Psychopathology and resilience in older adults with posttraumatic stress disorder: a randomized controlled trial comparing narrative exposure therapy and present-centered therapy

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SHORT COMMUNICATION

Psychopathology and resilience in older adults with posttraumatic stress disorder: a randomized controlled trial comparing narrative exposure therapy and present-centered therapy

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ABSTRACT

Objective: Using data from a randomized controlled trial on psychotherapy for posttraumatic stress disorder (PTSD) in older adults (aged >55), this study aimed at analysing the efficacy of two psychological interventions in terms of self-reported symptoms, comorbid psychopathology and resilience outcomes.

Method: Thirty-three outpatients (age 55–81) with PTSD were randomly assigned to eleven sessions of narrative exposure therapy or present-centered therapy. Self-reported symptom severity of PTSD, depression and general psychopathology, along with measures of resilience (self-efficacy, quality of life and posttraumatic growth cognitions), were target outcomes. Harvard Trauma Questionnaire, Beck Depression Inventory, Brief Symptom Inventory, General Efficacy Scale, World Health Organization Quality of Life Assessment and Meaning of War Scale (personal growth) were assessed pre-treatment, post-treatment and at four months follow-up. Because of variable inter-assessment intervals, a piecewise mixed effects growth model was used to investigate treatment effects.

Results: Neither post-treatment, nor at mean follow-up, between-group effects were found. At follow-up, significant medium to large within-group effect sizes were found in the NET-group for psychopathology (self-reported PTSD: Cohen's $d = 0.54$, $p < .01$; depression: Cohen's $d = 0.51$, $p = .03$; general psychopathology: Cohen's $d = 0.74$, $p = .001$), but not so in the PCT-group. Resilience (self-efficacy, quality of life and personal growth cognitions) did not significantly change in either group.

Conclusions: In older adults with PTSD, the efficacy of NET extended beyond PTSD, reducing not only self-reported symptoms of PTSD but also comorbid depression and general psychopathology.

HIGHLIGHTS
• This study showed that recovering from trauma-related pathology in later life with help of narrative exposure therapy is not limited to PTSD symptoms but extends to comorbid pathology.

Psicopatología y resiliencia en adultos mayores con trastorno de estrés postraumático: un ensayo controlado aleatorizado que compara la terapia de exposición narrativa y la terapia centrada en el presente

Objetivo: Utilizando datos de un ensayo controlado aleatorizado sobre psicoterapia para pacientes con trastorno de estrés postraumático (TEPT) en adultos mayores (> 55 años), este estudio tuvo como objetivo analizar la eficacia de dos intervenciones psicológicas respecto a síntomas autoinformados, psicopatología comorbida, y resultados de resiliencia.

Método: Treinta y tres pacientes ambulatorios (de 55 a 81 años) con TEPT fueron asignados al azar a once sesiones de terapia de exposición narrativa (NET en sus siglas en ingles) o terapia centrada en el presente (TCP). Los resultados que se midieron fueron, el autoreporte de la gravedad de síntomas de estrés postraumático, depresión y psicopatología general, junto con medidas de resiliencia (autoeficacia, calidad de vida y cogniciones de crecimiento postraumático). Se evaluaron antes del tratamiento, después del tratamiento y a los cuatro meses de seguimiento con los siguientes cuestionarios: Cuestionario de trauma de Harvard, el Inventario de depresión de Beck, el Inventario breve de síntomas, la Escala de eficacia general, Evaluación de la Calidad de Vida y de Significado de la Guerra de la Organización Mundial de la Salud (crecimiento personal). Debido a los intervalos variables entre evaluaciones, se utilizó un modelo de crecimiento de efectos mixtos por partes para investigar los efectos del tratamiento.

Resultados: No se encontraron diferencias entre los grupos ni posteriores al tratamiento ni durante el seguimiento medio. En el seguimiento, se encontraron tamaños de efecto significativos medianos a grandes dentro del grupo NET. para psicopatología (TEPT autoinformado: d de Cohen = 0.54, $p < .01$; depresión: d de Cohen = 0,51, $p = 0,03$; psicopatología general: d de Cohen = 0,74, $p = 0,001$), pero no así en el grupo TCP. La resiliencia (autoeficacia, calidad de vida y cogniciones de crecimiento personal) no tuvieron cambios significativos en ninguno de los grupos.

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Conclusiones: En adultos mayores con TEPT, la eficacia de la NET se extendió más allá del TEPT, reduciendo no sólo síntomas autoinformados de TEPT, sino también depresión comórbida y psicopatología general.

患有创伤后应激障碍的老年人的精神病和心理韧性: 一项比较叙事暴露疗法和关注当下疗法的随机对照试验

目的: 本研究使用一个来自老年人 (> 55 岁) 创伤后应激障碍 (PTSD) 心理治疗的随机对照试验数据, 旨在分析两种心理干预在自我报告症状, 共病精神病和心理韧性结果方面的疗效。

方法: 33 名患有 PTSD 的门诊患者 (55-81 岁) 被随机分配到 11 个疗程的叙事暴露疗法或关注当下疗法。自我报告的 PTSD 症状严重程度, 抑郁和一般精神病以及对心理韧性 (自我效能, 生活质量和创伤后成长认知) 的测量是目标结果。哈佛创伤问卷, 贝克抑郁量表, 简要症状量表, 一般疗效量表, 世界卫生组织生活质量评估和战争意义量表 (个人成长) 在治疗前, 治疗后和四个月的随访中进行评估。由于内部评估间隔可变, 因此使用分段混合效应增长模型来研究治疗效果。

结果: 在治疗后和平均随访时均未发现组间效应。在随访中, 在 NET 组中发现了显著的中等到较大的组内效应量 (自我报告的 PTSD:Cohen's d= 0.54, p< .01; 抑郁:Cohen's d= 0.51, p= .03; 一般精神病:Cohen's d= 0.74, p= .001), 但在 PCT 组中并非如此。心理韧性 (自我效能, 生活质量和个人成长认知) 在两组中都没有显著变化。

结论: 在PTSD 老年患者中, NET 的疗效超出了 PTSD, 不仅减少了自我报告的 PTSD 症状, 还减少了共病抑郁和一般精神病。

After exposure to potentially traumatic experiences, many older adults show psychological resilience, especially related to emotion regulation, and interpersonal and meaning making capacities (Nuccio & Stripling, 2020). Nevertheless, about 1% of older adults may develop post-traumatic stress disorder (PTSD; American Psychiatric Association, 2013). This presents a serious mental health problem that is often accompanied by comorbid symptoms and impairments in daily functioning and quality of life (Van Zelst, De Beurs, Beekman, Deeg, & Van Dyck, 2003; Van Zelst, De Beurs, Beekman, Van Dyck, & Deeg, 2006).

When treating trauma-related disorders in later life, risks and necessity of confronting adverse memories are important topics of discussion, e.g. regarding cardiovascular vulnerability (Thorp, Wells, & Cook, 2017). Narrative exposure therapy (NET) is a short-term trauma-focused intervention, simultaneously reconstructing autographic memory and providing cognitive–behavioural exposure therapy (Schauer, Neuner, & Elbert, 2011). It is an evidence-based intervention (National Institute for Health and Care Excellence; NICE, 2018) and is deemed a promising treatment approach for older adults with PTSD. NET allows for imaginal exposure to multiple traumatic memories (Schauer et al., 2011). By targeting memories of successive events in a controlled way, NET supports older adults to reach a gradual habituation to their painful memories. This intervention has already shown encouraging treatment results with older adults (Bichescu, Neuner, Schauer, & Elbert, 2007).

In contrast, Present-Centered Therapy (PCT) uses a problem-solving approach, not focusing on traumatic memories, but on current stressors and maladaptive interpersonal communications. Although PCT originally was developed as a control condition, the intervention has been qualified as an empirically supported PTSD-treatment method Frost, Laska, & Wampold, 2014).

So far, research on trauma-focused psychotherapy in later life has focused on PTSD and depression (Bichescu, Neuner, Schauer & Elbert, 2007; Gamito, Oliveira, Rosa, Morais, et al., 2010; Knaevelsrud, Böttche, Pietrzak, Freyberger, & Kuwert, 2017; Ready, Gerardi, Backschneider, Mascaro, & Olasov Rothbaum, 2010; Thorp, Glassman, Wells, Walter, et al., 2019). Capturing, however, full treatment results with older PTSD-patients, including daily functioning, quality of life and personal growth, calls for a wider scope, by addressing both psychopathology and various resilience measures. Charting posttraumatic resilience may open useful avenues for intervention (Kleber, 2019).

In order to assess the efficacy of NET in older adults with PTSD, a randomized controlled trial was conducted comparing NET and PCT in a sample of 33 middle-aged to middle-old adults with PTSD. In this study, NET was found to be acceptable, safe and efficacious but not more so than PCT (Lely, Knipscheer, Moerbeek, Ter Heide, et al., 2019). Given its limited sample size and statistical power, in this trial primary outcomes were limited to the Clinician-Administered PTSD Scale for DSM-IV (CAPS-IV; Blake, Weathers, Nagy, Kaloupek, et al., 1995). In the present study, the following secondary outcome measures were exploratively analysed: severity of self-reported PTSD, depression, and general psychopathology, as well as self-efficacy, quality of life, and posttraumatic personal growth cognitions. In line with the primary outcomes of the

RCT, NET was expected to be efficacious on all outcomes, but not more so than PCT.

1. Method

1.1. Trial design, interventions and participants

The full trial design and description may be found at the Netherlands Trial Register (NTR), number 3987 and NARCIS (Dutch National Academic Research and Collaboration Information System, OND1352440). In this randomized controlled trial (RCT), involving 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. Randomization was conducted by single treatment allocation (intended allocation rate one to one) with randomly permutated blocks of four (www.randomization.com).

Detailed descriptions of NET can be found in the manual (Schauer Neuner, & Elbert, 2011); information of PCT is presented in Frost, Laska, & Wampold, (2014) and McDonagh, Friedman, McHugo, Ford, et al. (2005). From April 2013 to April 2016, participants of 55 years and older who met criteria for PTSD according to DSM-IV were recruited from two Dutch facilities for treatment of trauma-related disorders: Centre'45/Arq and the Sinai Centre. Participation was voluntary; all participants provided written informed consent. Exclusion criteria were not meeting full PTSD-IV criteria on the Clinician-Administered PTSD Scale (CAPS; Blake, Weathers, Nagy, Kaloupek, et al., 1995), concurrent psychotherapy, severe cognitive impairment as measured by the Mini Mental State Examination (MMSE), score ≤ 20, differentiating between older adults without and with severe cognitive impairment (Folstein, Folstein, & McHugh, 1975), and current high risk for suicide, active psychotic or bipolar disorder and current substance dependence as measured by the Mini International Neuropsychiatric Interview (Sheehan, Lecrubier, Sheehan, Amorim, et al., 1998). The senior researcher randomly assigned participants to 11 sessions of NET or 11 sessions of PCT, using computer-generated random numbers. Except the senior researcher, nobody had access to the computer programme and the log file of all assignments.

After assignment of the participants, participants and therapist determined the session frequency. In this way, participants' possibilities and preferences were taken into account. Session frequency was permitted to vary from one to two weeks. Assessments were conducted pre-treatment, post-treatment and at four months follow-up.

The final sample consisted of 33 participants. The NET condition consisted of 18 participants, 13 male and 5 female (average age: 63, i.e. in the middle-age range). The PCT condition consisted of 15 participants, 11 male and 4 female (average age: 62).

1.2. Assessments

In order to jointly report PTSD outcomes and secondary variables, the following instruments were used.

1.2.1. Harvard Trauma Questionnaire (HTQ)

The HTQ (Mollica, Caspi-Yavin, Lavelle, Tor, et al., 1996) is a self-report questionnaire consisting of three parts; for this study, the 16-item second part was used, assessing PTSD symptoms over the past week according to DSM-IV. Items are rated on a 4-point Likert scale ranging from 1 (not at all) to 4 (extremely). The average of all item ratings is used as a total score. A cut-off score of 2.45 is used to indicate likelihood of PTSD. The HTQ has good psychometric properties and high internal consistency (Hollifield, Warner, Lian, Krakow et al., 2002). Pre-treatment internal consistency was Cronbach's α = .87.

1.2.2. Beck Depression Inventory-II (BDI-II)

The BDI-II (Beck, Steer, & Brown, 1996; Dutch translation Van der Does, 2002) is a 21-item self-report measure assessing depression severity over the past two weeks. Items are rated on a four-point Likert scale ranging from 0 to 3, resulting in a maximum total score of 63. The BDI-II has good test-retest reliability, high internal consistency and acceptable content, construct and criterion validity (Smarr & Keefer, 2011). Pre-treatment internal consistency was Cronbach's α = .84.

1.2.3. Brief Symptom Inventory (BSI)

The BSI (Derogatis, 1975) is a 53-item self-report measure assessing the severity of general psychopathology over the past week. Items are rated on a five-point Likert scale ranging from 0 (not at all) to 4 (extremely), resulting in a maximum total score of 212. The Dutch translation has excellent psychometric qualities (De Beurs & Zitman, 2005). Pre-treatment internal consistency was Cronbach's α = .66.

To measure resilience, the following instruments were used.

1.2.4. General Self-Efficacy Scale (GSES)

The GSES (Schwarzer & Jerusalem, 1995; Dutch version Teeuw, Schwarzer, & Jerusalem, 1994) is a 10-item self-report measure assessing general self-efficacy. Items are rated on a four-point Likert scale ranging from 1 (not at all true) to 4 (exactly true), resulting in a maximum total score of 40 with higher scores indicating elevated self-efficacy. Psychometric quality is sufficient (Schwarzer & Jerusalem, 1995). Pre-treatment internal consistency was Cronbach's α = .93.

1.2.5. World Health Organization Quality of Life Assessment (WHOQOL-BREF)

The WHOQOL-BREF (WHOQOL Group, 1998; Dutch translation De Vries & Van Heck, 1996) is a 26-item self-report measure assessing quality of life over the past two weeks across four domains: physical, psychological, social and environment. Items are rated on a five-point Likert scale ranging from 1 to 5. In this study, the total scale was used, with higher scores indicating better quality of life. The Dutch translation has sufficient reliability (Trompenaars, Masthoff, Van Heck, Hodiamont, & De Vries, 2005). Pre-treatment internal consistency was Cronbach's α = .83.

1.2.6. Meaning of War Scale (MWS), personal growth

From the MWS (Mooren, Schok, & Kleber, 2009), a 34-item self-report instrument measuring post-traumatic cognitive assumptions about oneself, others and the world, the personal growth subscale (eight items) was used. Items are rated on a four-point Likert scale ranging from 1 (*completely disagree*) to 4 (*completely agree*), with higher scores indicating more personal growth. The scale has good reliability and validity (Mooren, Schok, & Kleber, 2009). Pre-treatment internal consistency was Cronbach's α = .75.

1.3. Statistical analyses

Power calculations were based on the assumption of small to medium effect sizes. As the sample size did not allow for analyses beyond the primary outcome measure (CAPS-IV), the present analyses are exploratory.

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 = zero corresponded to the post-treatment measurement. This approach allowed accounting for between-subjects variation in the duration of therapy and follow-up (Naumova, Must, & Laird, 2001), requiring however, a reformulation of the expectations in terms of outcome change rates. Six hypotheses were formulated: During treatment (H_1) and follow-up (H_2), weekly change rates are different across conditions; for NET (H_3) and PCT (H_4), weekly change rates are different during treatment and follow-up; at post-treatment (H_5) and follow-up (H_6) the conditions have different outcomes.

Demographic and clinical variables were analysed with SPSS version 23 for Windows. Data were converted into software MLwiN (Rasbash, Steele, Browne, & Goldstein, 2015) with restricted maximum likelihood and robust standard errors. Significance level was set on α ≤ .05 (two-sided). Within-group effect sizes were calculated from 22 weeks before post-treatment (mean treatment duration) to 17 weeks after post-treatment (mean follow-up interval), expressed in Cohen's *d* (Cohen, 1992). Data were analysed using listwise deletion.

Harm was defined as PTSD symptoms reaching clinical severity followed by drop out.

2. Results

2.1. Participants

From 67 patients approached, 36 were assessed for eligibility. At this stage, three patients refused participation. Reported reasons to decline were fear of increased stress following assessments or refusal of randomization. After allocation, two NET-participants and one PCT participant refused to start treatment.

Participants were civilian trauma survivors, referred by primary physicians or medical specialists. Reported traumatic events involved domestic violence, including childhood abuse, war experiences and persecution. The participants' age ranged from 55 to 81 years (M = 63.81; SD = 6.8) and 75% of the participants were men. All participants had encountered multiple traumatic events (M = 9.15; SD = 3.76). The majority (60.6%) suffered from comorbid depression. No significant between-group differences were found in clinical variables at baseline; neither in the resulting mean treatment duration.

2.2. Missing data

One participant (NET) was excluded from the analyses because treatment duration was exceptionally long; three more participants (one NET, two PCT) left treatment prematurely. From the resulting dataset of 468 potential scores (i.e. 6 scales administered three times with 26 participants), 6 scores (i.e. one post-treatment assessment; NET) were missing.

2.3. Outcomes

Means and standard deviations of the outcomes per treatment group per measurement occasion are presented in Table 1, along with the within-group effect sizes (Cohen's *d*) and *p*-values.

In the analysis, no violation of the relevant assumptions (normality of residuals and heteroscedasticity) was detected. The growth trajectory of the six outcome measures is shown in Figure 1.

The *p*-values of the hypotheses are listed in Table 2.

Table 1. Mean psychopathology and resiliency scores at baseline, post treatment, and follow-up, for NET (*N* = 14) and PCT (*N* = 12); effect sizes (Cohen's *d*) and *p*-values.

	Baseline (M, SD)		Post treatment (M, SD)		Follow-up (M, SD)		Cohen's *d, p*	
	NET	PCT	NET	PCT	NET	PCT	NET	PCT
Psychopathology								
HTQ total	2.73 (0.42)	2.56 (0.49)	2.38 (0.68)	2.32 (0.64)	2.33 (0.74)	2.42 (0.66)	0.54, *p* < .01	0.20, *p* = .11
BDI total	27.33 (9.96)	30.21 (9.62)	23.64 (14.29)	22.67 (13.23)	21.07 (16.45)	23.17 (13.07)	0.51, *p* = .03	0.35, *p* = .10
BSI total	102.40 (36.21)	81.07 (34.94)	84.36 (38.10)	71.75 (51.81)	74.14 (38.89)	73.83 (46.19)	0.74, *p* = .001	0.13, *p* = .31
Resiliency								
GSES total	25.80 (7.94)	29.57 (6.32)	26.50 (8.10)	31.75 (5.29)	25.07 (9.27)	31.17 (8.42)	0.06, *p* = .81	−0.18, *p* = .50
WHOQOL-BREF total	3.05 (0.52)	2.96 (0.45)	3.02 (0.68)	3.13 (0.64)	3.03 (0.54)	3.14 (0.69)	0.15, *p* = .33	−0,29, *p* = .12
MWS personal growth	19.23 (6.36)	20.29 (3.43)	19.43 (5.53)	21.17 (3.16)	19.57 (5.95)	20.80 (5.07)	−0.15, *p* = .60	−0.24, *p* = .36

NET: Narrative Exposure Therapy; PCT: Present Centered Therapy; HTQ: Harvard Trauma Questionnaire; BDI-II: Beck Depression Inventory, second edition; BSI: Brief Symptom Inventory; GSES: General Self-Efficacy Scale; WHOQOL-BREF: World Health Organization Quality of Life Assessment; MWS: Meaning of War Scale.

2.3.1. Between-group comparisons

Neither post-treatment, nor at mean follow-up, between-group effects were found.

2.3.2. Psychopathology

During therapy, HTQ scores significantly decreased for both NET and PCT. In the PCT-group, there was a non-significant increase during follow-up (hypothesis 4), resulting in non-significance of the within-group effect size. For NET, the within-group effect size was medium (Cohen, 1992) and significant (*d* = 0.54; *p* = .01).

For BDI-II, the within-group effect size was medium (Cohen, 1992) and significant for NET (*d* = 0.51; *p* = .034).

For BSI, a significant decrease was found for NET during treatment. The within-group effect was large and significant for NET (*d* = 0.74; *p* = .001).

2.3.3. Resilience

Resilience (self-efficacy, quality of life, and personal growth) did not significantly change in either group.

3. Discussion

3.1. Main findings

Using data from an existing randomized clinical trial, the efficacy of two interventions (one confronting adverse memories, the other one addressing current stressors) was exploratively analysed in terms of self-reported PTSD, comorbid psychopathology and resilience. As expected, no significant between-group treatment effects were found. As for the separate variables, psychopathology (symptom severity of self-reported PTSD, depression and general psychopathology) was significantly reduced in the NET-group, whereas resilience, (self-efficacy, quality of life, and personal growth) did not significantly change in either group.

As for treatment safety, NET and PCT neither increased comorbid psychopathology, nor compromised resilience in any of the participants. Compared to other trials involving PTSD treatments (Frost, Laska & Wampold, 2014; Thorp, Glassman, Wells, Walter, et al., 2019), treatment drop-out rates were low.

The significant improvements observed for self-reported PTSD, depression and general psychopathology in the NET-group may be viewed as results from effective memory processing, following the direct targeting of painful memories. The present study suggests that in later life, despite clinical complexity, a trauma processing component in psychotherapy yields significant effects.

The within-group effects for the resilience outcomes, however, did not reach significance. The first explanation for this unexpected finding may be that improved resilience is better captured by qualitative analysis of systematically collected patient reported outcomes (Lely, De la Rie, Knipscheer & Kleber, 2019). A second explanation could be that resilience, as conceptualized in this study, may be correlated to more factors than PTSD symptom severity, such as personality traits or coping strategies that were acquired in previous life stages. Future research is needed to clarify these issues.

Summarizing, the findings of this study suggest that posttraumatic recovery in later life extends beyond PTSD symptoms, but that resilience outcomes remain unchanged.

3.2. Strengths and limitations

The present study is innovative in investigating a range of psychosocial variables in addition to trauma-related psychopathology in older adults. Furthermore, treatment pacing was adapted to the patients' preferences, enhancing external validity. Advanced statistical analysis addressed the resulting variability of inter-assessment intervals. Some limitations, however, merit attention. The study employed a small sample size, an exploratory

analysis and brief follow-up period. The power of this study was calculated on the basis of small to medium effect sizes. A larger sample size would have provided the opportunity to evaluate psychosocial changes in more detail and to adjust for possible effects of demographic and diagnostic variables. Despite the small sample size, evaluating the selected variables was considered to be relevant, and enriching from a clinical point of view. The results of this study need to be interpreted together with findings from other (future) studies, that have preferably a larger sample size.

Despite the wide perspective, some additionally relevant outcomes, such as comorbid substance dependence, were not addressed. Moreover, the participants' age range suggests that the sample is mainly representative for the youngest cohorts among older adults.
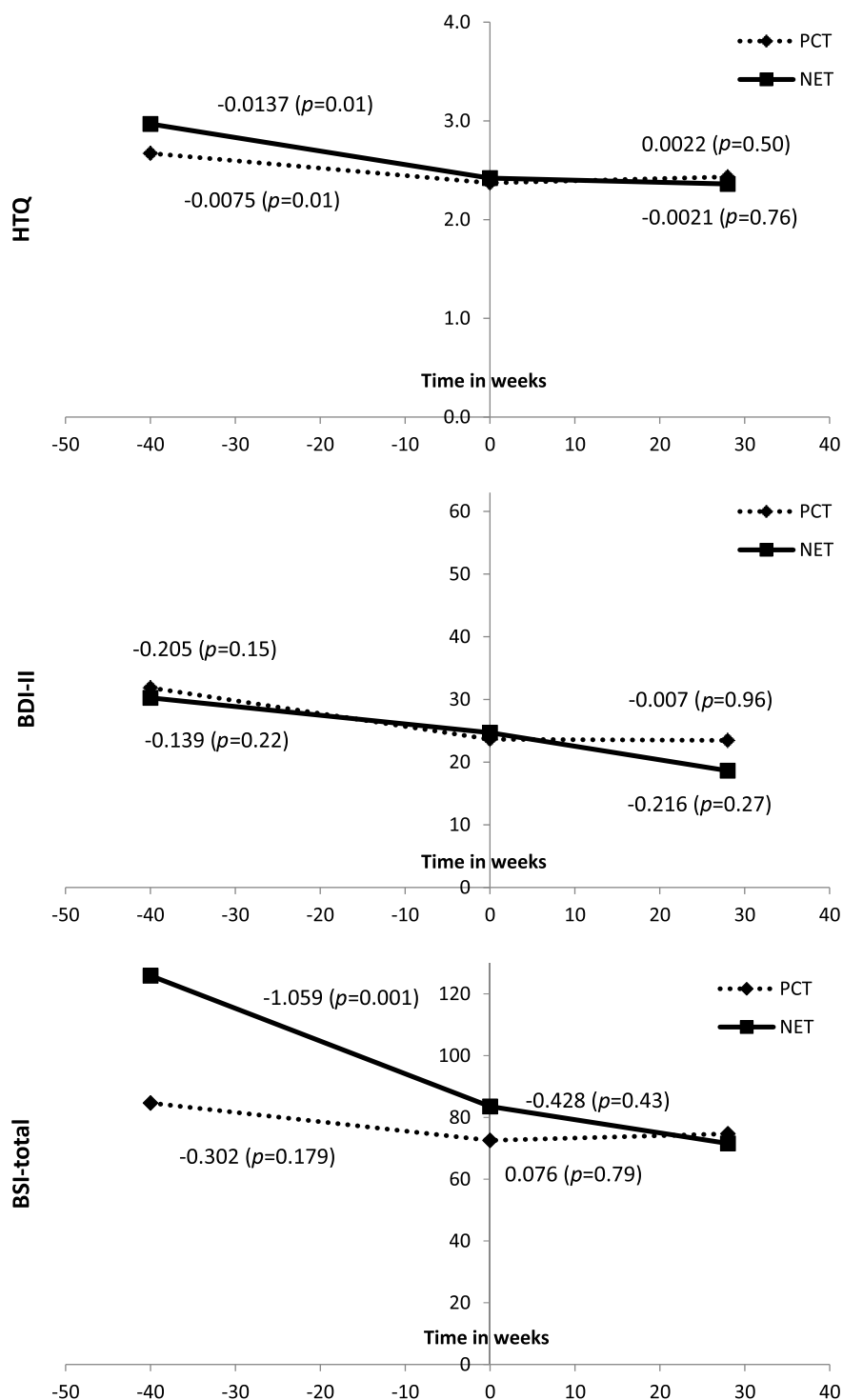

Figure 1. Change of pathology and resiliency per treatment condition during the course of the study. *Note*. Left of vertical axis: during treatment; right of vertical axis: follow-up. Values near each segment are weekly rates of change. NET: Narrative Exposure Therapy; PCT: Present-Centred Therapy; BDI-II: Beck Depression Inventory; BSI: Brief Symptom Inventory; GSE: General Self-Efficacy Scale; WHOQOL-BREF: World Health Organization Quality of Life Assessment; MWS: Meaning of War Scale.
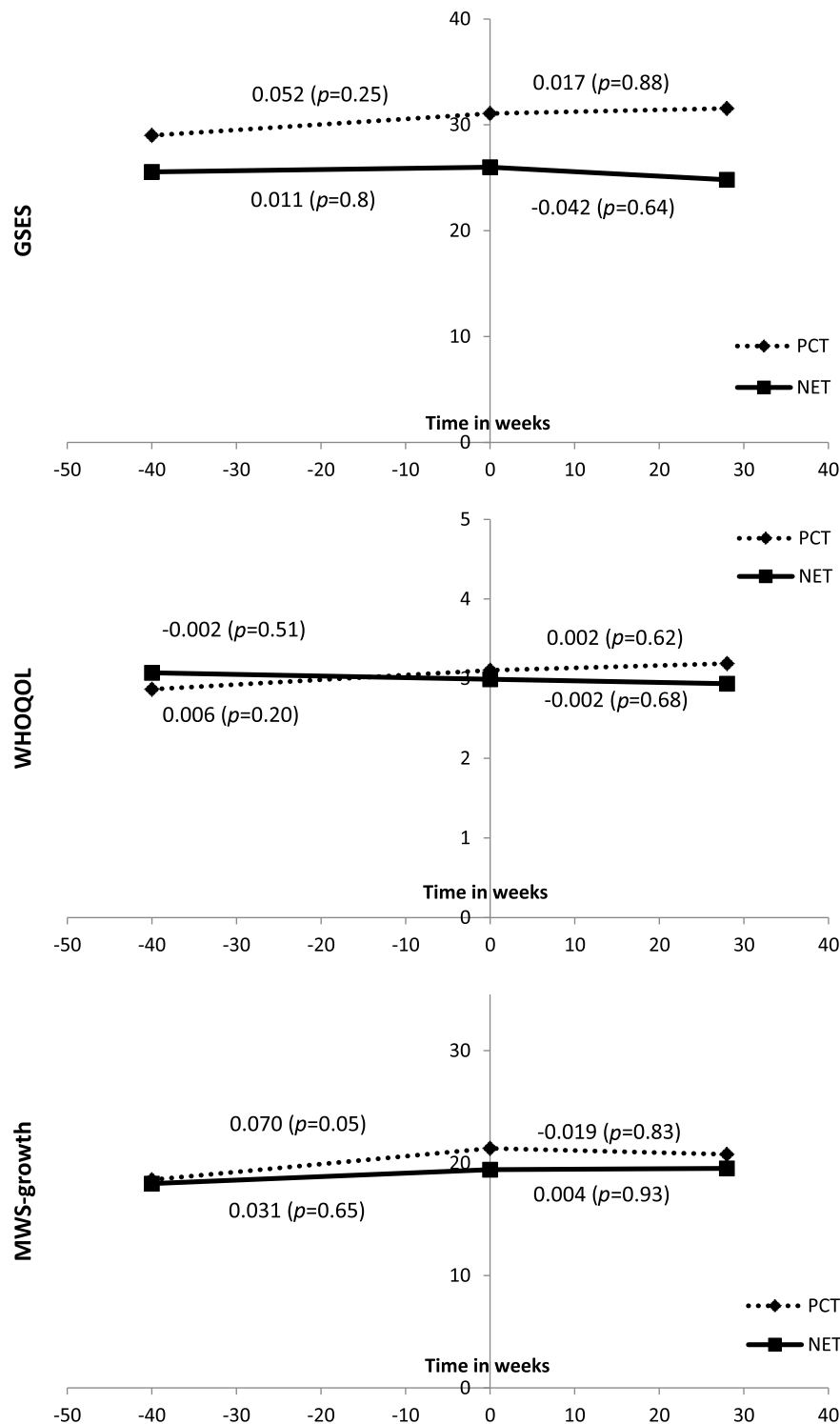
Figure 1. (Continued).

3.3. Conclusion and recommendations

During treatment, NET showed a medium to large and significant reduction of psychopathology, indicating that posttraumatic recovery in this age-group extends beyond PTSD symptoms to depression and general psychopathology. Furthermore, resilience, in terms of self-efficacy, quality of life and personal growth, did not diminish during treatment and recovery. These results may enable older PTSD-patients to enjoy better mental health in years to come. Future studies would benefit from larger sample sizes, older participants and extended follow-up intervals. Future research on other comorbid conditions (such as substance dependence) may expand the awareness regarding the scope of posttraumatic recovery in later life.

Table 2. *P*-Values of the six hypotheses (*N* = 26).

	Hypotheses					
Outcomes	1	2	3	4	5	6
Psychopathology						
HTQ total (*p*)	.26	.57	.24	.03	.83	.93
BDI-II total (*p*)	.72	.39	.77	.42	.85	.65
BSI total (*p*)	.06	.41	.40	.37	.52	.88
Resiliency						
GSES total (*p*)	.65	.69	.70	.79	.06	.08
WHOQOL-BREF total (*p*)	.15	.53	.99	.62	.64	.43
MWS Personal Growth (*p*)	.16	.82	.78	.43	.24	.50

Hypotheses: 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 different during treatment and follow-up; 4, for PCT, the outcome change rate is different during treatment and follow-up; 5, 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; BSI, Brief Symptom Inventory; GSES, General Self Efficacy Scale; WHOQOL-BREF, World Health Organization Quality of Life Scale; MWS, Meaning of War Scale.

Ethics statement

This study was approved by the Medical Ethics Committee at Leiden University, protocol number P13.009).

Data availability statement

The data described in this article are openly available in the Open Science Framework at https://doi.org/10.17605/OSF.IO/6K9VA.

Open scholarship

This article has earned the Center for Open Science badges for Open Data, Open Materials and Preregistered. The data and materials are openly accessible at https://doi.org/10.17605/OSF.IO/6K9VA.

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