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## State of the Science of Cognitive Processing Therapy

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## Abstract

This State of the Science review provides an overview of the history and findings of cognitive processing therapy (CPT), one of the most recommended treatments for posttraumatic stress disorder, acute stress disorder, and comorbid conditions. After an introduction to CPT and the randomized controlled trials that have been conducted, the effects of CPT on comorbid conditions are reviewed, as well as new combination treatments. Cognitive mediators of change are described. Different formats for CPT that have been developed are described, as well as patient, therapy, and therapist factors in outcome, applicability across diverse populations, efforts to disseminate CPT, and ongoing studies into the future.

*Keywords:* Cognitive processing therapy; CPT; randomized controlled trials; posttraumatic stress disorder; PTSD comorbidity.

### Highlights:

- Cognitive processing therapy is highly recommended in all PTSD treatment guidelines.
- This paper reviews the scope of CPT and its effects on PTSD and comorbid disorders.
- CPT with diverse populations and dissemination efforts are also described.

## State of the Science of Cognitive Processing Therapy

Cognitive processing therapy (CPT) is a gold-standard therapy for posttraumatic stress disorder (PTSD) recommended in the clinical practice guidelines of the American Psychological Association (2017), International Society of Traumatic Stress Studies (2018), National Institute for Health and Care Excellence (2018), Phoenix Australia Centre for Posttraumatic Mental Health (2013), and U.S. Department of Veterans Affairs and Department of Defense (2023). Over the last three decades, there have been hundreds of studies on CPT. The purpose of this State of the Science review (see Comer, this issue) is to describe the current state of the research on CPT as it has evolved over time.

CPT is predominantly a cognitive therapy that is trauma-focused and recovery-oriented (Resick et al., 2017). CPT began as a group therapy and quickly became an individual therapy as well. Typically about 12 sessions, CPT involves systematically examining thoughts that interfere with trauma recovery (“stuck points”). CPT begins and ends with impact statements in which patients describe their beliefs about the causes and consequences of the trauma most linked to

their PTSD symptoms. Patients learn the relationships between events, thoughts, and emotions and, using Socratic dialogue and a progressive set of worksheets, patients work in and out of sessions to develop more balanced thoughts and experience natural emotions associated with the facts of the trauma. CPT prioritizes thoughts about the trauma itself, and the second half of CPT attends to more generalized beliefs about self and others around themes of safety, trust, power/control, esteem, and intimacy. The original version of CPT included written accounts (now CPT+A), but when it was found that they did not improve outcomes (Resick et al., 2008), CPT without accounts became the standard (Resick et al., 2017).

### **Overview of Randomized Controlled Trials**

CPT was first introduced when published as an open trial in 1992 (Resick & Schnicke). The first randomized controlled trial (RCT) compared CPT with prolonged exposure (PE) and a waitlist control condition (Resick et al., 2002). Since then, there have been 44 published RCTs to date, conducted across eight countries and with a range of populations and traumatic events. Comparison groups have included wait lists, treatment as usual (e.g., medication, counseling), and active treatments. Effect sizes during treatment and compared to non-active treatments have generally been large, and the majority of patients lose their PTSD diagnosis and exhibit clinically significant change (see Supplemental Table 1 and Supplemental References for a complete list of published RCTs conducted). CPT has demonstrated strong effects in meta-analyses (e.g., Asmundson et al. 2018; Haagen et al., 2015; Watts, et al, 2013; Yunitri et al. 2023).

Results from both RCTs and effectiveness studies have demonstrated that CPT works well across a wide range of populations including community samples, veterans, and service members (e.g., Dondanville et al., 2022; Monson et al., 2006; Resick et al., 2017) in outpatient and residential settings (e.g., Walter et al., 2014); and when delivered in-person, in-home, and via telehealth (e.g., Morland et al., 2014; Peterson et al., 2022). CPT has been effective across trauma types, such as interpersonal violence (e.g., Galovski et al., 2022; Resick et al., 2008), childhood abuse (e.g., Chard et al., 2005; LoSavio et al., 2021; Resick et al., 2014), and combat (e.g., Resick et al., 2015; 2017; 2021), including when traumas are perceived as moral injuries (e.g., Held et al., 2021; LoSavio et al., 2023) and when patients have experienced multiple and repeated lifetime traumas (e.g., LoSavio et al., 2021; Nixon et al., 2016; Resick et al., 2002; 2008). Overall, there is strong evidence for the efficacy and effectiveness of CPT for PTSD.

### **CPT and Comorbid Disorders/Symptoms**

Most CPT studies have been conducted in treatment settings with minimal exclusion criteria for comorbid conditions. In the earliest trials, individuals with substance dependence had to refrain for 6 months; however, recent studies have included substance use and other comorbid disorders except those that are so severe PTSD treatment cannot be started or participants cannot be randomized to no treatment (suicidal/homicidal intent, unmedicated psychosis or bipolar disorder, etc.). Most study patients experienced multiple traumas and comorbid issues. Therefore, it is possible to examine the effects of CPT on comorbid disorders.

### **Depression**

The most common comorbid disorder is depression, which occurs in about 50% of treatment-seeking cases. Along with PTSD, depression decreases markedly following CPT (e.g., Angelakis et al., 2020; Butollo et al. 2015; ElBarazi et al., 2022; Monson et al., 2006; Resick et al., 2002; 2008; 2017; Watkins, et al. 2023). In Resick et al.'s (2008) study, 50% of the sample met criteria for major depressive disorder (MDD) at pretreatment, 24% of the sample at posttreatment, and 21% at the 6-month follow up. In an outcome study of veterans, Asamsama et al. (2015) found that, at pretreatment, 61% met criteria for MDD, and 75% reported clinically significant reduction in symptoms. There was no difference in PTSD treatment response based on depression severity.

Although depression improves over the course of CPT, depressive symptom severity at pretreatment may influence PTSD treatment outcomes, such as poorer response, dropout, or treatment trajectory (e. g., Galovski et al., 2016; Stein et al., 2012). Severity of depression was not a predictor of PTSD treatment outcome with fixed-length CPT in active duty samples (Resick et al. 2015, 2017) but was a predictor of length of time to good end-state in a variable-length study of CPT (Resick et al. 2021). In the case of PTSD due to traumatic loss among active duty personnel, less depression decrease during CPT was associated with less PTSD recovery compared to those with other trauma types (Jacoby et al., 2019).

### **Suicidal Ideation**

Gradus et al. (2013) examined suicidal ideation in the first study of CPT compared to PE over five time points up to 5-10 years posttreatment. There was rapid improvement in suicidal ideation from pre to posttreatment and then continual gradual improvement over time. Bryan et al. (2015) found in an active duty sample who received group CPT or present-centered therapy (PCT), change in depression symptoms predicted change in suicide risk. Both therapies improved suicidal ideation over a 1-year follow-up. Among active duty military, Resick et al. (2017) found depression and suicidal ideation improved equally in individual and group CPT. Data from in situ programs also show veterans who receive CPT improve on suicidal ideation and thoughts of burdensomeness and belongingness, which are associated with suicide risk (Blain et al., 2021; Stayton et al. 2019).

### **Substance Use Disorders**

Substance use disorders (SUD) commonly co-occur with PTSD, especially in treatment-seeking samples (Brady et al., 2021). Some providers have concerns about whether trauma-focused treatments might lead to increases in use (Back et al., 2009; Cook et al., 2014). However, neither current nor past SUD, hazardous drinking, or cannabis use predict poorer PTSD outcomes or higher dropout from CPT among active duty service members or veterans (Dondanville et al., 2019; Hale et al., 2021; Held et al., 2021; Kaysen et al., 2014; LoSavio et al., 2022; Straud et al., 2021). Those with comorbid PTSD and substance use do tend to have higher PTSD symptoms prior to starting treatment than individuals without SUD but experience similar rates of improvement on PTSD as those without substance use comorbidity.

Within studies reporting substance use outcomes, CPT without adaptation has reduced substance use and associated risk factors like trauma-cued cravings (e.g., Elbarazi et al., 2022; Peck et al., 2018; Simpson et al., 2022; Straud et al., 2021). In a secondary analysis of a clinical

trial of active duty military, individuals who received individual or group CPT experienced medium to large improvements in hazardous drinking, with two thirds of those who originally met hazardous drinking criteria no longer meeting criteria following CPT (Straud et al., 2021).

Two studies explicitly recruited individuals with PTSD/SUD. In a trial conducted in Egypt, CPT was compared to sertraline and placebo (most commonly cannabis; Elbarazi et al., 2022). Both CPT and sertraline had large effects on PTSD and substance use, and both were superior to placebo medication. CPT was also significantly better at reducing PTSD than sertraline, although there were no significant differences between the two on substance use. CPT was also compared to Relapse Prevention and symptom monitoring for individuals with comorbid PTSD and alcohol use disorder. CPT demonstrated superior improvements in PTSD symptoms post-treatment compared to symptom monitoring whereas Relapse Prevention did not, and both CPT and Relapse Prevention were superior to symptom monitoring in reducing drinking (Simpson, Kaysen et al., 2022). PTSD and drinking outcomes were monitored out to 1 year following treatment. At the 1-year follow-up, Relapse Prevention was superior to CPT in reducing days of heavy drinking, but 27% of those who received CPT maintained PTSD remission, 41% achieved abstinence, and 52% were drinking in low-risk ways.

### **Physical Symptoms**

There is evidence that CPT is related to improvements in physical health outcomes. A study of female survivors of sexual assault receiving CPT and PE found significant improvements in concerns about common physical symptoms and sleep quality following treatment in both conditions, with better health-related outcomes for CPT (Galovski et al., 2009). In a secondary analysis of a study comparing CPT and PCT, male and female veterans with a history of military sexual trauma reported significant improvement in problems with occupational functioning and daily activities due to physical health, significant improvement in perceptions of physical health in both conditions, and more improvement ability to perform physical activities following CPT compared to PCT (Holliday et al., 2015). A study in a diverse sample of military, veterans, and civilians showed that physical functioning (belief in one's ability to perform physical activities) significantly improved for those with low levels of functioning prior to treatment, that poorer baseline functioning predicted slower improvements in PTSD symptoms, and that poorer physical functioning in one session predicted less PTSD symptom improvement in the next session (Song et al., 2020). Watkins et al. (2023) found that improvement in PTSD mediated several cardiac measures at posttreatment with CPT.

### **Combined Treatments**

#### **PTSD and Depression**

Two studies have examined combination treatments for patients with comorbid depression and PTSD. Angelakis et al. (2020) compared three conditions: CPT alone, behavioral activation (BA) before CPT, and CPT before BA. All three groups showed large effect size improvements in PTSD and depressive symptoms, but the CPT before BA group appeared to have better effects than the other two conditions for both effect sizes and clinically significant change. Walter et al. (2023) compared BA + CPT with CPT and found no differences between

conditions. With the small number of studies at this point, more research is needed, however universally starting with BA does not appear to enhance outcomes at this time.

### **PTSD and Eating Disorders**

Trottier and Monson (2021) developed an integrated PTSD and eating disorder (ED) treatment. Interventions from both cognitive behavior therapy (CBT) for ED and CPT are included to address the functional relationship between ED and PTSD to promote full recovery from both disorders. In an initial uncontrolled study of 10 individuals following a course of intensive ED treatment (i.e., inpatient and/or day hospital treatment), there were statistically significant and large magnitude improvements in PTSD, depression, and anxiety over the course of the treatment. Approximately 90% of the individuals who were remitted from behavioral ED symptoms at the end of intensive treatment and the start of Integrated CBT for ED-PTSD remained remitted from their ED behaviors, and also remitted from their PTSD. In a subsequent RCT, 42 individuals with a range of ED diagnoses and PTSD were randomized to the integrated treatment or standard CBT for ED. The integrated treatment was superior to standard CBT for ED for PTSD, anxiety, and depressive symptoms from pre-treatment to 6-month follow-up. Moreover, there was a stronger preference for the integrated versus standard treatment (Trottier et al., 2022).

### **PTSD and SUD**

Within the PTSD/SUD field, integrated interventions generally have been recommended. Recently, there have been a few studies in which researchers have adapted CPT to create integrated CPT/SUD interventions. Dedert et al. (2019) examined a combined CPT with smoking cessation treatment with veterans. Although the combined CPT and smoking cessation treatment produced significant effects on PTSD, it did not improve smoking outcomes beyond smoking treatment alone. Pearson and colleagues (2019) examined CPT adapted for cultural fit for rural Native American women with PTSD and high-risk drinking and substance use, with content on substance use, relationship, and sexual risk behaviors. CPT had large effect sizes on PTSD compared to waitlist and was significantly better in reducing alcohol use frequency and sexual risk behaviors. Moreover, CPT demonstrated dose effects, where PTSD severity and alcohol problems improved significantly based on each additional session of CPT received. As is common with many CPT/SUD studies, this study had high rates of dropout from both CPT and from waitlist.

### **PTSD and Insomnia**

Insomnia improves during CPT but tends to persist (Gutner et al., 2013; Pruiksma et al., 2016). Pigeon et al. (2022) preceded CPT+A with CBT for insomnia (CBTi) compared to attention control followed by CPT+A in a sample of women who experienced interpersonal violence. They found that patients improved on both sleep measures and PTSD during CBTi and the combination improved more on both sleep and PTSD than control plus CPT+A. Taylor et al. (2023) compared CBTi followed by CPT, CPT followed by CBTi, or CPT only for a total of 18 sessions for each condition. Both conditions with CBTi showed greater effects on PTSD symptoms and insomnia/nightmares than CPT alone. However, the group that received CBTi



after CPT showed larger improvements. More research on the best way to combine treatments for PTSD and insomnia are needed, particularly residual insomnia.

### **Cross-Cultural Adaptations**

Culture is multifaceted and includes aspects such as ethnicity, race, gender identity, country of origin, religion, sexual orientation, language, able-bodiedness, socioeconomic status, and age, along with many other characteristics. Culture in psychotherapy occurs as part of a dyadic, or in the case of group, multifaceted, relational and reciprocal context (Kousteni, 2018). CPT was originally developed in a Western, industrialized, educated, wealthy, and democratic country (Henrich et al., 2010). However, even within the United States, where CPT was first developed, there is increasing cultural, ethnic, and racial diversity (Passel & Cohen, 2008). CPT has several elements that lend itself well to flexibility across diverse groups. There is a philosophical emphasis within Socratic dialogue that answers are drawn forth from the client, not provided by the therapist, and that the therapist should not make assumptions about the trauma itself, or about what a more flexible belief may look like for that individual. CPT also presumes a collaborative relationship between equals rather than a hierarchical relationship. These factors are congruent with principles of cultural humility around openness, mutual empowerment, partnership, and respect (Foronda & Baptiste, 2019). Although CPT is past and trauma-focused, it also facilitates generalization of skills to address present stressors and concerns, which may be particularly useful for groups that are experiencing current social stressors like discrimination and stigma. Other factors within CPT may be less congruent with culturally informed treatments including an explicit focus on a more biomedical model of symptoms, rather than one based on the social context of mental health. For example, the emphasis on Criterion A traumatic events, as defined in the DSM-5 may exclude events that do not technically fit within the diagnostic nosology such as racial trauma, historical trauma, or experiences of heterosexism that may be sources of distress and PTSD (Dworkin et al., 2018; Patel & Hall, 2021; Williams et al., 2018).

### **Studies in the U.S.**

Research has been mixed on the impact of race and ethnicity on CPT outcomes. In a review of standard VA clinical practice for 750 veterans who received CPT or PE, there were no differences in outcomes or dropout based on race or ethnicity between the White, African American, and Latino veterans (Rutt et al., 2018). This is similar to findings from a study examining predictors of outcomes across individual and group CPT among active duty military in which race/ethnicity did not predict differences in PTSD improvement (Resick et al., 2020).

In one study, African Americans had lower rates of PTSD improvement with CPT+A compared to White veterans in VA practice (Lamp et al., 2019). In an analysis of data collected from nine VA clinics, Latino Veterans were 19% less likely to initiate CPT compared to non-Latino veterans (Rosen et al., 2019). In a study on the impact of race/ethnicity for women in CPT, civilian African American women had the same degree of PTSD improvement overall as White women but had significantly higher dropout (Lester et al., 2010). Despite higher dropout, the African American women who dropped out had greater PTSD improvement compared to White women who dropped out. One hypothesis for this finding is that the African American women were noting improvements and ended treatment once they felt they had gotten what they needed. However, this theory would need to be explored through qualitative interviews.

Within the United States there have been several studies of culturally adapted versions of CPT including for Bosnian refugees (Schulz et al., 2006), Spanish-speaking Latinos (Alamilla et al., 2010; Marques et al., 2019; Valentine et al., 2017), and rural Native Americans (Pearson et al., 2019). In general, cultural modifications have been relatively modest. Examples include lengthening sessions, including relaxation, and including culturally relevant trauma examples and stuck points. Across studies, improvements in PTSD have generally paralleled the effect sizes seen in other clinical trials.

Gender identity and sexual orientation are often not reported in clinical trials or administrative databases (Roberts et al., 2010; Shipherd et al., 2011). However, Mullins and colleagues (2023) examined the effectiveness of CPT in a residential treatment setting comparing veterans of color (VoC) who identify as LGBTQ+ with other veteran groups. They found that VoC had significantly higher PTSD symptoms at pretreatment than White veterans. Further, VoC who identified as sexual minority status (SMS+) had even higher pre-treatment symptoms than the other groups; however, this same group had the largest improvement at posttreatment.

### **International Studies**

Outside of the United States, CPT trials have been conducted in several high-income countries including Canada, Australia, Japan, and Germany (Butollo et al., 2016; Forbes et al., 2012; Ito et al., 2017; Nixon, 2012). Adaptations have been minor and tend to consist of translation, including more examples, simplifying language, or including drawings or pictures. The core features of CPT have remained intact across these settings.

CPT has also been adapted and tested in low- and middle-income countries including the Democratic Republic of Congo, Northern Iraq, Southern Iraq, Egypt and Tanzania. In low- and middle-income countries, where there is a limited mental health workforce, treatment needs to be adapted not just for language and culture, but also to be delivered by lay professionals via task sharing (Group, 2007). In general, modifications across studies have again been relatively modest and included reducing jargon, describing concepts behaviorally, including more content on basic mental health and psychotherapy techniques, and including locally relevant trauma examples and stuck points (see Kaysen et al., 2013). Materials have also been modified for trauma survivors with lower levels of literacy. Adaptations of CPT for refugees in Tanzania were more extreme and included use of a 6-session version of CPT and integration with material to address intimate partner violence (Greene et al., 2021). Across these studies, CPT has demonstrated large reductions in PTSD (Bass et al., 2013; Bolton et al., 2014; ElBarazi, et al., 2022; Greene et al., 2021; Weiss et al., 2015). CPT was also associated with improvements in activities of daily living such as work, childcare, and community activities (Bass et al., 2013; Bolton et al., 2014), depression (Bass et al., 2013, Elbarazi et al., 2022; Greene et al., 2021; Weiss et al., 2015), anxiety (Bass et al., 2013; Greene et al., 2021), perceived stigma (Murray et al., 2018), traumatic grief (Bolton et al., 2014), and emotional support seeking and group participation (Hall et al., 2014). Moreover, in a 6-year follow-up of group CPT delivered to sexual assault survivors in the Democratic Republic of Congo, CPT was found to have long-term effects, with approximately half of the women maintaining treatment gains (Bass et al., 2022). This study found low rates of relapse for PTSD, depression, and anxiety around 20%. This is comparable to studies conducted in the United States. This body of research provides evidence

for CPT, with some adaptation, across a wide range of populations and contexts, supporting its transportability.

### **Cognitive Mediators of Change**

Because CPT is a cognitive therapy, the theorized mechanism is change in cognitions. Schumm et al. (2015) conducted a cross-lagged panel analysis from pretreatment to midtreatment to posttreatment among male and female veterans receiving CPT to determine the longitudinal relationship among cognitions (i.e., negative beliefs about self, negative beliefs about the world, and self-blame), PTSD, and depression. They found that pre- to mid-treatment changes in self-blame and negative beliefs about the self positively predicted and temporally preceded mid- to posttreatment changes in PTSD symptomatology. They also found that changes in negative beliefs about the self preceded changes in depression, but that pre- to mid-treatment changes in depression preceded changes in self-blame and PTSD. These findings support the idea that improvements in negative cognitions may drive symptom change in CPT.

Dillon et al. (2020) found a dynamic relationship between blame and PTSD among active duty military personnel receiving CPT. Weekly changes in PTSD symptoms were predicted by prior changes in self-blame, and changes in self-blame were also predicted by prior levels and changes in PTSD. Changes in other-blame were predicted by prior levels of PTSD but did not predict change in PTSD. Other-blame is more complex because the target of the other-blame can change over the course of CPT from someone who did not intend the harm to those who did.

Gallagher and Resick (2012) found using the Resick et al. (2002) RCT data that improvements in hopelessness had a significant effect on PTSD. Gilman et al. (2011) found among veterans seeking treatment for PTSD in a residential program that higher levels of hope at mid-treatment were associated with reductions in PTSD and depression from mid- to posttreatment, and not the other way around, suggesting that hope may also contribute to symptom change.

Mechanisms research is not as advanced as the outcome literature but change in trauma-related cognitions during trauma-focused treatments has consistently been found to precede and predict decreases in PTSD symptoms (Alpert et al., 2023). While more work is needed to identify the critical mechanisms of action in CPT, several predictor studies lend convergent evidence supporting the role of cognitive change in CPT.

### **Acute Stress Disorder**

CPT was originally developed for those with PTSD, but it has demonstrated effectiveness for those with acute stress reactions and/or Acute Stress Disorder (ASD). One case study and two RCTs have been published on CPT for ASD. Kaysen and colleagues first published on the use of 12 sessions of CPT for ASD for a male victim of a homophobic assault (Kaysen et al., 2005). Delivering CPT resulted in clinically significant reductions in PTSD and depressive symptoms as well as maladaptive trauma-related beliefs and internalized homonegativity. Gains were maintained at 3-month follow-up (and informal contact suggested this continued 1-year later).

A modified form of CPT, using 90 min sessions over 6 weeks, has been tested in two RCTs. In the first (Nixon, 2012;  $N = 30$ ), CPT was compared with supportive counseling for recent survivors of interpersonal assault. Both groups demonstrated improvements in PTSD and

depression symptoms. Sample size limitations likely contributed to nonsignificant differences being observed between the groups; however moderate-to-large effect sizes and lower PTSD diagnosis rates favoring CPT were observed. In a slightly larger sample (Nixon et al., 2016;  $N = 47$ ), the same format of CPT was compared with active treatment as usual within a sexual assault service for recent assault survivors, with therapy delivered by service clinicians. Like Nixon (2012), power issues resulted in nonsignificant differences in most outcomes between groups; however, CPT showed larger effect sizes for PTSD and depression symptom reduction and more clients met good end-state functioning at follow-up (50% vs. 31%). CPT was more efficient in achieving outcomes—only one CPT client had additional contact with the service between posttreatment and final follow-up whereas 40% of the treatment as usual group required ongoing sessions. While requiring replication, data demonstrate CPT can be used in acutely traumatized samples and delivered in a routine mental health treatment setting.

### **Alternative Formats of CPT**

While CPT has demonstrated efficacy and effectiveness, researchers have tested alternate formats of the protocol in an effort to improve efficiency, accessibility, acceptability, and tolerability. For example, many modifications have been aimed at decreasing dropout to maximize the likelihood of receiving an adequate dose of treatment.

#### **CPT vs CPT+A**

CPT was originally developed with two sessions of written accounts of the index trauma between Sessions 4 and 6, read daily as well as to the therapist in session. To determine whether the written accounts were necessary, Resick et al. (2008) conducted a dismantling study comparing: CPT with accounts (now CPT+A), CPT without accounts (CPT), and written accounts with no cognitive therapy (WA) controlling for therapist contact time. CPT was superior to WA, with CPT+A falling in between. There was no statistical difference between CPT and CPT+A and therefore no value added to the accounts. Additionally, the CPT condition had a dropout rate of 22%, compared to 34% in CPT+A, suggesting that offering CPT without the account may improve treatment retention. Walter et al. (2014) conducted a study of residential male veterans who were not randomized but assigned to CPT or CPT+ A. They found no differences between the two formats in outcomes. There are some exceptions when written accounts may add value. Resick et al. (2012) found that those participants with medium or low dissociative symptoms did better with CPT while those with high dissociative symptoms did better with CPT+A. It is possible that highly dissociative patients need the account to reassemble the fragmented memory before the cognitive work can proceed with maximum effectiveness. Recently, Raines et al. (2023) conducted a meta-analysis of nine studies of veterans or active duty personnel and found that CPT+A resulted in better outcomes than CPT. They did point out the small number of studies, and the relatively smaller number of women in the samples. They speculated that men may need the benefit of the account to facilitate the cognitive change. At this point, most clinics offer a choice of CPT or CPT+A.

#### **Group CPT**

CPT originated as a group treatment, and the first study on CPT was conducted in a group format (Resick & Schnicke, 1992). Since then, numerous studies and effectiveness data

have been published demonstrating the effectiveness of group, either alone or in combination with individual therapy (Chard, 2005; Walter et al., 2014; Wright et al., 2022). These delivery options of CPT can be implemented in outpatient clinics or residential settings and can be offered weekly, bi-weekly, or more often with intensive delivery (Held, et al., 2023).

Group CPT is associated with significant decreases in PTSD symptoms and associated psychiatric sequelae including depression and emotion regulation (Alvarez et al., 2011; Held, 2023; Resick et al., 1992; Walter et al., 2014;). In a comparison to individual CPT, group CPT was shown to reduce depression symptoms and suicidality equally well among active duty service members (Resick et al., 2017). More recent analyses of the same sample found that group and individual CPT performed equally in reducing PTSD symptoms, except for military personnel who had a history of head injury and were experiencing current post-concussive symptoms, who responded better to individual CPT (Wachen et al., 2022). Spiller and colleagues (2022) found that no differences at a 4-month follow-up when group CPT was compared to individual CPT and prolonged exposure in a veteran sample. Finally, Morland and colleagues (2014) demonstrated that group CPT can be delivered equally well in a telehealth modality or in person. Group CPT may improve access for patients and decrease wait lists.

### **Flexible Applications of CPT**

Due to the observation that the pace and trajectory of patients' recovery from PTSD differ substantially, Galovski et al., (2012) modified the 12-session protocol so that duration was determined by achievement of good end-state functioning and loss of PTSD diagnosis so CPT could conclude prior to Session 12 or continue on for a maximum of 18 sessions depending on the patient's progress. Results showed that 58% of the participants met stringent good end-state functioning prior to Session 12 (average number of 7.5 sessions) and 34% required additional therapy (average of 15.2 sessions). Only four participants who completed therapy did not meet good end-state criteria by Session 18. However, two of those four continued to improve after treatment and lost their PTSD diagnosis by the 3-month follow-up. Overall, treatment gains were well-maintained at follow-up. Interestingly, the length of therapy and progress in therapy did not differ as a function of comorbid psychiatric disorders or for those with complex and chronic abuse histories (Galovski et al, 2016). Patients with more complicated symptom presentation and complex trauma histories were equally as likely to recover from PTSD in similar lengths of time. Galovski et al. (2012) also assessed the ability to pause mid-protocol for up to two sessions to address a patient crisis or emergency (e.g. death in the family, job or housing loss). Inclusion of a stressor session did not disrupt patient progress or recovery and may serve to retain patients who might otherwise drop out of treatment due to these crises.

Resick et al. (2021) also assessed the efficacy of variable-length CPT among active duty service members. Results showed variable-length CPT improved outcomes compared to previous trials. Predictors of poor response included baseline depression and PTSD severity, internalizing temperament (e.g. introversion associated with anxiety and depression), being in a precontemplative state of readiness to change, and identifying as Black.

In subsequent work, machine learning analyses were applied to data pooled from four RCTs with civilians to identify treatment response early in treatment so that therapists might change course and optimize outcomes (Nixon et al., 2021). Results showed that baseline

variables such as demographic variables, trauma history, presence of comorbid disorders, and session PTSD and depression scores did not clearly discriminate between patients who had a delayed response to treatment (very little change in the first half of treatment, but fully recovered by Session 12) and those who showed a partial response or no response. These results suggest that therapists should be cautious about terminating therapy too quickly with more complex patients lest they inadvertently deprive their patient of the opportunity to reap the full benefit of the protocol.

### **Massed Treatment**

One strategy to increase efficiency and reduce dropout in CPT is to increase session frequency through massed or intensive delivery, allowing for a full course of treatment to be completed in a shorter amount of time. Delivering treatment in an abbreviated timeframe may also help overcome patient avoidance and maintain treatment momentum, consistent with research that greater between-session practice completion and fewer days between sessions are associated with better outcomes (Gutner et al., 2016; Stirman et al., 2021). Much of the evidence supporting the effectiveness of massed CPT is drawn from clinic data of comprehensive treatment programs serving veterans and service members that include daily delivery of CPT over 2-3 weeks combined with additional programming such as mindfulness, yoga, and skills-based groups. Findings demonstrate significant reductions in PTSD and depressive symptoms with large effect sizes and very low rates of dropout (e.g., Goetter et al., 2021; Held et al., 2023; Zalta et al., 2018), with results maintained for 6-12 months (Goetter et al., 2021; Held et al., 2020). In the first pilot trial of massed CPT ( $N = 20$ ), service members and veterans received 12 sessions of daily CPT during a 2-week program that included daily recreation activities. Participants evidenced reductions in PTSD and suicidal ideation but not depression (Bryan et al., 2018). A follow up showed that veterans and service members receiving daily CPT in a clinic had greater reductions than those receiving daily CPT at a recreation facility or weekly clinic-based CPT, suggesting that massed treatment may improve outcomes and additional programming is not necessary or may detract from CPT (Bryan et al., 2021).

Preliminary research suggests that massed CPT can be effectively delivered within the Veterans Healthcare Administration (VA). One study examined data from a VA intensive outpatient program that delivered individual CPT or PE at least 3 times per week for 2 or 4 weeks. Results showed a high rate of treatment completion and significant reductions in PTSD symptoms with very large effect sizes (Yamokowski et al., 2023). Another case-controlled study compared veterans receiving intensive CPT 3-5 times per week to veterans receiving standard weekly CPT within VA and found that intensive treatment resulted in higher treatment completion rates and greater reduction in PTSD symptoms (Weinstein et al., 2023).

CPT has been effectively delivered in as little as 1 week. An open trial of 24 trauma-exposed community members receiving twice daily CPT sessions for 5 days showed large reductions in PTSD and depressive symptoms (Held et al., 2022). In a case-controlled study ( $N = 12$ ) of survivors of intimate partner violence, those receiving 12 sessions of CPT in five days had similar symptom reductions as those receiving weekly CPT (Galovski et al., 2019). In the first RCT of massed CPT, 140 service members were randomized to 12 sessions of CPT delivered in 5 days in a combined group and individual format or 12-session individual CPT over 6 weeks

(Wachen et al., 2023). Preliminary results indicate non-inferiority of massed CPT and very low dropout rates.

### **Texting-Based CPT**

Alternative modes of treatment delivery may be needed to address barriers to therapy including stigma as well as work, school, and caregiving responsibilities (see Ramos et al. this issue). One promising alternative is asynchronous text messaging. In a non-randomized pilot to explore the feasibility and preliminary effectiveness of CPT delivered via text, “CPT-Text” was delivered via a commercial, HIPAA-compliant messaging platform and compared to a matched comparison sample receiving messaging therapy as usual (Stirman et al., 2021). CPT-Text resulted in greater improvement in PTSD and depression in fewer days than needed for clinically significant change in the messaging treatment as usual condition. CPT-Text is now being evaluated in a larger RCT.

### **Implementation**

Due to its effectiveness across settings and transportability, CPT has been formally implemented in many clinical settings and health systems. Training and consultation are standardized across North America and in other high-resource settings, comprising a 2-day workshop (with an option of an additional day for group CPT training) followed by 6 months of consultation with at least two training cases. Support for the effectiveness of the CPT training approach has been established through program evaluation and research. In one study, a workshop plus either group consultation involving detailed case discussion, group consultation with case discussion and review of audio segments, or delayed feedback on fidelity with no consultation were compared. PTSD symptom improvement was significantly better for patients treated by clinicians who received case consultation with no audio review (Monson et al., 2018). Consultation appeared to have a protective effect for therapists with lower self-efficacy (Pace et al., 2020), and elements of consultation that appeared to be most closely associated with better patient outcomes were discussions about how to use specific CPT strategies with individual cases (Swanson et al., 2021).

The largest dissemination of CPT has occurred in the ongoing rollout program in the United States VA starting in 2007. The initiative has created over 100 CPT trainers and has trained more than 11,000 clinicians, utilizing a regional trainer model (Healy et al., 2023). Data on practitioners' first cases have shown significant improvements in PTSD and depression scores in veterans who have experienced a wide variety of traumatic events.

CPT has also been implemented in the community using a Learning Collaborative framework, which involves supplementary training elements in addition to workshop and consultation, such as implementation support, monthly metrics, additional learning sessions, and team-based participation led by a senior leader with administrative authority to help integrate CPT into the practice (LoSavio, Dillon, Murphy, Goetz, et al., 2019). Program evaluation data from CPT Learning Collaboratives in the state of North Carolina have been associated with high rates of provider training completion, fidelity to the treatment protocol, large effect sizes, and high rates of sustainability post-training (LoSavio, Dillon, Murphy, Goetz, et al., 2019).

Learning Communities build on the workshop plus consultation model and include some of the elements of Learning Collaboratives, such as implementation support and access to additional training. The STRONG STAR Training Initiative trains community-based providers in CPT using the Learning Community framework, and their program evaluation data have demonstrated good outcomes at the patient and provider levels including high rates of adoption up to 1 year later (Dondanville et al. 2021; 2022). Through these training efforts, thousands of community-based mental health providers have received competency-based training in CPT and delivered care to patients with large effect sizes (Dondanville et al., 2022).

As CPT has spread more into routine care settings, data have shown that certain therapist factors can influence CPT outcomes. Overall, greater therapist fidelity to the treatment protocol (i.e., skillfully delivering core session elements) predicts greater symptom improvement (Farmer et al., 2017; Holder et al., 2018; Marques et al., 2019; Stirman et al., 2021). Therapist skill prioritizing “assimilated” stuck points (e.g., unrealistic beliefs about the cause of the event/its preventability) and Socratic dialogue have been linked to improved patient response (Farmer et al., 2017). Non-adherence and drift from the protocol is common (e.g., Finley et al., 2015). Therefore, remaining adherent should be a priority in implementation to achieve similarly strong outcomes as found in clinical trials and during training (LoSavio et al., in press). Other in-session therapist behaviors may also influence treatment completion. Coding session recordings of CPT+A, Alpert et al. (2023) found that more therapist use of Socratic dialogue and less encouragement of patient affect in session was associated with greater likelihood of completing treatment. Therapist expression of empathy did not predict symptom outcomes or completion.

Another therapist factor that may affect implementation are beliefs therapists hold about CPT (e.g., Hamblen et al., 2015; LoSavio et al., in press). While it is common to have doubts about a new treatment initially, among community clinicians in training for CPT, less reduction in therapist concerns during training were associated with less likelihood of completing competency-based training, and greater pre- and post-training concerns predicted less delivery of CPT post-training (LoSavio, Dillon, Murphy, & Resick., 2019).

### **The Future of CPT**

Despite decades of research on CPT, there continue to be many ongoing research studies to further refine, improve, adapt, and make CPT more efficient and accessible for as many patients as possible. Some key examples of ongoing and recently completed but unpublished studies follow, which will hopefully continue to further enhance the availability and effectiveness of CPT.

#### **Modified Delivery**

Nixon, Galovksi, and colleagues have used case formulation to address clinical challenges interfering with CPT by judiciously supplementing CPT with other techniques or via temporary divergence from CPT (Nixon & Bralo, 2019). Several trials in various stages of completion are testing this approach in civilian, first responder, and veteran samples. (Details can be found via these trial registries <https://www.anzctr.org.au/>, trials ACTRN12617000064303, ACTRN12619000503123, and <https://clinicaltrials.gov/>, NCT04407767).



CPT is also being tested as part of a stepped-care approach. In a recently completed study (Nixon & Roberts, 2023), participants received CPT if they did not respond to an initial low-intensity trauma-focused CBT intervention. Nixon and colleagues are analyzing the benefits and intervention delivery costs of this approach in a recently completed RCT (Trial registration ACTRN12620000624987). A similar trial comparing standard CPT vs. guided self-help CPT in a stepped-care condition is underway using the recently published CPT self-help book (Resick et al., 2023; Trial registration ACTRN12622001099718). Another ongoing effort to increase the efficiency of CPT with limited resources is to identify an optimized abbreviated version of CPT using a Multiphase Optimization Approach, which tests different combinations of CPT skills and worksheets in a 4-6-session course of treatment (Sripada et al., 2023).

### **Novel Populations and Settings**

Nixon and colleagues are in the final stages of an effectiveness trial that delivered CPT to youth (aged 14 – 25;  $N = 100$ ) in a routine community mental health service. Unlike a previous trial that involved a number of preparatory sessions prior to CPT (Rosner et al., 2019), this study demonstrates positive outcomes without modifications or additions to the protocol.

Several researchers have been testing CPT in criminal justice and correctional settings. CPT is being evaluated in an implementation-effectiveness trial as a group intervention in women's and men's correctional facilities (Zielinski et al., 2022). Formative work with staff and incarcerated persons suggests group CPT is acceptable to residents and meets their needs. Staff and stakeholder feedback supports CPT as congruent with the correctional facilities resources, programs, and culture. In addition, Koenigs and Monson (2022) are currently conducting an effectiveness study of group CPT in a US state prison system.

### **New Treatment Combinations**

Kuo and Monson (2020) are testing CPT with a safety protocol for those with comorbid PTSD and Borderline Personality Disorder. There are also several trials underway testing psychedelics to facilitate the tolerability and outcomes of CPT. Bruni & Wagner et al. (2023) are testing MDMA-facilitated CPT, and others are or will be testing psilocybin-facilitated CPT (Biscoe et al., 2023; Bhat & Monson, 2023). Both are testing massed dosing of CPT with one or two sessions of psychedelic administration at points in the CPT protocol timed to help facilitate the psychotherapy effects.

There is a novel integrated version of CPT, Treatment of Integrated Posttraumatic Stress and Substance Use (TIPSS) that marries CPT with elements of SUD treatments. Each session begins with a review of both substance use and PTSD symptoms and connections between PTSD and SUD are drawn. The intervention also includes functional analyses of substance use, coping with urges and cravings, and substance use refusal skills. Finally, substance triggers, consequences of use, relapse prevention, and non-substance-related activities are integrated into each session. Although the premise is promising, results are still pending regarding the acceptability, feasibility, and efficacy of this intervention (Vujanovic et al., 2018). CPT has also been piloted in a 10-session bi-weekly format in a residential setting for young people (aged 18-35) with PTSD and comorbid SUD (Walter et al., 2023), with promising results for PTSD and

substance use outcomes, and treatment gains were maintained at 1-year follow-up. A randomized trial using this approach is about to be initiated (Trial registration ACTRN12623001203640p).

### **Integration with Technology**

Monson and colleagues have put forth different ways in which artificial intelligence might be used in trauma-focused psychotherapy for PTSD (Zeifman et al., 2023). They have also developed machine learning models to specifically assess clinicians' fidelity to the CPT protocol. These models are more than 85% consistent with human ratings of treatment fidelity (Monson et al., 2023). They are working toward real-time aids to clinicians' quality delivery of CPT. Advances in Generative AI may facilitate support for clients to receive real-time support for practice between sessions as well.

### **Conclusions**

The last few decades have seen an explosion of research on CPT, and there is strong evidence that CPT is robust across a wide range of populations and settings and in various formats. Implementation efforts are ongoing to ensure the availability of this first-line, recommended treatment on the frontlines of healthcare. Research continues to advance our understanding of the best ways to deliver CPT to maximize outcomes with minimum dropout and maximum transportability.

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#### **Conflict of Interest statement:**

Drs. Resick, Monson, and Chard receive royalties from the CPT therapist manual. Drs. Resick, Wiltsey Stirman, and LoSavio receive royalties from the CPT self-help book. Drs. Nixon, and Kaysen receive royalties from the flexible applications of CPT book while Dr. Galovski reports COI for intellectual property only. Drs. Resick, Chard, Monson, LoSavio, Galovski, Nixon, Kaysen, and Wachen receive training/consulting fees for CPT.