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# Cognitive-Behavioral Therapy for PTSD in the Real World: Do Interpersonal Relationships Make a Real Difference?



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The goal of this effectiveness study was to investigate the role of pre-treatment interpersonal relationship functioning in two forms of group cognitive-behavioral treatment (CBT) for veterans with PTSD. Analysis of data from 45 veterans who completed either trauma- or skills-focused CBT indicated no overall differences between the two treatments in PTSD symptomatology, alcohol abuse, or violence perpetration at four months post-treatment. However, there was a stronger inverse relationship between intimate relationship functioning and violence outcomes in the trauma-focused group versus the skills-focused group. While no differences in violence outcomes were found between the treatments at poorer levels of pre-treatment intimate relationship functioning, those receiving trauma-focused treatment with better pre-treatment intimate relationships reported

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less violence. Extended relationship functioning and violence outcomes were less strongly associated in the trauma-focused group versus the skills-focused group. The theoretical implications of these results, as well as the clinical opportunities to improve CBT for PTSD by capitalizing on patients' relationships, are discussed. © 2004 Wiley Periodicals, Inc. *J Clin Psychol* 61: 751-761, 2005.

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Interpersonal relationship functioning has been implicated in the development, maintenance, and possibly the amelioration of posttraumatic stress disorder (PTSD). Social support, for example, has been one of the more robust and consistent factors predicting the development of PTSD (Brewin, Andrews, & Valentine, 2000). Compared to various control conditions, individuals diagnosed with PTSD have been found to suffer from a myriad of intimate relationship problems, including a two to three times greater likelihood to divorce, up to three times greater perpetration of intimate aggression, and diminished intimacy and relationship satisfaction (e.g., Byrne & Riggs, 1996; Kulka et al., 1990; Riggs, Byrne, Weathers, & Litz, 1998). In spite of the apparently influential role of these factors in PTSD, there has been minimal investigation of their association with PTSD treatment outcomes in general, or how they might be associated with different types of treatment.

Cognitive-behavioral therapy (CBT) has been established as a highly efficacious treatment for PTSD (Rothbaum, Meadows, Resick, & Foy, 2000), and is perhaps the treatment of choice according to meta-analysis comparing it to drug treatments and a variety of control conditions (Van Etten & Taylor, 1998). The general class of CBT interventions for PTSD has been divided into trauma-focused (e.g., prolonged exposure, cognitive processing therapy) versus skills-focused (e.g., stress inoculation training, assertiveness training) therapies (Rothbaum et al., 2000). By now, a number of studies with female victims of sexual and nonsexual assault, combat veterans, and civilians with mixed traumas have found these interventions to yield significant reductions in symptomatology (see Foa, 2000, for review). However, studies comparing different forms of CBT have found few differences in outcomes (e.g., Foa et al., 1999; Marks, Lovell, Noshirvani, Livanou, & Thrasher, 1998; Resick, Nishith, Weaver, Astin, & Feuer, 2002).

Several authors have expressed concerns about the generalizability of results from efficacy studies and therapist expertise needed to successfully implement CBT interventions with trauma survivors in "real-world" practice. The safety and tolerability of trauma-focused CBT for some patients has also been questioned, with the possibility of negative outcomes such as treatment drop-out, symptom worsening, self-medication with alcohol or substance abuse, or behavior dyscontrol (e.g., Kilpatrick & Best, 1984; Litz, Blake, Gerardi, & Keane, 1990; Tarrier, Pilgrim, et al., 1999). Thus, the next generation of research on CBT for PTSD must be broader in scope, focusing on patient characteristics associated with treatment outcomes, the application of CBT in non-research settings, and functional, as well as symptom, outcomes.

The relatively few studies that have investigated interpersonal factors in CBT for PTSD have revealed promising results. In one clinical trial comparing exposure and cognitive interventions for PTSD (Tarrier, Sommerfield, & Pilgrim, 1999), patients with

high levels of expressed emotion in their families responded poorer to both CBT treatments. However, potential differences in the role of expressed emotion for the two types of treatment were not investigated. In another study, Glynn et al. (1999) compared individual exposure therapy alone to exposure therapy followed by behavioral family therapy (BFT) and wait list control. While they found no statistically significant differences between the two active treatments, there was an approximately .50 effect size advantage for the adjunctive BFT condition in improving re-experiencing and hyperarousal symptoms of PTSD.

The overall goals of the current program effectiveness study conducted in a clinical setting were to compare two forms of CBT for PTSD (trauma- and skills-focused), and to investigate the role of interpersonal relationship functioning in treatment outcomes. This research was carried out in a setting well suited for exploring the real-world practice of PTSD treatment—a Veterans' Administration (VA) Medical Center. The VA is the world's largest provider of treatment for PTSD, with its nearly 200,000 veterans diagnosed with PTSD who currently receive treatment (Rosenheck & Fontana, 2003). In addition to symptom improvement, the current study included alcohol abuse and violence perpetration as indicators of functioning and possible signs of deterioration or compensatory strategies to manage symptom exacerbation. No differences in treatment outcomes between the two forms of CBT were hypothesized, and pre-treatment interpersonal relationship functioning was predicted to be associated with CBT outcomes in general. However, it was hypothesized that intimate and extended relationship functioning would be more strongly associated with trauma- versus skills-focused outcomes, given the greater personal resources thought to be required of trauma-focused treatments.

## Method

### *Participants*

A total of 45 participants diagnosed with military-related PTSD completed this non-randomized program effectiveness study. All participants were male and predominantly Caucasian (74%; African American 18%; Hispanic 5%; other 3%), with a mean age of 47.8 years ( $SD = 5.82$ ). About equal proportions of patients were married (42%) or divorced (43%), while the remaining participants were separated (7%) or never married (7%). Over half of the sample reported that they were currently unemployed (51%), while 35% reported current employment and 14% reported being in retirement. Approximately 20% had less than a high school degree, 43% had a high school degree or its equivalent, 18% had completed some college, 14% had completed a bachelor's degree, and 5% had completed post-baccalaureate study.

Approximately 80% of the veterans reported serving in Vietnam, 11% in Korea, 5% in the Persian Gulf, and 4% in some other war zone. Regarding branch of military service, 42% served in the Army, 36% in the Marines, 12% in the Air Force, and 10% in the Navy. Approximately 50% of the sample received VA service-connected disability entitlements for PTSD. These characteristics are consistent with those found in the larger population of veterans seeking specialized VAMC PTSD services (Rosenheck & Fontana, 2003).

### *Procedures and Design*

All participants completed a three-week specialized intensive VA Medical Center specialized PTSD treatment program that utilized one of two CBT formats: trauma-focused

or skills-focused. Both treatments were provided in a day hospital setting, and both included a core of psychoeducational groups focused on PTSD symptoms, substance abuse, therapeutic recreation, and leisure education. All patients participated in these core groups that were offered contemporaneously and in addition to the treatment-specific groups described below. Patients were not randomly assigned to either the trauma- or skills-focused programs, nor was assignment based on any specific participant characteristics. All treatment occurred within a two-year period, and was facilitated by the same treatment staff consisting of doctoral- and master's-level psychologists, psychiatrists, and social workers. The same doctoral-level psychologists facilitated the trauma-focused and skills-focused groups described below, and the amount of time spent in treatment sessions was equivalent for the two treatment conditions.<sup>1</sup>

*Trauma-Focused Treatment (N = 18).* The trauma-focused treatment groups were based in format and purpose on the group exposure treatment sessions included in Trauma Focus Group Therapy (Foy, Ruzek, Glynn, Riney, & Gusman, 2002). The protocol involved three introductory sessions in which the rationale for exposure treatment, reinforcement of basic coping skills, and group preparation for exposure exercises (i.e., group rules and structure, building member cohesion) were provided. Following these initial sessions, there were daily group exposure therapy sessions (i.e., ranging from 60 to 90 minutes each) in which each group member was systematically exposed to key aspects of his traumatic experience for at least 30 minutes. After the group member described his traumatic experience, cognitive distortions were identified and challenged within the group. The rotation of days that the patients were scheduled to share their trauma account with the group was randomly determined at the outset of treatment.

*Skills-Focused Treatment (N = 27).* The skills-focused treatment groups were aimed at developing skills to better manage and cope with PTSD-related symptoms. There were 60–90 minute groups on anxiety management, anger management, stress management, and interpersonal skills. The groups were here-and-now focused, aimed at skill development in each area, and expressly avoided the retelling or sharing of traumatic experiences. Example CBT interventions from these groups included breathing retraining, progressive relaxation, cognitive restructuring, assertiveness skills, listening/paraphrasing skills, and taking “time-outs” to manage anger.

### *Relationship Measures*

We assessed pre-treatment intimate and extended relationship functioning with the Marital Problems Index and Social Isolation Index, respectively, from the National Vietnam Veterans Readjustment Survey (NVVRS) (Kulka et al., 1990). As in the NVVRS, the Marital Problems Index was used to measure intimate dyadic adjustment, irrespective of marital status. The items measure relationship happiness/satisfaction, problems getting along, arguments, and companionship. The Social Isolation Index measures the presence of extended others for disclosure, emotional support, and instrumental support. Adequate to high levels of internal validity were found for both measures in the NVVRS (coefficient alphas = .92 for the Marital Problems Index, and .60 for the Social Isolation Index). Higher scores on each of the scales are associated with higher levels of relationship functioning.

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<sup>1</sup>Further treatment group descriptions and program schedules are available from the first author.

### Outcome Measures

The VA Northeast Program Evaluation Center (NEPEC), a center that regularly monitors outcomes of VA specialized PTSD programs nationwide, collected the treatment outcome measures. These measures were administered at admission and at four months post-treatment. Each of the measures uses the previous month as the time frame of reference.

*PTSD Symptoms.* PTSD symptoms were assessed using the short form of the Mississippi Scale for Combat-Related PTSD (MISS). The MISS is an 11-item version of the original scale (Keane, Caddell, & Taylor, 1988), which has been shown to have good internal consistency and good correspondence with the full scale. These 11 items have been shown to be maximally sensitive to change in PTSD symptoms (Fontana & Rosenheck, 1994).

*Violence Perpetration.* Violence perpetration was measured with four items adapted from the National Vietnam Veterans Readjustment Study (Kulka et al., 1990). The items include the self-reported presence or absence of property destruction, interpersonal threats without a weapon, interpersonal threats with a weapon, and physically fighting with someone. Items are summed for a total score. The internal consistency of this measure has been found to be high (coefficient alpha = .71; Rosenheck & Fontana, 2003).

*Alcohol Abuse.* Alcohol abuse was measured with a composite score from the Addiction Severity Index (ASI), a widely used and well-validated measure of substance abuse outcomes (McLellan et al., 1985). Specific items measure substance use, abuse, money spent on the substance, resulting problems, and the extent to which the individual is troubled by problems arising from substance use. An exclusion criterion for program entry was substance abuse or dependence in the preceding month (i.e., scores of zero). For the purposes of this study, score increases indicate possible exacerbation.

## Results

### Treatment Outcomes

To compare the two forms of CBT, a 2 (type of treatment)  $\times$  2 (time) mixed-model MANOVA was conducted, with PTSD symptoms, violence perpetration, and alcohol abuse as dependent variables. Results indicated a significant multivariate main effect for time (Wilk's  $\lambda = .78$ ,  $F(3,41) = 3.95$ ,  $p < .05$ , partial  $\epsilon^2 = .22$ ). Follow-up univariate ANOVAs for each outcome revealed a significant reduction in violence across treatment (pre-treatment  $M = 1.69$ ,  $SD = 1.36$ , post-treatment  $M = 1.27$ ,  $SD = 1.27$ ,  $F(1,43) = 6.28$ ,  $p < .05$ ,  $d = .38$ ).<sup>2</sup> Improvements in PTSD symptoms and alcohol abuse failed to meet statistical significance (PTSD: pre-treatment  $M = 42.12$ ,  $SD = 4.10$ , post-treatment  $M = 41.03$ ,  $SD = 5.01$ ,  $F(1,43) = 3.70$ ,  $p = .06$ ,  $d = .29$ ; Alcohol: pre-treatment  $M = .10$ ,  $SD = .12$ , post-treatment  $M = .16$ ,  $SD = .18$ ,  $F(1,43) = 2.77$ ,  $p = .10$ ,  $d = .25$ ). There were no significant effects for treatment type or the time by treatment interaction (Wilk's  $\lambda = .91$ ,  $F(3,41) = 1.30$ ,  $p = .28$ , partial  $\epsilon^2 = .09$ , and Wilk's  $\lambda = .94$ ,  $F(3,41) = .81$ ,  $p = .49$ , partial  $\epsilon^2 = .06$ , respectively).

<sup>2</sup>The calculated Cohen's  $d$ s represent pre- to post-treatment effect size change.

Table 1  
*Correlations Between Pre-treatment Relationship Functioning and Outcomes*

|                           | 1      | 2      | 3    | 4    | 5      | 6     | 7   | 8 |
|---------------------------|--------|--------|------|------|--------|-------|-----|---|
| 1. Pre-treatment PTSD     | —      |        |      |      |        |       |     |   |
| 2. Pre-treatment Violence | .18    | —      |      |      |        |       |     |   |
| 3. Pre-treatment Alcohol  | -.25   | -.03   | —    |      |        |       |     |   |
| 4. Follow-up PTSD         | .55*** | .16    | -.17 | —    |        |       |     |   |
| 5. Follow-up Violence     | -.03   | .62*** | -.06 | .18  | —      |       |     |   |
| 6. Follow-up Alcohol      | .06    | .31*   | .14  | .17  | .42**  | —     |     |   |
| 7. Intimate. Rel. Fct.    | -.28   | -.47** | .07  | -.28 | -.38** | -.29* | —   |   |
| 8. Extended Rel. Fct.     | -.10   | .22    | -.12 | -.13 | .08    | .09   | .04 | — |

Note. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

### *Interpersonal Relationship Functioning in Treatment Outcomes*

Table 1 presents Pearson correlations for the bivariate relationships among the outcome and relationship variables. In addition to these simple correlations, hierarchical regression analyses were conducted to predict each of the outcomes at four months post-treatment. Each hierarchical regression consisted of two steps. In the first step, pre-treatment levels of the outcome variable, treatment type, and pre-treatment levels of interpersonal relationship functioning (intimate and extended) were entered into the equation. Interaction terms of the interpersonal relationship variables by treatment type were added at step two to test the hypothesized differential association of relationship functioning with the two forms of CBT. Because an interaction term was included, the continuous predictor variables were centered to reduce multicollinearity and to aid interpretation of the regression coefficients (see Aiken & West, 1991, for discussion). The results of these analyses are found in Table 2.

Pre-treatment interpersonal relationship functioning did not contribute to the prediction of follow-up PTSD or substance abuse symptoms. However, follow-up violence perpetration was associated with pre-treatment violence perpetration, as well as both pre-treatment intimate and extended relationship functioning, in the predicted directions. To aid interpretation of the interactions, Figure 1 depicts the regression slopes for pre-treatment intimate and extended relationship functioning by each treatment group. "Poorer" and "better" levels of relationship functioning represent one standard deviation below and above the mean, respectively. Pre-treatment violence perpetration was set at the mean in the equations.

As can be seen in Figure 1, pre-treatment intimate relationship functioning had a stronger negative association with violence outcomes in the trauma-focused group compared to the skills-focused group. There were no differences in violence outcomes between the groups at poorer levels of intimate relationship functioning. However, those receiving trauma-focused treatment with better pre-treatment intimate relationships reported less violence. In contrast, the negative association between pre-treatment extended relationship functioning and violence perpetration was less strong in the trauma-focused compared to skills-focused group. It is noted that remarkably similar slopes for pre-treatment intimate and extended relationship functioning were found within the skills-focused group.

Table 2  
 Hierarchical Regression Analyses for 4-Month Outcomes by Relationship Functioning  
 and Treatment Type

| Step/Outcome                  | Intimate Relationship Functioning |      |                  |                     | Extended Relationship Functioning |      |                  |                     |
|-------------------------------|-----------------------------------|------|------------------|---------------------|-----------------------------------|------|------------------|---------------------|
|                               | $\beta$                           | SE   | $R^2/\Delta R^2$ | Model<br>$F(4, 40)$ | $\beta$                           | SE   | $R^2/\Delta R^2$ | Model<br>$F(4, 40)$ |
| PTSD Symptoms                 |                                   |      |                  | 5.00**              |                                   |      |                  | 4.79**              |
| 1 Pre- <i>trt</i> PTSD        | .53***                            | .18  | .32              |                     | .58***                            | .17  | .32              |                     |
| Treatment Type                | -.09                              | 1.45 |                  |                     | -.11                              | 1.38 |                  |                     |
| Relationship Fct.             | .31                               | .84  |                  |                     | -.40                              | .73  |                  |                     |
| 2 Rel. Fct. $\times$ Trt Type | -.44                              | .48  | .01              |                     | .34                               | .43  | .00              |                     |
| Alcohol Use                   |                                   |      |                  | 1.23                |                                   |      |                  | .80                 |
| 1 Pre- <i>trt</i> Alcohol     | -.16                              | .23  | .11              |                     | .16                               | .23  | .04              |                     |
| Treatment Type                | -.02                              | .06  |                  |                     | -.08                              | .06  |                  |                     |
| Relationship Fct.             | -.23                              | .04  |                  |                     | -.53                              | .03  |                  |                     |
| 2 Rel. Fct. $\times$ Trt Type | -.07                              | .02  | .11              |                     | .67                               | .02  | .03              |                     |
| Violence Perpetration         |                                   |      |                  | 9.13***             |                                   |      |                  | 9.60***             |
| 1 Pre- <i>trt</i> Violence    | .52***                            | .12  | .41              |                     | .52***                            | .11  | .40              |                     |
| Treatment Type                | -.16                              | .30  |                  |                     | -.14                              | .29  |                  |                     |
| Relationship Fct.             | -.89*                             | .19  |                  |                     | -1.09*                            | .16  |                  |                     |
| 2 Rel. Fct. $\times$ Trt Type | -1.04*                            | .11  | .07              |                     | 1.11*                             | .10  | .09              |                     |

Note. Standardized  $\beta$  are reported for the final model.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

## Discussion

This study sought to expand the literature on the effectiveness of PTSD treatment by examining different forms of CBT and the role of interpersonal relationship functioning in those outcomes within a sample of veterans. Consistent with previous research using self-report by veterans in similar treatment settings (e.g., Creamer, Morris, Biddle, Elliot, & Rabin, 1999; Johnson et al., 1996) the overall treatment effects of CBT were relatively small in this study (pre- to post-treatment effect sizes ranging from .25 to .38 across outcomes). Moreover, consistent with efficacy studies of CBT, there were no differences in outcomes between the trauma- and skills-focused forms of CBT for PTSD. The multivariate effect size for the relevant interaction (i.e., partial  $\epsilon^2 = .06$ ) argues against the notion that the null finding was a product of insufficient power to find the effect. An important caveat to this general finding was revealed when pre-treatment intimate relationship functioning was examined with regard to violence perpetration outcomes.

In general, patient's perceived pre-treatment interpersonal relationship functioning was inversely associated with violence perpetration outcomes. However, perceived *intimate* relationship functioning was more strongly associated with violence outcomes in the trauma-focused group versus the skills-focused group, and perceived *extended* relationship functioning was less strongly related to violence outcomes in the trauma-focused group versus the skills-focused group. The strength of the intimate and extended relationship associations with violence outcomes was similar in the skills-focused treatment. Theoretically, these results highlight the different treatment targets and possible mechanisms of change in trauma-focused versus skills-focused treatments. By their very nature,

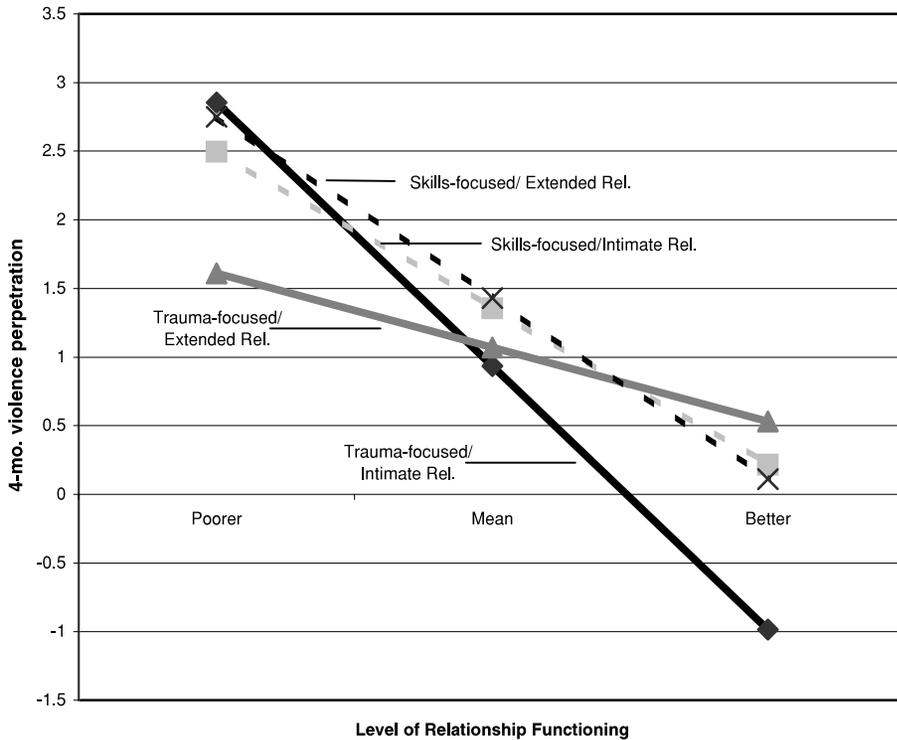


Figure 1. Interacting regression slopes predicting violence perpetration 4-months post-treatment by pre-treatment relationship functioning (intimate and extended) and form of CBT for PTSD (skills-focused versus trauma-focused).

trauma-focused interventions are more intrapersonal, focusing on one's internal processes, and requiring intimate disclosure. In contrast, skills-focused interventions are more environmentally and interpersonally oriented, and applicable to both intimate and extended relationships. Given these varying foci and demands, pre-treatment quality of intimate relationships would seem to be a more important factor in trauma-focused treatment. Moreover, the distinction between intimate and extended relationships may be less relevant in skills-focused treatment because of the generalizability of these skills to a broad range of situations and types of relationships.

Practically, it is important to note that these findings run contrary to concerns that trauma-focused treatments increase the potential for dangerous behavior due to symptom exacerbation. In fact, there was no difference in violence perpetration by treatment type at lower levels of intimate relationship functioning, and violence perpetration was less likely in the trauma-focused group with better intimate relationship functioning. Similarly, there were no differences in alcohol abuse at follow-up between the two treatments. These results are consistent with recent research showing no differences in attrition rates and symptom exacerbation in efficacy trials of exposure treatments (Foa, Zoellner, Feeny, Hembree, & Alvarez-Conrad, 2002; Hembree et al., 2003; Taylor et al., 2003).

These findings buttress previous assertions about the importance of interventions that maximize social support and/or include intimate others in PTSD treatment (Riggs, 2000; Zayfert, Becker, & Gillock, 2002). A recently published pilot study of cognitive-behavioral couple's treatment for PTSD revealed significant improvements in combat

veterans' PTSD and other comorbid symptoms, with the additional benefits of improving partner's mental health and relationship outcomes (Monson, Schnurr, Stevens, & Guthrie, 2004; Monson, Stevens, & Schnurr, in press). If significant others are not formally incorporated into PTSD treatment, psychoeducation about PTSD and the rationale for trauma-focused treatment might be provided to them to bolster their support of the patient undergoing these treatments. The currently available individual PTSD treatments might also include a specific focus on patients developing and drawing upon the support of trusted others to improve their treatment outcomes.

Of course, the conclusions that can be drawn about the temporal relationships among PTSD symptoms, intimate relationship functioning, and violence perpetration, as well as the generalizability of the results, are limited by this study's design and size. These results must be corroborated in future effectiveness studies that utilize large samples, random assignment, intention-to-treat analyses, treatment fidelity monitoring, clinician assessment of PTSD symptoms, and an array of symptomatic and functional outcomes. Nevertheless, this study is an initial answer to the call for testing empirically supported treatments in real-world practice, and determining patient characteristics that may be important to treatment matching and outcomes (Borkovec & Castonguay, 1998; Persons & Silberschatz, 1998). Given the established efficacy and support for the safety of several CBTs for PTSD, it is hoped that the next generation of studies will be aimed at disseminating these treatments and troubleshooting their limitations in clinical practice.

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