CLINICAL RESEARCH ARTICLE

C-METTA reduces PTSD-related guilt and shame following interpersonal violence

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ABSTRACT

Background: PTSD patients who experienced interpersonal violence are susceptible to trauma-related guilt and shame and often show unsatisfactory treatment response. C-METTA combines cognitive techniques and loving-kindness meditation. It has shown promising effects in reducing trauma-related guilt and shame.

Objective: We examined the effectiveness of C-METTA within a quasi-experimental one-group pretest-posttest trial focusing on survivors of interpersonal violence, who suffered from trauma-related guilt and shame. An additional objective was to examine variables potentially associated with lower treatment response (childhood trauma, cumulative trauma, and PTSD chronicity).

Method: We treated 25 individuals (age = 19–61, 96% women) with PTSD following interpersonal violence. We predicted that C-METTA would significantly reduce (a) PTSD symptoms (measured by the Clinician Administered PTSD Scale, the PTSD Symptom-Checklist Version 5, and the Posttraumatic Cognitions Inventory), (b) feelings of guilt (measured by the Trauma Related Guilt Inventory) and (c) feelings of shame (measured by the Trauma Related Shame Inventory). To analyse treatment effects, we conducted repeated-measures MANOVAs. Further, we investigated the impact of childhood trauma, cumulative trauma and PTSD chronicity symptoms on treatment effectiveness exploratively via additional MANCOVAs.

Results: Analyses showed significant and large effects of C-METTA on reducing PTSD symptoms (ranging from $d = 1.12$ to $d = 1.67$), feelings of guilt ($d = 1.54$) and shame ($d = 1.26$). Childhood trauma, cumulative trauma and PTSD chronicity did not affect treatment effectiveness.

Conclusion: Our findings support previous research concerning the effectiveness of C-METTA and add promising evidence for the effectiveness of C-METTA to reduce PTSD following interpersonal violence. Effectiveness was independent of childhood trauma, trauma-duration and PTSD chronicity. Regression to the mean should be considered as a confounding factor. We suggest more research to support the results. C-METTA might increase PTSD treatment diversity and offer patients a greater bandwidth of options according to their preferences and the respective symptomatology.

HIGHLIGHTS

- C-METTA is an intervention that addresses trauma-related guilt and shame and combines cognitive interventions with loving-kindness meditation.
- Focusing on survivors of interpersonal violence, the effectiveness of C-METTA was examined within a quasi-experimental pretest-posttest trial.
- C-METTA led to a reduction in trauma-related guilt and shame and PTSD symptoms independently of childhood trauma, cumulative trauma or trauma chronicity.

C-METTA reduce la culpa y la vergüenza relacionadas con el TEPT tras la violencia interpersonal

Antecedentes: Los pacientes con TEPT que han sufrido violencia interpersonal son susceptibles a la culpa y la vergüenza relacionadas con el trauma y, a menudo, muestran una respuesta insatisfactoria al tratamiento. C-METTA combina técnicas cognitivas y meditación del amor benevolente. Ha demostrado efectos prometedores en la reducción de la culpa y la vergüenza relacionadas con el trauma.

Objetivos: Examinamos la eficacia de C-METTA en un ensayo cuasiexperimental de un solo grupo, pretest-postest, centrado en sobrevivientes de violencia interpersonal que sufrieron culpa y vergüenza relacionadas con el trauma. Un objetivo adicional fue examinar las variables potencialmente asociadas con una menor respuesta al tratamiento (trauma infantil, trauma acumulativo y cronicidad del TEPT).

Método: Tratamos a 25 personas (edad=19-61, 96% mujeres) con TEPT tras la violencia interpersonal. Predijimos que C-METTA reduciría significativamente a) los síntomas de TEPT (medidos mediante la Escala de TEPT Administrada por el Clínico, la Lista de Verificación de Síntomas de TEPT Versión 5 y el Inventario de Cogniciones Postraumáticas), b) los sentimientos de culpa (medidos mediante el Inventario de Culpa Relacionada con el Trauma) y c) los sentimientos de vergüenza (medidos mediante el Inventario de Vergüenza Relacionada con el Trauma). Para analizar los efectos del tratamiento, realizamos análisis MANOVA de medidas repetidas. Además, investigamos exploratoriamente el impacto del trauma infantil, el trauma acumulativo y los síntomas de cronicidad del TEPT en la efectividad del tratamiento mediante MANCOVA adicionales.

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Resultados: Los análisis mostraron grandes y significativos efectos de C-METTA en la reducción de los síntomas de TEPT (con un rango de *d* = 1,12 a *d* = 1,67), los sentimientos de culpa (*d* = 1,54) y la vergüenza (*d* = 1,26). El trauma infantil, el trauma acumulativo y la cronicidad del TEPT no afectaron la efectividad del tratamiento.
Conclusión: Nuestros hallazgos respaldan investigaciones previas sobre la eficacia de C-METTA y aportan evidencia prometedora sobre su eficacia para reducir el TEPT tras la violencia interpersonal. La eficacia fue independiente del trauma infantil, la duración del trauma y la cronicidad del TEPT. La regresión a la media debe considerarse un factor de confusión. Sugerimos realizar más investigaciones que respalden estos resultados. C-METTA podría aumentar la diversidad del tratamiento del TEPT y ofrecer a los pacientes una mayor variedad de opciones según sus preferencias y la sintomatología correspondiente.

1. Introduction

Among individuals who have been exposed to trauma, 5.6% show a lifetime prevalence of posttraumatic stress disorder (PTSD; Koenen et al., 2017). The risk of developing PTSD varies depending on the experienced traumatic event: Interpersonal violence has been linked to PTSD more often than non-personal trauma (e.g. Birkeland et al., 2022; Reiland & Clark, 2017). This is especially evident for rape and other types of sexual assault (Kessler et al., 2017).

A further distinction can be made between singular traumatic events such as accidents (e.g. car accident, rape, type I trauma) and cumulative traumatic events (e.g. repeated sexual or physical abuse, type II trauma; Kira, 2001). Cumulative trauma has been shown to be associated with more severe PTSD symptoms than singular traumatic events (e.g. Stefanovic et al., 2022) and is more likely to lead to complex posttraumatic stress disorder (C-PTSD; Cloitre et al., 2009). This is particularly pronounced in cases of interpersonal trauma occurring during childhood (e.g. Hébert et al., 2024; Kongshøj & Bohn, 2024).

In line with this research, C-PTSD has recently been added as a new diagnosis to ICD-11 (World Health Organization (WHO), 2019). In addition to PTSD symptoms, it is characterized by disturbances in (1) affect regulation, (2) concepts of the self, including a sense of worthlessness and (3) maintaining interpersonal relationships (WHO, 2019). However, construct validity of C-PTSD has not yet been empirically confirmed (Landy et al., 2015; Rzeszutek et al., 2024).

International guidelines suggest trauma-focused therapy as state-of-the-art treatment for PTSD, meaning interventions that directly address thoughts, feelings and/or memories of the experienced trauma (American Psychological Association, 2017). This is supported by an extensive body of empirical studies (e.g. Lewis et al., 2020a). Especially prolonged exposure and cognitive therapy are strongly recommended (American Psychological Association, 2017). For the treatment of C-PTSD, guidelines suggest a patient-centered approach according to the patients' symptoms and needs, as symptom manifestations vary from person to person (International Society for Traumatic Stress Studies (ISTSS), 2024). Cognitive behavioural therapy, exposure-based treatments and eye movement desensitization and reprocessing have also been shown to be beneficial in the treatment of C-PTSD (Karatzias & Cloitre, 2019). However, further research is needed concerning empirical evidence for treatments of C-PTSD.

Trauma-focused treatments, especially exposure-based treatments, usually address emotions of fear and helplessness (Keyan et al., 2024) as these emotions have long been considered key emotions in the development and maintenance of PTSD (Foa & Kozak, 1986; Keyan et al., 2024). They target fear and helplessness by reaching habituation through exposure to trauma-related memories and feelings and/or via restructuring trauma-related thoughts (Marks et al., 1998). Although these well-established trauma-focused treatments (especially prolonged exposure and cognitive approaches) show moderate to high treatment effects (e.g. Watts et al., 2013), dropout rates (e.g. Lewis et al., 2020b) and non-response rates (Keyan et al., 2024) remain high. Especially, survivors of childhood trauma (Ehring et al., 2014; Karatzias & Cloitre, 2019), patients with cumulative trauma (van Minnen et al., 2002) and patients with chronic PTSD (Nordbrandt et al., 2022) show lower treatment response.

In addition to fear and helplessness, trauma-related guilt and shame have been acknowledged as relevant emotions for treating PTSD (e.g. Kubany et al., 1995) and are particularly important in C-PTSD. Lately, these emotions have gained even more attention in the context of PTSD research and treatment (e.g. Bannister et al., 2019; Shi et al., 2021) and have been added to the list of PTSD symptoms in the DSM-5 (American Psychiatric Association, 2013) as well as to the C-PTSD symptoms in the ICD-11 (WHO, 2019). On the one hand, feelings of guilt and shame can be seen as self-conscious emotions that comprise feelings of inadequacy and humiliation (Dorahy, 2010). On the other hand, they are cognitive processes that involve self-blaming thoughts and

judgments (Tangney et al., 2007). When feeling guilty, self-blame is directed towards one's behaviour (Kubany & Ralston, 1998), whereas when feeling ashamed, self-blame is directed towards oneself as a person (Tangney et al., 2007).

Victims of interpersonal trauma, in particular victims of sexual violence, are very likely to develop distressing feelings of guilt and shame (Birkeland et al., 2022; Erb et al., 2023). Possible reasons include internalization of stigma (Amstadter & Vernon, 2008) or, in the case of shame, threats to the social self (Budden, 2009). Feelings of guilt and shame are also empirically linked to a higher severity of PTSD symptoms (e.g. Flynn et al., 2024; Shi et al., 2021). This might be because (in contrast to externally oriented emotions such as fear) they are directed at and related to the self (Tangney et al., 2011). Individuals who feel that the traumatic event has affected their sense of self also show higher levels of PTSD (Robinaugh & McNally, 2011). Because of their self-relatedness, guilt and shame might contribute to the maintenance of PTSD in the following way: traumatic events can be processed into self-defining memories and can thus transform the sense of self often leading trauma survivors to feel as if they are no longer the person they used to be (Cili & Stopa, 2015).

Feelings of guilt and shame can be targeted by well-established trauma-focused treatments. Especially approaches that focus on altering guilt-related cognitions like Cognitive Processing Therapy (CPT) achieve significant symptom reduction (e.g. Allard et al., 2018; Resick et al., 2024). However, residual feelings of guilt and shame often persist after treatment (e.g. Larsen et al., 2019). One might therefore argue that cognitive approaches should be complemented by more emotion-focused approaches (Shi et al., 2021).

Among PTSD interventions that focus on altering emotions, loving-kindness-meditation (LKM) approaches have shown promising results lately (e.g. Kearney et al., 2021). Loving-Kindness (or in Pali = metta) is a Buddhist-derived practice that involves directing goodwill and positive wishes toward oneself and others. This fosters the development of a friendly and benevolent attitude (Bodhi, 2013; Salzberg, 2002). Practicing Loving Kindness contrasts with the rigid attitude towards the self in individuals with high levels of guilt and shame. Self-blame and the feeling of inadequacy decrease when being met with empathy and kindness (Kearney et al., 2014).

Combining cognitive interventions and LKM might thus be a promising approach to reduce trauma-related guilt and shame. C-METTA is an intervention developed specifically for this purpose (Müller-Engelmann et al., 2024). In a first step, cognitive restructuring might allow individuals to rationally distance themselves from guilt and shame related cognitions. In a second step LKM might increase the achieved effects by antagonizing guilt and shame with a positive, empathetic attitude towards the self (Müller-Engelmann et al., 2024). C-METTA comprises six individual weekly sessions of 100 min each. Cognitive elements involve psychoeducation and altering maladaptive cognitions via Socratic questioning. Loving-kindness-meditations, aimed at both oneself and others, are systematically taught and practiced.

C-METTA has proven to be highly effective in reducing PTSD symptoms as well as trauma-related guilt and shame in a pilot randomized controlled trial (RCT; Müller-Engelmann et al., 2024). The pilot RCT involved 32 participants that were recruited from a waitlist of an outpatient centre and via online advertisements. The participants had experienced at least one traumatic event and suffered from distressing levels of guilt and shame. They were randomly assigned to either an experimental group or a waitlist control group. Primary outcome measures included (a) PTSD symptoms as measured by the Clinician Administered PTSD Scale (CAPS-5; Weathers et al., 2013a), (b) self-reported trauma-related guilt as measured by the Trauma-Related Guilt Inventory (TRGI; Kubany et al., 1996) as well as the Shame and Guilt After Trauma Scale (SGATS; Aakvaag et al., 2016) and (c) self-reported trauma-related shame as measured by the Trauma-Related Shame Inventory (TRSI, Øktedalen et al., 2014). Compared to the control group, significant treatment effects were observed across all primary outcome measures, with the exception of the SGATS. Effect sizes for guilt and shame reduction within the intervention group were large ($d = -2.02$ for guilt and $d = -2.13$ for shame). All the participants of the pilot RCT completed the treatment, suggesting that the intervention is a promising alternative for PTSD patients who suffer predominantly from feelings of guilt and shame (Müller-Engelmann et al., 2024). However, the sample size was small and this pilot RCT did not focus on PTSD following interpersonal violence.

The present study builds upon the findings of the pilot RCT within a quasi-experimental pretest-posttest trial that focusses on the effects of C-METTA on PTSD patients with high levels of trauma-related guilt and shame after having experienced interpersonal violence. Thus, our first aim was to examine treatment effects of C-METTA on PTSD symptoms, feelings of guilt and feelings of shame in patients with PTSD following interpersonal violence. We hypothesized that over time, participants would show significantly reduced PTSD symptoms (*Hypothesis 1a*), as well as significantly reduced feelings of guilt (*Hypothesis 1b*) and shame (*Hypothesis 1c*).

As patients with childhood trauma (Ehring et al., 2014), cumulative trauma (van Minnen et al., 2002) and/or patients with chronic PTSD (Nordbrandt

et al., 2022) often fail to be successfully treated, our second aim was to investigate whether C-METTA would be an effective treatment option, even for these vulnerable groups.

2. Methods

2.1. Participants

For this study, we used the pre and post data from individuals who had participated in the previous RCT (Müller-Engelmann et al., 2024) and only included patients with PTSD following interpersonal violence. We thus included (a) patients who had experienced interpersonal violence and fulfilled PTSD criteria according to DSM-5 (American Psychiatric Association, 2013) and (b) were 18–65 years old. Also, (c) patients had to suffer from strong trauma-related guilt and shame. The latter was assessed using cut-off-scores that were determined based on the TRGI (Kubany et al., 1996) and the TRSI (Øktedalen et al., 2014). For more details concerning the cut-off-scores, see supplementary material of Müller-Engelmann et al. (2024). Further inclusion criteria were (d) sufficient German language skills, (e) the ability and motivation to attend the therapy sessions regularly and (f) the willingness to practice the exercises patients learned during the sessions at home. Exclusion criteria were (a) concurrent attendance of a psychotherapeutic treatment, (b) substance abuse or substance use disorder in the last 3 months, (c) suicide attempts or life-threatening self-injury within the last 6 months, (d) lifetime diagnosis of schizoaffective disorder, schizophrenia or bipolar-I disorder, (e) body mass index < 17.5 (to exclude patients who required a different setting due to being underweight), (f) neurological disorder (e.g. dementia), (g) severe physical or mental impairments, which would interfere with practicing longer meditations (this was agreed upon depending on the participants' and diagnosticians' perception during intake assessments). Patients receiving medication were asked not to change medication until the end of the study.

In the original RCT, 136 individuals were screened via telephone, 52 were invited for diagnostic interviews and of those, 32 met the inclusion criteria (details can be found in Müller-Engelmann et al., 2024). For our study, we additionally excluded three individuals whose trauma wasn't based on interpersonal violence and three individuals who didn't meet the required criteria for PTSD diagnosis according to DSM-5. Furthermore, one person did not begin treatment and was therefore excluded. We included 25 individuals (96% women) who met the prerequisites for our study.

2.2. Study design and procedure

We implemented a quasi-experimental one-group pretest-posttest design and included data from the pilot RCT's experimental group (Müller-Engelmann et al., 2024) and, additionally, added new data from the former waitlist control group. The latter received the same treatment and assessments after having finished their participation in the pilot RCT. In the present study, both former groups were therefore included in one experimental group.

The study protocol was approved by the ethics committee of Goethe-University and registered in the German Clinical Trials Register (DRKS00023470). Data was collected from December 2020 to March 2022.

Participants who passed the telephone screening were invited to the outpatient centre for further assessments and, if eligible, were provided written informed consent for the study. As the original study had a waitlist control group design, participants received the treatment either immediately after intake assessments or after a waiting period of 6 weeks. The treatment consisted of 6 weekly treatment sessions of 100 min each. Participants were instructed to practice the learned self-guided meditations daily during the treatment period. They were asked to protocol each day whether they had practiced and how much time they had invested. Two additional 50-minute sessions were allowed. These were used if necessary to address severe comorbid symptoms and problems such as dissociative symptoms and suicidal crises that prevented the participants from concentrating on the C-METTA interventions. Therapists used cognitive techniques such as discrimination and reorientation techniques as well as skill-orientated stabilization techniques (such as a massage ball or mint oil) to reduce strong trauma-related tension. The treatment period was followed by a period of 4 weeks of individual practice. Within this phase, patients were asked to continue their daily practice of self-guided meditation to consolidate the achieved effects.

Seven CBT therapists (either licensed or at an advanced stage of CBT training) conducted the treatment. Their mean years of experience in providing CBT was 3.96 years. All therapists underwent a one-day training in C-METTA and received a detailed study manual. Treatment sessions were video recorded for weekly supervision to ensure treatment adherence. Outcome variables were assessed before starting treatment (pre-assessment; T0), after session 3 (intermediate assessment 1; T1-1), after session 6 (intermediate assessment 2; T 1-2) and after four weeks of additional individual practice (post-assessment; T2). Diagnostic assessments were performed by independent and blinded clinical raters. We used Unipark (QuestBack GmbH), a software provider for online surveys, to assess self-report-based outcome variables. Participants were paid 15€ for completing all self-report assessments throughout the study and 30€ for participating in the post-assessments.

2.3. Measures

The German version of the SCID-5-CV (First et al., 2015) was used by trained diagnosticians to assess DSM – 5 diagnoses within a semi-structured interview. Outcome variables were PTSD symptoms (clinician rated and self-reported) and trauma-related feelings of guilt and shame (self-reported). Table 1 gives an overview of the interviews and questionnaires applied at the different time points.

2.3.1. PTSD outcome measures

During the intake assessment, we used the Life Events Checklist (LEC-5; Weathers et al., 2013b) to assess trauma exposure. The LEC-5 is a self-report questionnaire that assesses exposure to 17 different traumatic events such as 'Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)'. The results of the LEC-5 were used to identify the index-trauma, making sure it was based on interpersonal violence. Then we explored the age at the time of the traumatic event, the duration of the traumatic event, and the duration of PTSD symptoms. The age at the time of the traumatic event was recorded in years. Duration of the traumatic event and duration of PTSD symptoms were recorded in months.

PTSD was clinically diagnosed using CAPS-5 (Weathers et al., 2013a; German version: Schnyder, 2013). CAPS-5 is a 30-item structured interview that allows to diagnose PTSD based on the DSM-5 criteria. Remission was defined as not meeting the criteria for PTSD in the CAPS-5 anymore. The CAPS-5 also allows to determine PTSD severity. The severity of each symptom is rated on a 5-point Likert scale ranging from 0 (absent) to 4 (extreme/incapacitating). The total severity score of PTSD symptoms ranges from 0 to 80. It has shown excellent psychometric properties for both the original version in English (Weathers et al., 2018) as well as the German version (Schnyder, 2013). For the German version, Müller-Engelmann et al. (2020) reported a high internal consistency ($\alpha = .65$–$.93$) and a high convergent validity (correlation of CAPS-5 with the Posttraumatic Diagnostic Scale sum score was $r = .87$). In our study, internal consistency of the CAPS-5 was good at pretreatment ($\alpha_{T0} = .82$) and acceptable at posttreatment ($\alpha_{T2} = .79$).

The CAPS-5 interviews were performed by three diagnosticians who received extensive training to be able to perform the interview according to the manual. They were blind to condition. All diagnostic interviews were videotaped. The tapes were used in the diagnosticians' continuous supervision to ensure adherence. The three diagnosticians rated six randomly selected CAPS-5 interviews to calculate interrater reliability. Interrater reliability was excellent ($ICC3,1 = .94$).

Self-reported PTSD symptoms were further assessed using the PTSD Symptom-Checklist Version 5 (PCL-5; Blevins et al., 2015; German version: Krüger-Gottschalk et al., 2017) and the Posttraumatic Cognitions Inventory (PTCI; Foa et al., 1999; German version: Ehlers & Boos, 1999). The PCL-5 is a self-report questionnaire that assesses the severity of trauma-related symptoms via 20 items (e.g. 'Repeated, disturbing, and unwanted memories of the stressful experience'). The items are rated on a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). Participants were asked to rate the severity of symptoms in the previous month. Krüger-Gottschalk et al. (2017) reported excellent psychometric properties for the German version of PCL-5, represented by a high internal consistency ($\alpha = .95$), a high test-retest reliability ($r = .91$) as well as a high convergent validity (the correlation of PCL-5 with the total severity score of CAPS-5 was $r = .77$). In our study, internal consistencies of the PCL-5 were excellent at pretreatment ($\alpha_{T0} = .93$) as well as posttreatment ($\alpha_{T2} = .94$).

The PTCI is a self-report questionnaire that assesses dysfunctional trauma-related cognitions via 33 items (e.g. 'My reactions since the event mean that I am going crazy'). Items are rated on a 7-point Likert scale ranging from 1 (totally disagree) to 7 (totally agree). It consists of three major factors: negative cognitions of the self, negative cognitions of the world and others and self-blame (Foa et al., 1999). For the German version of PTCI, Müller et al. (2010) reported a high internal consistency ($\alpha = .95$), a high test-retest reliability in an interpersonally traumatized sample ($r = .83$) as well as a good convergent validity (the correlation of PTCI with Impact of Event Scale-Revised was $r = .57$). In our study, internal consistencies of the PTCI were excellent at pretreatment ($\alpha_{T0} = .94$) as well as posttreatment ($\alpha_{T2} = .97$).

Table 1. Overview over the interviews and questionnaires at the different time-points.

	LEC-5	SCID-5-CV	CAPS-5	PCL-5	PTCI	TRSI	TRGI
Intake assessment	x	x					
Pre-assessment (T0)			x	x	x	x	x
Intermediate Assessment 1 (T1-1)						x	x
Intermediate Assessment 2 (T1-2)						x	x
Post-assessment (T2)			x	x	x	x	x

Note. LEC-5 = Life Events Checklist; SCID-5-CV = Structured Clinical Interview; CAPS-5 = Clinician-Administered PTSD Scale for DSM-5; PCL-5 = PTSD Checklist for DSM-5; PTCI = Posttraumatic Cognitions Inventory; TRSI = Trauma Related Shame Inventory; TRGI = Trauma Related Guilt Inventory; T0 = assessment before starting treatment; T1-1 = assessment after session 3; T1-2 = assessment after session 6; T2 = assessment after 4 additional weeks of individual practice.

2.3.2. Trauma-Related guilt and shame measures

The TRGI (Kubany et al., 1996; own translation) is a self-report questionnaire with 32 items in total. Each item is rated on a 5-point Likert scale ranging from 1 (not at all true) to 5 (extremely true). It consists of three subscales: 'global guilt', 'distress' and 'guilt cognitions'. As the second subscale ('distress') is not specific to trauma-related guilt, we decided to implement the other two subscales only, thus, avoiding possible confounding effects. Therefore, we used the mean scores of the subscales 'Global Guilt' (TRGI-GG, four items, e.g. 'I experience intense guilt related to what happened') and 'Guilt Cognitions' (TRGI-GC, 22 items, e.g. 'I was responsible for causing what happened') to assess self-reported trauma-related guilt (Kubany et al., 1996; own translation). Temporal stability as well as convergent validity have been shown to be acceptable for the TRGI (Kubany et al., 1996). In the present study, internal consistency of the TRGI-GG was good at pretreatment ($\alpha_{T0} = .85$) and excellent at posttreatment ($\alpha_{T2} = .93$). Internal consistency of the TRGI-GC was excellent at pretreatment ($\alpha_{T0} = .91$) as well as posttreatment ($\alpha_{T2} = .94$).

We implemented the TRSI (Øktedalen et al., 2014; own translation) to assess trauma-related shame. The TRSI is a self-report questionnaire with 24 items (e.g. 'I am ashamed of myself because of what happened to me.'). The items are rated on a 4-point scale ranging from 'Not true of me' to 'Completely true of me'. Support for acceptable construct validity evidence has been shown (Øktedalen et al., 2014). In this study, we used the TRSI total mean score including all 24 items. Internal consistency was good at pretreatment ($\alpha_{T0} = .81$) and excellent at posttreatment ($\alpha_{T2} = .97$).

2.4. Treatment

C-METTA is an individual treatment programme consisting of six weekly sessions of 100 min each; a detailed description can be found in Müller-Engelmann et al. (2024). The first two sessions start with psychoeducation on PTSD and trauma-related feelings of guilt and shame. Psychoeducation includes information on trauma and PTSD according to DSM-5. Also, feelings of guilt and shame are normalized as common reactions to traumatic experiences and their role in the maintenance of PTSD is explained. Additionally, cognitive techniques are implemented in the first two sessions. These involve creating a guilt chart (in line with Ehlers, 1999) to assess the existing guilt cognitions and Socratic questioning, e.g. 'What was the reason why you didn't scream for help when you were raped' to alter them. Four different LKM practices are additionally introduced in sessions 3–6. Cognitive techniques (particularly Socratic questioning) continue to be applied. All four meditations are similarly structured and include good wishes related to the areas of *safety*, *happiness*, *well-being*, and *fulfilment*. The LKM only differs concerning the addressee of the good wishes: oneself, another person, all living creatures. In session five results from the cognitive restructuring are integrated into LKM: positive self-affirmations related to the traumatic experience are incorporated into the meditation practice., e.g. 'It was not my fault; I did my best'. Each meditation ends with an encouragement to transfer the attitude of loving-kindness into everyday life. Patients receive audio tapes after each session for individual practice at home.

2.5. Statistical analysis

Statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS, Version 27). The questionnaires were filled out digitally so that single missing values were prevented. There were only two missing time points (T1-2 and T2) in the case of one participant who dropped out during the study. Here, we implemented the last observation carried forward technique. Furthermore, one participant could not remember when PTSD symptoms had exactly started. For this participant, the duration of PTSD could not be determined.

2.5.1. Preliminary notes on our analyses

As described above, we included participants from a previous RCT (Müller-Engelmann et al., 2024) in our study. The experimental group received C-METTA during the RCT, while the waitlist control group received the same intervention after completing the trial. As both groups ultimately underwent identical treatment and assessments, they were combined into a single sample for the purposes of this study.

To ensure that the two former groups did not differ significantly (which was the prerequisite for merging them), we included affiliation with the two former groups as between-group factor in our analyses of variance (see below). Please note that affiliation with the former experimental or control group played no further role in the design of the present study.

2.5.1. Treatment effects on PTSD symptomatology, guilt and shame

To test our hypotheses that participants would show significant reductions over time in PTSD symptoms (*Hypothesis 1a*), feelings of guilt (*Hypothesis 1b*), and feelings of shame (*Hypothesis 1c*), we analysed two sets of outcome variables. *Set (a)* included PTSD-related measures: clinician-rated PTSD symptoms (CAPS-5), self-reported PTSD symptoms (PCL-5), and posttraumatic cognitions (PTCI). *Set (b)* encompassed trauma-related guilt and shame: self-reported global guilt (TRGI-GG), guilt cognitions (TRGI-GC),

and shame (TRSI). To maximize statistical power and control for alpha inflation, we conducted repeated-measures MANOVAs for each variable set instead of multiple t-tests.

To evaluate treatment effects of C-METTA on the PTSD Outcome measures (*Set (a)*), we conducted a mixed-design MANOVA with a between-group factor of group assignment (treatment vs. waitlist control from the original study) and a within-group factor of time across two points (T0, T2).

To evaluate treatment effects of C-METTA on trauma-related guilt and shame measures (*Set (b)*), we conducted a mixed-design MANOVA with a between-group factor of group assignment (treatment vs. waitlist control from the original study) and a within-group factor of time across four points (T0, T1-1, T1-2, T2).

In case of a significant multivariate main effect of time, subsequent ANOVAs were performed followed by post-hoc pairwise comparisons (Bonferroni correction) to analyse overall changes (T0 to T2) as well as changes in the intervention phase (T0 vs. T1-2) and in the practice phase (T1-2 vs. T2). We report Wilk's Lambda as the test statistic for all MANOVAs.

Regarding MANOVA assumptions, we found that the PCL-5 was not normally distributed at T2, and the TRSI showed non-normal distribution at T1-2 and T2. Therefore, we performed a log10 transformation for both scales. The assumption of sphericity was violated for TRGI-GG, TRGI-GC and TRSI thus we used the Greenhouse – Geisser correction concerning these measures.

For the MANOVAs we report within-group effect sizes using partial Eta² ($\eta^2 = .01$ small effect, $\eta^2 = .06$ medium effect, $\eta^2 = .14$ large effect; Cohen, 1988). We additionally report Cohen's d ($d = 0.20$ small effect, $d = 0.50$ medium effect, $d = 0.80$ large effect; Cohen, 1988).

2.5.2. Influence of treatment duration on treatment effectiveness

As described above, therapists were allowed to conduct up to two additional sessions in case of severe comorbid symptoms and crises. To make sure that our results were not confounded by an increased number of sessions, we conducted subsequent repeated-measures MANCOVAs across two time-points (two-level within factor of time: T0 vs. T2) for both sets of variables (*Set (a)*: CAPS-5, PCL-5, PTCI; *Set (b)*: TRGI-GG, TRGI-GC and TRSI) and entered the duration of treatment (measured in minutes) as covariate. Only completers of the treatment were included in these analyses. We decided not to include the duration of treatment as covariate in our main analyses to prevent loss of power. All required assumptions for conducting the MANCOVAs (apart from the ones already named above) were met.

2.5.3. Influence of childhood trauma, cumulative trauma and PTSD chronicity on treatment effectiveness

Our second aim was to exploratively examine whether childhood trauma, cumulative trauma and trauma chronicity would have a significant influence on treatment effectiveness. We therefore performed two additional repeated-measures MANCOVAs across two time-points (two-level within factor of time: T0 vs. T2) for both sets of variables (*Set (a)*: CAPS-5, PCL-5, PTCI; *Set (b)*: TRGI-GG, TRGI-GC and TRSI). Age at the time of the traumatic event, duration of the traumatic event and duration of PTSD symptoms were entered as covariates. As these analyses were exploratory and we did not want to lose power in our main analyses, we did not directly include the three variables there. All required assumptions for conducting the MANCOVAs (apart from the ones already named above) were met.

3. Results

3.1. Sample characteristics

Most of the participants were women (96%). The mean age was 35.84 years ($SD = 14.50$, range = 19-61), 44% had experienced childhood abuse (either sexual or physical) and 48% had experienced cumulative trauma. The mean duration of the traumatic event was 36.74 months ($SD = 60.36$). The mean duration of PTSD was 175.96 months ($SD = 178.42$). Table 2 shows further sociodemographic, diagnostic and trauma characteristics of the participants.

3.2. Course of treatment

Almost all participants ($n = 24$, 96%) completed the treatment. One participant dropped out after T1-1 due to personal reasons. Of the five participants (20%) who were taking psychotropic medication at pre-assessment (see Table 2), one discontinued medication at post-assessment and one increased medication. Eight participants (32%) received two additional sessions, and four participants (16%) received one additional session. None of the participants experienced an acute suicidal crisis or a serious symptom aggravation during the period of data collection.

3.3. Treatment effects

Means and standard deviations of all outcome variables across the different time points are displayed in Table 3.

3.3.1. Set (a): PTSD outcome variables

The MANOVA of *Set (a)* revealed a significant multivariate main effect of time ($\Lambda = .20$, $F(3,21) = 26.95$,

Table 2. Sociodemographic, diagnostic and trauma characteristics.

Sociodemographic characteristics	N (%)
Female gender	24 (96)
Marital status	
Single	20 (80)
Married	3 (12)
Divorced	2 (8)
Educational level	
Graduation after 10th grade	8 (32)
German curricula (Abitur)	7 (28)
College / University	10 (40)
Employment	
Employed	13 (52)
Employed but being sick on leave	3 (12)
Unemployed due to disability	1 (4)
Retired	1 (4)
Student	6 (24)
Homemaker	1 (4)
Prior experience with meditation	23 (92)
Diagnostic charactaristics	N (%)
DSM-5 diagnosis	
PTSD	25 (100)
Mood disorder	25 (100)
Substance abuse (remitted)	2 (8)
Anxiety disorder (e.g. phobia)	10 (40)
Other	2 (8)
Prior treatment experience	
None	3 (12)
Outpatient treatment only (≥1)	11 (44)
Inpatient and outpatient treatment (≥1)	11 (44)
Psychotropic medication use (pretreatment)	
Antidepressants	2 (8)
Benzodiazepines	1 (4)
Other antianxiety medications	2 (8)
None	20 (80)
Trauma charactaristics	
Type of index trauma	N (%)
Childhood sexual abuse	8 (32)
Childhood physical abuse	3 (12)
Adulthood sexual violence	12 (48)
Adulthood physical violence	1 (4)
Others	1 (4)
Occurrence of index trauma	N (%)
Singular	13 (52)
Repeated	12 (48)
Duration of index trauma in months	M (SD)
Including all participants (singular trauma coded as 1)	36.74 (60.36)
Total number of traumatic events (LEC)	6.16 (2.93)
Age at the time of the traumatic event	19.76 (13.28)
Duration of PTSD symptoms in months	175.96 (178.42)

Note. SD = Standard Deviation; LEC = Life Event Checklist.

$p < .001$, $\eta^2 = .79$). In the subsequent analyses, univariate main effects emerged for all the included variables: CAPS-5 (F (1,23) = 66.93, $p < .001$, $\eta^2 = .74$, $d = 1.67$),

Table 3. Overview over means and standard deviations of the outcome variables across the different time points.

	T0 M (SD)	T1-1 M (SD)	T1-2 M (SD)	T2 M (SD)
CAPS-5	41.04 (10.91)			25.96 (11.75)
PCL-5	44.64 (17.08)			28.32 (17.24)
PTCI	154.92 (29.93)			111.36 (39.57)
TRGI-GG	2.99 (0.62)	2.24 (0.87)	1.59 (0.96)	1.48 (0.90)
TRGI-GC	2.48 (0.68)	1.71 (0.71)	1.24 (0.67)	1.21 (0.69)
TRSI	1.65 (0.59)	1.39 (0.64)	0.88 (0.55)	0.76 (0.54)

Note: T0 = assessment before starting treatment; T1-1 = assessment after session 3; T1-2 = assessment after session 6; T2 = assessment after 4 additional weeks of individual practice; M = Mean; SD = Standard Deviation; CAPS-5 = Clinician-Administered PTSD Scale for DSM-5; PCL-5 = PTSD Checklist for DSM-5; PTCI = Posttraumatic Cognitions Inventory; TRGI-GG = Global Guilt Scale of the Trauma Related Guilt Inventory; TRGI-GC = Guilt Cognitions Scale of the Trauma Related Guilt Inventory; TRSI = Trauma Related Shame Inventory.

PCL-5 ($F(1,23) = 30.00$, $p < .001$, $\eta^2 = .56$, $d = 1.12$), PTCI ($F(1,23) = 5784$, $p < .001$, $\eta^2 = .71$, $d = 1.45$). Effect sizes were $\eta^2 > .14$ and $d > 0.8$ and therefore large (Cohen, 1988). Results support the hypothesis that over time, participants would show significantly reduced PTSD symptoms (*Hypothesis 1a*). In addition, 13 participants (52%) did not meet the DSM-5 criteria for PTSD in the CAPS-5 at post-assessment and were therefore classified as remitted.

3.3.2. Set (b): guilt and shame outcome variables

Figure 1 depicts the graphs of the measures across the four time-points for the guilt and shame outcome variables (*Set (b)*). The MANOVA of *Set (b)* revealed a significant multivariate main effect of time ($\Lambda = .17$, F (9, 15) = 8.14, $p < .001$, $\eta^2 = .83$). In the subsequent analyses, univariate main effects emerged for all the included variables: TRGI-GG (F (2.06, 47.39) = 38.91, $p < .001$, $\eta^2 = .62$), TRGI-GC (F (1.79, 47.39) = 42.77, $p < .001$, $\eta^2 = .65$) and TRSI (F (2.01, 46.41) = 28.77, $p < .001.$, $\eta^2 = .55$). All Effect sizes were large with $\eta^2 > .14$ (Cohen, 1988). Post hoc tests revealed significant effects for each pairwise comparison except for the following: No significant changes occurred from T1-2 to T2 regarding all three measures (TRGI-GG, TRGI-GC and TRSI). All other pairwise comparisons showed significant effects of $p < .001$ apart from the change of TRSI from T0 to T1-1 which showed a significant effect of $p = .01$. Accordingly, all effect sizes concerning significant pairwise comparisons were $d > 0.8$ and thus large, except for the change in TRSI from T0 to T1-1 which was medium with $d = 0.55$ (Cohen, 1988). Changes from T0 to T2 were $d = 1.54$ for TRGI-GG, $d = 1.50$ for TRGI-GC and $d = 1.26$ for TRSI.

These results support the hypotheses that over time, participants would show significantly reduced trauma-related guilt (*Hypothesis 1b*) as well as significantly reduced trauma-related shame (*Hypothesis 1c*).

3.3.3. Set (a) and (b): effect of the former group affiliation

In both MANOVAs (*set (a)* and *(b)*), the between-group factor (treatment vs. waitlist control group of the original study) was not significant, demonstrating that the two groups did not differ with respect to the outcome variables (see 'Preliminary notes on our analyses'). The multivariate interaction effects of group × time also showed not to be significant, demonstrating that the two groups did not differ with respect to treatment effects. Thus, both former groups of the pilot RCT (Müller-Engelmann et al., 2024) could be treated as one in the present study.

3.3.4. Influence of treatment duration on treatment effectiveness

None of the subsequent MANCOVAs revealed significant time × treatment duration interaction effects
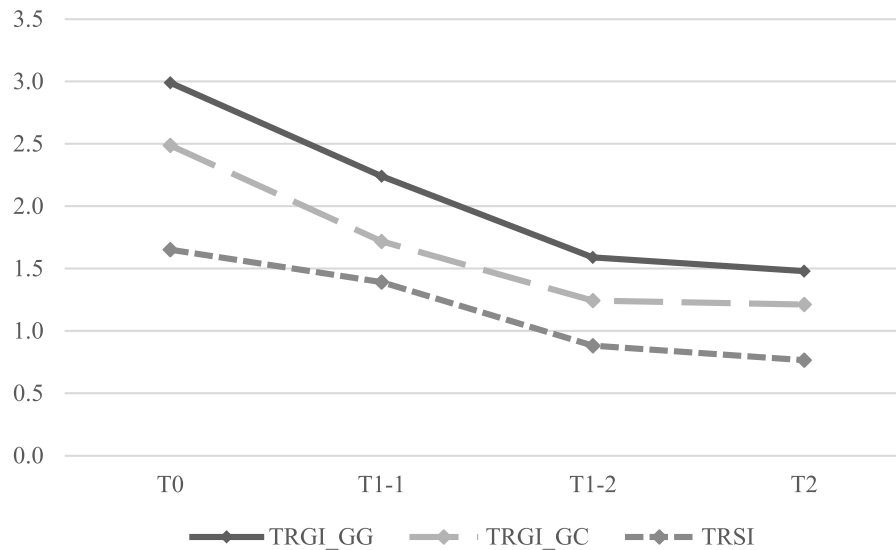
Figure 1. Graph of the guilt and shame variables across the four time-points.

Note. TRGI-GG = Trauma-Related Guilt Inventory – Global Guilt scale; TRGI-CG = Trauma-Related Guilt Inventory – Guilt Cognition Scale; TRSI = Trauma-Related Shame Inventory.

(effects of the covariate). Therefore, results suggest that treatment effects were likely not confounded by an increased number of sessions participants received.

3.3.5. Influence of childhood trauma, cumulative trauma and PTSD chronicity on treatment effectiveness

No significant covariate effects emerged in the additional exploratory MANCOVAs, indicating that childhood trauma, cumulative trauma, and PTSD chronicity did not influence treatment outcomes.

4. Discussion

This quasi-experimental trial supports our hypotheses regarding the effectiveness of C-METTA, a combination of cognitive interventions and LKM, in reducing PTSD symptoms as well as trauma-related guilt and shame. The present study adds to the findings of the previous pilot RCT (Müller-Engelmann et al., 2024) indicating that C-METTA is a promising treatment for individuals suffering from PTSD and trauma related guilt and shame. This study treated more patients than the previous pilot RCT (Müller-Engelmann et al., 2024). Additionally, our study reveals treatment effectiveness specifically for individuals who experienced interpersonal trauma, a highly vulnerable subgroup of PTSD patients (e.g. Birkeland et al., 2022) that often suffer from complex PTSD. In our study, remission rates for PTSD were high: 52% of the participants showed remission at the end of the study. Significant effects of time emerged for all included variables, showing that both, PTSD symptoms as well as clinically relevant feelings of guilt and shame, decreased significantly from pre – to post-assessment. Pre–post effect sizes were impressively large (ranging from $d = 1.12$ to $d = 1.67$ for the

PTSD measures, and from $d = 1.26$ to $d = 1.54$ for the guilt and shame measures). Given that feelings of shame and guilt are prevalent among survivors of interpersonal violence (Badour et al., 2017) and are associated with greater PTSD symptom severity seven years post-trauma (e.g. Flynn et al., 2024), the reduction of feelings of shame and guilt through C-METTA seems particularly encouraging.

We assume C-METTA to be effective for guilt and shame dominated PTSD because these feelings are directly addressed (in contrast to interventions that more commonly focus on fear and helplessness). One reason for the effectiveness of C-METTA might be that the cognitive interventions allow rational distancing from guilt and shame while LKM strengthens the achieved effects by nourishing a benevolent attitude towards the self. Additionally, studies show that interpersonal trauma, in contrast to non-interpersonal trauma, has a higher impact on the victim's sense of identity (Reiland & Clark, 2017). By targeting the self-related feelings of guilt and shame C-METTA might serve as a suitable intervention for restoring a fragmented sense of identity.

Concerning guilt measures, we found significant and continuous reductions from pre-assessment to the assessment directly after treatment, indicating that changes occurred consistently during treatment and were sustained at the four-week follow-up, with no further improvement after treatment cessation. In contrast, our results show that reduction in shame were more pronounced during the second half of the treatment and were similarly maintained at follow-up, without further improvement post-treatment. This is in line with the treatment manual as the first sessions focus on reducing guilt, using predominantly cognitive techniques, whereas shame is addressed from session 3 on with LKM. These results indicate

that both aspects of the intervention are relevant for treatment effectiveness. They support the idea of C-METTA of combining the two approaches.

Our second aim was to examine whether childhood trauma, cumulative trauma and PTSD chronicity had a significant impact on treatment effectiveness. We found that the three variables did not significantly influence reductions in PTSD symptom reduction, guilt or shame. These findings indicate that C-METTA may be an effective treatment even for patients with childhood trauma, cumulative trauma or chronic PTSD. C-METTA might thus be a valid treatment alternative or addition, even for these particularly vulnerable subgroups who are known to suffer from a higher PTSD severity (e.g. Hébert et al., 2024; Kongshøj & Bohn, 2024; Nordbrandt et al., 2022) and are more likely to develop CPTSD (Gilbar et al., 2018; Karatzias et al., 2017).

The dropout rate in our study was low (n = 1; 4%) and the single dropout appeared unrelated to the treatment itself but rather due to personal reasons leading the participant to discontinue the programme. This is especially promising with respect to our sample of victims of interpersonal violence, who often struggle to complete established trauma-focused treatments (Ghafoori et al., 2022) and therefore require alternative approaches. The low dropout rate might suggest that C-METTA is less straining than exposure-based treatments which are usually linked to higher dropout rates (Lewis et al., 2020b). C-METTA might help individuals to stay in treatment by not only focusing on distressing emotions but also by enhancing positive emotions by practicing LKM. This might make the treatment more tolerable than exposure-based treatments. Moreover, core features of guilt and shame, such as self-blame and feelings of inadequacy, have been associated with reduced self-care and treatment engagement (Norman et al., 2018). The benevolent attitude fostered through LKM may help counteract these effects.

4.1. Limitations

Our study has some relevant limitations concerning the composition of our sample which might affect the generalizability of our results: First, most of the participants were well-educated young women. However, women are more likely to experience interpersonal violence, and trauma-related feelings of shame and guilt (Aakvaag et al., 2016). Hence, our sample of patients might still be representative for individuals who suffer from PTSD following interpersonal violence, especially for individuals who suffer from trauma-related guilt and shame. Also, we limited the participation in our study to participants who were under the age of 65 years and did not suffer from acute substance abuse, life-threatening self-injury, or

psychiatric disorders and circumstances that required different settings (e.g. schizophrenia, critically underweight). Furthermore, we only included individuals with high levels of motivation for practicing meditation which might have led to a self-selection of participants who were more susceptible to meditation practices. This might have distorted attrition rates and treatment effects.

Further relevant limitations of our study concern methodological aspects. Apart from the CAPS-5 we only used self-report measures which are more susceptible to response biases. Also, we used our own German translations of the TRGI and the TRSI which have not been empirically investigated. Due to the small sample size, the conducted analyses of variance were underpowered, and results should be interpreted carefully. We lack a control group in our quasi-experimental design. Therefore, the effects of our study might be confounded by a simple effect of time or by regression to the mean. This will have to be investigated in future randomized controlled trials. However, half of the group originally belonged to a waitlist control group in a previous pilot RCT. As no changes occurred in the former control group during the waiting period (Müller-Engelmann et al., 2024) and possible group differences could not be found in our study, we can cautiously attribute the effects of the study to the treatment. Furthermore, the post-assessment merely took place four weeks after treatment, so that we cannot make any assumptions about the long-term effects of the treatment. As mentioned above, reductions in guilt preceded reductions in shame. However, it remains unclear which specific treatment components contributed to these effects and whether all elements (e.g. cognitive exercises, meditations) are necessary to achieve the observed improvements. This would have to be investigated in the context of future dismantling studies. Moreover, we did not control for the amount of individual practice the participants actually performed. However, a similar study that investigated the effects of a loving-kindness intervention on PTSD-patients did not find significant correlations between the duration of individual practice and treatment effects (Müller-Engelmann et al., 2019). Additionally, we did not assess C-PTSD, although our sample is likely to have fulfilled C-PTSD criteria.

The impact of C-METTA on C-PTSD should be investigated in future studies. To further investigate the potential of C-METTA randomized controlled trials with active control groups, larger sample sizes and longer follow-up periods are needed.

5. Conclusion

The results stand in line with the results of previous studies (Kearney et al., 2021; Müller-Engelmann

et al., 2019): they support the notion that combining cognitive interventions with LKM may be a promising treatment alternative or extension for PTSD patients. Furthermore, the combination of both (as in C-METTA) seems to be highly effective for the particularly vulnerable subgroup of PTSD patients who have experienced interpersonal violence und suffer from clinically relevant feelings of guilt and shame. C-METTA seems to be a promising intervention even for patients who experienced trauma at a young age, cumulative/long-lasting trauma, and/or for patients whose PTSD has turned chronic. C-METTA could be used within a patient-centered approach which adapts to the patients' specific symptoms and needs. This is especially relevant given that survivors of interpersonal violence experiencing trauma-related guilt and shame often fulfil criteria for CPTSD (Gilbar et al., 2018; ISTSS, 2024; Karatzias et al., 2017; WHO, 2019), for which current guidelines recommend patient-centered treatment approaches (ISTSS, 2024). C-METTA may enhance the diversity of PTSD treatments, providing patients with additional options tailored to their preferences and the respective symptomatology. This, in turn, may have a positive impact on dropout and nonresponse rates. Furthermore, C-METTA could be included in modular treatment approaches that are particularly recommended for complex PTSD.

Data availability statement

The data that support the findings of this study is available from the corresponding author, Meike Müller-Engelmann, upon reasonable request.

Ethics declaration

This study approval was obtained from the independent ethics committee of Goethe-University (Reference number: Reference Number: 2020-50). All subjects gave written informed consent in accordance with the Declaration of Helsinki.

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References

Aakvaag, H. F., Thoresen, S., Wentzel-Larsen, T., Dyb, G., Røysamb, E., & Olff, M. (2016). Broken and guilty since it happened: A population study of trauma-related shame and guilt after violence and sexual abuse. *Journal of Affective Disorders*, 204, 16–23. https://doi.org/10.1016/j.jad.2016.06.004

Allard, C. B., Norman, S. B., Thorp, S. R., Browne, K. C., & Stein, M. B. (2018). Mid-Treatment reduction in trauma-related guilt predicts PTSD and functioning following cognitive trauma therapy for survivors of intimate partner violence. *Journal of Interpersonal Violence*, 33(23), 3610–3629. https://doi.org/10.1177/0886260516636068

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). https://doi.org/10.1176/appi.books.9780890425596

American Psychological Association. (2017). *Clinical practice guideline for the treatment of PTSD*.

Amstadter, A. B., & Vernon, L. L. (2008). Emotional reactions during and after trauma: A comparison of trauma types. *Journal of Aggression, Maltreatment & Trauma*, 16(4), 391–408. https://doi.org/10.1080/10926770801926492

Badour, C. L., Resnick, H. S., & Kilpatrick, D. G. (2017). Associations between specific negative emotions and DSM-5 PTSD Among a national sample of interpersonal trauma survivors. *Journal of Interpersonal Violence*, 32(11), 1620–1641. https://doi.org/10.1177/0886260515589930

Bannister, J. A., Colvonen, P. J., Angkaw, A. C., & Norman, S. B. (2019). Differential relationships of guilt and shame on posttraumatic stress disorder among veterans. *Psychological Trauma: Theory, Research, Practice and Policy*, 11(1), 35–42. https://doi.org/10.1037/tra0000392

Birkeland, M. S., Skar, A-MS, & Jensen, T. K. (2022). Understanding the relationships between trauma type and individual posttraumatic stress symptoms: A cross-sectional study of a clinical sample of children and adolescents. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 63(12), 1496–1504. https://doi.org/10.1111/jcpp.13602

Blevins, C. A., Weathers, F. W., Davis, M. T., Witte, T. K., & Domino, J. L. (2015). The posttraumatic stress disorder checklist for DSM-5 (PCL-5): development and initial psychometric evaluation. *Journal of Traumatic Stress*, 28(6), 489–498. https://doi.org/10.1002/jts.22059

Bodhi, B. (2013). The noble eightfold path: The way to the end of suffering. *Access to Insight (BCBS Edition)*. http://www.accesstoinsight.org/lib/authors/bodhi/waytoend.html.

Budden, A. (2009). The role of shame in posttraumatic stress disorder: A proposal for a socio-emotional model for DSM-V. *Social Science & Medicine*, 69(7), 1032–1039. https://doi.org/10.1016/j.socscimed.2009.07.032

Cili, S., & Stopa, L. (2015). Intrusive mental imagery in psychological disorders: Is the self the key to understanding maintenance? *Frontiers in Psychiatry*, 6, 103. https://doi.org/10.3389/fpsyt.2015.00103

Cloitre, M., Stolbach, B. C., Herman, J. L., van der Kolk, B., Pynoos, R., Wang, J., & Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of Traumatic Stress*, 22(5), 399–408. https://doi.org/10.1002/jts.20444

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Erlbaum.

Dorahy, M. J. (2010). The impact of dissociation, shame, and guilt on interpersonal relationships in chronically traumatized individuals: A pilot study. *Journal of Traumatic Stress*, 23(5), 653–656. https://doi.org/10.1002/jts.20564

Ehlers, A. (1999). *Posttraumatische Belastungsstörung. Fortschritte der Psychotherapie: Manuale für die Praxis: Bd. 8*. Hogrefe.

Ehlers, A., & Boos, A. (1999). Fragebogen zu Gedanken nach traumatischen Erlebnissen, PTCI. *Posttraumatische Belastungsstörung*, 92-93.

Ehring, T., Welboren, R., Morina, N., Wicherts, J. M., Freitag, J., & Emmelkamp, P. M. G. (2014). Meta-analysis of psychological treatments for posttraumatic stress disorder in adult survivors of childhood abuse. *Clinical Psychology Review*, 34(8), 645–657. https://doi.org/10.1016/j.cpr.2014.10.004

Erb, S. R., Barata, P. C., Yi, S., McLachlan, K., & Powell, D. (2023). The shame and guilt distinction: Addressing the (mal)adaptive nature of guilt. *Traumatology*, 29(2), 233–248. https://doi.org/10.1037/trm0000388

First, M. B., Williams, J. B., Karg, R. S., & Spitzer, R. L. (2015). *Structured clinical interview for DSM-5 disorders, clinician version (SCID-5-CV)*. American Psychiatric Association.

Flynn, A. J., Puhalla, A., & Vaught, A. (2024). The role of shame and trauma type on posttraumatic stress disorder and depression severity in a treatment-seeking veteran population. *Psychological Trauma: Theory, Research, Practice, and Policy*, 16(8), 1294–1300. https://doi.org/10.1037/tra0001495

Foa, E. B., Ehlers, A., Clark, D. M., Tolin, D. F., & Orsillo, S. M. (1999). The posttraumatic cognitions inventory (PTCI): Development and validation. *Psychological Assessment*, 11(3), 303–314. https://doi.org/10.1037/1040-3590.11.3.303

Foa, E. B., & Kozak, M. J. (1986). Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin*, 99(1), 20–35. https://doi.org/10.1037/0033-2909.99.1.20

Ghafoori, B., Matos, M., & Gonçalves, M. (2022). Dropout from evidence-based trauma treatment in a community mental health clinic serving victims of interpersonal violence. *Journal of Traumatic Stress*, 35(3), 1025–1041. https://doi.org/10.1002/jts.22811

Gilbar, O., Hyland, P., Cloitre, M., & Dekel, R. (2018). ICD-11 complex PTSD among Israeli male perpetrators of intimate partner violence: Construct validity and risk factors. *Journal of Anxiety Disorders*, 54, 49–56. https://doi.org/10.1016/j.janxdis.2018.01.004

Hébert, M., Amédée, L. M., & Tremblay-Perreault, A. (2024). Identifying PTSD and complex PTSD profiles in child victims of sexual abuse. *Journal of Child Sexual Abuse*, 1–19. https://doi.org/10.1080/10538712.2024.2403996

International Society for Traumatic Stress Studies. (2024). *ISTSS guidelines position paper on complex PTSD in Adults*. https://istss.org/wp-content/uploads/2024/08/ISTSS-Guidelines-Position-Paper-on-Compex-PTSD-in-Adults.pdf.

Karatzias, T., & Cloitre, M. (2019). Treating adults with complex posttraumatic stress disorder using a modular approach to treatment: Rationale, evidence, and directions for future research. *Journal of Traumatic Stress*, 32(6), 870–876. https://doi.org/10.1002/jts.22457

Karatzias, T., Shevlin, M., Fyvie, C., Hyland, P., Efthymiadou, E., Wilson, D., Roberts, N., Bisson, J. I., Brewin, C. R., & Cloitre, M. (2017). Evidence of distinct profiles of posttraumatic stress disorder (PTSD) and complex posttraumatic stress disorder (CPTSD) based on the new ICD-11 trauma questionnaire (ICD-TQ). *Journal of Affective Disorders*, 207, 181–187. https://doi.org/10.1016/j.jad.2016.09.032

Kearney, D. J., Malte, C. A., Storms, M., & Simpson, T. L. (2021). Loving-kindness meditation vs cognitive processing therapy for posttraumatic stress disorder among veterans: A randomized clinical trial. *JAMA Network Open*, 4(4), e216604. https://doi.org/10.1001/jamanetworkopen.2021.6604

Kearney, D. J., McManus, C., Malte, C. A., Martinez, M. E., Felleman, B., & Simpson, T. L. (2014). Loving-kindness meditation and the broaden-and-build theory of positive emotions Among veterans with posttraumatic stress disorder. *Medical Care*, 52(12), 32–38. https://doi.org/10.1097/MLR.0000000000000221

Kessler, R. C., Aguilar-Gaxiola, S., Alonso, J., Benjet, C., Bromet, E. J., Cardoso, G., Degenhardt, L., de Girolamo, G., Dinolova, R. V., Ferry, F., Florescu, S., Gureje, O., Haro, J. M., Huang, Y., Karam, E. G., Kawakami, N., Lee, S., Lepine, J.-P., Levinson, D., … Koenen, K. C. (2017). Trauma and PTSD in the WHO world mental health surveys. *European Journal of Psychotraumatology*, 8(sup5), 1353383. https://doi.org/10.1080/20008198.2017.1353383

Keyan, D., Garland, N., Choi-Christou, J., Tran, J., O'Donnell, M., & Bryant, R. A. (2024). A systematic review and meta-analysis of predictors of response to trauma-focused psychotherapy for posttraumatic stress disorder. *Psychological Bulletin*, 150(7), 767–797. https://doi.org/10.1037/bul0000438

Kira, I. A. (2001). Taxonomy of trauma and trauma assessment. *Traumatology*, 7(2), 73–86. https://doi.org/10.1177/153476560100700202

Koenen, K. C., Ratanatharathorn, A., Ng, L., McLaughlin, K. A., Bromet, E. J., Stein, D. J., Karam, E. G., Meron, R. A., Benjet, C., Scott, K., Atwoli, L., Petukhova, M., Lim, C. C. W., Aguilar-Gaxiola, S., Al-Hamzawi, A., Alonso, J., Bunting, B., Ciutan, M., de Girolamo, G., … Kessler, R. C. (2017). Posttraumatic stress disorder in the world mental health surveys. *Psychological Medicine*, 47(13), 2260–2274. https://doi.org/10.1017/S0033291717000708

Kongshøj, I. L. L., & Bohn, A. (2024). Does age matter in posttraumatic stress disorder? The effects of age, event centrality, and trauma type on trauma aftermath. *Traumatology*, 30(4), 559–568. https://doi.org/10.1037/trm0000465

Krüger-Gottschalk, A., Knaevelsrud, C., Rau, H., Dyer, A., Schäfer, I., Schellong, J., & Ehring, T. (2017). The German version of the posttraumatic stress disorder checklist for DSM-5 (PCL-5): psychometric properties and diagnostic utility. *BMC Psychiatry*, 17(1), 1–9. https://doi.org/10.1186/s12888-017-1541-6

Kubany, E. S., Abueg, F. R., Brennan, J. M., Owens, J. A., Kaplan, A., & Watson, S. (1995). Initial examination of a multidimensional model of trauma-related guilt: Applications to combat veterans and battered women. *Journal of Psychopathology and Behavioral Assessment*, 17(4), 353–376. https://doi.org/10.1007/BF02229056

Kubany, E. S., Haynes, S. N., Abueg, F. R., Manke, F. P., Brennan, J. M., & Stahura, C. (1996). Development and validation of the trauma-related guilt inventory (TRGI). *Psychological Assessment*, 8(4), 428–444. https://doi.org/10.1037/1040-3590.8.4.428

Kubany, E. S., & Ralston, T. C. (1998). Cognitive therapy for trauma-related guilt. In V. M. Follette & J. I. Ruzek (Eds.), *Cognitive-behavioral therapies for trauma* (2nd ed, pp. 124–161). The Guilford Press.

Landy, M. S., Wagner, A. C., Brown-Bowers, A., & Monson, C. M. (2015). Examining the evidence for complex post-traumatic stress disorder as a clinical diagnosis. *Journal of Aggression, Maltreatment & Trauma*, 24(3), 215–236. https://doi.org/10.1080/10926771.2015.1002649

Larsen, S. E., Fleming, C. J. E., & Resick, P. A. (2019). Residual symptoms following empirically supported treatment for PTSD. *Psychological Trauma: Theory, Research, Practice, and Policy*, 11(2), 207–215. https://doi.org/10.1037/tra0000384

Lewis, C., Roberts, N. P., Andrew, M., Starling, E., & Bisson, J. I. (2020a). Psychological therapies for post-traumatic stress disorder in adults: Systematic review and meta-analysis. *European Journal of Psychotraumatology*, 11(1), 1729633. https://doi.org/10.1080/20008198.2020.1729633

Lewis, C., Roberts, N. P., Gibson, S., & Bisson, J. I. (2020b). Dropout from psychological therapies for post-traumatic stress disorder (PTSD) in adults: Systematic review and meta-analysis. *European Journal of Psychotraumatology*, 11(1), 1709709. https://doi.org/10.1080/20008198.2019.1709709

Marks, I., Lovell, K., Noshirvani, H., Livanou, M., & Thrasher, S. (1998). Treatment of post traumatic stress disorder by exposure and/or cognitive restructuring. *Archives of General Psychiatry*, 55(4), 317–325. https://doi.org/10.1001/archpsyc.55.4.317

Müller, J., Wessa, M., Rabe, S., Dörfel, D., Knaevelsrud, C., Flor, H., Maercker, A., & Karl, A. (2010). Psychometric properties of the posttraumatic cognitions inventory (PTCI) in a German sample of individuals with a history of trauma. *Psychological Trauma: Theory, Research, Practice, and Policy*, 2(2), 116–125. https://doi.org/10.1037/a0018603

Müller-Engelmann, M., Bahnemann, L., & Kümmerle, S. (2024). The effects of a combination of cognitive interventions and loving-kindness meditations (C-METTA) on guilt, shame and PTSD symptoms: Results from a pilot randomized controlled trial. *European Journal of Psychotraumatology*, 15(1), 2308439. https://doi.org/10.1080/20008066.2024.2308439

Müller-Engelmann, M., Schnyder, U., Dittmann, C., Priebe, K., Bohus, M., Thome, J., Fydrich, T., Pfaltz, M. C., & Steil, R. (2020). Psychometric properties and factor structure of the German version of the clinician-administered PTSD scale for DSM-5. *Assessment*, 27(6), 1128–1138. https://doi.org/10.1177/1073191118774840

Müller-Engelmann, M., Schreiber, C., Kümmerle, S., Heidenreich, T., Stangier, U., & Steil, R. (2019). A trauma-adapted mindfulness and loving-kindness intervention for patients with PTSD after interpersonal violence: A multiple-baseline study. *Mindfulness*, 10(6), 1105–1123. https://doi.org/10.1007/s12671-018-1068-z

Nordbrandt, M. S., Vindbjerg, E., Mortensen, E. L., & Carlsson, J. (2022). Chronicity of posttraumatic stress disorder and comorbid pain as predictors of treatment response for trauma-affected refugees. *Journal of Traumatic Stress*, 35(5), 1393–1404. https://doi.org/10.1002/jts.22839

Norman, S. B., Haller, M., Kim, H. M., Allard, C. B., Porter, K. E., Stein, M. B., Venners, M. R., Authier, C. C., & Rauch, S. A. M. (2018). Trauma related guilt cognitions partially mediate the relationship between PTSD symptom severity and functioning among returning combat veterans. *Journal of Psychiatric Research*, 100, 56–62. https://doi.org/10.1016/j.jpsychires.2018.02.003

Øktedalen, T., Hagtvet, K. A., Hoffart, A., Langkaas, T. F., & Smucker, M. (2014). The trauma related shame inventory: Measuring trauma-related shame Among patients with PTSD. *Journal of Psychopathology and Behavioral Assessment*, 36(4), 600–615. https://doi.org/10.1007/s10862-014-9422-5

Reiland, S. A., & Clark, C. B. (2017). Relationship between event type and mental health outcomes: Event centrality as mediator. *Personality and Individual Differences*, 114, 155–159. https://doi.org/10.1016/j.paid.2017.04.009

Resick, P. A., Monson, C. M., & Chard, K. M. (2024). *Cognitive processing therapy for PTSD: A comprehensive therapist manual* (2nd ed.). The Guilford Press.

Robinaugh, D. J., & McNally, R. J. (2011). Trauma centrality and PTSD symptom severity in adult survivors of childhood sexual abuse. *Journal of Traumatic Stress*, 24(4), 483–486. https://doi.org/10.1002/jts.20656

Rzeszutek, M., Lis-Turlejska, M., Pięta, M., Van Hoy, A., Zawistowska, M., Drabarek, K., Kozłowska, W., Szyszka, M., & Frąc, D. (2024). Profiles of posttraumatic stress disorder (PTSD), complex posttraumatic stress disorder (CPTSD), and subjective well-being in a sample of adult children of alcoholics. *Psychological Trauma: Theory, Research, Practice, and Policy*, 16(Suppl 1), 143–151. https://doi.org/10.1037/tra0001211

Salzberg, S. (2002). *Lovingkindness: The revolutionary art of happiness. Shambhala classics*. Shambhala.

Schnyder, U. (2013). German version of the clinician-administered PTSD Scale for DSM-5 (CAPS-5). Unpublished manuscript. University Hospital Zurich, Switzerland.

Shi, C., Ren, Z., Zhao, C., Zhang, T., & Chan, SH-W. (2021). Shame, guilt, and posttraumatic stress symptoms: A three-level meta-analysis. *Journal of Anxiety Disorders*, 82, 102443. https://doi.org/10.1016/j.janxdis.2021.102443

Stefanovic, M., Ehring, T., Wittekind, C. E., Kleim, B., Rohde, J., Krüger-Gottschalk, A., Knaevelsrud, C., Rau, H., Schäfer, I., Schellong, J., Dyer, A., & Takano, K. (2022). Comparing PTSD symptom networks in type I vs. Type II trauma survivors. *European Journal of Psychotraumatology*, 13(2), 2114260. https://doi.org/10.1080/20008066.2022.2114260

Tangney, J. P., Stuewig, J., Mashek, D., & Hastings, M. (2011). Assessing jail inmates' proneness to shame and guilt: Feeling Bad about the behavior or the self? *Criminal Justice and Behavior*, 38(7), 710–734. https://doi.org/10.1177/0093854811405762

Tangney, J. P., Stuewig, J., & Mashek, D. J. (2007). Moral emotions and moral behavior. *Annual Review of Psychology.*, 58(1), 345–372. https://doi.org/10.1146/annurev.psych.56.091103.070145

van Minnen, A., Arntz, A., & Keijsers, G. P. J. (2002). Prolonged exposure in patients with chronic PTSD: Predictors of treatment outcome and dropout. *Behaviour Research and Therapy*, 40(4), 439–457. https://doi.org/10.1016/S0005-7967(01)00024-9

Watts, B. V., Schnurr, P. P., Mayo, L., Young-Xu, Y., Weeks, W. B., & Friedman, M. J. (2013). Meta-analysis of the efficacy of treatments for posttraumatic stress disorder. *The Journal of Clinical Psychiatry*, 74(6), e541–e550. https://doi.org/10.4088/JCP.12r08225

Weathers, F. W., Blake, D. D., Schnurr, P. P., Kaloupek, D. G., Marx, B. P., & Keane, T. M. (2013a). *The clinician-administered PTSD scale for DSM-5 (CAPS-5)*. National Center for PTSD. https://www.ptsd.va.gov/professional/assessment/adult-int/caps.asp.

Weathers, F. W., Blake, D. D., Schnurr, P. P., Kaloupek, D. G., Marx, B. P., & Keane, T. M. (2013b). *The life events checklist for DSM-5 (LEC-5)*. National Center for PTSD. https://www.ptsd.va.gov/professional/assessment/te-measures/life_events_checklist.asp.

Weathers, F. W., Bovin, M. J., Lee, D. J., Sloan, D. M., Schnurr, P. P., Kaloupek, D. G., Keane, T. M., & Marx, B. P. (2018). The clinician-administered PTSD scale for DSM-5 (CAPS-5): Development and initial psychometric evaluation in military veterans. *Psychological Assessment*, *30*(3), 383–395. https://doi.org/10.1037/pas0000486

World Health Organization. (2019). *International statistical classification of diseases and related health problems (11th ed.)*. https://icd.who.int/