

# A clinical trial comparing trauma-informed guilt reduction therapy (TrIGR), a brief intervention for trauma-related guilt, to supportive care therapy

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## Abstract

**Introduction:** Trauma-related guilt is common, associated with posttraumatic mental health problems, and can persist after posttraumatic stress disorder (PTSD) treatment. We compared the efficacy of two six-session psychotherapies, Trauma-Informed Guilt Reduction (TrIGR) and Supportive Care Therapy (SCT), for reducing trauma-related guilt. TrIGR helps patients accurately appraise their role in the trauma and re-engage in values. In SCT, patients guide session content.

**Methods:** A total of 184 veterans seeking VA mental health services were enrolled across two sites; 145 veterans (mean age: 39.2 [8.1]; 92.4% male; 84.8% with PTSD) who endorsed guilt related to a traumatic event that occurred during a post 9/11

Iraq or Afghanistan deployment were randomized and assessed at baseline, post-treatment, 3- and 6-month follow-up.

**Results:** Linear mixed models using intent-to-treat analyses showed guilt decreased in both conditions with a greater decrease for TrIGR (treatment  $\times$  time,  $-0.22$ ;  $F_{1, 455.2} = 18.49$ ,  $p = .001$ ;  $d = 0.92$ ) than supportive therapy. PTSD and depressive symptoms showed the same pattern. TrIGR had significantly higher likelihood of PTSD treatment response (67% vs. 40%), loss of PTSD diagnosis (50% vs. 14%), and meaningful change in depression (54% vs. 27%) than supportive therapy. Psychological distress and trait shame improved in both conditions. Quality of life did not change.

**Conclusions:** Targeting guilt appears to be an effective means for reducing post-traumatic symptoms and distress.

#### KEYWORDS

depression, PTSD, trauma, treatment

## 1 | INTRODUCTION

Feelings of guilt arise when trauma survivors blame themselves for their actions or inactions during a traumatic event (Kubany & Watson). Trauma-related guilt is common (Miller et al., 2013) and has direct relationships with severity of posttraumatic stress disorder (PTSD), depression, psychological distress, suicidal ideation, poor psychosocial functioning, and feelings of shame (Bannister et al., 2019; Browne et al., 2015; Bryan et al., 2013; Marx et al., 2010; Norman et al., 2018; Pugh et al., 2015). While guilt can be a consequence of any trauma, studies indicate it is particularly common among treatment-seeking veterans, especially among those who served in warzones (Bannister et al., 2019; Browne et al., 2015; Norman et al., 2018; Pugh et al., 2015). In one study, 41% of trauma-exposed VA-enrolled veterans reported past-month guilt (Miller et al., 2013). This high prevalence may be because traumatic events that can cause moral injury (the painful emotional aftermath of experiences where one acted in ways that went against deeply held values) are common in the context of war, and moral injury is characterized by prominent guilt (Griffin et al., 2019; Litz et al., 2009; Williamson et al., 2021). In fact, researchers have noted the need for treatments for veterans that specifically target the moral impacts of war, including guilt (Steenkamp et al., 2015, 2020).

Multiple lines of research point to trauma-related guilt as a promising target for intervention. PTSD and other trauma-related disorders moved from anxiety disorders to “trauma and stressor-related disorders” between the fourth and fifth editions of the *Diagnostic and Statistical Manual* (DSM; American Psychiatric Association, 2013) in part to encourage research focused on common posttraumatic presentations other than those characterized by anxiety, such as those with prominent guilt (Friedman et al., 2011a, 2011b). Reduction in trauma-related guilt during PTSD treatment is associated with subsequent reduction in PTSD symptoms (Allard et al., 2018, Allard et al., 2021) suggesting that intervening on guilt may be a way to

reduce posttraumatic symptoms and distress. Among those with PTSD, trauma-focused PTSD treatment such as Cognitive Processing Therapy (CPT) and Prolonged Exposure (PE) (both typically 12-sessions) can reduce trauma-related guilt (Allard et al., 2021; Capone et al., 2020; Nishith et al., 2005). However, trauma-related guilt is one of the symptoms likely to persist even when patients otherwise responded to PTSD treatment such as PE and CPT (Larsen et al., 2019; Owens et al., 2008) indicating a guilt-focused intervention may be warranted. In addition, for those with prominent guilt or guilt in the absence of a PTSD diagnosis, a brief transdiagnostic intervention aimed at reducing trauma-related guilt may be adequate for recovery and may engage those who do not want a full course of PTSD treatment. Finally, because guilt is a prominent feature of moral injury, a treatment focused on reducing trauma-related guilt may help to reduce moral injury.

The goal of this study was to conduct a preliminary efficacy trial to evaluate Trauma-Informed Guilt Reduction (TrIGR; Norman et al., 2014; Norman et al., 2019), a 6-session psychotherapy targeting trauma-related guilt, shame, and moral injury in U. S. veterans who endorsed guilt from a traumatic event on deployment during the Iraq or Afghanistan wars. Although TrIGR was designed to be applicable to guilt from any trauma type, we focused on veterans with deployment traumas in this first study because of the high prevalence of guilt in this population (e.g., Miller et al., 2013). Our primary aim was to test the hypothesis that TrIGR would reduce guilt more than Supportive Care Therapy (SCT) at posttreatment, 3- and 6-month posttreatment follow-ups. SCT is a nondirective therapy in which patients determine session content. Secondary aims were to evaluate whether TrIGR showed greater reductions in symptoms of PTSD, depression, general psychological distress, trait shame, and quality of life (QoL) compared to SCT. PTSD and depression were selected as secondary outcomes because they are two of the most common posttraumatic mental health problems (Bryant et al., 2010; Rosellini et al., 2021) and are positively associated with guilt severity (Allard et al., 2021; Browne et al., 2015; Marx et al., 2010). Since guilt is a

transdiagnostic target related to posttraumatic distress in a number of forms, we also examined whether treatment was associated with change in general psychological distress and QoL.

## 2 | MATERIALS AND METHODS

### 2.1 | Design

This study was a two-site randomized clinical trial comparing two active treatments, TrIGR and SCT, for reducing trauma-related guilt. Methods are described below using CONSORT reporting criteria and published in a methods-focused article (Capone et al., 2021). The study procedures were reviewed and approved by the Institutional Review Boards at VA San Diego Healthcare System, Providence VA Medical Center, Brown University, and the Human Research Protections Office at the Department of Defense.

### 2.2 | Participants

Table 1 shows demographic characteristics. Participants were 145 veterans (92.4% male) seeking treatment from two large urban Veterans Affairs (VA) medical centers. Inclusion criteria were: (1) deployment in service of conflicts in Iraq and Afghanistan; (2) endorsing guilt from a traumatic event related to deployment as indicated by a score  $\geq 2$  ("true" to "extremely true") on at least one item measuring guilt severity or guilt cognitions on the Trauma-Related Guilt Inventory (TRGI; Kubany et al., 1996); (3) English literacy; (4) intention to stay in the local area during study participation; and (5) if meeting diagnostic criteria for mild or moderate substance use disorder (assessed using the Structured Clinical Interview for DSM [SCID]; First et al., 2002), willingness to set goals to reduce use. Exclusion criteria were acute suicide risk assessed using the Columbia-Suicide Severity Rating Scale (Posner et al., 2011), current severe substance use disorder assessed using the SCID, unmanaged psychosis or mania assessed using the SCID, and receiving concurrent trauma-focused PTSD treatment. Participants were allowed to engage in other treatment as usual, including psychotherapy and pharmacotherapy, and were allowed to have previously engaged in trauma-focused therapy if they currently met inclusion criteria. Exclusion criteria were minimal to increase generalizability of findings.

### 2.3 | Measures

Self-report and clinician-administered measures occurred at baseline, posttreatment, 3- and 6-month follow-up, unless otherwise specified. The primary outcome was severity of trauma-related guilt measured by the TRGI (Kubany et al., 1997), a well validated (Myers et al., 2012) questionnaire assessing trauma-related guilt stemming from an index event. There were several secondary outcomes. PTSD symptoms were assessed using the Clinician-Administered PTSD Scale for DSM-

5 (CAPS-5; Weathers et al., 2018). To determine presence of PTSD and PTSD severity, the interview was conducted on each participant's worst trauma as instructed by the CAPS-5. In 91% of cases ( $n = 132$ ), the trauma on which the CAPS-5 was conducted was also the source of guilt. Interrater reliability, conducted on 8% of randomly selected CAPS-5s, was excellent ( $\kappa = 0.87$ ). Depression symptoms were assessed using the Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001). Psychological distress was measured using the Global Severity Index of the Brief Symptom Inventory (BSI-18; Derogatis, 2001). Trait shame was measured using the internalized shame subscale of the Internalized Shame Scale (Cook, 1987). The abbreviated version of the World Health Organization Quality of Life measure (WHO-QOL-BREF) assessed physical health, psychological health, social relationships, and environment (Skevington et al., 2004). Exposure to potentially morally-injurious military events was measured at baseline using the Moral Injury Events Scale (MIES; Nash et al., 2013).

### 2.4 | Procedures

Participants were recruited through clinician and self-referral from June 2016 to March 2020. Advertisements asked if Veterans had deployed in service of the conflicts in Iraq or Afghanistan and had guilt or regret from deployment experiences. Following a phone screen, participants were enrolled by a study coordinator, provided written informed consent, and completed a baseline assessment with one of the five independent evaluators who worked on the study to assess eligibility. In the consent it was explained to participants that they would be randomized to an intervention that had more structure or one was a more open-ended approach to addressing trauma-related guilt. Participants then met with a study therapist to learn more about the study and treatment process and ask any remaining questions. Participants who opted to proceed were individually randomized by a study statistician using masked allocation and balanced blocks of four or six, stratified by site and gender. Randomization occurred before the first therapy session. Participants were informed of their condition at their first session. Participants engaged in six sessions of TrIGR or SCT and completed follow-up assessments with an independent evaluator blind to treatment condition at posttreatment, 3- and 6-month follow-ups. Compensation was \$40 at each assessment. No participants were discharged from the study due to serious adverse events.

### 2.5 | Treatments

TrIGR and SCT were each delivered in six 90-min individual weekly sessions. One additional off protocol session was allowed during treatment. TrIGR is a cognitive-behavioral intervention to reduce trauma-related guilt and shame, and distress from moral injury (Norman et al., 2014; Norman et al., 2019). It is based on the Non-adaptive Guilt and Shame (NAGS) model (Norman et al., 2014,

**TABLE 1** Demographic characteristics of the intention-to-treat sample<sup>a</sup>

Characteristics	Total (n = 145)	TrIGR (n = 74)	SCT (n = 71)
Age, mean (SD)	39.2 (8.1)	38.0 (7.6)	40.5 (8.5)
Sex			
Men	134 (92.4)	68 (91.9)	66 (93.0)
Women	9 (6.2)	5 (6.8)	4 (5.6)
Marital status			
Not married	72 (49.7)	41 (55.4)	31 (43.7)
Married	67 (46.2)	30 (40.5)	37 (52.1)
Education			
High school/GED	19 (13.1)	8 (10.8)	11 (15.5)
Some college	52 (35.9)	30 (40.5)	22 (31.0)
Associates degree or higher	73 (50.3)	36 (48.6)	37 (52.1)
Ethnicity			
Hispanic	32 (22.1)	17 (23.0)	15 (21.1)
Non-Hispanic	93 (64.1)	49 (66.2)	44 (62.0)
Race			
White	92 (63.4)	49 (66.2)	43 (60.6)
Black	13 (9.0)	6 (8.1)	7 (9.9)
Asian/Pacific Islander	13 (9.0)	4 (5.4)	9 (12.7)
Biracial/multiracial	8 (5.5)	6 (8.1)	2 (2.8)
Other	15 (10.3)	7 (9.5)	8 (11.3)
Lifetime trauma exposure, mean (SD), No. of types <sup>b</sup>	11.4 (2.8)	11.5 (2.8)	11.3 (2.8)
Event type			
Combat trauma	137 (94.5)	70 (94.6)	67 (94.4)
Sexual trauma	46 (31.7)	21 (28.4)	25 (35.2)
Physical assault	122 (84.1)	65 (87.8)	57 (80.3)
Disaster exposure	109 (75.2)	51 (68.9)	58 (81.7)
Serious accident	104 (71.7)	56 (75.7)	48 (67.6)
Life-threatening illness or injury	83 (57.2)	43 (58.1)	40 (56.3)
Taking psychotropic medication <sup>c</sup>	100 (69.0)	51 (68.9)	49 (69.0)
Previous participation in PE or CPT	70 (48.3)	36 (48.6)	34 (47.9)
Baseline assessment scores, mean (SD) <sup>d</sup>			
Trauma-related guilt severity (TRGI)	2.5 (0.7)	2.5 (0.6)	2.5 (0.7)
Interviewer-rated PTSD severity (CAPS-5)	38.4 (9.5)	38.2 (9.5)	38.6 (9.5)
Depressive symptom severity (PHQ-9)	14.7 (6.3)	15.1 (6.5)	14.3 (6.1)
Psychological distress (BSI-18)	53.3 (9.4)	53.1 (9.4)	53.5 (9.5)
Trait shame severity (ISS)	50.5 (21.9)	51.5 (22.3)	49.5 (21.6)
Physical health (WHOQOL-BREF)	49.1 (17.6)	49.0 (16.9)	49.3 (18.3)
Psychological health (WHOQOL-BREF)	44.1 (13.0)	43.7 (13.3)	44.5 (12.8)
Social relationships (WHOQOL-BREF)	40.3 (23.3)	41.1 (21.9)	39.6 (24.8)
Environment (WHOQOL-BREF)	57.5 (17.0)	57.5 (16.7)	57.4 (17.5)

(Continues)

TABLE 1 (Continued)

Characteristics	Total ( <i>n</i> = 145)	TrIGR ( <i>n</i> = 74)	SCT ( <i>n</i> = 71)
Current PTSD diagnosis (CAPS-5)	123 (84.8)	63 (85.1)	60 (84.5)
Moral injury severity (MIES)	4.08 (1.36)	4.03 (1.31)	4.13 (1.42)
No. of sessions attended out of six, mean ( <i>SD</i> )	5.3 (1.7)	5.3 (1.6)	5.3 (1.8)
No. participants who had an off-protocol session <sup>e</sup>	13 (8.9)	12 (16.2)	1 (1.4)

Abbreviations: BSI-18, Brief Symptom Inventory-18; CAPS-5, Clinician Administered PTSD Scale for DSM-5; CPT, Cognitive Processing Therapy; ISS, Internalized Shame Scale; MIES, Moral Injury Events Scale; PE, Prolonged Exposure; PHQ-9, Patient Health Questionnaire-9; PTSD, posttraumatic stress disorder; SCT, supportive counseling therapy; TRGI, Trauma-Related Guilt Inventory; TrIGR, trauma-informed guilt reduction therapy; WHOQOL-BREF, the abbreviated version of the World Health Organization Quality of Life measure.

<sup>a</sup>Data are expressed as No. (%) unless otherwise indicated. Numbers reflect percentages out of full sample.

<sup>b</sup>Trauma exposure assessed by the Life Events Checklist for DSM-5 (LEC-5). Responses endorsing “witnessed it” or “happened to me” were coded as trauma exposure for that trauma type.

<sup>c</sup>Of the 100 participants who reported taking a psychotropic medication, 43% were on antidepressants, 16% on sleep medication, 15% on mood stabilizers, 8% on anti-anxiety medication, 7% on antipsychotics; 11% reported that they were on a psychotropic but did not report which medication.

<sup>d</sup>For descriptions of score ranges, see Section 2 of the text.

<sup>e</sup>Since participants in SCT decided what would be discussed in session, off protocol sessions were generally not needed to address emergent issues.

Norman et al., 2019), which postulates that guilt can be adaptive when it helps shape one's actions to be more prosocial and values-driven, but becomes nonadaptive when distress is taken as evidence of wrongdoing and leads to avoidance of thinking about the traumatic event. Shame develops when trauma survivors negatively judge not just their actions (“I did something bad”) but their entire selves (“I am bad”) for their role in the trauma (Haller et al., 2020; Norman et al., 2014; Pugh et al., 2015). This cycle results in common cognitive errors that serve to maintain guilt, shame, and distress indefinitely and is thought to contribute to greater severity of psychopathology.

Sessions 1 and 2 included an overview of the NAGS model and discussion of common sources of trauma-related guilt. Sessions 3 and 4 utilized cognitive restructuring to help participants evaluate four types of cognitions (e.g., hindsight bias) that have been identified in prior research as contributing to posttraumatic guilt (Kubany et al., 1995). Therapists helped participants identify the function guilt has served in expressing important values (e.g., It is how I honor the memory of someone who died, If I didn't feel bad then I would really be a monster). Sessions 5 and 6 focused on identifying adaptive ways to express values other than through guilt, as well as setting realistic goals consistent with important values. TrIGR does not try to convince patients their guilt is inaccurate or that the trauma was not their fault. Rather, the goal is to help people put their actions during a traumatic event into context and help them move toward expressing values in a more positive way marked by less impairment and suffering.

SCT (Walters et al., 2020) is a present-centered, nondirective therapy based on Present Centered Therapy (PCT; Belsher et al., 2019) that excludes the problem solving component and daily diary included in PCT. SCT emphasizes principles of unconditional positive regard, genuineness, and empathic understanding. The first session includes psychoeducation about trauma-related guilt and common reactions. Subsequently, participants are free to choose the

content of each session. Participants can discuss guilt and trauma if they choose and therapists respond to this content as they would any other content area—with an open, nonjudgmental stance and unconditional positive regard. We selected SCT as the comparison intervention, because as is recommended for early stage II efficacy trials (Edmond et al., 2018; Guidi et al., 2018; Onken et al., 2014; Schnurr et al., 2005), it would provide a credible therapeutic comparison to control for the nonspecific aspects that characterize most therapy. SCT has been used as a control condition in previous psychosocial interventions trials, including with veterans (e.g., Walters et al., 2020).

Study therapists were 21 licensed psychologists, postdoctoral fellows, and doctoral students who were trained in therapy protocols through didactics, videos, and practice sessions. They received weekly supervision. Ten percent of sessions were randomly selected for fidelity rating. Scores  $\geq 5$  indicated strong adherence (1 = 0% of the time, 7 = >90% of the time) and competence (1 = very poor, 7 = excellent). TrIGR (adherence:  $M = 6.41$ ,  $SD = 1.00$ ; competence:  $M = 5.85$ ,  $SD = 1.13$ ) and SCT (adherence:  $M = 6.61$ ,  $SD = 0.97$ ; competence:  $M = 5.83$ ,  $SD = 1.19$ ) both showed strong fidelity ratings.

## 2.6 | Statistical analysis plan

Power analysis based on guilt determined 59 participants per group would provide 80% power to detect a medium standardized effect size with a two-tailed test and alpha at .05. A target total sample of 142 allowed for 17% study attrition.

To test the prespecified primary outcome of change in trauma-related guilt severity, an initial linear mixed model assessed TRGI change between baseline and 6-month follow-up (i.e., baseline to 8 months later) between treatment conditions. Subsequent LMMs analyzed guilt, PTSD, depression, trait shame, QoL total scores and

psychological distress T-scores at baseline, posttreatment, 3- and 6-month follow-up, using SPSS version 26. These models allowed for an intent-to-treat approach where all available data from randomized participants were included to estimate unbiased parameter estimates under the missing at random assumption. Treatment condition, time, and their interaction were treated as fixed effects, and the intercept was specified as a random effect to account for the repeated observations within participants. Analyses were conducted using an identity covariance matrix for the random effects and an autoregressive covariance matrix for the repeated effect of time. Between-group effect sizes (Cohen's *d*) were calculated for the 6-month follow-up visit using the model-based estimated marginal means from the 6-month follow-up visit and variance of all randomized participants at baseline.

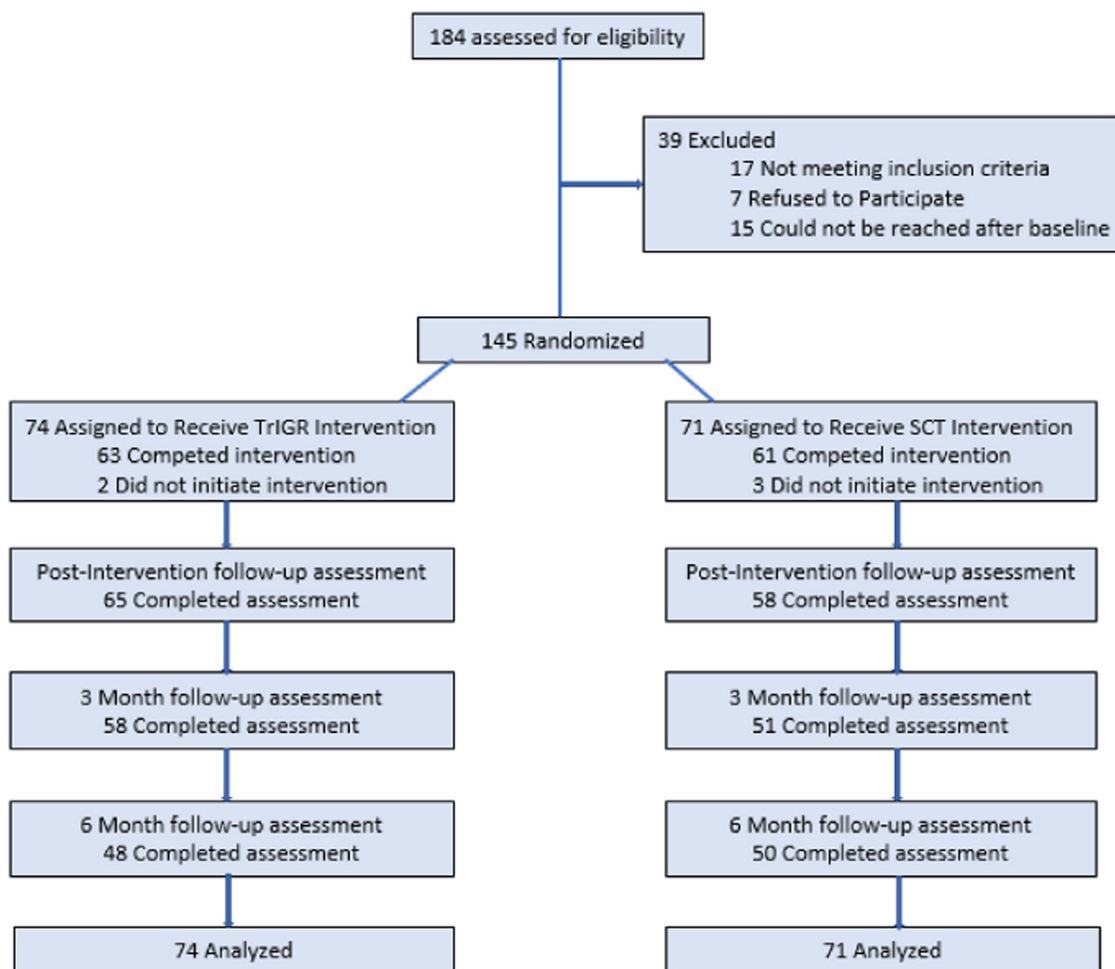
Using available data at 6-month follow-up, we compared treatment conditions on PTSD *treatment response* (defined as  $\geq 10$ -point improvement in severity on the CAPS-5) (Schnurr et al., 2015). For the subset of patients meeting diagnostic criteria for PTSD at baseline ( $n = 124$ ), we compared *loss of diagnosis* (defined as PTSD treatment response, plus no longer meeting DSM-5 symptom criteria and severity  $< 25$  on the CAPS-5; Schnurr et al., 2015) and *remission*

(defined as loss of diagnosis plus severity  $< 12$  on the CAPS-5; Norman et al., 2019). For those with mild or higher depression scores ( $> 5$  on the PHQ-9; Löwe et al., 2004; McMillan et al., 2010) at baseline ( $n = 138$ ), we compared *clinically meaningful change in depression* (defined as a  $\geq 5$ -point reduction on the PHQ-9; Löwe et al., 2004; McMillan et al., 2010).

### 3 | RESULTS

Figure 1 shows the Consort Diagram; 184 Veterans were enrolled with 145 ultimately randomized. TrIGR and SCT did not statistically differ on background variables or baseline measures of the primary outcomes (Table 1). Mean number of sessions attended [TrIGR  $M = 5.3$ ,  $SD = 1.6$ ; SCT  $M = 5.3$ ,  $SD = 1.8$ ],  $t(143) = 0.15$ ,  $p = .88$  and rates of treatment completion, a priori designated as attendance of 4+ on protocol sessions, [TrIGR  $n = 63$ ; 85.1%; SCT  $n = 61$ ; 85.9%],  $\chi^2(1, N = 145) = 0.02$ ,  $p = .90$ , did not differ between conditions.

TrIGR showed greater change in guilt than SCT between baseline and 6-month follow-up (treatment  $\times$  time interaction =  $-0.63$ , 95% confidence interval [CI]:  $-0.89$ ,  $-0.37$ ,  $F(1, 117.9) = 22.4$ ,  $p < .001$ ;



**FIGURE 1** Consort Flow Diagram. SCT, supportive care therapy; TrIGR, trauma-informed guilt reduction therapy

$d = 0.99$ ). The estimated marginal means (and 95% CIs) from the mixed models for outcomes overall time points are shown in Table 2. Guilt scores decreased in both conditions, with a significantly greater decrease for TrIGR (treatment  $\times$  time,  $-0.22$ ;  $F(1, 455.2) = 18.49$ ,  $p = .001$ ;  $d = 0.92$ ) (Figure 2). PTSD symptom severity showed the same pattern of results (treatment  $\times$  time,  $-2.26$ ;  $F(1, 468.3) = 6.76$ ,  $p = .010$ ;  $d = 0.81$ ), as did depression (treatment  $\times$  time,  $-1.28$ ;  $F(1, 454.6) = 7.51$ ,  $p = .006$ ;  $d = 0.43$ ) (Figure 2). Psychological distress and trait shame decreased significantly, but these changes were not statistically different between conditions. There were no significant treatment, time, or treatment  $\times$  time interaction effects for any of the QoL domains (physical health, psychological health, social relationships, or environment).

Between baseline and 6-month follow-up, TrIGR had significantly higher likelihood than SCT of PTSD treatment response (67% vs. 40%), loss of PTSD diagnosis (50% vs. 14%), and clinically meaningful change in depression (54% vs. 27%). Treatment conditions did not differ statistically on rates of PTSD remission (Figure 3).

## 4 | DISCUSSION

We evaluated whether TrIGR, a relatively brief intervention targeting trauma-related guilt, would reduce guilt, PTSD and depression symptoms, general psychological distress, trait shame, and QoL in a sample of military veterans. Consistent with our hypotheses, veterans who received TrIGR showed greater reduction in guilt and PTSD symptoms (with a large between-group effect size) and depression (with a moderate effect size) than veterans who received supportive therapy. As seen in Figure 3, we saw greater reductions in guilt for TrIGR compared to SCT by the end of treatment, while differences in PTSD and depression symptoms between treatments grew larger over the follow-up time points. This pattern is consistent with the NAGS model which presupposes that as guilt reduces so does avoidance and that as people engage in more valued activities, decreased avoidance and increased behavioral activation may also contribute to symptom reduction (Norman et al., 2014).

While a PTSD diagnosis was not a requirement, most of the sample (84.8%) met criteria for PTSD. Half of participants in TrIGR with PTSD lost their PTSD diagnosis and more than two-thirds showed clinically meaningful response. Among those who endorsed moderate or higher depressive symptoms at baseline, more than half had clinically meaningful change. These findings are notable given that TrIGR focuses primarily on trauma-related guilt, not PTSD or depression broadly. We considered whether these findings may be because more people who received TrIGR went on to other evidence-based PTSD treatment available at the study sites during the trial (specifically, these were PE or CPT) in the follow-up period, but did not find significant differences (four people in TrIGR and five people in SCT went on to PE or CPT during follow-up). Results suggest that for many with PTSD who report trauma-related guilt, addressing the guilt can lead to meaningful improvements in PTSD and depression as well.

**TABLE 2** Prespecified study outcomes at all assessment time points

Outcome and time point	Marginal mean from linear mixed models (95% CI)	
	TrIGR	SCT
<b>Guilt severity (TRGI)<sup>a</sup></b>		
Baseline	2.5 (2.3–2.7)	2.5 (2.3–2.7)
After treatment	1.7 (1.5–1.9)	2.3 (2.1–2.5)
3-month follow-up	1.6 (1.4–1.8)	2.2 (2.1–2.4)
6-month follow-up	1.6 (1.4–1.8)	2.2 (1.9–2.4)
<b>PTSD severity (CAPS-5)<sup>b</sup></b>		
Baseline	38.2 (35.5–40.9)	38.6 (35.9–41.4)
After treatment	29.4 (26.6–32.2)	32.6 (29.7–35.6)
3-month follow-up	27.6 (24.6–30.5)	31.7 (28.7–34.8)
6-month follow-up	23.3 (20.2–26.4)	30.9 (27.9–34.0)
<b>Depressive symptom severity (PHQ-9)<sup>c</sup></b>		
Baseline	15.1 (13.6–16.6)	14.4 (12.9–15.9)
After treatment	11.4 (9.8–12.9)	13.6 (12.0–15.2)
3-month follow-up	10.9 (9.3–12.5)	13.0 (11.3–14.7)
6-month follow-up	9.8 (8.0–11.5)	12.5 (10.8–14.2)
<b>Psychological distress (BSI-18)<sup>d</sup></b>		
Baseline	53.1 (50.9–55.3)	54.0 (51.7–56.3)
After treatment	48.5 (46.2–50.8)	50.3 (47.9–52.7)
3-month follow-up	47.8 (45.4–50.1)	52.3 (49.9–54.8)
6-month follow-up	47.3 (44.8–49.9)	49.0 (46.5–51.6)
<b>Trait shame severity (ISS)<sup>e</sup></b>		
Baseline	51.4 (46.3–56.6)	49.6 (44.3–54.8)
After treatment	39.2 (33.9–44.4)	43.7 (38.2–49.1)
3-month follow-up	37.9 (32.4–43.3)	43.9 (38.3–49.6)
6-month follow-up	37.4 (31.6–43.1)	41.9 (36.1–47.7)
<b>Physical health (WHOQOL-BREF)<sup>f</sup></b>		
Baseline	49.0 (44.8–53.3)	49.2 (44.9–53.6)
After treatment	54.2 (49.8–58.6)	51.8 (47.2–56.3)
3-month follow-up	53.9 (49.4–58.5)	48.1 (43.3–52.8)
6-month follow-up	53.9 (49.1–58.8)	49.4 (44.5–54.2)
<b>Psychological health (WHOQOL-BREF)<sup>g</sup></b>		
Baseline	43.7 (40.5–46.9)	44.5 (41.3–47.8)
After treatment	47.2 (43.9–50.6)	47.4 (43.9–50.8)
3-month follow-up	46.8 (43.4–50.2)	46.6 (42.9–50.2)
6-month follow-up	48.3 (44.6–51.9)	44.4 (40.7–48.0)
<b>Social relationships (WHOQOL-BREF)<sup>h</sup></b>		
Baseline	41.1 (35.7–46.5)	39.6 (34.0–45.1)
After treatment	44.5 (38.8–50.1)	41.1 (35.3–46.8)

TABLE 2 (Continued)

Outcome and time point	Marginal mean from linear mixed models (95% CI)	
	TrIGR	SCT
3-month follow-up	47.5 (41.7–53.2)	38.9 (32.9–45.1)
6-month follow-up	45.9 (39.9–52.1)	37.9 (31.9–44.1)
Environment (WHOQOL-BREF) <sup>i</sup>		
Baseline	57.5 (53.6–61.5)	57.4 (53.3–61.4)
After treatment	61.5 (57.3–65.6)	56.7 (52.4–60.9)
3-month follow-up	61.6 (57.4–65.9)	57.9 (53.3–62.4)
6-month follow-up	62.2 (57.6–66.7)	55.5 (50.9–59.9)

Note: Time is coded 0 = Baseline, 1 = After treatment, 2 = 3-month follow-up, 3 = 6-month follow-up.

Abbreviations: BSI-18, Brief Symptom Inventory-18; CAPS-5, Clinician Administered PTSD Scale for DSM-5; CI, confidence interval; CPT, Cognitive Processing Therapy; ISS, Internalized Shame Scale; MIES, Moral Injury Events Scale; PE, Prolonged Exposure; PHQ-9, Patient Health Questionnaire-9; PTSD, posttraumatic stress disorder; SCT, supportive counseling therapy; TRGI, Trauma-Related Guilt Inventory; TrIGR, trauma-informed guilt reduction therapy; WHOQOL-BREF, the abbreviated version of the World Health Organization Quality of Life measure.

<sup>a</sup>Slope = -0.12 (95% CI: -0.19 to -0.05); group × time interaction = -0.22 (95% CI: -0.32 to -0.12).

<sup>b</sup>Slope = -2.75 (95% CI: -3.96 to -1.53); group × time interaction = -2.26 (95% CI: -3.97 to -0.55).

<sup>c</sup>Slope = -0.65 (95% CI: -1.30 to 0.01); group × time interaction = -1.28 (95% CI: -2.21 to -0.36).

<sup>d</sup>Slope = -1.59 (95% CI: -2.56 to -0.62); group × time interaction = -0.63 (95% CI: -1.98 to 0.72).

<sup>e</sup>Slope = -2.88 (95% CI: -4.99 to -0.78); group × time interaction = -2.54 (95% CI: -5.49 to 0.40).

<sup>f</sup>Slope = 0.27 (95% CI: -1.48 to 2.01); group × time interaction = 1.78 (95% CI: -0.68 to 4.23).

<sup>g</sup>Slope = 0.20 (95% CI: -1.19 to 1.59); group × time interaction = 1.50 (95% CI: -0.45 to 3.46).

<sup>h</sup>Slope = -0.46 (95% CI: -2.70 to 1.78); group × time interaction = 2.75 (95% CI: -0.40 to 5.91).

<sup>i</sup>Slope = -0.26 (95% CI: -2.05 to 1.53); group × time interaction = 2.32 (95% CI: -0.20 to 4.85).

Reductions in overall psychological distress and trait shame did not differ by treatment condition. It is possible that both interventions are comparable at reducing these or that more time is needed to see downstream differences in the interventions. In the case of the BSI-18, baseline T-scores in our sample were in the normal range ( $M = 53.3$ , psychological distress is considered  $\geq 63$ ; Derogatis, 2001), which suggests that the BSI did not capture the type of distress participants were experiencing. PTSD and other trauma-related disorders were removed from anxiety disorders between DSM-IV and DSM-5 because of recognition that there were phenotypes of posttraumatic distress not characterized by prominent anxiety. Our findings of a distressed sample with high guilt but normal range BSI-18 scores lend support to this notion.

At the time we planned this study, a measure of trauma-related shame was not yet available (there is one now, Øktedalen et al., 2014, which we added mid-way through the study). Thus, we selected a well-validated scale of trait shame to examine shame in some form (Cook, 1987; Rybak & Brown, 1996). Trait shame, however, is likely not caused by trauma and likely not sensitive to trauma-focused intervention. In fact, trait shame may be a moderator of trauma-related shame, possibly contributing to severity or impacting treatment response.

QoL did not change significantly in the trial. How to interpret this is challenging because there has been limited use of the WHO-QOL-BREF in PTSD treatment research (Fortin et al., 2021). It is possible neither intervention improved QoL, more time is needed to see improvement in QoL, or that the WHO-QOL-BREF did not capture change that occurred.

Attendance in both conditions was high (over 5 of 6 sessions), which is notable in a sample of post-9/11 veterans, a demographic group known to be challenging to retain in psychotherapy (Erbes et al., 2009; Goetter et al., 2015; Mott et al., 2014). The focus on guilt may have contributed to high attendance if it was seen by participants as highly relevant to their experiences. Another possibility is that the brevity of the intervention contributed to low dropout. Written Exposure Therapy, a PTSD intervention of similar length, has similarly high attendance rates (Sloan et al., 2018). If patients find it easier to complete a shorter intervention, length may be an important factor for investigators to consider when developing new interventions.

Over the past decade the concept of moral injury has garnered a great deal of interest and attention. Guilt is considered a prominent feature of moral injury (Griffin et al., 2019; Litz et al., 2009; Williamson et al., 2021). The high mean MIES scores show that the study drew a sample high in exposure to moral injury. Unfortunately, validated measures of change in moral injury are not yet available, thus we were not able to examine in this study if TrIGR is effective in reducing moral injury. Such measures are under development so that future studies will be able to examine if TrIGR is effective in reducing moral injury.

Limitations include a homogenous sample of predominantly male, non-Hispanic, majority white (63%) veterans with deployment traumas, which may limit generalizability of the findings to more diverse and nonveteran populations and other trauma types. In addition to reducing trauma-related guilt, TrIGR is intended to reduce trauma-related shame and distress from moral injury (Haller et al., 2020; Norman et al., 2014; Norman et al., 2019). Unfortunately, validated assessments sensitive to measuring change in these constructs were not available when we planned the study and, as a result, we did not assess TrIGR's efficacy in regard to these. Many participants (48.3%) reported previous receiving PE or CPT. However, we did not collect information about how long ago participants received these therapies, whether they completed them, or if they received any other evidence-based psychotherapies for PTSD. While reengaging in valued activities is proposed to be an important component of TrIGR, whether participants reengaged in



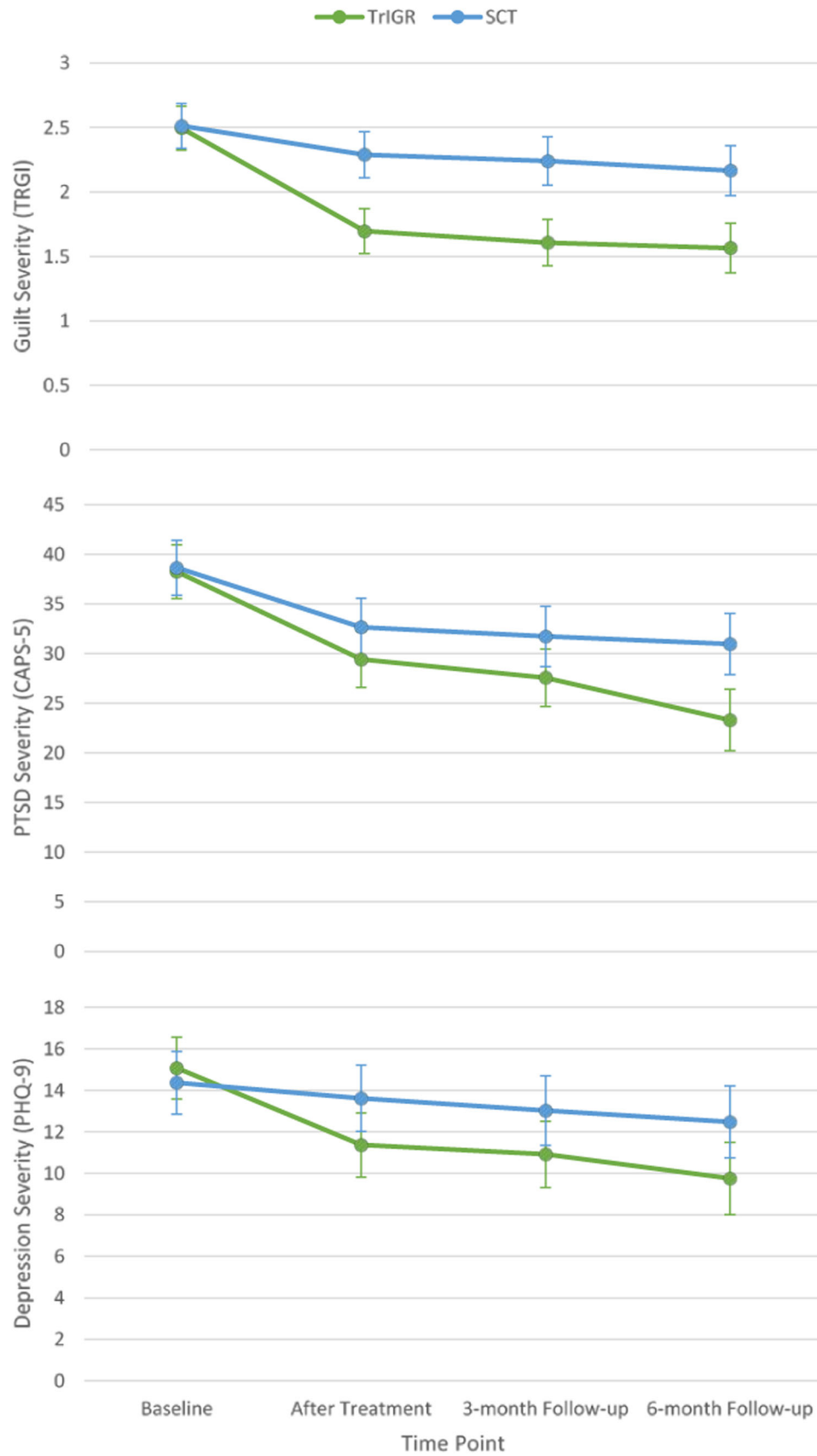
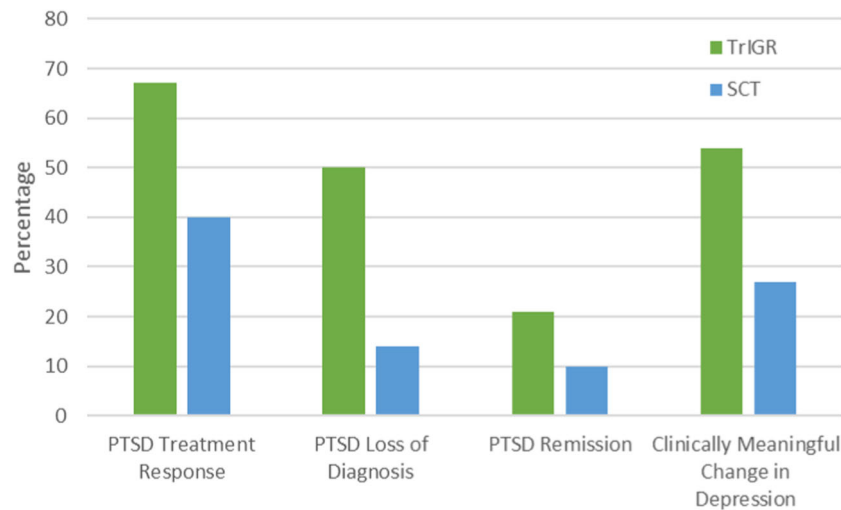


FIGURE 2 (See caption on next page)



**FIGURE 3** Percentage of treatment response, loss of diagnosis, and remission in PTSD and clinically meaningful change in depression by treatment condition at the 6-month follow-up visit. Between baseline and 6-month follow-up, TrIGR had significantly higher likelihood relative to SCT of *PTSD treatment response* (odds ratio [OR] [95% confidence interval {CI}] = 3.00 [1.32–6.84],  $p = .015$ ), *loss of PTSD diagnosis* (OR [95% CI] = 6.21 [2.23–17.29],  $p = .001$ ), and *clinically meaningful change in depression* (OR [95% CI] = 3.05 [1.27–7.34],  $p = .023$ ). Treatments did not differ on rates of *PTSD remission* (OR [95% CI] = 3.03 [0.88–10.42],  $p = .259$ ). PTSD, posttraumatic stress disorder; SCT, supportive counseling therapy; TrIGR, trauma-informed guilt reduction therapy

values was not assessed. Measuring reengagement in values and related behavior change is important for future studies.

## 5 | CONCLUSION

Trauma-related guilt is common, associated with greater severity of mental health symptoms, impairment, and distress, and can be challenging to treat. Veterans in particular have documented vulnerability to experiencing guilt and related problems. Our results suggest TrIGR can add value to existing treatments options because it targets a highly prevalent source of distress that may persist even after successful PTSD treatment, can be used to treat posttraumatic mental health problems even when a PTSD diagnosis is not present, and has high attendance and completion rates. Additional research is needed to understand for whom TrIGR is most effective and when in regard to other treatment options. Future studies that include nonveterans and guilt from any trauma types will help to understand the broader efficacy of TrIGR. A broad implication of this study is that targeting a prominent symptom presentation, such as one characterized by guilt, can be an effective method to reduce posttraumatic symptoms and distress. This study further raises questions about when it may be most effective to target a prominent symptom presentation such as

guilt versus targeting a diagnosis such as PTSD. Comparing TrIGR to an effective PTSD treatment for those with a prominent guilt presentation would help to answer this question.

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## DATA AVAILABILITY STATEMENT

Data is not available.

## PEER REVIEW

The peer review history for this article is available at <https://publons.com/publon/10.1002/da.23244>

**FIGURE 2** Guilt, posttraumatic stress disorder, and depression symptom severity estimated marginal means by treatment condition at each time point. Error bars indicate 95% CIs. CAPS-5, Clinician Administered PTSD Scale for DSM-5; CI, confidence interval; PHQ-9, Patient Health Questionnaire; PTSD, posttraumatic stress disorder; SCT, supportive counseling therapy; TRGI, Trauma-Related Guilt Inventory; TrIGR, trauma-informed guilt reduction therapy

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