratic and cubic terms of the number of traumatic events. Scatterplots suggested that the relation between the CAPS outcomes and the number of events was curvilinear. This relation was represented by a polynomial in the multilevel regression model and polynomials up to the fourth degree were examined. The significance of linear, quadratic cubic and quartic polynomial effects was tested by means of *t*-tests. The cubic term was the highest order polynomial term that was significant, hence third order polynomials were fitted. Scatterplots and quantile plots suggested that model assumptions of normality and homoscedasticity of residuals were met. Moreover, multicollinearity was irrelevant. The left part of each graph corresponds to the treatment phase, the right part to follow-up. The graphs represent females without depression and childhood trauma and reporting the mean number of traumatic events. Graphs for other covariate values show the same pattern, albeit shifted along the vertical axis. In the graphs, *p*-values indicate the significance of weekly change rates.

At post-treatment, significant between-group differences were found for two outcomes, favouring PCT. For total CAPS-values, the difference in mean scores amounted to 23.02 CAPS-points; 95% CI [5.94; 40.42], *P* = 0.008. For re-experience, the difference in mean scores was 9.25 points, 95%CI [4.50; 14.29], *P* = 0.000.

In the NET condition, a continuing decline for all outcomes was observed during treatment and follow up. For PCT, a decline for all outcomes was only observed during treatment. During follow-up, PCT arousal scores continued to decrease over time; intrusion, avoidance and mean scores, however, showed an increase and finally, the PCT avoidance scores exceeded those in the NET condition.

Table 4 shows the *P*-values for the five hypothesis tests for each of the four outcomes.

Table 4.
p-values of the hypotheses for PTSD-total, Re-experience, Avoidance and Arousal.

Hypotheses	PTSD-total	Re-experience	Avoidance	Arousal
(a) during therapy, the rate of change of the outcome is different across both treatments	p 0.317	0.186	0.503	0.767
(b) during follow-up, the rate of change of the outcome is different across both treatments	p 0.008	0.019	0.003	0.425
(c) for NET the rate of change of the outcome is equal during therapy and follow-up	p 0.739	0.520	0.819	0.664
(d) for PCT the rate of change of the outcome is different during therapy and follow-up	p 0.006	0.018	0.003	0.574
(e) at post-treatment, the two conditions have different outcomes	p 0.008	0.000	0.056	0.076

For arousal symptoms, the weekly change rates did not differ significantly across treatments and time periods. For the other three outcomes the weekly change rates during follow-up differed significantly across treatment conditions. Additionally, for these three outcomes, the weekly PCT

change rates during treatment were significantly different from those during follow up. For all outcomes, the weekly NET change rates during treatment did not differ significantly from those during follow up. Post-treatment, there were significant between-treatment differences in means for PTSD total score (Cohen's $d = 0.44$) and re-experience symptoms ($d = 0.40$), which are considered medium effects (Cohen, 1992). Finally, 17 weeks from post-treatment assessment (the mean follow-up interval), the between-group differences for all outcomes were non-significant. At this time point, for PTSD total score, re-experience and arousal symptoms, PCT still was favoured, but positions had reversed for avoidance symptoms.

Discussion

Main Findings

From pre-treatment to post-treatment in this RCT, PCT showed a sharper decline than NET in PTSD symptoms for all symptom clusters. At follow-up, however, the effects converged, showing a continuing symptom decline in the NET group and a partial PTSD symptom relapse in the PCT group. This relapse mainly involved symptoms of re-experience and avoidance. None of the participants in neither condition left treatment prematurely because of an intolerable increase in symptoms.

Efficacy and mechanisms

The early symptom reduction in PCT can be understood by its non-intrusive character. Although intended to provide non-specific treatment factors, the current results support the use of PCT as an intervention with comparable effectiveness as trauma-focused psychotherapies in older adults. Traumatic memories are directly targeted during NET which increases stress levels, albeit temporarily. In the long run, the repetitive alternation of trauma exposure and cognitive elaboration (in the chronological narrative) is seen as effective memory processing (Schauer et al., 2011), which is reflected in a continuing symptom decrease and increased cognitive coherence. The results for the NET-group might imply that addressing re-experience and avoidance is required for a sustained treatment effect. The primary mechanisms of change from a present-centred perspective are based on altering maladaptive interpersonal communication (Frost et al., 2014). During follow-up, the partial symptom relapse for PCT participants may be due to chance, since the differences did not exceed the s.d of the scores at post-test. The absence of treatment structure, however, with its homework and therapist support, may have played a role.

Research in context

The continued symptom reduction for NET in the current sample was consistent with other NET-trials (Lely et al., in press). The difference with other NET-results in older adults (Bichescu et al., 2007) might be explained by the highly active comparator, which was structurally equated and provided within high standard care. The non-significant between-treatment differences at follow-up are comparable with results of direct comparisons of trauma-focused therapies (Nijdam, Gersons, Reitsma, De Jongh, & Olff, 2012; Sloan, Marx, Lee, & Resick, 2018; Tran, Gregor, 2016) or the results of Eye Movement Desensitisation and Reprocessing (EMDR) compared with stabilisation (Ter Heide, Mooren, Van de Schoot, De Jongh, & Kleber, 2016). The PCT results were consistent with PCT research (Frost et al., 2014; Ready et al., 2010; Steenkamp et al., 2015), underscoring the importance of the non-specific treatment factors and contesting the current PTSD treatment guidelines which prefer trauma-focused therapy over non-trauma-focused alternatives (Haagen, Knipscheer, & Kleber, 2017).

Treating PTSD in older adults

PTSD treatments for older adults evoke questions about the safety of trauma processing for vulnerable people and the need of trauma exposure to effectively treat them (Arean, 2012). Directly targeting traumatic memories in NET did not harm these vulnerable participants. Treatment drop-out rates were low in comparison to those in other trials involving PTSD treatments (Imel, Laska, Jakupcak, & Simpson, 2013).

The current findings support evidence that both PCT and NET are feasible interventions for older adults. In this population, PTSD and other health problems, decreasing autonomy or social isolation, can burden coping mechanisms. From a patient's viewpoint, PCT can be regarded as an attractive treatment approach as it addresses current relational problems. Exposure therapy is much more taxing and symptoms take longer to abate. Many older adults, however, prefer to share their experiences (Imel et al., 2013), with the aim of re-appraising maladaptive meanings, and with the hope to break the cycles of re-experience and avoidance, which frequently maintain exhaustion and despair (Curran, & Collier, 2016).

Strengths and limitations

The current study offers a controlled comparison of two treatment approaches for older survivors of traumatic events. A broad range of older people was engaged in this study, some needing interpreters. To enhance external validity, treatment duration was adapted to the patients' preferences and possibilities. The resulting variability of inter-assessment intervals was addressed by advanced statistical analyses. This approach allowed for significance testing of post-treatment effects, comparing the change rates across participants and full intention-to-treat analysis.

Several limitations must be considered. Since the participants may have been less avoidant than the refusers, the sample may suffer from (self)selection bias. The uneven distribution of males and females might present additional selection bias. A more detailed control for therapist confounding would have been useful. Therapists' experience, however, was not related with differences between the treatment groups and careful assessment of treatment adherence showed that the risk of bias was low. Although intended, complete blindness could not be guaranteed which is not unusual in psychotherapy trials (Bisson, Roberts, Andrew, Cooper, & Lewis, 2013). Additionally, the inclusion of covariates narrowed the analysis' external validity. The restricted participants' age range implies that the current example can be considered mainly representative for the younger cohorts of older adulthood. The flexible session frequency complicated an easy grasp of the results. Finally, the short mean follow-up interval may be considered a limitation; the converging results call for future research.

Future research

To generalise the current results, larger comparative studies, with longer follow-up intervals and older participants are needed. To gain more insight in treatment components, comparisons of different treatment doses and/or session intervals might be useful, as well as comparing NET and/or PCT with other trauma-focused interventions (cognitive processing therapy, prolonged exposure, TFCBT, EMDR, or brief eclectic psychotherapy for PTSD). Finally, validation of psycho-diagnostic instruments and re-evaluating cut-off scores for older adults will improve trauma related care for this population.

Clinical implications

Trauma-affected older populations need accurate assessment and evidence-based treatment. This study suggests that both NET and PCT are effective and safe psychotherapeutic methods for PTSD treatment in older adults. The availability of different approaches may optimise treatment matching. If, for instance, post-treatment NET evaluation would reveal remaining relational problems, an alternative intervention targeting those issues, such as PCT but also Skills Training in Affect and Interpersonal Regulation, can serve as a subsequent treatment option. The opposite is equally possible: starting with current problems and later continuing with narrative exposure. The results of PCT underscore the impact of interpersonal problems in PTSD and offer a possible option for lifting this burden.

The early symptom reduction in PCT may cause patients to prefer this treatment method. NET, however, should be the treatment of choice if patients prefer sharing their trauma story and adapting its meaning in their lives. Patient and therapist preferences have been shown to play an important role in the choice of treatment method (Simiola, Neilson, Thompson, & Cook, 2015; Van Minnen, Hendriks, & Olff, 2010); providing balanced information fosters realistic expectations and hence better results.

In clinical practice, both NET and PCT should be considered as viable treatment options, addressing some of the barriers to adequate treatment for trauma affected older adult patients.

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Chapter 5

Mood and psychosocial adjustment in older PTSD patients: outcomes from an RCT

Submitted as:

Lely, J.C.G., Knipscheer, J.W., Moerbeek, M., Ter Heide, F.J.J., Van den Bout, J., & Kleber, R.J. Mood and Psychosocial adjustment in Older Adult PTSD Patients: Outcomes from an RCT.

Abstract

Objective: Using data from a randomised controlled trial (RCT) on psychotherapy for post-traumatic stress disorder (PTSD) in older adults, the aim of this study is to examine the treatment effects in depression symptoms and psychosocial adjustment.

Methods: Thirty-three outpatients suffering from PTSD (55 years and over), were randomly assigned to eleven sessions of Narrative Exposure Therapy (NET) or Present-Centered Therapy (PCT). Depression symptoms and psychosocial were target outcomes. Beck Depression Inventory (BDI-II), General Self-Efficacy Scale (GSES), World Health Organization Quality of Life Assessment (WHOQOL-BREF) and Meaning of War Scale (MWS) were assessed pre-treatment, post-treatment and at four months follow-up.

Results: Using a piecewise mixed effects growth model, no significant treatment changes in depression severity were found post-treatment for both interventions. For self-efficacy and WHOQOL-BREF physical health, significant between-treatment effect sizes were found post-treatment and at follow-up, favouring PCT.

Conclusions: Directly targeting traumatic memories through NET with older adult PTSD patients is safe, but for depression symptoms only modestly efficacious. Treatment results show the potential of PCT to improve psychosocial adjustment in important areas.

Clinical implications: NET and PCT can be considered safe and viable treatment options which address some of the emotional and/or adaptive problems of senior PTSD patients.

Keywords: Older adults, treatment, psycho-trauma, PTSD, psychosocial adjustment, RCT.

Contribution of authors

Designed research: Lely, Knipscheer, Ter Heide and Kleber

Conducted the experiment: Lely

Analysed data: Lely, Knipscheer, Moerbeek and Ter Heide

Wrote the paper: Lely, Knipscheer, Van den Bout, Moerbeek, Ter Heide and Kleber

Introduction

Throughout human life, potentially traumatic events occur. Many older adults have lived through such adverse events. Disrupting experiences, such as exposure to domestic violence, physical attacks, sexual violence, warfare or natural disasters can leave persisting psychological disturbances, including post-traumatic stress disorder (PTSD; American Psychiatric Association; APA, 2000, 2013). Empirical findings (Bonanno, 2004; Brom et al., 1991), however, have stressed that most trauma survivors will not develop serious mental disorders. If they do, those disturbances are frequently associated with comorbid depression, somatic complaints and problems in psychosocial adjustment (Pietrzak, Goldstein, , Southwick, & Grant, 2012; Rytwinski, Scur, Feeny, & Youngstrom, Van Zelst, De Beurs, Beekman, Deeg, & Van Dyck, 2003). Comorbidity may predict higher symptom severity, disability and health service utilization (Van Zelst, De Beurs, Beekman, Van Dyck, & Deeg, 2006).

The latest practice guidelines for the treatment of PTSD (American Psychological Association; APA, 2017; U.S. Department of Veteran Affairs, Department of Defense; VA/DoD, 2017; National Institute for Health and Care Excellence; NICE, 2018) recommend cognitive behavioural therapy (CBT), Eye Movement Desensitization and Reprocessing (EMDR), and Narrative Exposure Therapy (NET), and suggest the use of Brief Eclectic Psychotherapy for PTSD (BEPP), to treat PTSD. These approaches are considered trauma-focused; some form of exposure being a core mechanism of change. Hitherto, practice guidelines have not specified whether these recommendations can be applied with similar effectiveness with elderly PTSD patients. Worldwide, however, the number of older adults is increasing (United Nations, 2017). Generalisability is not self-evident, since developmental challenges relevant to older age, such as physical health problems, might impact treatment delivery and outcome (Dinnen, Simiola, & Cook, 2015). Yet, in case reports of prolonged exposure for older adults without cognitive impairments, treatment appeared to be well tolerated without adverse effects on comorbid conditions or treatment drop out (Cook, McCarthy, & Thorp, 2017; Dinnen et al., 2015). Recent controlled studies – sample mean ages ranging from 57 to 71 years - (Bichescu Neuner, Schauer, & Elbert, 2007; Gamito et al., 2010; Knaevelsrud, Böttche, Pietrzak, & Freyberg, 2017; Ready, Gerardi, Backschneider, Mascaro, & Rothbaum, 2010), yielded mixed results for PTSD and depression outcomes. Regarding PTSD, reported between-treatment effect sizes (ranging from Hedges' $g = 1.41$ to non-superiority), were substantially smaller than those of psychotherapy in general (Watts et al., 2013). The question whether the same applies to depression and psychosocial adjustment calls for further investigation.

Since different factors influence the symptom presentation and recovery of PTSD patients, assessment of several outcomes is essential to capture full treatment results. In addition to assessment of PTSD, addressing depression, self-efficacy, quality of life and post-traumatic cognitions, is considered relevant in the context of advancing age. Depression severity may influence treatment

engagement and effectiveness (Rytwinski et al., 2013). Psychosocial adjustment, including self-efficacy and physical health, may be compromised by PTSD (Van Zelst et al., 2006). Furthermore, traumatic events can disrupt existing structures of meaning about oneself, others and the world, leading to distrust and symptom increase (Janoff-Bulman & Frantz, 1997). Survivors face a major cognitive coping task, being that of assimilating their experience and/or change their basic assumptions. Not all post-traumatic cognitions, however, involve distress. In the face of adversity, resilience may be restored and adaptive changes, such as improved well-being, benefit finding and growth, can occur (Tedeschi & Calhoun, 2004). Consequently, assessing post-traumatic cognitions should include both distressing and resilient aspects.

Using data from a randomised controlled trial (RCT) comparing Narrative Exposure Therapy (NET) and Present-Centered Therapy (PCT) in trauma affected older adults, aged 55 years and over, the present study addresses treatment results for depression severity and psychosocial adjustment, defined in terms of self-efficacy, quality of life, and cognitions about oneself, others and the world. NET is a short-term trauma-focused intervention, simultaneously reconstructing autobiographic memory and providing exposure therapy (Schauer et al., 2011). This approach permits the elaboration of multiple traumatic experiences. A preliminary trial on NET with older adults demonstrated a significant reduction of depression severity (Bichescu et al., 2007). In contrast, the focus of PCT is directed to the here-and-now rather than to the past (Frost, Laska, & Wampold, 2014). Although originally developed as a control condition, PCT has been qualified as a PTSD treatment method strongly supported by empirical research (Frost et al., 2014, Steenkamp, Litz, Hoge, & Marmar, 2015). Treatment aims of both approaches involved psychosocial adjustment, either individually, developing 'a sense of coherence, control and integration' for NET (Schauer et al., 2011, p.34), or both personally and interpersonally, altering 'present maladaptive relational patterns/behaviours', explaining the impact of trauma on current life and teaching problem-solving strategies for PCT (Frost et al., 2014, p.2).

This study aimed at comparing treatment effects of NET and PCT on self-reported depression symptoms and psychosocial adjustment. Since directly comparing PTSD treatments often yields small differences (Tran & Gregor, 2016), post-treatment, only a small superiority in depression reduction for NET was expected and post-treatment changes in psychosocial adjustment for both interventions were expected to be equivalent.

Method

Trial registration

The trial was registered in the Netherlands Trial Register (NTR), number 3987 and NARCIS (Dutch National Academic Research and Collaborations Information System), OND1352440.

Participants

The current analyses are based on data from an RCT comparing NET with PCT (Lely et al., in press). Participants were recruited from two Dutch centres for assessment and treatment of psycho-trauma related disturbances: Foundation Centrum '45 and the Sinai Centrum. Following medical-ethics committee approval at Leiden University, participants were enrolled from April 2013 to April 2016. Patients judged eligible for participation were approached, receiving a complete description of the study; from those consenting, written informed consent was obtained. In order to assess interrater reliability and treatment adherence, written permission was asked to videotape all assessments and treatment sessions. Subsequently, potential participants were interviewed to formally check inclusion and exclusion criteria.

Study entry criteria

To be included in the study, participants had to be over age 54, seek individual treatment for PTSD in the trial sites, meet DSM-IV TR criteria for PTSD as assessed with the Clinician-Administered PTSD Scale or CAPS (Blake et al., 1995), and, if taking psychotropic medication, maintain a stable dose for at least two months. Exclusion criteria involved severe cognitive impairment, as assessed with the Mini Mental State Examination or MMSE (Folstein, Folstein, & McHugh, 1975), Dutch translation (Kok & Verhey, 2002), score ≤ 20 ; current high risk for suicide, active psychosis, bipolar disorder, or current diagnosis of substance disorders, as assessed with the MINI International Neuropsychiatric Interview (Sheehan et al., 1998), Dutch translation (Van Vliet & De Beurs, 2007); and concurrent psychosocial treatment for PTSD during the study. No restrictions were applied on language proficiency in Dutch.

Design

Participants were randomly assigned to eleven 90 minutes sessions of NET or eleven 90 minutes sessions of PCT, using computer generated random numbers. Session frequency was permitted to vary from one to two weeks, resulting in highly variable assessment intervals.

Interventions

NET is a standardised individual treatment intervention for PTSD, based on trauma-focused cognitive-behavioural therapy or TFCBT (Schauer et al., 2011). In *NET*, the therapist and patient collaboratively develop a chronological narrative of the patient's life. This procedure allows the patient to re-

experience avoided traumatic experiences in imaginal exposure. The narrative is written down and the resulting document may be used by the patient for personal purposes. NET was carried out according to the manual (Schauer et al., 2011) by therapists from both trial sites. After the introductory session, the therapist and the participant created a visual timeline of traumatic and supportive experiences and selected the events for exposure. The next eight sessions were dedicated to exposure therapy. The last session focused on receiving the documented narrative, discussing the future and saying goodbye.

PCT included trauma-informed psychoeducation and homework assignments involving current problems. *PCT* was found to be effective in reducing post-traumatic and depressive symptoms, showing significantly fewer dropout rates than the trauma-focused comparators (Frost et al., 2014; Steenkamp et al., 2015). *PCT* was carried out following the *PCT* protocol (Bernardy et al., 2003). After the introductory session, trauma-informed psycho-education was provided in session two. The next eight sessions focused on relieving interpersonal and other current stresses. In homework assignments, the patients selected the relevant issues. The last session focused on taking stock, looking forward and saying goodbye.

In both interventions, the therapists were registered psychotherapists or psychosocial therapists, with appropriate training in NET or *PCT*. If necessary, assistance of professional interpreters was provided. Independent trainers and supervisors participated in the study. In supervision meetings, treatment content and process, including videotapes, were discussed. For both conditions, therapist manuals were designed including study procedures and the medication protocol. In order to assess treatment adherence, a checklist of prescribed and proscribed components was used (Bernardy et al., 2003), adapted for use in the interventions. On a scale of 100, the amount of desired treatment components (either providing prescribed or avoiding proscribed components) was reported, presented as percentage.

Assessment

Assessments were performed by fourteen independent master students in clinical psychology with extensive training in the use of the instruments, if necessary, with assistance of interpreters. To ensure blinding of treatment allocation, assessors had limited access to participants' data and participants were asked not to reveal treatment content. All interpreters were trained for translating clinical interviews in psychotherapy and had signed a declaration of confidentiality. The pre-treatment assessment included a structured interview about socio-demographic data. To assess traumatic experiences, the trauma event checklist of the CAPS was administered. The assessments were conducted pre-treatment, post-treatment and at four months follow-up. After having completed all assessments, participants received a gift coupon in appreciation of their time and effort.

Depression symptoms. The Beck Depression Inventory-II (Beck, Steer, & Brown, 1996), Dutch translation (Van der Does, 2002), is a 21-item self-report measure of depression severity. The items are rated on a four-point Likert scale ranging from 0 to 3, resulting in a total score ranging from 0 to 63, higher scores indicating elevated depression severity. The BDI-II has been found to have good test-retest reliability, high internal consistency and acceptable content, construct and criterion validity (Smarr & Keefer, 2011). In a sample of outpatients, psychometric properties of the BDI-II were found to be excellent: Cronbach's $\alpha = 0.90$ (Beck, Steer, Baal, & Ranieri, 1999).

Self-efficacy. The Dutch version of the General Self-Efficacy Scale (Teeuw, Schwarzer & Jerusalem, 1994) is a 10-items self-report measure of perceived personal influence in life. The items are rated on a four-point Likert Scale ranging from 1 to 4, resulting in a total score ranging from 10 to 40; higher scores indicate elevated self-efficacy. This instrument is frequently used in research; psychometric quality is sufficient (Schwarzer & Jerusalem, 1995).

Quality of life. The World Health Organization Quality of Life Assessment or WHOQOL-BREF (WHOQOL Group, 1998) is a 26-items self-report measure of perceived quality of life in four domains: physical and psychological health, social relationships and environment. The items are rated on a five-point Likert scale ranging from 1 to 5; resulting in a total average score ranging from 1 to 5, higher scores indicating elevated quality of life. The Dutch translation (De Vries & Van Heck, 1996) shows sufficient reliability; with Cronbach's α ranging from 0.66 to 0.80 for the different domains (Trompenaars, Maste Vries, 2007).

Post-traumatic cognitions. The Meaning of War Scale (Mooren and Kleber, 2001) is a self-report 34-items measure of cognitive assumptions about oneself, others and the world, in the light of war and violence related experiences. The items are rated on a four-point Likert scale ranging from 1 to 4; higher scores indicating elevated ratings on three homogeneous subscales: distrust, personal growth and religious affiliation; Cronbach's α ranges from 0.56 to 0.85 (Mooren, Schok, & Kleber, 2009).

Statistical analysis

Sample size was calculated with the power analysis program G*Power version 3 for Windows (Faul, Erdfelder, Lang, & Büchner, 2007). To address the variable duration of treatment and follow-up across subjects, a piecewise mixed-effects growth model was used to model weekly change rates in the outcome measures across time and treatments. The time factor was scaled such that time = 0 corresponded to the post-treatment measurement. This approach allowed to account for between-subject variation for the duration of therapy and follow-up (Naumova, Lust, & Laird, 2001), requiring however, a reformulation of the expectations into operational hypotheses:

1 during treatment, the outcome change rate is different across conditions

- 2 during follow-up, the outcome change rate is different across conditions
- 3 for NET, the outcome change rate is equal during treatment and follow-up
- 4 for PCT, the outcome change rate is different during treatment and follow-up
- 5 at post-treatment, the two conditions have different outcomes
- 6 at the mean follow-up time-point, the two conditions have different outcomes.

Four covariates were included in the model: comorbid depression symptoms and childhood trauma have been found to exert a negative impact on effectiveness of psychological treatments (Dunn Nishimi, Powerr, & Bradley, 2017; Rytwinski et al., 2013); female gender has been found to be associated with higher treatment effects for PTSD (Tarrrier, Sommerfield, Pilgrim, & Faragher, 2000; Watts et al., 2013), and finally, higher numbers of traumatic events have been found to increase PTSD symptom severity (Kolassa et al., 2010; Ogle, Rubin, & Siegler, 2014).

Treatment adherence, interrater reliability, demographic and clinical variables were analysed with SPSS, version 23 for Windows (Armonk, NY: IBM Corp.). The data were converted into the software MLwiN (Rasbash, Steele, Browne, & Goldstein, 2015) with restricted maximum likelihood and robust standard errors. Two-sided tests were conducted with a significance level of $\alpha = 0.05$.

To evaluate individual change for depression, clinically significant change, indicated as treatment response, on the BDI-II was rated. Treatment response was defined as ≥ 5 points symptom reduction (Smarr and Keefer, 2011). Recovery was considered to have occurred in case of treatment response and outcomes dropping below the 20 points score on the BDI-II. This value indicates the threshold from mild to moderate depression severity (Beck et al., 1996). Harms were identified as ≥ 5 points symptom increase followed by drop out because of symptom increase. Treatment drop out indicated the percentage of participants prematurely terminating treatment.

Results

Participants

Figure 1 provides details of the patient flow through the trial. The diagram includes all patients fulfilling inclusion criteria at intake, i.e. before being informed about the study and formal interviewing.

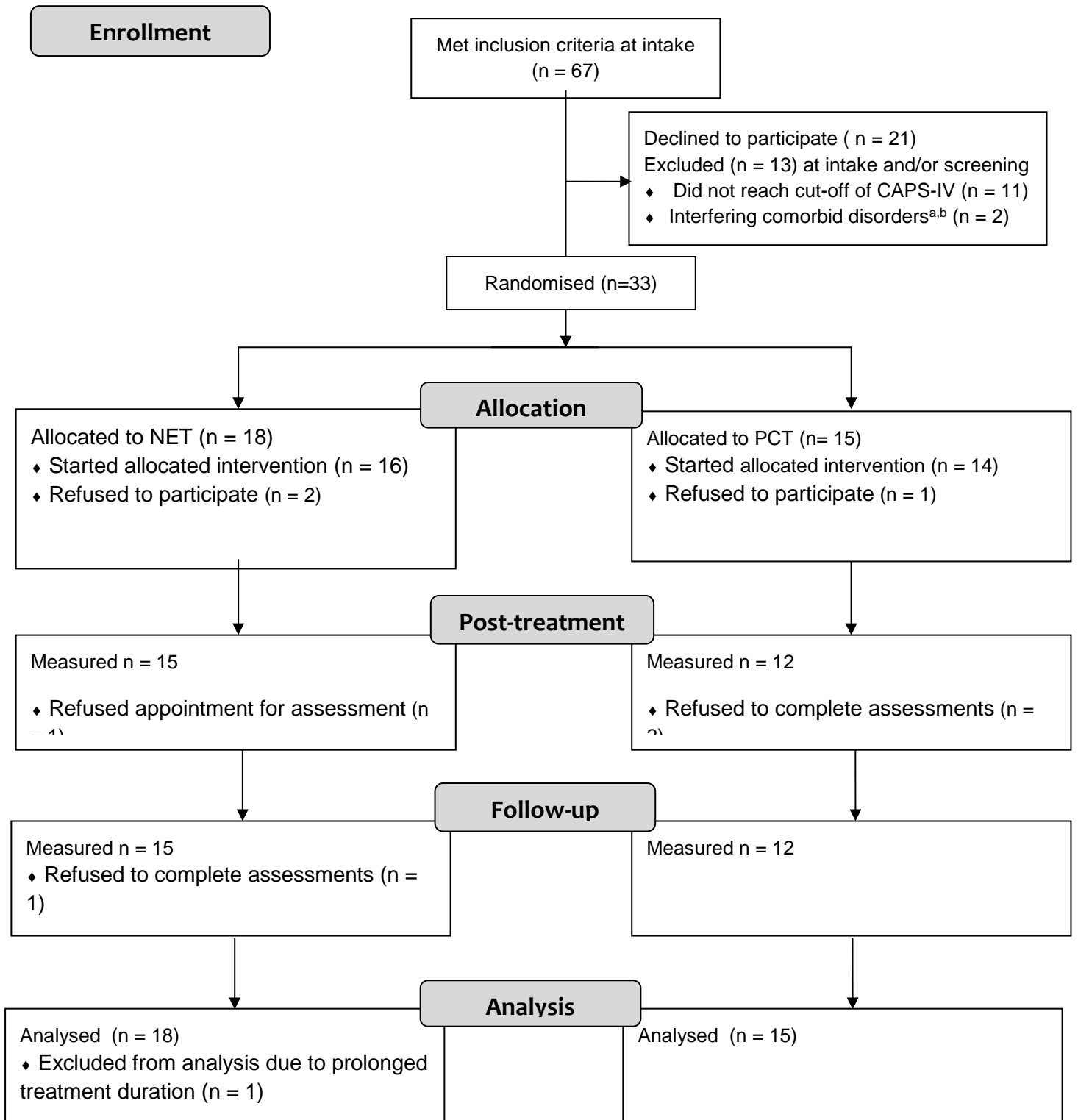


Figure 1. Consort Flow Diagram. Note: ^a = cognitive impairment; ^b = alcohol abuse

Out of a total of 67 patients approached, 35 patients consented. Reported reasons to decline

Figure 1. Consort 2010 Flow Diagram. ^a = cognitive impairment; ^b = current substance abuse. participation were fear of increased stress due to assessments, or refusal to be randomised.

Table 1 summarizes the baseline and clinical statistics of the two treatment conditions.

Table 1.

Baseline personal and trial characteristics of participants per treatment condition

		NET n = 18	PCT n = 15	χ^2	Analysis		<i>p</i> -value
					<i>t</i> -test	d.f.	
<i>Socio-demographic characteristics</i>							
<i>Age in years, mean (S.D.)</i>		62.65 (5.89)	62.47 (6.24)		0.46	31	0.616
<i>Gender</i>				0.01		1	1.000*
Female	n (%)	5 (27.8)	4 (26.7)				
<i>Number of traumatic events</i>					-4.21	29	0.677
	M (SD)	8.83 (4.11)	9.40 (3.52)				
<i>Childhood trauma (≤ 12 years)</i>							
Yes	n (%)	6 (35.3)	6 (42.9)	0.19		1	0.667
No	n (%)	11 (64.7)	8 (57.1)				
<i>Sexual trauma</i>							
Yes	n (%)	3 (17.6)	7 (50)	3.68		1	0.121*
No	n (%)	14 (82.4)	7 (50)				
<i>Region of Origin</i>							
Netherlands	n (%)	8 (47.1)	8 (53.3)	0.30*		2	1.000*
Middle-East	n (%)	7 (41.2)	5 (33.3)				
Other	n (%)	2 (11.1)	2 (13.3)				
<i>Residency situation</i>							
No refugee	n (%)	12 (66.7)	12 (80)	0.92		1	0.324*
Refugee with residence permit	n (%)	5 (33.3)	3 (20)				
<i>Education</i>							
Basic ^a	n (%)	1 (5.9)	3 (20)	2.87*		2	0.191*
Middle ^b	n (%)	17 (94.1)	11 (73.3)				
<i>Living arrangement</i>							
With partner	n (%)	11 (61.1)	10 (66.7)	0.11		1	0.741
Without partner	n (%)	7 (38.9)	5 (33.3)				
<i>Employment</i>							
Unemployed /unfit for work	n (%)	9 (52.9)	9 (60)	0.35*		2	1.000*
Retired/other	n (%)	6 (35.3)	4 (26.7)				
Employed	n (%)	2 (11.8)	2 (13.3)				
<i>Religion</i>							
No religion	n (%)	8 (47.1)	6 (46.2)	1.64*		4	0.948*
Moslim	n (%)	3 (17.6)	3 (23.1)				
Protestant	n (%)	2 (11.8)	3 (23.1)				
Roman Catholic	n (%)	3 (17.6)	1 (7.7)				
Yazidi	n (%)	1 (5.9)	0 (0)				
<i>Practicing Religion</i>							
No	n (%)	11 (68.8)	9 (69.2)	1.12*		2	0.631*
Somewhat	n (%)	2 (12.5)	3 (23.1)				
Yes	n (%)	3 (18.8)	1 (7.7)				
<i>Trial characteristics</i>							

<i>Treatment duration</i>				0.00	25	0.100
	Range	12 to 41	11 to 41			
	M (SD)	19.00 (8.31)	19.00 (8.78)			
<i>Interval pre- to post-treatment</i>				-0.31	24	0.762
	Range	12 to 41	12 to 41			
	M (SD)	21.57 (8.06)	22.58 (8.80)			
<i>Follow-up interval</i>				1.07	23	0.294
	Range	10 to 28	11 to 23			
	M (SD)	17.85 (4.79)	16.08 (3.18)			
<i>Interpreter</i>				4.74	1	0.060*
Yes	n (%)	0	3 (25)			
No	n (%)	17 (100)	9 (75)			
<i>Therapist's expertise</i>				2.33	1	0.159*
Basic	n (%)	9 (56.3)	4 (28.6)			
Extended	n (%)	7 (43.8)	10 (71.4)			
<i>Clinical characteristics</i>						
<i>Comorbid Depression</i>				0.03	1	0.854
Yes	n (%)	11 (61.1)	9 (64.3)			
No	n (%)	7 (38.9)	5 (35.7)			
<i>Medication during treatment</i>				2.35	1	0.126*
Yes	n (%)	10 (71.4)	5 (41.7)			
No	n (%)	4 (30.8)	7 (58.3)			
<i>Change in medication</i>				0.01	1	1.000*
Yes	n (%)	1 (7.1)	1 (8.3)			
No	n (%)	12 (92.9)	11 (91.7)			

Note. ^a: Primary school/ basic vocational training; ^b: secondary school / middle level vocational training;

*: Chi-square tests have been used if all expected frequencies are at least 5; otherwise, Fisher's exact tests have been used.

Due to external circumstances, one participant's treatment was exceptionally long; this participant's data were removed from all further analyses. At baseline, the covariates and other clinical and sociodemographic variables showed no significant pre-treatment differences across conditions, except for the assistance of interpreters. The same applied to pre-treatment depression severity, self-efficacy, quality of life and post-traumatic assumptions. Mean depression scores reflected moderate depression severity. Participants were civilian trauma survivors; reported traumatic events included persecution, political, domestic and sexual violence, including childhood abuse. The mean age of participants was 63.81 years and 75% were men. Most participants originated from the Netherlands and the Middle-East (n = 28; 88%). All participants had encountered multiple traumatic events (M = 9.15, SD = 3.76). Twelve participants (36.4%) reported childhood trauma, consciously remembering events occurring between five and twelve years of age; ten participants (30.3%) reported sexual trauma. As shown in Table 1, no significant between-groups differences for those variables were found. From the participants 60.6% suffered from comorbid depression; three participants (9.1%) were assisted by interpreters.

Attrition

After being included for the study, three patients refused to participate before entering treatment (refusal involved not accepting the allocated intervention, declining to participate in the assessments and fearing stress increase following exposure sessions). Three more participants left treatment prematurely. Reported reasons for drop out consisted of deteriorated living conditions during NET ($n = 1$) and refusal to continue the allocated PCT intervention ($n = 2$). Completer and drop-out rates did not significantly differ across treatment conditions ($t(1) = 0.45, p = 0.501$). *T*-tests revealed no significant differences in age ($t(27) = 1.51, p = 0.142$), or baseline depression severity ($t(27) = -0.52, p = 0.604$) between completers and drop-outs.

From 960 total or mean scores (i.e. 10 outcome measures administered three times with 32 participants), 160 scores (16.67%) were missing. 'Missingness' was related to refusal after inclusion (9.37%), drop out (6.25%) and one unclear item on WHOQOL-BREF social relationships (0.5%).

Treatment Adherence

Of all treatment sessions, 39 (12.96%) sessions (21 for NET and 18 for PCT) were randomly selected for independent scoring of protocol adherence by two assessors. The overall mean treatment adherence ranged from 87 for PCT ($SD = 14$) to 89 for NET ($SD = 11$), which is considered excellent. According to the assessors, on average 87-89% of the desired components of the treatment protocol were applied in the appropriate sessions during the interventions. Treatment adherence scores did not significantly differ for NET and PCT ($t(37) = 0.515; p = 0.609$).

Reliability

To assess interrater reliability, 19.33% of all assessments were randomly selected, stratified for assessor, participant and time-point of assessment. Internal consistency for the pre-treatment outcomes were good to excellent, with Cronbach's $\alpha = 0.85$ for the BDI-II, Cronbach's $\alpha = 0.93$ for the GSES, Cronbach's $\alpha = 0.83$ for the WHOQOL-BREF and Cronbach's $\alpha = 0.73$ for the MWS.

Outcomes

Table 2 presents means and standard deviations of the outcome variables at the three assessments per treatment group.

Table 2

Mean Outcomes at Baseline, Post Treatment, and Follow-up, per Treatment Condition: NET and PCT; Depression (BDI-II): Total scores; Self Efficacy (GSES): Total scores; Quality of Life (WHOQOL-BREF): Mean, Physical, Psychological, Social and Environment scores; Post-traumatic Cognitions (MWS): Distrust, Growth, Religion scores.

		Baseline		Post treatment		Follow-up	
		NET	PCT	NET	PCT	NET	PCT
<i>Depression</i>							
Total Score	M (SD)	27.33 (9.96)	30.21 (9.62)	23.64 (14.29)	22.67 (13.23)	21.07 (16.45)	23.17 (13.07)
<i>Self Efficacy</i>							
Total Score	M (SD)	25.80 (7.94)	29.57 (6.32)	26.50 (8.10)	31.75 (5.29)	25.07 (9.27)	31.17 (8.42)
<i>Quality of Life</i>							
Mean	M (SD)	3.05 (0.52)	2.96 (0.45)	3.02 (0.68)	3.13 (0.64)	3.03 (0.54)	3.14 (0.69)
Physical	M (SD)	2.62 (0.70)	2.64 (0.44)	2.58 (0.80)	2.87 (0.62)	2.50 (0.67)	2.81 (0.64)
Psychological	M (SD)	2.79 (0.89)	2.81 (0.58)	2.96 (0.76)	3.04 (0.77)	3.06 (0.69)	3.08 (0.68)
Social	M (SD)	3.09 (0.99)	2.90 (0.89)	3.17 (1.04)	3.19 (0.87)	3.02 (0.87)	2.97 (1.24)
Environment	M (SD)	3.73 (0.55)	3.45 (0.63)	3.51 (0.70)	3.55 (0.86)	3.65 (0.56)	3.73 (0.70)
<i>Cognitions</i>							
Distrust	M (SD)	29.08 (6.05)	30.86 (6.76)	27.50 (5.66)	29.50 (7.62)	29.43 (8.06)	24.55 (12.26)
Growth	M (SD)	19.23 (6.36)	20.29 (3.43)	19.43 (5.53)	21.17 (3.16)	19.57 (5.95)	18.91 (7.90)

Depression. Visual inspection suggests negligible between-group differences for depression. At follow-up, mean depression scores decreased from moderate to bordering on the threshold of mild and moderate severity.

Psychosocial adjustment. For self-efficacy, post-treatment and follow-up scores indicate higher benefits for the PCT group. The same holds true for physical health on the WHOQOL and for the domain of growth on the MWS; the growth scores, however, show a relapse at follow-up.

Individual change for depression. Individual change on the BDI-II is presented in Table 3, showing the number of participants reporting recovery, treatment response, no response or clinically significant symptom increase per treatment group.

Table 3.

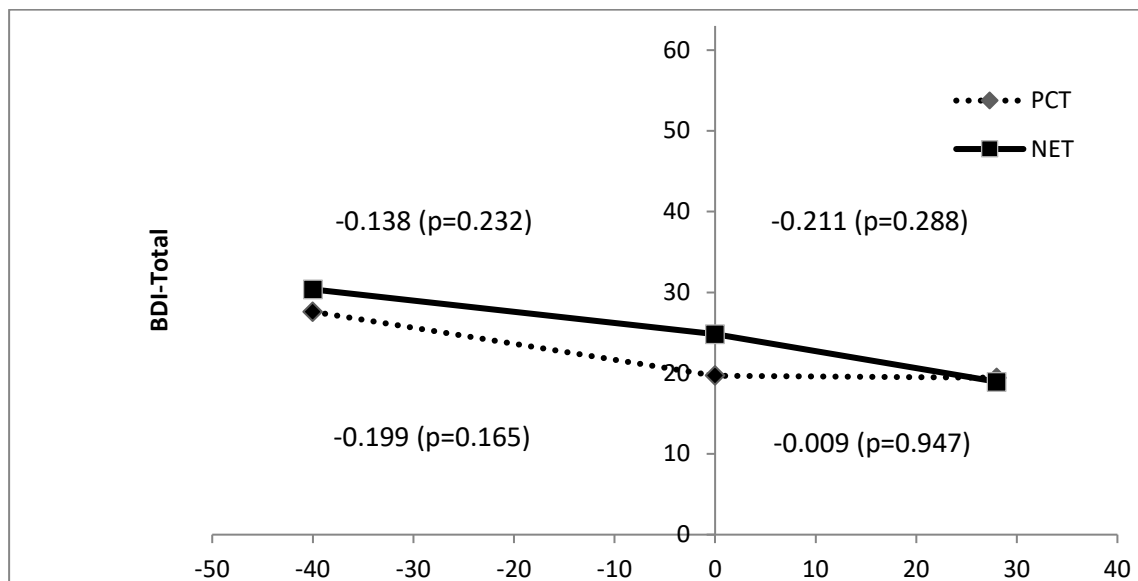
Individual Change in BDI-II Total severity for NET and PCT.

		NET (n = 14)	PCT (n = 12)
<i>BDI-II Total severity change: pre- to post-treatment</i>			
n (%)	Recovery*	4 (28.6)	5 (41.7)
n (%)	Treatment response*	7 (50)	9 (75)
n (%)	No response	5 (35.7)	2 (16.6)
n (%)	Symptom increase*	2 (14.3)	3 (25)
<i>BDI-II Total severity change: pre-treatment to follow-up</i>			
n (%)	Recovery	2 (14.3)	4 (33.3)
n (%)	Treatment response	8 (57.1)	6 (50)
n (%)	No response	3 (21.4)	5 (41.7)
n (%)	Symptom increase	1 (7.1)	1 (8.3)

Note. Treatment reponse: at least 5 score-points reduction; Recovery: Treatment response + score dropping under score 20; Symptom increase: at least 5 score-points increase. Recovery rates and treatment response are *not* mutually exclusive.

No participant reporting symptom increase left treatment prematurely. During treatment, seven NET-completers (50%) showed a treatment response for depression, compared with nine PCT-completers (75%). Although the means at follow-up still reflected moderate depression severity, two NET-completers (14.3.6%) and four PCT-completers (33.3%) reported recovery at that time-point.

Figure 2 presents the graphs of depression and of the significant outcomes, centred on the post-treatment assessment (T2).



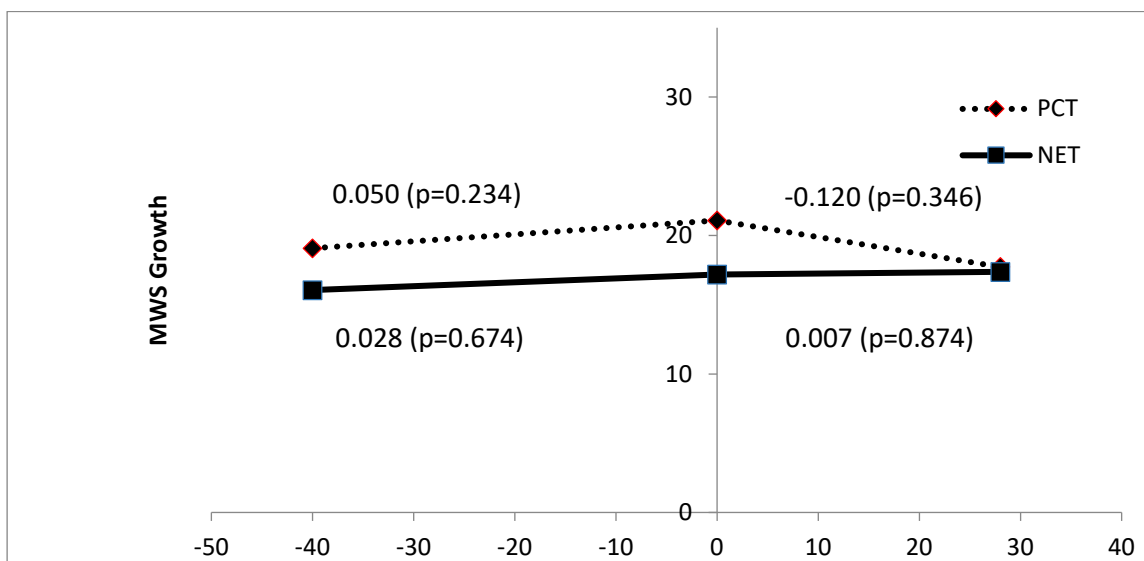
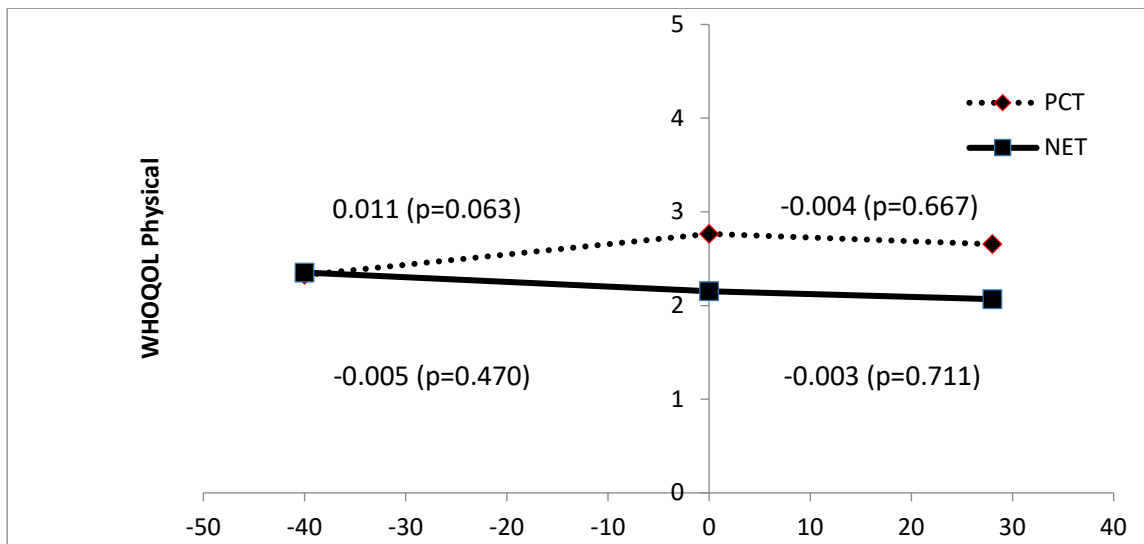
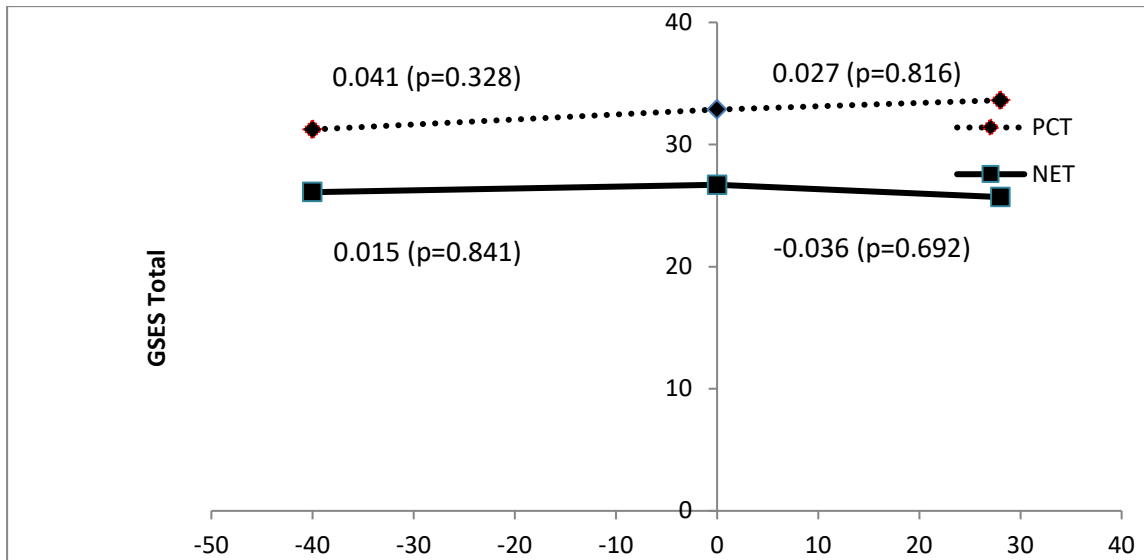


Figure 2. Outcomes of BDI-Total, GSES Total, WHOQOL Physical Health, MWS Growth.

No violation of the relevant assumptions was detected. Because the scores and the number of traumatic events were non-linearly correlated, quadratic and cubic terms of this covariate were included in the model. The left part of each graph corresponds to the therapy phase, the right part to follow-up. At post-treatment, significant between-group differences were found for self-efficacy, physical health and growth, all favouring PCT. For self-efficacy, between-group differences reached 6.17 points; $p = .038$, for physical health, 0.61 points; $p = 0.016$, and for growth, 3.91 points; $p = 0.008$. The graphs apply to females with no depression and childhood trauma and reporting the mean value of the number of traumatic events. In the graph, p -values indicate which weekly rates of change are significant. For the p -values of the hypothesis tests for each of the outcomes, see table 4.

Table 4.

P-Values of the Hypotheses for BDI-II total, Self-Efficacy (GSES total score), WHOQOL-BREF Mean Physical, Psychological, Social and Environment aspects, MWS Distrust, Growth, and Religion.

Outcomes	Hypotheses						
	p-value	1	2	3	4	5	6
BDI-II Total	p	0.743	0.407	0.788	0.443	0.421	0.786
GSES Total	p	0.764	0.670	0.706	0.915	0.038	0.029
WHOQOL-BREF Mean	p	0.155	0.527	0.980	0.647	0.400	0.257
Physical	p	0.074	0.941	0.903	0.256	0.016	0.007
Psychological	p	0.792	0.953	0.583	0.773	0.696	0.648
Social	p	0.581	0.554	0.065	0.275	0.803	0.627
Environment	p	0.019	0.503	0.080	0.430	0.725	0.459
MWS Distrust	p	0.507	0.110	0.264	0.483	0.956	0.140
MWS Growth	p	0.780	0.350	0.827	0.204	0.008	0.531
MWS Religion	p	0.392	0.336	0.898	0.639	0.619	0.206

Note: 1 = during therapy, the change rate of the outcome is different across both treatments; 2 = during follow-up, the outcome change rate is different across conditions; 3 = for NET, the outcome change rate is equal during treatment and follow-up; 4 = for PCT, the outcome change rate is different during treatment and follow-up; 5 = at post-treatment, the two conditions have different outcomes; 6 = at the mean follow-up time-point, the two conditions have different outcomes. BDI-II = Beck's Depression Inventory, Second Edition; GSES = General Self Efficacy Scale; WHOQOL-BREF = World Health Organization Quality of Life Scale; MWS = Meaning of War Scale.

Post-treatment, no significant between-treatment differences were observed for depression severity. At that time-point, in the PCT group, significant between-treatment differences were observed for self-efficacy ($d = 0.76$), which is considered a large effect (Cohen, 1991), Quality of Life physical health ($d = 0.40$), and MWS growth ($d = 0.38$). The latter effects are considered medium. In all instances, the benefits of PCT were superior to those of NET. At the mean follow-up time-point, the between-group differences for self-efficacy and physical health showed sustained significance ($p = 0.029$ and $p = 0.007$, respectively), in contrast to the between-group difference for MWS growth.

Discussion

Main Findings

In this study, treatment effects of NET and PCT on depression and psychosocial adjustment were compared. Directly targeting traumatic memories through eleven sessions of NET with older adults needing specialised treatment has been found to be safe. No differences in safety between NET and PCT have been found. As for depression, the efficacy of both treatments has been found to be modest. Post-treatment, significant between-treatment differences have been found for self-efficacy, physical health, and growth, all favouring PCT. The between-treatment differences for self-efficacy and physical health have been maintained during follow-up.

Efficacy and Mechanisms

The present results for depression of NET deviate from existing evidence regarding NET with older adults (Bichescu et al., 2007). This deviation may be explained by between-study differences. Bichescu and colleagues reported that depression in their participants, former political prisoners, was mainly a consequence of post-traumatic stress – originating from the past. In contrast to the sample of Bichescu and colleagues, 50% of the current sample were resettled refugees – evenly divided among the conditions. Consequently, concurrent post-migration stressors, such as language barriers and the adjustment to Western culture, might have complicated their symptoms, and lowered treatment results (Li, Liddell, & Nickerson, 2016).

For psychosocial adjustment, PCT was found to be superior to NET. The focus of PCT on concurrent stressors and interpersonal problems in the participants' lives can explain this finding. Trauma-informed psycho-education focuses on the present and supports cognitive coherence and understanding of current difficulties. Sharing one's problems can result in muscle relaxation, which in turn supports physical well-being (Pennebaker, 1997; Zech & Rimé, 2005). Finally, learning to deal with pressing problems directly contributes to perceived self-efficacy.

Research in Context

Although trauma-focused interventions are superior to control conditions, smaller differences with trauma-focused therapy are found when treatment approaches in the control condition are more active (Watts et al., 2013). Promising results with PCT from other trials (Frost et al., 2014; Imel, Laska, Jakupcak, & Simpson, 2013; Ready et al., 2010; Steenkamp et al., 2015) were confirmed by the present study. These results are consistent with the suggestion that PTSD treatment may be effective without imaginal exposure to traumatic memories (Markowitz et al., 2015). Furthermore, they are in line with current findings from network analyses of PTSD (Fried and Cramer, 2017), which suggest multiple

causal pathways between symptoms. Although a common factor (trauma) is assumed to activate the onset of PTSD, the persistence of the disorder seems to be governed by a network of symptom associations. Such networks illustrate as well that psychosocial adjustment can both influence the recovery process and be its outcome.

The findings of the present study support alternative perspectives on coping with adverse events, moving beyond the current centrality of PTSD (Mooren & Kleber, 2001). They show that human suffering, and recovery as well, are not limited to psychological symptoms, conceptualised as PTSD. Targeting and assessing mood and psychosocial adjustment can provide useful avenues for treatment and research, addressing both symptom severity and resilience.

Treating Older Adults with Trauma-Related Symptoms

In older PTSD patients, diminishing functional autonomy or growing social isolation may burden coping mechanisms. Whereas narrative exposure focuses on cognitive coherence (Schauer et al., 2011), the present-centred approach - focusing on coping in a trauma-informed context - may help to understand the importance of adaptive coping in older age.

The comparison of NET and PCT adds evidence to discussions about whether confronting traumatic memories is necessary in trauma treatment in general, and for older patients in particular (Steenkamp et al., 2015; Thorp et al., 2017). Regarding the safety of trauma processing for vulnerable patients, the findings of the present study permit several conclusions. Neither directly targeting traumatic content in NET, nor focusing on current stressors in PCT, led to increased depression severity for these vulnerable participants. Treatment drop-out rates were low in comparison to other trials involving PTSD treatment (Imel et al., 2013). For psychosocial adjustment, PCT has been found to be superior to NET.

The significant and sustained between-treatment differences for self-efficacy and physical health suggest that PCT is an appropriate intervention in the context of recovery-oriented care (Leamy, Bird, Boutillier, Williams, & Slade, 2011). The focus on recovery is an essential strategy for older adults trying to regain resilience and hope, even if residual symptoms persist.

Strengths and Limitations

In order to capture psychopathology and psychosocial adjustment, the present study addressed both. The sample included a broad range of older patients, coping with complex problems. In addition, treatment pacing was adapted to the patients' preferences and possibilities. Advanced statistical analysis addressed the resulting variability of inter-assessment intervals. This approach allowed for significance testing of post-treatment effects and full intention-to-treat analysis.

Several limitations require attention. Since the participants may have been less distrustful or avoidant than the refusers, the sample may suffer from (self)selection bias. The uneven distribution of men and women might present an additional selection bias. As for allocation concealment, blindness of assessors was aimed at but might not have been perfect. Moreover, inclusion of covariates in the analysis narrowed the analysis' external validity. Next, the participants' age range implies that the current sample is mainly representative for the transition to old age. Furthermore, variable session frequency made the results difficult to grasp, and finally, the short mean follow-up interval calls for further research.

Future Research

The findings of the present study suggest the potential of present-centred psychotherapy to improve psychosocial adjustment in older adult PTSD patients. More research is needed to generalise these findings. Dismantling studies may contribute to evidence based clinical decisions, although the differences are expected to be small (Tran and Gregor, 2016). Since the findings of the present study indicate that physical health can be considered a relevant outcome, including assessments of physiological measures, such as blood pressure or heart rate, in future trials could provide additional evidence on risks and outcomes of different psychological interventions in older adults (Cook et al., 2017; Dinnen et al., 2015).

Clinical Implications

- NET and PCT can be considered safe and viable treatment options which address emotional and/or adaptive problems of senior PTSD patients.
- Directly targeting traumatic memories carries no harm for older adults.
- The availability of different treatment modules may improve clinical care. Decision-making can be improved by aiming at shared explanatory models, exploring the patients' treatment motivation and practical modalities.
- Therapists are recommended to carefully discuss whether patients' needs primarily involve PTSD, depression, psychosocial adjustment, or perhaps grief, because exclusively focusing on PTSD may leave out important treatment avenues.
- For patients who prefer a non- trauma-focused treatment, PCT turns out to be a treatment of choice (Imel et al., 2013).
- Both recovering from psychopathology and improving psychosocial adjustment are highly relevant outcomes of psychological treatment.

Chapter 6

PTSD treatment response in refugees from a lifespan perspective

In review:

Lely, J.C.G., De la Rie, S.M., Van der Aa, N., Louwers, M.A.L.M., & Kleber, R.J. PTSD Treatment Response in Refugees from a Lifespan Perspective.

Abstract

Background: Treatment of post-traumatic stress disorder or PTSD in aging individuals has attracted emerging interest. Although older adults, including refugees, are increasingly expected to call upon mental health services, it is unclear whether older and younger adults benefit equally from trauma treatment. Additionally, it is not certain whether treatment response might be influenced by other factors than age, such as lifespan variables.

Objective: to investigate the effectiveness of trauma treatment for refugees, aged up to 63 years, seeking treatment for PTSD and to examine to what extent treatment response may be predicted by clinical, pre-treatment, trauma related and migration related characteristics.

Method: data of 141 adult refugees (18 – 63 years) were collected from the electronic patient record of Foundation Centrum '45, a center specialised in the assessment and treatment of patients suffering from complex psycho-traumatic symptoms, including refugees and asylum seekers. Symptoms were assessed using the Harvard Trauma Questionnaire (HTQ) for PTSD and the Hopkins Symptom Checklist (HSCL-25) for comorbid depression and anxiety. One-way ANOVAs, correlation analyses and hierarchical multiple regression analyses were conducted.

Results: After treatment, significant reductions of PTSD, depression and anxiety symptoms were found. Age showed no significant associations with treatment response of all outcomes. Pre-treatment trauma related distress, the first occurrence of trauma under 12 years of age, and the numbers of traumatic events predicted treatment response for PTSD; for comorbid depression and anxiety, treatment response was predicted exclusively by distress. Childhood trauma and distress showed positive associations to treatment response. Non-specific treatment factors play an additional role in understanding treatment response.

Conclusions: Younger and older adults benefitted equally from trauma treatment for refugees. Pre-treatment distress positively predicted treatment response in all outcomes. Childhood trauma and the number of traumatic events predicted treatment response for PTSD: the number of traumatic events in a negative sense. Remarkably, childhood trauma did not have a negative impact on treatment response.

Keywords: Post-traumatic Stress Disorder, PTSD, Refugees, Treatment, Older Adults.

Highlights

- Trauma treatment for (aging) refugees showed significant treatment changes.
- Age was not associated with treatment outcome: older and younger refugees benefitted equally from treatment.
- Traumatic load predicted lower treatment response.
- Trauma related distress and childhood trauma predicted higher treatment response.

Contribution of authors

Designed research: Lely, De la Rie, Van der Aa, Louwers and Kleber

Analysed data: Lely, Louwers, Van der Aa and De la Rie

Wrote the paper: Lely, Van der Aa, Louwers, De la Rie and Kleber

Introduction

Research on post-traumatic stress disorder or PTSD (APA, 2000, 2013) has focused predominantly on younger and middle-aged adults (Lunney, Schnurr, & Cook, 2014); this especially holds true for PTSD among refugees. Refugees have been found to run an elevated risk of developing PTSD (Steel et al., 2009). Since many refugees tend to stay in their countries of resettlement, an increasing demand of aging refugees on mental health services may be expected. Therefore, developing safe and effective treatments for PTSD and comorbid conditions for this population is highly relevant. Furthermore, in refugee populations, elevated prevalence rates for depression, anxiety disorders and somatic symptoms were found (Fazel, Wheeler, & Danesh, 2005; Laban, Gernaat, Komproe, Schreuders, & De Jong, 2004; Steel et al., 2009). So, even when PTSD constitutes the primary diagnosis, comorbid disorders must be taken into consideration, and treatments for trauma-related comorbid disorders for this populations are also relevant. Finally, since advancing age has long been assumed to be a disadvantage in psychotherapy (Laidlaw & Pachana, 2009), the question should be addressed whether there is a difference in treatment response (PTSD and comorbid disorders) between traumatised younger and older adults.

Prevalence and clinical presentation

PTSD refers to persistent psychopathological responses that may develop after exposure to potentially traumatic events. According to current diagnostic criteria (American Psychiatric Association; APA, 2013), symptom clusters include intrusive re-experiencing, avoidance, negative alterations in mood and cognitions and alterations in arousal. Earlier diagnostic criteria (APA, 2000) only included the first, second and fourth symptom clusters.

In population surveys, the twelve months' prevalence of PTSD in Europe was found to vary from 0.4 – 6.7% (Burri, & Maercker, 2014). Among refugees, one-month PTSD prevalence rates of 5 – 30% were found (Fazel et al, 2005; Steel et al., 2009). Increasing age is generally associated with milder PTSD profiles, and lower odds of psychiatric comorbidity (Böttche, Kuwert, & Knaevelsrud, 2012; Reynolds, Pietrzak, Mackenzie, Chou, & Sareen, 2016).

In accordance with the dose-response model of trauma treatment (Kaysen, Rosen, Bowman, & Resick, 2010), cumulative trauma exposure can also play a role (Kolassa et al., 2010; Ogle, Rubin & Siegler, 2014). This factor may also affect treatment duration: treatments lasting longer, but being less effective (Lonergan, 2014). The same accounts for high symptom severity (Blanchard et al, 1997). Additionally, comorbid depression symptoms may have a negative impact on treatment motivation, engagement and effectiveness of psychological treatments (Rytwinski, Scur, Feeny, & Youngstrom, 2013).

It has been suggested that older adults develop more stress resilience over the course of their lives (Thompson, Norris, & Hanacek, 1993). Older veterans reported lower PTSD symptom severity than younger ones, although they presented more physical problems (Davidson, Kudler, Saunder, & Smith, 1990). Overall, 50-60 % of PTSD patients present a comorbid depressive disorder and approximately 40% suffer from a comorbid anxiety disorder (Creamer, Burgess, & McFarlane, 2001; Rytwinski et al, (2013). Disregarding comorbid disorders, older adults with PTSD may present a milder clinical picture than younger PTSD patients (Lapp, Agbokou & Ferreri, 2007). Regarding the symptom profile, older PTSD patients were found to present elevated levels of intrusion and hyperarousal symptoms relative to avoidance (Böttche, Pietrzak, Kuwert, & Knaevelsrud, 2014; Cook & Niederehe, 2007).

PTSD in a lifespan perspective

The impact of trauma may not necessarily be related to advancing age and/or cumulative trauma exposure, but may be understood from a lifespan perspective. One of the most influential human development frameworks describes the life course in terms of a series of psychosocial tasks to be fulfilled (Erikson & Erikson, 1997). A sense of trust in oneself and others needs to be established (early childhood), followed by a sense of identity in society (adulthood), and growing towards ego-integrity (old age).

In older adulthood, age related challenges (e.g. role transition and loss, death of family members and friends, physical and cognitive changes may burden adjustment processes. Retirement is considered another important age-related challenge (Hiskey, Luckie, Davies, & Brewin, 2008). Adverse life events may exert different effects on health in later life, according to the life stage in which they occur and the extent in which trauma interferes with life-stages related tasks (Ogle, Rubin, & Siegler, 2013). For instance, first trauma exposure during childhood was found to be associated with PTSD and depression symptom severity about twice as high as when first exposure occurred in adulthood (Dunn, Nishimi, Powers, & Bradley, 2017).

The developmental timing of adverse events may as well play a role in migration. Migrating as a refugee from a low income or middle-income region to a Western high-income host country poses major adaptation challenges, such as the impact of prolonged asylum procedures, during which life is “on hold” (Laban et al., 2004). Such a critical transition in one’s life is assumed to affect or postpone the culturally expected age at life events of young adulthood like leaving home, marriage, starting to work and a family life (Berntsen & Rubin, 2004). Compared with forced migration and/or fleeing in young adulthood, those adversities in later adulthood may implicate greater losses regarding work and family life and the need to re-adapt and start all over again.

Treatment Evidence

Clinical guidelines on PTSD have focused primarily on the treatment of young and middle-aged adults and children. They recommend treating PTSD with trauma-focused Cognitive Behavioural Therapy (TFCBT), as well as Narrative Exposure Therapy (NET), or Eye Movement Desensitization and Reprocessing (EMDR) (APA, 2017; NICE, 2018). Given the complexity of the difficulties experienced by refugee patients, the feasibility of psychological treatment for this population has been an issue of ongoing debate. EMDR (Shapiro, 2001) was found to be a safe treatment approach for this population (Ter Heide, Mooren, Van de Schoot, De Jongh, & Kleber, 2016), showing equal efficacy to a non-trauma-focused comparator. Culturally adapted CBT has been developed for Asian refugees (Hinton et al., 2004; 2005), and NET for refugees and other populations from various ethnic backgrounds (Schauer, Neuner, & Elbert, 2011). NET was found to be superior to non-trauma-focused comparators (Lely, Smid, Knipscheer, Jongedijk, & Kleber, in press). In one trial, NET with older adults was investigated; the participants, however, were no refugees (Bichescu, Neuner, Schauer, & Elbert, 2007). Although NET includes both imaginal exposure and a reconstruction of autobiographical memory, so far no life-span analysis of the memory content was conducted.

Providing psychological treatment to older adults according to international guidelines is not self-evident. Under-recognition and under-reporting may lead to misdiagnoses and excessive treatment of somatic problems (Ehlers, Gene-Cos, & Perrin, 2009; Van Zelst, De Beurs, Beekman, Van Dyck, & Deeg, 2006). Moreover, many older adults are not familiar with mental health services; and this holds true even more for older refugees, who often fear stigmatisation.

The emerging treatment literature on older adults, however, has focused predominantly on late life over 65 years of age. There is little treatment evidence with respect to the stages directly preceding old age, and this also holds true for factors predicting treatment response. Moreover, it is uncertain to what extent age or age-related issues influence not only symptom profiles, but also treatment responses.

Investigating treatment response in a sample of refugees, ranging from young adults to older adulthood, presents an interesting further step in research. Moreover, predicting treatment response should preferably include age related variables reflecting a lifespan perspective.

Aims and hypotheses

In this naturalistic study, treatment response for PTSD, depression and anxiety was examined in a sample of adult refugees (18-63 years). Additionally, potential predictors of treatment response were investigated. The first aim of this study was to examine the effectiveness of trauma treatment for refugees on symptoms of PTSD, depression and anxiety. In accordance with existing treatment evidence in traumatised resettled refugees (Lely et al., in press; Ter Heide et al., 2016), modest treatment results were expected. The second aim was to examine whether advancing age is associated

with treatment response (PTSD, depression and anxiety). Consistent with results of large-scale population research (Sabey, Jensen, Major, Zinbarg, & Pinsof, 2018), no significant associations were expected. The third aim was to investigate whether treatment response is predicted by other characteristics including both clinical and lifespan aspects, such as treatment duration, the number of traumatic events, pre-treatment distress, and the number of years in the Netherlands corrected for age; trauma-related characteristics such as life stage at first traumatic experience; and finally migration-related characteristics (life stage at migration). High symptom severity was expected to restrict treatment response (Blanchard, et al., 1997). The number of traumatic events (Kolassa et al., 2010), age-corrected residency period (Laban et al., 2004), childhood trauma (Ogle et al., 2013) and migration in young and middle adulthood (Berntsen & Rubin, 2004) were expected to exert a significant impact on treatment response.

Method

Participants

A total of 141 treatment seeking refugees and asylum seekers were included in the sample. Treatment was provided in a naturalistic setting from July 2002 to May 2014. Patients included in the study received a primary assessment at admission and completed diagnostic assessments pre- and post-treatment. The likelihood of PTSD was assessed according to the cut-off value of the Harvard Trauma Questionnaire (HTQ; Mollica, 1996a) at admission by a certified therapist.

Measures

Socio-demographic information, including the patient's age at first trauma exposure, age at migration, residency period, and treatment duration, was retrieved from electronic patient files. Socio-demographic information was collected during admission. Data on symptom severity (PTSD items, comorbid depression and anxiety) were obtained in the outpatient clinic as part of Routine Outcome Monitoring (ROM) assessments. PTSD was measured using part 2a of the HTQ (Mollica et al., 1996a), scoring self-reported DSM-IV symptoms on a rating scale, from 1 (not at all) to 4 (extremely). The symptoms are pooled and averaged to obtain a total mean score. A mean item score of over 2.5 is used to indicate likelihood of PTSD. Translations into Dutch, Russian, Serbo-Croatian, Farsi and Arabic were available. Nearly all translations had a Cronbach's alpha above .80, indicating good internal consistency (Kleijn, Hovens, & Rodenburg, 2001). Comorbid anxiety and depression symptoms were measured using the Hopkins Symptoms Checklist-25 (HSCL-25; Mollica et al., 1996b). The HSCL-25 consists of two parts: one on anxiety and one on depression. Self-reported symptoms scores range from 1 (not at all) to 4 (extremely). Once again, the self-reported symptoms are pooled and averaged to yield a total

mean score. A mean item score over 1.75 indicated distress in the clinical range (Hinton et al., 2004). A Cronbach's alpha of .95 was found for the total scale and .92 for both the depression and anxiety subscales (Jakobsen, Thoresen & Johansen 2011). An internal consistency of Cronbach's alpha = .94 was found for non-western immigrants (Tinghög & Carstensen, 2009).

Procedures

All patients in Centrum '45 signed an informed consent, agreeing that their data were used for research. As part of the standard admission procedure, participants were asked to fill out the HTQ and the HSCL-25. Assessments were conducted in Dutch or English or were translated by a qualified interpreter over the telephone. The participants were surveyed at admission (pre-treatment) and post-treatment. After admission, the treatment considered most suitable was proposed to the patient.

Since the research site is specialised in treatment of refugees with PTSD and complex mental disorders, all therapists are trained and qualified in the treatment of multiple trauma, including childhood trauma, which may have occurred during war and flight. All therapists are familiar with several forms of trauma-focused and stabilising treatment approaches. The naturalistic procedure implies a non-randomised design.

Statistical analyses

Except age, life stage, gender, number of traumas, traumas per type, and region of origin, three pre-treatment characteristics were included, that were regarded to be influenced by developmental timing: age at the first occurrence of trauma, age at migration and the period of residency in the Netherlands. All variables were analysed with SPSS version 23 for Windows (IBM Corp.). Internal consistency was calculated for all outcomes. *T*-tests were conducted to test demographical and clinical differences between participants with or without missing values. Restricting the data to complete assessments (pre- and post-treatment) implied that dropouts were missing, resulting in a completers' analysis.

First, to rule out differences in pre-treatment severity between treatment modalities or regions of origin, one-way Analyses of Variance or ANOVAs (pre-treatment severity on PTSD, depression and anxiety by treatment modality and region of origin) were conducted. Next, mean pre- to post-treatment symptom change was tested on significance for HTQ, HSCL depression and anxiety subscales by conducting a repeated measurements ANOVA. Furthermore, mixed design ANOVAs were conducted to investigate whether significant differences in pre- to post symptom change would be found between the treatment modalities, and to report treatment effects.

To describe individual change regarding PTSD, anxiety, and depression, change between the start (T1) and end (T2) of treatment was categorised into recovered, improved, unchanged,

deteriorated and relapsed. This categorization of treatment outcome was based on criteria of clinically significant change and the Reliable Change Index (RCI). Clinically significant change was defined as a shift from a clinical level of symptoms to a subclinical level of symptoms, following the cut-off scores of the HTQ and HSCL-25. The RCI was used to establish whether the difference between two test scores obtained at two measurement occasions reflects statistically reliable change and was calculated conform the method described by Jacobson and Truax (1991). RCI values larger than 1.96 (or smaller than -1.96) indicate that there is a statistically reliable difference between two test scores, i.e. with 95% certainty the difference between the test scores is due to actual change (improvement or deterioration) rather than measurement error. Recovery can be defined by co-occurring clinically significant change and a statistically reliable improvement (based on RCI). Relapse implies the same in the opposite direction. Improvement and deterioration can be defined by a statistically reliable improvement or deterioration (based on RCI), without clinically significant change. Unchanged symptom severity can be defined by the absence of a statistically reliable change (based on RCI). *T*-tests were performed to explore the relationship between recovery or relapse and pre-treatment and clinical variables. For all analyses, the alpha level was set at $p = .05$ (two-tailed).

Finally, the influence of the predictor variables on PTSD, depression and anxiety treatment response was investigated by hierarchical multiple regression analyses (HMRA). The symptom changes from T1 to T2 were calculated as difference scores from pre-treatment severity to post-treatment severity on HTQ, HSCL depression and HSCL anxiety. These difference scores were used as dependent variables in the HMRA. HMRA was used to regress the difference scores regarding PTSD, anxiety, and depression on four groups of predictor variables: clinical and-pre-treatment variables, life stage at the occurrence of first trauma, and life stage at migration.

The variables for use in the HMRA were entered subsequently into the regression model. Since pre-treatment PTSD, depression and anxiety symptoms were highly correlated, they were summarised into a single score for psycho-trauma related distress. For all participants, a latent factor score for psycho-trauma related distress was estimated in MPlus Version 8 (Muthen & Muthen, 1998-2017). The latent factor score was saved and subsequently used as pre-treatment severity of trauma related distress. To rule out the confounding of age and residency period, the latter variable was corrected for the impact of age by regressing residency period on age and saving the residual score, which was subsequently used in the HMRA. Finally, to include the influence of life stages instead of continuous age, the trauma and migration related characteristics were entered as dummy variables, each time with young adulthood (19 through 34 years) as referent variable.

In the first step, treatment duration (mean, SD) was entered in the regression model as a covariate to rule out the potential influence of treatment duration (being highly variable) on the outcomes. Step 2 included pre-treatment characteristics: number of traumatic events (mean, SD),

trauma related distress (mean, SD), and age-corrected residency period (mean, SD); In step 3, trauma related characteristics were entered as three dummy variables: the first trauma occurring before age 12, between 13 through 18 years and from 35 years onward; Finally, step 4 involved migration characteristics as two dummy variables: migration taking place from 13 through 18 years and from 35 years onward. The sequence of the variables in the different steps was based on expected strength of associations. Since the referent group of the dummy variables was set on 18-34 years, all results are relative to this referent variable. The change in the explained variance (R^2) by every group of variables was presented as ΔR^2 .

Results

Preliminary analysis

Internal consistency for all scales was found to be excellent, with a Cronbach's $\alpha = .89$ for the HTQ, Cronbach's $\alpha = .90$ for the HSCL depression scale and Cronbach's $\alpha = .88$ for the HSCL anxiety scale. Due to missing post-treatment assessments, the Δ depression and Δ anxiety scales included 90 cases. Participants with missing values deviated from the total sample with respect to a longer treatment duration, $t(78.70) = 2.19$, $p = .031$ (two-tailed), but not regarding age and pre-treatment PTSD, depression, anxiety and trauma related distress.

Descriptive Statistics

Table 1 presents an overview of means and standard deviations for the demographic characteristics. Regarding clinical features, treatment duration ranged from .50 to 7.6 years ($M = 2.28$; $SD = 1.37$).

Table 1.

Socio-demographic and Clinical Characteristics at Baseline.

<i>Sample Characteristics</i>		<i>Total Sample N = 141</i>
<i>Socio-demographic Characteristics</i>		
Age, years	Range M (SD)	17.82-63.54 43.27 (9.5)
Life stage		
18-34 years	n (%)	29 (20.6)
35-54 years	n (%)	95 (67.3)
55-64 years	n (%)	17 (12.1)
Gender		
Male	n (%)	93 (66)
Female	n (%)	48 (34)
Number of experienced traumas	M (SD)	10.90 (4.81)
Traumas per type		
Abuse	M (SD)	3.86 (2.3)

Loss	M (SD)	1.90 (1.1)
Deprivation	M (SD)	1.69 (1.2)
Separation	M (SD)	1.43 (.8)
Origin		
Middle-East	n (%)	78 (55.3)
Balkan Europe	n (%)	38 (27.0)
Other	n (%)	25 (17.7)
Age at first trauma	M (SD)	21.88 (10.98)
Age at migration	Range	14 - 58
	M (SD)	30.45 (8.4)
Years in the Netherlands	Range	1 - 37
	M (SD)	12.83 (6.54)
<i>Clinical Characteristics</i>		
Pre-treatment symptom severity		
HTQ symptom severity	M (SD)	3.11 (.43)
HTQ Re-experiences	M (SD)	3.27 (.63)
HTQ Avoidance	M (SD)	2.90 (.55)
HTQ Hyper-arousal	M (SD)	3.28 (.50)
Depression severity	M (SD)	2.86 (.54)
Anxiety severity	M (SD)	2.99 (.57)
Treatment Modality		
Trauma treatment for refugees*	n (%)	95 (67.3)
EMDR*	n (%)	23 (16.3)
NET*	n (%)	23 (16.3)

Note. Trauma treatment for refugees: mixed approaches; EMDR: Individual Eye Movement Desensitisation and Reprocessing; NET: Individual Narrative Exposure Therapy.

Based on the reported HTQ severity, 126 participants presented full and fifteen (10.6%) subthreshold PTSD. Pre-treatment age ranged from 17 through 63 years ($M = 43.27$; $SD = 9.5$). Most participants originated from the Middle East (55%) and Balkan Europe (27%). All participants experienced multiple traumatic exposure. The highest proportion (35%) reported to have survived human rights abuse, such as kidnapping, imprisonment, serious injury, torture or threats of torture, having to assist at torture, and finally threats of execution. First trauma exposure was reported to have occurred at a mean age of nearly 22 years; the mean age at migration was 30 years, and the length of residency in the Netherlands was nearly 13 years. Regarding clinical characteristics, mean pre-treatment scores of PTSD, depression and anxiety were above the thresholds of clinical distress. Since the heterogeneity of the majority of treatments does not allow for conclusions about the type of therapy in this group, this majority is indicated as ‘trauma therapy for refugees’. One-way ANOVAs did not show any significant differences between treatment modalities and regions of origin for mean pre-treatment scores of PTSD, depression and anxiety.

Treatment Change

With respect to Δ PTSD, a repeated measures ANOVA revealed a statistically significant symptom decrease from T1 ($M = 3.11$; $SD = .43$) to T2 ($M = 2.70$; $SD = .59$); $F(1,140) = 51.22$, $p < .001$; $\eta^2 = .27$,

being a large effect (Cohen, 1992). The participants reporting a PTSD symptoms relapse presented lower pre-treatment PTSD severity, $t(139) = 4.88, p < .001$, lower pre-treatment depression severity, $t(6.64) = 6.58, p < .001$, lower pre-treatment anxiety symptoms, $t(122) = 2.73, p < .001$, lower pre-treatment trauma-related distress $t(139) = .4.81, p < .001$, and finally a longer treatment duration, $t(139) = -2.97, p = .004$.

With respect to Δ Depression, a repeated measures ANOVA revealed a statistically significant symptom decrease from T1 ($M = 2.88; SD = .53$) to T2 ($M = 2.67; SD = .61$), $F(1,89) = 9.47, p = .003; \eta^2 = .10$, being a medium effect (Cohen, 1992). The participants reporting a depression symptoms relapse were significantly longer in treatment, $t(95.85) = -2.44, p = .016$.

With respect to Δ Anxiety, a repeated measures ANOVA revealed a statistically significant symptom decrease from T1 ($M = 2.99; SD = .55$) to T2 ($M = 2.70; SD = .70$), $F(1,89) = 16.33, p < .001; \eta^2 = .16$, being a medium effect (Cohen, 1992). The participants reporting an anxiety symptoms relapse presented significantly lower pre-treatment anxiety severity, $t(75.47) = 2.18, p = .033$, and were longer in treatment, $t(101.74) = -2.24, p = .027$.

In mixed design ANOVAs for treatment response (PTSD, depression and anxiety) by treatment modality, no influences on treatment change for all measures were found.

Table 2 shows that 45 (31.9%) of the patients reported recovery or improvement between T1 and T2 according to the HTQ, as indicated by reliable changes. No change was reported by 91 (64.5%) patients, and 5 (3.5) patients reported a relapse. In addition to the individual change for PTSD (recovery, improvement, unchanged, deterioration or relapse rates), in Table 2, individual change for the other outcomes is presented.

Table 2.

Individual change in Δ PTSD, Δ Depression and Δ Anxiety in categories of recovered, improved, unchanged, deteriorated and relapsed.

		Δ PTSD	Δ Depression	Δ Anxiety
	n	141	90	90
Recovered	n (%)	15 (10.6)	6 (6.7)	8 (8.9)
Improved	n (%)	30 (21.3)	21 (23.3)	28 (31.1)
Unchanged	n (%)	91 (64.5)	62 (68.9)	43 (47.8)
Deteriorated	n (%)	0 (0)	0 (0)	10 (11.1)
Relapsed	n (%)	5 (3.5)	1 (1.1)	1 (1.1)

Note: Δ = change; recovered = improvement and clinically significant change; improved = reliable symptom decrease; unchanged = no reliable symptom change; deteriorated = reliable symptom increase; relapse = deterioration and clinically significant change.

Associations between dependent variables and predictor variables

Before investigating the influence of potential predictor variables on the outcomes, the associations between the dependent variables and potential predictor variables were explored. Strong positive associations were found between pre-treatment PTSD, depression and anxiety variables, between the three dependent variables representing pre- to post-treatment differences (Δ PTSD, Δ depression, and Δ anxiety), and between these two sets of variables. These associations indicate that higher levels of each of pre-treatment PTSD, depression and anxiety are associated with higher levels of one another and with higher levels of the dependent outcomes. Positive associations were found between trauma related distress and the three dependent variables, age-corrected residency period, and pre-treatment PTSD and pre-treatment anxiety, indicating that higher levels of trauma related distress are associated with higher levels of the three dependent variables, age-corrected residency period, pre-treatment PTSD and anxiety. Age-corrected residency period and treatment duration were found to be negatively associated, indicating that longer treatment is associated with a smaller residency period. Finally, advancing age was correlated with pre-treatment depression, indicating that higher age is associated with higher severity of depression, but not PTSD or anxiety. Advancing age was found to be not significantly correlated with any treatment outcome. Based on those correlations, age was not included in the HMRA. The results are presented in Table 3.

Table 3.

Bivariate Correlations Between Dependent Variables and Continuous Predictor Variables.

	1	2	3	4	5	6	7	8	9	10	11
Δ HTQ	1										
Δ Depression	2	.73**	1								
Δ nxiety	3	.69**	.65**	1							
Treatment Duration in Years	4	.032	-.146	-.097	1						
Number of Traumatic Events	5	-.13	-.20	-.19	-.014	1					
Age in Years	6	-.02	.01	-.07	-.04	.13	1				
Residency period corrected for Age	7	.12	.046	.10	-.17*	.06	.51	1			
Pre-treatment Distress	8	.35**	.23*	.23*	.05	.08	.13	.22**	1		
Pre-treatment PTSD Severity	9	.36**	.22*	.21*	.06	.07	.13	.22**	.10**	1	

Pre-treatment Depression Severity	10	.12	.47**	.20	-.01	.03	.21*	.09*	.69**	.65**	1	
Pre-treatment Anxiety Severity	11	.15	.08	.38**	.06	.16	.09	.17	.70**	.66**	.46**	1

Note: * = significance < .05; ** = significance < .01.

Hierarchical MRA

The results of the hierarchical HMRA are presented in Table 4. Hierarchical regression analysis was used to test whether the predictor variables contributed to variability in Δ PTSD, Δ depression, and Δ anxiety. First, the dependent variables were adjusted for treatment duration by adding this variable in step 1. The pre-treatment characteristics were added to the models in step 2, and the trauma related characteristics were added in step 3. Finally, the migration related characteristics were added in step 4. Each subsequent step contributed to the explained variance. The results showed that distress predicted all treatment response outcomes (corrected for treatment duration). The influence of the number of traumatic events reached significance in the subsequent steps of the model, increasing the relative attribution of the variance of Δ PTSD. Each time, treatment response was larger, when traumatic events were fewer. With respect to the trauma related characteristics, the regression analysis showed that PTSD treatment response was larger, when the first trauma occurred during childhood, compared with young adulthood. Secondly, the regression analysis showed that treatment response for depression and anxiety symptoms was larger in case of higher pre-treatment distress. The final model explained 18.90% of the variance of PTSD treatment response, 15.50 % of the variance of depression treatment response and 14.50 % of the variance of anxiety treatment response.

Table 4.

Regression Analyses relating Treatment Characteristics, Pre-treatment Characteristics, Trauma Related Characteristics, and Migration Related Characteristics to Treatment Outcomes (Δ PTSD, Δ Depression, and Δ Anxiety).

Outcome	Step	Variable	ΔR^2	R^2	df 1	df 2	B	SE	β
Δ PTSD	Step 1	Treatment Characteristics	.001	.001	1	133			
		Treatment Duration					.017	.041	.035
	Step 2	Pre-treatment Characteristics	.151**	.153	3	130			
		Number of Traumatic Events					-.020*	.011	-.155
		Pre-treatment distress					.588**	.140	.347
	Step 3	Age-corrected Residency Period					.009	.010	.075
		Trauma Related Characteristics	.033	.186	3	127			
		First trauma (≤ 12 years)					.303*	.141	.185
		First trauma (13-18 years)					.173	.144	.102
	Step 4	First trauma (≥ 35 years)					.162	.168	.082
		Migration Related Characteristics	.003	.189	2	125			

		Age at Migration (13-18 years)				.164	.239	.059
		Age at Migration (≥ 35 years)				.046	.152	.033
Δ Depression								
Step 1	Treatment Characteristics	.022	.022	1	85			
	Treatment Duration					-.082	.60	-.147
Step 2	Pre-treatment Characteristics	.096*	.118	3	82			
	Number of Traumatic Events					-.026	.014	-.195
	Pre-treatment distress					.452*	.187	.254
	Age-corrected Residency Period					-.003	.012	-.030
Step 3	Trauma Related Characteristics	.033	.151	3	79			
	First trauma (≤ 12 years)					.253	.192	.144
	First trauma (13-18 years)					.237	.183	.143
	First trauma (≥ 35 years)					-.020	.200	-.011
Step 4	Migration Related Characteristics	.003	.155	2	77			
	Age at Migration (13-18 years)					.161	.295	.063
	Age at Migration (≥ 35 years)					-.005	.185	-.004
Δ Anxiety								
Step 1	Treatment Characteristics	.010	.010	1	85			
	Treatment Duration					-.058	.064	-.0987
Step 2	Pre-treatment Characteristics	.100*	.110	3	82			
	Number of Traumatic Events					-.028	.015	-.197
	Pre-treatment distress					.401*	.200	.212
	Age-corrected Residency Period					.013	.013	.105
Step 3	Trauma Related Characteristics	.012	.121	3	79			
	First trauma ≤ 12 years					.020	.207	.011
	First trauma (13-18 years)					.080	.198	.045
	First trauma (≥ 35 years)					-.174	.216	-.091
Step 4	Migration Related Characteristics	.023	.145	2	77			
	Age at Migration (13-18 years)					-.297	.315	-.110
	Age at Migration (≥ 35 years)					-.240	.198	-.168

Note. R^2 = explained variance; ΔR^2 = change in explained variance; df = degrees of freedom; B = intercept; SE = standard error; β = regression coefficient. * = significant at .05 level; ** = significant at .01 level.

Discussion

Main findings

In this study, trauma treatment for refugees showed significant reductions of self-reported PTSD symptoms, depression symptoms and anxiety symptoms. Advancing age was not significantly associated with treatment outcome: older and younger refugees benefitted equally from treatment. Pre-treatment distress, childhood trauma and the numbers of traumatic events predicted treatment response for PTSD; for comorbid depression and anxiety, treatment response was exclusively predicted by trauma related distress. The described predictors explained less than 20% of the

variability of treatment response, implying that additional factors, such as external stressors or rather non-specific treatment factors may play a role in understanding treatment response.

Treatment response

The analysis of individual change for PTSD showed that 32% of the participants improved. Since reliable change was used instead of a clinically meaningful change, the resulting percentages are lower than earlier results using the clinically meaningful change (Ter Heide et al., 2016).

Predictors

As expected, the correlations between advancing age and treatment response were non-significant. This finding is consistent with the conclusions from a recent study including 2578 adults aged from 18 to 80 years (Sabey et al., 2018). It might be explained as well by the age range of the current sample, excluding true old age. In this sample, no age-related influences on treatment response were found.

Unexpectedly, treatment duration did not add significantly to the explained variance regarding any of the outcomes. Neither did age corrected residency period, occurrence of first trauma in other life stages than childhood, and any of the migration variables. As for treatment duration, this result is consistent with meta-analytic findings regarding NET trials (Lely et al., in press). For PTSD, treatment response was significantly influenced by the number of traumatic events. A higher number of traumatic events was associated with lower treatment response, confirming the dose-response relationship of traumatic load and less effective treatments (Kolassa et al., 2010, Lonergan, 2014).

A different perspective was offered by childhood trauma and trauma related distress. PTSD treatment response was found to be higher if the first trauma occurred before age 12, compared to young adulthood (19-34 years). Higher trauma related distress was also associated with higher treatment response. Based on the findings of Ogle et al (2013) and Blanchard et al. (1997), significant associations in the opposite direction were expected. This difference may be explained by the differences in population (General populations versus resettled refugees) and sample sizes ([1995; 2892] versus 141). Given the average number of adverse events in the participants of the present study, it could be argued that childhood trauma among refugees presents only part of their problems, leading to different prediction outcomes.

The findings of the predictor analysis may be explained by assuming that high distress, either related with childhood trauma or with trauma in general, may strengthen treatment engagement. Remarkably, depression and anxiety treatment responses were exclusively predicted by trauma related distress, showing the same direction of association. The difference between the multiple predictors of Δ PTSD, and the single predictor of Δ depression and Δ anxiety may be explained by assuming that comorbid depression and anxiety partly have other sources than trauma.

The selected predictor variables explained nearly 20 % of the variance. This result may be explained by the highly burdened population and heterogeneous treatment formats. Refugees and asylum seekers, having experienced multiple traumatic exposure, can be characterised as dealing with complex problems (Gerger, et al., 2014). This study shows, that trauma treatment for refugees can yield encouraging results for vulnerable patients.

Strengths and Limitations

In this study, treatment response for PTSD and comorbid depression and anxiety symptoms were examined in a sample of aging refugees. The clinical relevance of the results was increased by including a heterogeneous sample and by providing treatment in a naturalistic setting. Several predictor variables, among them dummy variables reflecting developmental timing of adverse events, were included to consider the potential influence of distinct life stages.

The study's limitations should be acknowledged as well. Data were not randomly drawn and were susceptible to confounding factors. The risk of confounding bias due to varying therapists' qualifications could not be ruled out. No follow-up data were available, restricting the treatment response to pre- to post-treatment outcomes. The absence of drop-outs may have flattered the treatment response. Finally, this population cannot be considered fully representative for an elderly population.

Implications for clinical practice and future research

High trauma related distress may enhance treatment motivation, which is supported by offering adequate holding, recognition and corrective experiences. Although a small proportion of patients showed a symptom relapse, those participants did not drop out of treatment. To be able to assess individual harms of the provided treatment, drop-out rates would be needed.

Since the predictors explained nearly 20% of the variance, non-specific treatment factors, such as treatment motivation or the quality of a therapeutic relationship, may play an important role in this population with complex problems. In combination with careful assessments, these essential factors may optimize treatment response. Especially the assessment of childhood trauma is of high clinical importance. Since psycho-trauma assessment typically is focused on worst events (Kessler et al., 2017), more subtle instances of neglect or domestic violence experienced in childhood easily remain unnoticed and unreported. Routinely assessing adverse childhood experiences at admission, using the Adverse Childhood Experiences International Questionnaire; ACE-IQ (retrieved from [www.who/Programmes/Violence and Injury Prevention](http://www.who/Programmes/Violence%20and%20Injury%20Prevention)), may support patients in better understanding their current health problems, including comorbid depressive disorders. Including developmental timing of traumatic events and cultural expectations in psycho-education and

individual communications may support patient's self-understanding. The significant correlation between longer treatment duration and relapse may advise against extending treatment duration without clear aims. If assessments are conducted frequently and are used to discuss treatment progression, therapists can detect when and at which rate improvement occurs, enabling them to guide treatment processes more effectively. The restricted generalisability of the current study highlights the need for further investigation of treatment approaches for the group of aging PTSD patients, including older cohorts as well.

Conclusion

Whereas traumatic load burdens treatment response for PTSD, age does not pose restrictions and finally, childhood trauma and trauma related distress do not interfere with encouraging treatment response for refugees with PTSD, comorbid depression and anxiety.

Chapter 7

General discussion

Clinical vignette, part 2

“Looking back at my therapy, I can say it really helped to talk about what had happened to me. I could tell the therapist everything. Not all my problems were solved, but an important part of my nightmares has disappeared. I should have done this much sooner. Therapy was not easy, far from. The nights after a session, I slept worse. But afterwards, it was as if I had put a step forward. The relationship with my wife also improved. When I sleep better, so does she, so together we manage better during the day. Furthermore, during therapy we discovered important moments of support..., that she really was there for me. I am grateful for that. I also discovered that I don’t have to be ashamed about what had happened to me. Under the circumstances, there and then, nobody could reasonably have expected me to change things as they were. I also realise now that there is strength and endurance in me. The document drawn up at the end of the therapy will help me to open up to our children, so they can understand me better. Maybe we can have a better time together in the years ahead.”

Paired with the vignette in chapter 1, this story illustrates some of the findings and discussion topics in this thesis. The present thesis aims at expanding and strengthening the evidence about psychological treatments for older adults suffering from trauma-related disorders, more specifically, post-traumatic stress disorder (PTSD), depression and anxiety disorders.

Main findings

The main findings of the chapters in this thesis are listed below.

- Across 16 randomised controlled trials, narrative exposure therapy (NET) is found to be an effective short-term psychotherapy for PTSD and depression with medium to large and long-term treatment effects. Furthermore, NET is found to perform better than control conditions. The more active, however, the control conditions, the smaller the differences. NET results for older adults were highly encouraging.
- Processing adverse events in older adults during NET treatment implies a gradual shifting of emotions and cognitions. A cognitive and developmental framework appears to clarify how older adults deal with past trauma and its consequences.
- At follow-up, NET and present-centered therapy (PCT) show equal effects in terms of clinician-rated PTSD symptoms. Directly after treatment, however, a medium between-treatments effect size for PTSD is found, in favour of PCT, implying different response patterns for both interventions.
- In terms of depression symptoms, NET and PCT show equal effects as well. Here, response patterns were similar. In terms of self-efficacy and physical health, PCT performed notably better than NET, both post-treatment and at follow-up.

- In a sample of adult refugees, advancing age did not predict treatment response in any of the outcomes, in contrast to pre-treatment trauma-related distress. Childhood trauma and the number of traumatic events predicted treatment response for PTSD. Contrary to expectations, childhood trauma did not have a negative impact on treatment response.

Strengths and limitations

To reflect the impact of PTSD symptoms, this thesis is characterised by a broad perspective on the subject of treating trauma-related disorders in later life. Consequently, PTSD, comorbid depression and several measures of psychosocial adjustment were included in the analyses. A second strength is the multimethod approach of this thesis. In the studies, advanced and variable methods of analysis were used. A third strength of this thesis is the controlled comparison of treatment response in two innovative psychotherapeutic interventions for PTSD in a sample of older adults; in this way, two response patterns could be compared. The interventions had contrasting treatment approaches: imaginal exposure (focusing on the past) versus a focus on problem-solving of current stressors or maladaptive interactions. The difference between the response patterns may provide a useful tool for clinicians to discuss treatment preferences with their senior patients. The equal efficacy at follow-up might be an important attribution to ongoing discussions concerning the necessity of exposure in trauma treatment (Dinnen, Simiola & Cook, 2015). The clinical meaningfulness of the results was increased by the inclusion of a heterogeneous sample of civilians, including both native Dutch citizens and refugees. In addition, the patients were allowed to schedule sessions in accordance with their preferences and possibilities. Advanced statistical analyses addressed the resulting variability of inter-assessment intervals. Methodological rigour was emphasised by randomisation, protocol adherence, evaluating treatment adherence and interrater reliability, and the use of independent assessors.

Some limitations merit attention as well. By selecting a different age limit from 65, treatment results cannot be generalised to old age as defined by the limit of 65 years. By using the 55 years limit, however, clinically important transitions could be captured and enough participants could be recruited to reach a sufficiently powered sample. Nevertheless, the sample in the RCT was not large. In addition, fearing drop out and concurrent influences in the follow-up interval, a short follow-up interval was designed. In future research, a longer follow-up interval is advisable.

Treating trauma-related disorders in later life: issues and controversies

Does age matter? Since no robust evidence in this field is yet available, studying psychological treatment for trauma-related disorders in later life is highly relevant. In this thesis the older adults among those needing trauma treatment take centre stage. Because of the described heterogeneity and etiological complexity of mental health in old age (Kessler, Kruse, & Wahl, 2014), a broad range of

measures and a multimethod approach were selected. With regard to late adulthood and so-called young-old age, several questions were addressed. To begin with: would aging adults be able to change long-standing post-traumatic feelings and cognitions during treatment? In a sub-sample of NET-participants gradually shifting cognitions were found, mirroring a growing self-esteem and self-awareness. A second question was whether advancing age would matter in limiting treatment response. Meta-analytic findings in chapter 2 did not support this hypothesis. Furthermore, in a sample of resettled refugees, no correlation was found between treatment response and advancing age. This finding is consistent with the conclusions from a recent study including 2578 adults – aged from 18 to 80 years (Sabey, Jensen, Major, Zinberg, & Pinosof, 2018). In that sample, the single factor limiting treatment response in all outcomes was found to be the number of traumatic events, supporting the dose-response model of trauma treatment (Kolassa et al., 2010; Lonergan, 2014).

Summarising, advancing age does not matter in terms of treatment response. In terms of etiological complexity and of biographical and historical context, however, age is highly influential. This complexity and context require a sensitivity and detailed curiosity from therapists; on the other hand, they allow for fascinating and rewarding therapy experiences. In chapter 3, using a lifespan perspective clarified how older adults deal with past trauma and its consequences.

As observed already, the participants' age range does not permit generalising the results of this thesis to older cohorts. Instead of considering this conclusion to be a limitation, it is equally possible to see a window of opportunity. From a lifespan perspective, patients, after having experienced a reactivation or worsening of PTSD symptoms, might be highly motivated for treatment and able to complete therapy. The reported results match this very life stage: young-old age. Just as PTSD is considered a hidden variable the lives of older adults (Nichols & Czirr, 1986), resilience might be a hidden factor in treatment and recovery.

Past or Present? Like all exposure-based treatments, NET addresses the way patients cognitively cope with past events. The treatment strategies of NET have been described as re-organising memories and restoring narrative continuity and coherence (Schauer, Neuner, & Elbert, 2011). In the RCT, present-centered therapy (PCT) served as comparator. PCT focuses on coping with concurrent stressors, maladaptive interaction patterns and learning solution focused techniques (Frost, Laska, & Wampold, 2014). In addition to this contrast, there are similarities as well. Both 'dealing with the past' and 'coping with present stressors' refer to current processes, such as cognitive and emotional coping with either distressing symptoms and meanings or maladaptive behaviour. The qualitative analysis offered in-depth understanding of treatment change. In contrast to authors describing the results of imaginal exposure as extinction learning, resulting in habituation (Foa & Kozak, 1986), patient reported outcomes (PRO) suggested a gradual shift in cognitions and feelings, expanding

the patients' experiential repertory. If imaginal exposure changes biased cognitions and memories, this change does not imply replacing, but rather shifting or broadening cognitions and feelings.

Since treatment changes in NET and PCT are found to be more similar than assumed, their direct comparison calls for close attention. The results of the RCT show that both approaches are safe and effective. Unexpectedly, at follow-up, NET and PCT show equal efficacy. Apparently, in this population dealing with the past and coping with the present show similar effects. Remarkably, change in terms of PTSD symptoms took place at a different pace per intervention. For NET, from pre-treatment to follow-up, a gradual symptom decline was observed. For PCT, a steeper decline was observed during treatment, resulting in a significant superiority at post-treatment. This difference can be understood as an effect of the taxing exposure in NET. In contrast to the response pattern of PCT, symptom decline in NET continued after treatment. This difference might be related to different learning strategies in both interventions. It could be suggested that increased coherence and habituation are more internalising processes than problem solving techniques, leading to more sustainable treatment results. The continuous decline in NET tantalisingly suggests a further decline beyond the follow-up interval and calls for a replication of the comparison with a longer follow-up interval. If both response patterns would be continued (NET continuing to decline and PCT continuing its suggested relapse), the between-treatments difference would become enlarged.

Extending the comparison to psychosocial adjustment, the treatment results of PCT were found to be superior to those of NET. This finding can be understood by the consistent approach of PCT: patients learn to understand the relatedness of symptoms to trauma and learn to apply coping strategies in daily life. More than being just supporting and avoiding trauma, this focus reflects a stance on acceptance and commitment without, however, abstract theoretical elaborations, such as in acceptance and commitment therapy or ACT (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). In PCT, similarly as in NET, patient and therapist actively cooperate in fulfilling therapeutic tasks. By focusing on daily life, patients regain (part of) their autonomy and initiative, mirrored in improved psychosocial adjustment.

The findings in this thesis have clinical and research implications. Clinically, the importance of patient preferences for this population are illustrated. Following patient preferences can enhance treatment motivation. Regarding treatment outcome, in patients with chronic PTSD and comorbid depression, treatment matching was found to improve treatment response (Markowitz et al., 2015). Regarding further research, the findings of this RCT call for replication in a larger sample, including older age groups, and a longer follow-up interval.

Pathology and adjustment. The RCT included comparisons of PTSD, depression and psychosocial adjustment outcomes. Matching the results on PTSD, both interventions were equally effective in terms of depression symptoms. Since symptom decline for depression in both treatment

groups was similar, it can be inferred, that exposure did not affect depression symptoms as much as PTSD symptoms. With regard to psychosocial adjustment, treatment results of PCT illustrated the effect of addressing concurrent stressors in treatment. Furthermore, the encouraging results on psychosocial adjustment may add nuance to the current centrality of PTSD symptoms (Mooren & Kleber, 2013). These findings may inspire further research on psychosocial adjustment. Consistent with Summerfield's observations (Summerfield, 2001), suffering and recovering from psycho-trauma are not limited to symptoms as described in PTSD. Consequently, symptoms in trauma populations are heterogeneous and interventions must be tailored to patient needs (Cloitre, 2015).

Trauma treatment for adult resettled refugees resulted in significant mean reductions of PTSD, depression and anxiety symptoms, with a higher treatment response for PTSD symptoms than for depression and anxiety. The difference between the statistically significant individual change (reliable change index) in this study and the clinically significant individual change in the RCT can be explained by using the more conservative reliable change index in the naturalistic study. Intriguing findings involve the positive impact of childhood trauma and pre-treatment distress on treatment response for PTSD. Potential explanations may be found in a high treatment motivation in patients with highly complex needs and high pre-treatment symptom severity. Although progressively severe symptoms might result in patients being overwhelmed (over-engagement), relatively low severity levels may reflect a state of under-engagement that does not facilitate optimal habituation and symptom reduction (Rauch & Foa, 2006). As for further research, replication of research on the influence of pre-treatment severity in veterans with PTSD (Haagen, Smid, Knipscheer, & Kleber (2015), in a sample of refugees, might add to the evidence. In clinical practice, the findings regarding treatment engagement may justify a preference for direct exposure treatment over phase-based treatment. By directly targeting traumatic memories, symptom severity may initially facilitate optimal engagement; after an introductory treatment phase, symptom severity might drop below the optimal engagement level. As for childhood trauma, the findings are in contrast to earlier research (Dunn, Nishimi, Powers, & Bradley, 2017; Ogle, Rubin, & Siegler, 2013). This disparity may be explained by differences in population (general populations versus resettled refugees) and sample sizes ([1995; 2892] versus 141). Given the high average number of adverse events in the present study's participants, it could be argued that childhood trauma among refugees presents only part of their problems, leading to different findings.

Lessons learnt. In addition to the described issues, several observations merit attention. Older adults suffering from PTSD often report serious impairments. This thesis shows that aging patients who gain access to treatment can achieve a clinically significant treatment response. As for NET, the qualitative analysis showed that psychotherapy with older adults has the potential to release the

energy previously consumed by dealing with psycho-trauma, just as with refugees (Ter Heide, Mooren, Van de Schoot, De Jongh & Kleber, 2016). During and after therapy, renewed growth is found to be within reach for older adults, just as for younger patients. This renewed growth can be a sign of returning resilience, which, in older adults, might be described as ‘delayed’ or ‘later’ resilience in contrast to the comparable phenomenon in adolescents (Sleijpen, Mooren, Kleber, & Boeijs, 2017). For therapists, this metaphor of renewed growth provides a beautiful description of their work: creating optimal conditions for people to regain their strength and vitality.

Another observation refers to the remaining life time following treatment. Matching the participants’ age range in this thesis, their perceived future generally did not suggest a limited life time. Rapidly expanding life expectancies imply that improved quality of life after treatment offers a perspective on potentially many more years of a satisfactory quality of life. This awareness may offset negative cognitions concerning the benefits of treatment in later life. Similarly, this awareness may mitigate feelings of regret about too many years spent coping with painful symptoms and memories. As mentioned in the clinical vignette, part 2, a new understanding between parents and children or grandchildren may develop after treatment, potentially correcting an earlier intergenerational transmission of maladaptive interaction patterns. (Danieli, Norris, & Engdahl, 2016). In clinical practice, however, the reported examples of childhood trauma call for caution. When considering to share one’s story with relatives, careful preparation may be needed. Self-disclosure might trigger a range of responses, from sympathy and understanding to unexpected and disturbing perspectives on family members, or potential loyalty conflicts.

Treating trauma-related disorders in later life: moving forward

Psychological treatment for older adults has been characterised by three barriers: low recognition of PTSD in primary care (Ehlers, Gene-Cos, & Perrin, 2009; Van Zelst et al., 2006), reluctance of older adults to use the services of mental health professionals to deal with their problems (Laidlaw, Thompson, Dick-Siskin, & Gallagher-Thompson, 2003) and a limited body of evidence concerning trauma-focused treatment for older adults (Bichescu, Neuner, Schauer, & Elbert, 2007; Böttche, Kuwert, & Knaevelsrud, 2012; Dinnen et al., 2015; Thorp, Wells, & Cook, 2017). The first barrier presents a challenge for primary care providers; the second may be addressed by developing health education in the field of public (mental) health. Without addressing these barriers, older adults with PTSD will not gain access to treatment. By showing the potential of psychotherapy with older adult PTSD patients in achieving clinically meaningful results (both with NET and PCT) and improving psychosocial adjustment (PCT), the research in this thesis addressed the third barrier. When providing trauma-related treatment to older adults, clinical practice can benefit from the findings in this thesis, in terms of assessment, treatment matching and modular and sequential treatment possibilities.

Previously, age-specific modifications for standard treatments were proposed, such as increasing the structure of treatment, utilising memory aids and simplifying materials. (Thorp, Glassman, & Wells, 2015). These modifications, however, mainly refer to the way in which treatment is presented and its environmental conditions.

In terms of content, the present research does not call for adapting current treatment protocols. Full information and careful psycho-education have been found to sufficiently prepare participants for their treatments. As for treatment duration, extension was not found to be justified. In treatment modules of 11 sessions, at least half of the participants achieved clinically meaningful treatment changes, both for PTSD as for depression symptoms. Moreover, in the naturalistic study, treatment response was not predicted by treatment duration. Addressing specific symptoms, such as traumatic grief, trauma-related systemic problems or nightmares, alternative interventions may be considered, such as brief eclectic psychotherapy for traumatic grief or BEP-TG (Smid et al., 2015), interpersonal therapy (Markowitz et al, 2015), or imaginary rehearsal therapy (Van Schagen, Lancee, De Groot, Spoomaker, & Van en Bout, 2015). In case of persisting maladaptive cognitions, schema therapy – found to be safe and effective with older adults - might serve as a subsequent treatment option (Videler, Rossi, Schoevaars, Van der Feltz-Cornelis, & Van Alphen, 2014).

Regarding further research, validating assessment instruments for older adults and adapting them to current inclusion criteria (CAPS-5; APA, 2013) may help to improve mental health care for older adults. Given the proportion of adverse childhood events, standard assessment at admission should include the ACE Questionnaire (World Health Organization; WHO). Since both age-related changes and PTSD symptoms can include attention and memory problems, cognitive functioning should be routinely assessed as well (O'Connor & Elklit, 2015). Extending routine assessments with cognitive and physiological measures (blood pressure or heart rate) could provide additional evidence on risks and outcomes of psychotherapy in older adults (Cook et al, 2017; Dinnen et al., 2015). Furthermore, directly comparing trauma-related psychotherapy with pharmacotherapy for older PTSD patients could improve treatment matching. Finally, e-health applications for assessment and/or treatment (the timeline in NET or homework assignments in PCT) could bring interesting innovations and inspire yet further research.

Treating trauma-related disorders in later life: in conclusion

For older PTSD patients, both narrative exposure therapy and present centered therapy show the potential to significantly reduce PTSD symptoms; present-centred therapy can additionally improve psychosocial adjustment. Older adults can change long-standing self-directed beliefs, even after long-past childhood trauma. These findings allow for two conclusions. First: whereas PTSD may be described as a hidden variable in the lives of older adults, resilience is shown to be the hidden factor in their treatment process. Second:

pessimism concerning the treatment of older adults with PTSD or trauma related psychopathology is unfounded. By overcoming this ungrounded conviction, treating trauma-related disorders in later life is coming of age.

Summary

This thesis focuses on psychological treatment of trauma-related disorders in later life. *Chapter 1* starts out with an overview of trauma-related disorders in later life and an evaluation of existing treatment research. In the field of psychological treatment for older PTSD patients, insufficient evidence regarding treatment efficacy for this population was found. Guidelines recommending interventions for adults (American Psychological Association; APA, 2017; National Institute for Clinical Excellence; NICE, 2018), have not yet been generalised to older adults. In order to strengthen empirical evidence regarding older adults, the main research in this thesis focused on the comparison of Narrative Exposure Therapy or NET (Schauer, Neuner, & Elbert, 2011) and Present-Centered Therapy or PCT (McDonagh et al., 2005) in a sample of older adults. Since NET is included in recent guideline recommendations (APA, 2017, NICE, 2018), selecting this intervention for an RCT with older adults was considered a sufficiently founded decision. Because of ethical reasons, an active control condition, such as PCT, was selected.

In *Chapter 2*, existing research on the effectiveness of NET was evaluated in a meta-analysis and meta-regression analysis. NET has been extensively researched, among various groups of refugees or displaced persons, but also among refugees in Western countries and non-refugees. NET was found to be effective in symptom reduction (PTSD and depression), both at post-treatment and at follow-up. Methodological quality of NET-trials was comparable with the majority of treatment studies on PTSD. NET interventions were found to be superior to control conditions. The more active, however, the treatment approaches in the control condition, the smaller the differences. Although the treatment results of NET for older adults were highly encouraging, the evidence was based on one small trial (Bichescu, Neuner, Schauer, & Elbert, 2007).

To supplement the meta-analytic findings on NET with an in-depth understanding of emotional and cognitive trauma processing over the life cycle and in treatment, *Chapter 3* included a qualitative analysis of post-traumatic emotional and cognitive coping in a sample of NET-participants from the main study. Processing adverse events during treatment can be understood as a gradual shifting of emotions and cognitions in a direction of increasing self-awareness and self-esteem. A framework of lifespan cognitive development appears to clarify how older adults deal with past trauma and its consequences.

In a randomised controlled trial (RCT), including two groups and three assessment time points (pre-treatment, post-treatment and at four months follow-up), treatment effects of NET and PCT in older adults were compared. Whereas the approach of PCT is trauma-informed and non-intrusive; NET allows for imaginal exposure in a lifespan perspective. *Chapter 4* presents the primary results of this study. The main variables of interest were severity of PTSD and of the symptom clusters according to DSM-IV (American Psychiatric Association; APA, 2000): re-experience, avoidance and hyper-arousal. NET and PCT turned out to have low drop-out rates, and be safe and efficacious psychological

treatments for older adults. Using a piecewise mixed effects growth model, at posttreatment, a significant medium between-treatments effect size (Cohen's $d = .44$) for PTSD was found, favouring PCT. At follow-up, however, the differences were non-significant. Consistent with the meta-analytic evidence, NET showed a continuing symptom reduction. The relapse at follow-up in the PCT-group mainly involved symptoms of re-experience and avoidance. At follow-up, at least half of the participants reported a clinically meaningful treatment change (NET: 71.5%; PCT: 50%); Mean severity scores had dropped from severe to moderate.

In *Chapter 5*, additional results of the same RCT were presented. Here, the focus was on depression severity, self-efficacy, quality of life and post-traumatic cognitions, meaning that in addition to pathology (depression symptoms), psychosocial adjustment was targeted. In correspondence to PTSD outcomes, the results for depression severity characterised NET and PCT as safe interventions with low drop-out rates. The efficacy for depression severity, however, was found to be only modest. In contrast to the results of PTSD severity, at post-treatment, no significant between-treatments difference for depression severity was found. Again, however, NET showed a continuing symptom reduction, lasting throughout the follow-up interval. At follow-up, at least half of the participants reported a clinically meaningful treatment change. (NET: 50%; PCT: 75%). With regard to psychosocial adjustment, treatment results showed the potential of PCT to improve psychosocial adjustment in important areas, such as self-efficacy and quality of life regarding physical health. The between-treatments differences in self-efficacy and physical health were found to be maintained during follow-up.

Using routinely monitored outcome data from adult (18 to 63 years) refugees in a predictor analysis, in *Chapter 6*, a broad spectrum of trauma-related disorders (PTSD, comorbid depression and anxiety) was captured. In this naturalistic study, the question was explored whether advancing age influences treatment response, and, if not so, which age-related and other clinical or lifespan factors would influence treatment response for PTSD, depression and anxiety. All provided treatment formats turned out to be equally effective. Significant mean reductions of PTSD ($\eta^2 = .27$), depression ($\eta^2 = .10$) and anxiety symptoms ($\eta^2 = .16$) were found. Post-treatment, about one third of the participants reported a statistically significant treatment change (PTSD: 32%, depression: 30%; anxiety: 36%). Advancing age did not predict treatment response of all outcomes. The number of traumatic events negatively predicted treatment response for PTSD; for comorbid depression and anxiety, treatment response was positively predicted by pre-treatment distress. Notably, childhood trauma and pre-treatment distress showed positive associations to treatment response. Non-specific treatment factors were thought to play a large role in understanding treatment response.

Finally, *Chapter 7* provides a general discussion of central issues and implications of this thesis, exploring a way forward and drawing general conclusions. For older PTSD patients, both narrative exposure therapy and present centered therapy show the potential to significantly reduce PTSD symptoms; present-centred therapy can additionally improve psychosocial adjustment. Older adults can change long-standing self-directed beliefs, even after long-past childhood trauma. Existing pessimism regarding the benefits of psychotherapy for older PTSD patients, appears to be unfounded. By overcoming these ungrounded convictions, treating trauma-related disorders in later life is coming of age.

For Dutch readers, a Dutch translation of the summary is included.

Samenvatting

Summary in Dutch

Dit proefschrift richt zich op de psychologische behandeling van trauma-gerelateerde stoornissen op latere leeftijd. De term (psycho)trauma verwijst naar ontwrichtende en onverwachte levenservaringen met langdurige psychosociale gevolgen. Hoewel slechts bij een kleine minderheid van betrokkenen blijvende klachten ontstaan, kunnen ze ernstige gevolgen hebben voor het algehele functioneren. In dat geval spreekt men van een posttraumatische stress stoornis (PTSS), die vaak gepaard gaat met depressie, angststoornissen en/of somatische klachten. De aandacht in dit proefschrift richt zich op ouderen die in de loop van hun leven (in hun jeugd en/of op latere leeftijd) geconfronteerd zijn met dergelijke gebeurtenissen en hun nasleep. *Hoofdstuk 1* start met een overzicht van trauma-gerelateerde stoornissen op latere leeftijd en een evaluatie van het bestaande onderzoek op dit terrein. Ondanks toenemende evidentie op het gebied van psychologische behandeling van oudere patiënten met PTSS, zijn er maar weinig gecontroleerde studies beschikbaar met betrekking tot deze doelgroep. Bovendien hebben ze sterk uiteenlopende resultaten. Dientengevolge zijn er nog geen aanwijzingen in de internationale richtlijnen voor behandeling van trauma-gerelateerde stoornissen bij ouderen (American Psychological Association; APA, 2017; National Institute for Clinical Excellence; NICE, 2018). Met het doel de empirische basis voor behandeling van ouderen te versterken, staat in dit proefschrift de vergelijking van twee behandelingen in een steekproef van oudere volwassenen centraal: de op het verleden gerichte Narratieve Exposure Therapie of NET (Schauer, Neuner, & Elbert, 2011), en de op het heden gerichte Present-Centered Therapy of PCT (McDonagh et al., 2005). NET is een geaccepteerde behandelvorm in de aanbevelingen van de nieuwste richtlijnen voor volwassenen (APA, 2017, NICE, 2018). Om ethische redenen werd een actieve controleconditie, zoals PCT, geselecteerd.

Hoofdstuk 2 presenteert een meta-analyse en een meta-regressie analyse, waarin het bestaande effectonderzoek over NET geëvalueerd wordt. NET is uitgebreid onderzocht binnen etnisch verschillende groepen van vluchtelingen en ontheemden, maar ook bij vluchtelingen in Westerse landen en niet-vluchtelingen. De resultaten tonen aan, dat NET effectief is in het verminderen van PTSS-symptomen, zowel bij nameting, als bij vervolgmetingen. De methodologische kwaliteit van het NET onderzoek is vergelijkbaar met de meeste behandelstudies voor PTSS (Bisson, Roberts, Andrew, Cooper, & Lewis, 2013). De NET-behandelingen zijn superieur aan de controlecondities. Echter: hoe meer actief het karakter van de controlecondities was, des te kleiner waren de verschillen. Migratie naar het Westen beïnvloedt de behandelresultaten voor depressie in negatieve zin; dit geldt niet voor PTSS-klachten. Hoewel de behandelresultaten voor ouderen zeer bemoedigend zijn, berust de evidentie op een enkel klein onderzoek (Bichescu, Neuner, Schauer, & Elbert, 2007)

Om de bevindingen van de de hoofdstukken 4 en 5 vooraf te verdiepen met een beeld van de emotionele en cognitieve verwerking van psychotrauma gedurende de levensloop en in behandeling,

presenteert *Hoofdstuk 3* een kwalitatieve analyse van posttraumatische emotionele en cognitieve aanpassing in een steekproef van NET-deelnemers in de hoofdstudie. Het verwerken van nare ervaringen tijdens de behandeling blijkt samen te gaan met een geleidelijke verschuiving van emoties en cognities (gevoelens en gedachten) in de richting van een groter zelfbewustzijn en zelfwaardering. Door die veranderingen te plaatsen in een (auto)biografisch kader, ontstaat een breed perspectief op hoe ouderen omgaan met eerdere trauma's en de gevolgen daarvan.

In een gerandomiseerd onderzoek (RCT) met twee groepen (NET versus PCT) en drie meetmomenten (vóór en twee momenten na de behandeling) werden de behandel-effecten van de twee interventies met elkaar vergeleken. Terwijl de behandeling van PCT zich vanuit begrip voor de traumatische achtergrond van actuele klachten richt op problemen in het heden, biedt NET ruimte voor imaginaire exposure in een levensloop-perspectief. *Hoofdstuk 4* presenteert de primaire uitkomsten van deze studie. De centrale variabelen zijn de ernst van PTSS en van de symptoomclusters volgens de DSM-IV (American Psychiatric Association; APA, 2000): herbeleving, vermijding en overmatige prikkelbaarheid. NET en PCT komen naar voren als veilige en werkzame psychologische behandelingen bij ouderen; bovendien zijn er weinig uitvallers. Met behulp van een zogenaamd piecewise mixed effects groeimodel werd bij nameting een significant gecontroleerd (between-treatments) effect (Cohen's $d = .44$) gevonden voor PTSS; PCT presteerde hier beter dan NET. Bij de vervolgmeting of follow-up waren de verschillen echter niet meer significant. Conform de meta-analyse, vertoont NET een voortgaande symptoomdaling tijdens en na de behandeling. De terugval bij follow-up voor de PCT-groep betreft vooral symptomen van herbeleving en vermijding. Bij follow-up rapporteert tenminste de helft van de deelnemers een klinisch betekenisvolle symptoomdaling (NET: 71.5%; PCT: 50%). De gemiddelde symptoomernst is dan gedaald van extreem (bij voormeting) naar matig.

Hoofdstuk 5 presenteert de overige resultaten van hetzelfde gerandomiseerde onderzoek. Nu ligt het accent op de depressieklachten, de mate van ervaren effectiviteit (self-efficacy), kwaliteit van leven en posttraumatische cognities. Dat betekent dat naast pathologie (depressieklachten) ook psychosociale aanpassing in beeld komt. De veiligheid en lage uitval van NET en PCT worden bevestigd. In tegenstelling tot de resultaten voor PTSS, treden voor depressieklachten geen significante behandel-effecten op. NET vertoont echter ook hier een voortgaande symptoomdaling tijdens en na de behandeling. Ondanks de bescheiden gemiddelde symptoomdaling, rapporteert bij follow-up tenminste de helft van de deelnemers een klinisch betekenisvolle symptoomdaling voor depressieklachten (NET: 50%; PCT: 75%). Wat betreft de psychosociale aanpassing, tonen de behandelresultaten het potentieel van PCT om de psychosociale aanpassing te verbeteren op

belangrijke terreinen zoals de ervaren effectiviteit en de kwaliteit van leven in termen van fysieke gezondheid.

Om meer te weten te komen over de trauma-gerelateerde stoornissen, presenteert *Hoofdstuk 6* een studie naar behandelvoorspellers in een steekproef van volwassen vluchtelingen (18-63 jaar). Er werd gebruik gemaakt van data, verzameld in periodieke metingen (Routine Outcome Monitoring) voor aanvang en na beëindiging van een multimodaal behandelprogramma voor getraumatiseerde vluchtelingen (dagklinische en poliklinische varianten). Een breed spectrum van trauma-gerelateerde stoornissen (PTSS, depressie- en angstklachten) kwam in beeld. In deze naturalistische studie staat de vraag centraal of leeftijd het behandelresultaat voorspelt. Indien niet, welke leeftijdsgebonden of andere klinische en levensloopfactoren kunnen dan het behandelresultaat voor PTSS, depressie en angst voorspellen? Bij nameting blijkt ten eerste dat de gemiddelde symptoomdaling bij alle aangeboden behandelingen even groot is. De symptoomreductie is significant voor PTSS ($\eta^2 = .27$), depressie- ($\eta^2 = .10$) en angstklachten ($\eta^2 = .16$). Bij nameting rapporteert tenminste een derde van de deelnemers een statistisch significante symptoomdaling (PTSS: 32%; depressie: 30%; angst: 36%). Ten tweede blijkt dat leeftijd (althans tot en met 63 jaar) geen invloed heeft op het behandelresultaat: dat geldt voor alle stoornissen. Ten derde blijkt dat de symptoomernst bij voormeting, het meegemaakt hebben van trauma in de kindertijd en het aantal meegemaakte traumatische gebeurtenissen het behandelresultaat voor PTSS-klachten voorspellen. Opmerkelijk is, dat trauma in de kindertijd een positieve invloed heeft op de behandelresultaten. Voor depressie- en angstklachten is de symptoomernst bij voormeting de enige voorspeller. Gezien de heterogene steekproef is enige voorzichtigheid bij de interpretatie van de uitkomsten geboden. Algemene therapiefactoren lijken een grote rol te spelen in het verklaren van de behandelresultaten.

In *Hoofdstuk 7* komen de centrale thematiek en de implicaties van dit proefschrift aan de orde. Daarbij komen ook de sterke kanten en de beperkingen van dit proefschrift aan bod. Vervolgens is het tijd voor een blik vooruit en enkele algemene conclusies.

Conclusies

- Op grond van de meta-analyse komt Narrative Exposure Therapy (NET) naar voren als een effectieve korte vorm van psychotherapie voor trauma-gerelateerde stoornissen, met betere resultaten dan controlebehandelingen. Hoe actiever deze controlebehandelingen echter zijn, des te kleiner de verschillen. De behandelresultaten voor ouderen doen niet onder voor die van volwassenen, al berust deze conclusie op slechts een enkele kleine studie.
- Het verwerken van nare ervaringen bij ouderen tijdens de behandeling kan begrepen worden als een geleidelijke verschuiving in gevoelens en gedachten in de richting van een groter zelfbewustzijn en zelfwaardering.

- Bij de follow-up meting, hebben NET en Present-Centered Therapy (PCT) gelijke behandelresultaten in termen van PTSS symptomen. Bij de nameting is er echter een verschil tussen de behandelingen, waarbij PCT beter presteert. Dit verschil duidt op verschillen in tempo en mogelijk de aard van de vooruitgang voor beide behandelingen.
- In termen van depressieklachten, hebben NET en PCT gelijke effecten en een gelijk tempo in vooruitgang. Opmerkelijk is dat PCT beter presteert dan NET op de terreinen van self-efficacy en fysieke gezondheid, zowel bij de nameting als bij de follow-up meting.
- In een steekproef van volwassen vluchtelingen, heeft leeftijd geen invloed op het behandelresultaat (PTSS, depressie- en angstklachten). Dat geldt wel voor symptoomernst bij voormeting. Daarnaast heeft trauma in de kindertijd en het aantal meegemaakte traumatische gebeurtenissen invloed op het behandelresultaat van PTSS. Opvallend is trauma in de kindertijd een positieve invloed heeft op het behandelresultaat.
- Samenvattend: voor oudere PTSS-patiënten biedt NET de mogelijkheid van een klinisch relevante vermindering van symptomen; PCT kan de psychosociale aanpassing verbeteren. Ouderen kunnen overtuigingen veranderen, zelfs na traumatische ervaringen in een ver verleden. Leeftijd speelt geen rol in behandelresultaten. Terwijl PTSD werd beschreven als een verborgen factor in het leven van ouderen, is veerkracht wellicht de verborgen factor in hun herstel. Deze resultaten impliceren dat pessimistische verwachtingen ten aanzien van behandel mogelijkheden van ouderen ongegrond zijn. Door deze negatieve verwachtingen te overwinnen, kan de psychologische behandeling van trauma-gerelateerde stoornissen voor deze doelgroep volwassen worden.

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About the author

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Jeannette Lely is a psychotherapist and researcher at Foundation Centrum '45 / Arq Psychotrauma Expert Group. She studied Clinical and Health Psychology at Leiden University (with distinction). She worked as a clinician in several outpatient clinics in the Netherlands and regularly conducted psychodiagnostic Pro Justitia reporting. Since 2000, she has been a clinician treating patients with trauma-related disorders: both refugees and native Dutch persons. As a mental health trainer, she twice went on a mission for Doctors Without Borders (MSF): to Sri Lanka and to DR Congo. Her PhD project focuses on psychotherapy for trauma-related disorders in older adults. Research interventions were conducted at Foundation Centrum '45 and Sinai Centrum. This study is a joint project of Utrecht University and Arq Psychotrauma Expert Group. Promotores are prof. dr. R.J. Kleber and prof. dr. J. van den Bout, copromotor is dr. J.W. Knipscheer. The project is funded by Fonds Nuts Ohra and Foundation Centrum '45.

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